Faster Payments QIAT

Proposer:
North American Banking Company and
Independent Community Bankers of America

February 21, 2017

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FASTER PAYMENTS PROPOSAL

PERSONAL PAYMENTS APP
AND PAYMENTS DIRECTORY

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APRIL 30, 2016
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Background

Strategy 2 of the Federal Reserve’s *Strategies for Improving the U.S. Payment System* paper is to “Identify effective approach(es) for implementing a safe, ubiquitous, faster payments capability in the United States.” The Faster Payments Task Force was created to support this strategy and has designed the Faster Payments Effectiveness Criteria (Effectiveness Criteria) and process for assessing alternative faster payments proposals. The Effectiveness Criteria is consistent with Strategy 2, as well as the broader set of “desired outcomes” set out in the Federal Reserve’s Strategies paper. These desired outcomes include:

**Speed:** A ubiquitous, safe, faster electronic solution(s) for making a broad variety of business and personal payments, supported by a flexible and cost-effective means for payment clearing and settlement groups to settle their positions rapidly and with finality.

**Security:** U.S. payment system security remains very strong, public confidence remains high, and protections and incident response keep pace with the rapidly evolving and expanding threats.

**Efficiency:** Greater proportion of payments originated and received electronically to reduce the average end-to-end (societal) costs of payment transactions and enable innovative payment services that deliver improved value to consumers and businesses.

**International:** Better choices for U.S. consumers and businesses to send and receive convenient, cost-effective and timely cross-border payments.

**Collaboration:** Needed payment system improvements are *collectively* identified and embraced by a broad array of payment participants, with material progress in implementing them.

All proposals submitted through the Task Force’s assessment process will be assessed against the Effectiveness Criteria to determine how well solutions can achieve the desired outcomes associated with improving the U.S. payments system.

The following proposal by North American Banking Company and the Independent Community Bankers of America (ICBA) is submitted as part of this process.
Executive Summary

The Independent Community Bankers of America (ICBA) and North American Banking Company have developed a faster payment solution that achieves the two objectives of the Faster Payments Task Force: 1) it has been tested to meet consumers’ requirements for convenience, simplicity and security, and 2) it aligns with the goals of the Faster Payments Task Force to achieve a safe, ubiquitous and faster payments capability in the United States.

The proposed solution has two primary components:

1. **All Payments App**: The All Payments App is a mobile application that financial institutions can white-label and offer to their customers to originate secure transactions that clear and settle through the ACH network using Same Day ACH credit push. The app is secure, intuitive and easy to use. It also has the security, surety, record keeping and other critical elements that accrue to any payment made by ACH credit. It uses existing processes and rules where possible but extends them in a way to ensure flexibility while maintaining security, openness and competition.

2. **Payments Directory**: The Payments Directory facilitates the payment made with the All Payments App by mapping a participant’s email address or a unique alias identification to financial institution routing information. The directory is interoperable with other faster payment solutions, enables ubiquity, and eliminates the need for payers to know recipients’ sensitive (personally identifiable) information.

Together, the **All Payments App** and the **Payments Directory** leverage the vastness and connectivity of the ACH network and achieve the two critical success factors: security and convenience. Security safeguards include state-of-the-art security functionality built into the app’s design and the use of the ACH network. The All Payments App also offers 24/7 mobile access on any device and is offered by the user’s financial institution, which offers convenient customer support. It also accelerates adoption by using existing infrastructure and technology, such as the ACH network and onboard mobile security.

Our proposal is based on the mutual interests of financial institutions and consumers. The system has been developed, tested, and deployed and is ready for broader utilization. Moreover, it offers a self-funding growth plan to promote widespread implementation as the mobile-based faster payments solution for the United States.
Use Case Coverage

### Supported Use Case Coverage Summary

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Supported (Y/N)</th>
<th>Cross-border (Y/N)</th>
<th>Examples of payments supported</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business to Business (B2B)</td>
<td>N</td>
<td>N</td>
<td>Currently does not apply</td>
<td>This use case is expected to grow with expanded distribution of the All Payments App intended for B2B use.</td>
</tr>
<tr>
<td>Business to Person (B2P)</td>
<td>Y</td>
<td>N</td>
<td>The solution may be used by businesses to process payments to individuals for recurring items such as payroll or ad hoc payments such as bonuses, commissions, expense reimbursements, or payments for insurance claims.</td>
<td>The solution enables businesses to send regular or ad hoc payments to a majority of their employees by making the app available to them from an FI currently offering it, as well as connecting with other FIs as ubiquity is achieved.</td>
</tr>
<tr>
<td>Person to Business (P2B)</td>
<td>Y</td>
<td>N</td>
<td>This solution allows P2B payments to be initiated by a consumer to a business via an online/web authorization, mobile authorization (via SMS or a mobile app), or in-store via technology such as RFID or NFC communication.</td>
<td>Current implementation limits transactions to $1,000. Each sending FI defines velocity and transaction limits. The solution enables businesses to accept consumer-initiated payments for purchases of merchandise or bill payments for single or recurring bills.</td>
</tr>
<tr>
<td>Person to Person (P2P)</td>
<td>Y</td>
<td>Y</td>
<td>The solution is used to initiate P2P payments via a mobile app or SMS message. As the directory grows and achieves ubiquity, payments can be sent to a growing number of recipients. The growth phases include: Level 1- Users who bank at the same institution. Level 2- Users who bank at two different institutions that both participate in the scheme. Level 3- Users who participate in two different payments schemes and are connected via the Payments Directory. Future phases of the solution allow for SMS text notifications notating the purpose of the payment to be sent from the Originator to the Recipient</td>
<td>The solution enables P2P payments to a growing number of accounts as the directory grows.</td>
</tr>
</tbody>
</table>
## Cross-border Use Case Coverage

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Non-US Corridor(s) and Systems</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business to Business (B2B)</td>
<td>Not presently applicable</td>
<td>Not currently implemented. The system can be expanded to include IAT transactions via if ACH when the customer demand arises.</td>
</tr>
<tr>
<td>Business to Person (B2P)</td>
<td>Not presently applicable</td>
<td>Not currently implemented. The system can be expanded to include IAT transactions via if ACH when the customer demand arises.</td>
</tr>
<tr>
<td>Person to Business (P2B)</td>
<td>Not presently applicable</td>
<td>Not currently implemented. The system can be expanded to include IAT transactions via if ACH when the customer demand arises.</td>
</tr>
<tr>
<td>Person to Person (P2P)</td>
<td>Limited present applicability</td>
<td>P2P payments where one party’s enrolled All Payments App account was at a foreign branch of a participating U.S. FI in an IAT country.</td>
</tr>
</tbody>
</table>
Proposal Assumptions

The key assumption of the proposed faster payments solution is the continued operation of the ACH network with its robust features, high level of security, capability to reach almost every financial institution, its existing rules, and a rule-making process regarding faster payments.

The second important assumption is that the Payments Directory described in this proposal will be developed and implemented either by bank, a group of banks, a multi-bank servicing organization such as the Federal Reserve and/or The Clearing House.

A third assumption is that a sufficient number of financial institutions will choose to participate by making the All Payments App available to their customers.

The proposers assert that there is a high likelihood that these three assumptions will be met and the faster payments scheme will grow rapidly.
Part A: Detailed End-to-End Payments Flow Description

Section 1: Solution Description

The All Payments App has been designed to facilitate end-to-end payment transactions, including: initiation, authentication, payer authentication, approvals by the payer’s provider, clearing, receipt, settlement and reconciliation, shown in Figure 1.

In addition to these eight stages of a payment, the solution also addresses a number of Faster Payments criteria:

- U.1 (Accessibility)
- U.2 (Usability)
- U.3 (Predictability)
- U.4 (Contextual data capability)
- U.5 (Cross-border functionality)
- U.6 (Applicability to multiple use cases)
- E.4 (Payment format standards)
- E.7 (Exceptions and investigations process)
- S.2 (Payer authorization)
- S.3 (Payment finality)
- S.4 (Settlement approach)
- S.5 (Handling disputed payments)
- S.6 (Fraud information sharing)
- S.7 (Security controls)
- S.9 (End-user data protection)
- S.10 (End-user /provider authentication)
- F.1 (Fast approval)
- F.2 (Fast clearing)
- F.3 (Fast availability of good funds to payee)
- F.4 (Fast settlement among depository institutions and regulated non-financial institution account providers)
- F.5 (Prompt visibility of payment status)

The three scenarios below show phases of implementation in the evolution of the All Payments App lifecycle.

- Level 1 – Both parties use accounts at the same financial institution, which is a participant in the All Payments App scheme, or both parties have the All Payments App on their mobile devices, but use accounts at different financial institutions
- Level 2 – The parties’ accounts are at different financial institutions. Both financial institutions participate in the All Payments App (Figure 2)
- Level 3 - Each party participates in different, compatible, faster payments schemes and are connected by the Payments Directory

**Figure 2: All Payments App Used between Two Financial Institutions**
1. Initiation

Initiation is the start of the payment process, beginning with a set of prerequisite steps made through a user’s participating financial institution. In this example, the payer completes the prerequisite process of loading the All Payments App and creating a payment, as shown in Figure 3 below.

Figure 3: Initiation

In addition, the Initiation stage of a payment also addresses a number of Faster Payments criteria:

- U.1 (Accessibility)
- U.2 (Usability)
- U.3 (Predictability)
- U.4 (Contextual data capability)
- U.5 (Cross-border functionality)
- U.6 (Applicability to multiple use cases)
- E.4 (Payment format standards)
- S.7 (Security controls)
- S.9 (End-user data protection)

Payment processing involves multiple stakeholders, which are defined as parties affected by an action. Table 1 shows a stakeholder matrix that demonstrates the same process in a more detailed format. These stakeholders will be used in the remainder of this document.
Table 1: Stakeholders Involved in the Payment Process

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Role</th>
<th>Available Actions</th>
<th>Payment Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payer</td>
<td>Authenticated User of the All Payments App</td>
<td>• Make a payment&lt;br&gt;• Create/Edit/Remove a payee&lt;br&gt;• Edit profile&lt;br&gt;• Review All Payments App history</td>
<td>Send payment</td>
</tr>
<tr>
<td>Financial Institution</td>
<td>Financial Institution</td>
<td>• Processing payment&lt;br&gt;• Transaction history&lt;br&gt;• Payee confirmation for All Payments App</td>
<td>Processing payment</td>
</tr>
<tr>
<td>Payee</td>
<td>Authenticated User of the All Payments App</td>
<td>• Receive a payment&lt;br&gt;• Create/Edit/Remove a contact&lt;br&gt;• Edit profile&lt;br&gt;• Review All Payments App History</td>
<td>Receives payment</td>
</tr>
</tbody>
</table>

With the All Payments App, there are a few prerequisites to initiation. First, the financial institution’s customer is invited or requests the ability to participate in the program. Once approved, the financial institution provides instructions for downloading the app and may leverage existing application distribution solutions. Once the application is installed on a device, the process is very straightforward:

- **Step 1** – The user accesses his or her participating financial institution’s website where the application can be downloaded securely to their device.
- **Step 2** – Once the application is loaded, the mobile device operating system can request access to contacts, location and cellular data.
- **Step 3** – The application prompts the user to enter a name, email address, mobile number, account to be used for payments, and a password/passcode for security.
- **Step 4** – Confirmation from the user’s participating financial institution is obtained when the application is initially setup.

Level 1 will be used as the baseline for illustrating the detailed end-to-end payments flow description.

**NOTE:** Differences between Level 1, Level 2 and Level 3 will be noted in each section but not illustrated.
Level 1 – Both parties use accounts at the same financial institution, which is a participant in the All Payments App.

Figure 4 show the process, which is a prerequisite to the entire payment process (P2P, P2B and B2P).

**Figure 4: Prerequisites to Payment Request**

<table>
<thead>
<tr>
<th>Prerequisites to Payment Request (P2P, P2B, B2P)</th>
</tr>
</thead>
</table>

Step 1 – The user selects the participating financial institution’s All Payments App and downloads the application.

Step 2 – Once downloaded, the application setup process begins.

Step 3 – A confirmation from the financial institution confirms that the application is fully functional.

Level 2 – If both parties have the All Payments App on their mobile devices but use accounts at different financial institutions, this prerequisite would be required since the user would still make the payment via the All Payments App.

Level 3 – Each party participates in different, compatible faster payments schemes and is connected by the Payments Directory. Level 3 does not play a role in initiation but enables interoperability and
FASTER PAYMENTS PROPOSAL

settlement among other payment solutions and eliminates the need for financial institutions to develop multiple faster payment solutions.

The All Payments App scheme processes payments between users as credit push transactions, which reduces fraud and counter-party failure concerns. The following process enables a payer to send payments via the All Payments App. (Person to Person (P2P) and Person to Business (P2B) follow the same process.)

Step 1 – Login into the All Payments App using the passcode (entered during prerequisites phase)
Step 2 – A user can select one of three services:

**Service 1:** Create Contact – Create a payee contact with the appropriate account and financial institution information for sending a payment
  - Step 3 – Enter a payee user name
  - Step 4 – Enter the payee’s mobile number
  - Step 5 – Enter the financial institution’s account number
  - Step 6 – Select a participating financial institution from the on-app table
  End

**Service 2:** Create Payment – Create the specific details for a payment (e.g., payee, amount, frequency, date)
  - Step 3 – Select a payee
  - Step 4 – Enter an amount
  - Step 5 – Select frequency of payment
    - One-time payment
    - Daily payment
    - Weekly payment
    - Monthly payment
  - Step 6 – Enter date
  - Step 7 – Confirm payment
  - Step 8 – Enter device security passcode to complete the payment request
  - Step 9 – Financial institution sends confirmation email
  - Step 10 – Financial institution leverages payment network (currently ACH) to complete payment
  End

**Service 3:** View History – View all payment history for the All Payments App
  - Step 1 – View history
  End
Figure 5: Initiation Process (P2P, P2B)

Level 2, where both parties have the All Payments App on their mobile devices, but use accounts at different financial institutions would follow the same process as Level 1. The communication process between financial institutions may vary but would be acceptable to their respective customers.
Level 3, where each party participates in different, compatible faster payments schemes and are connected by the central Payments Directory, would follow the same process as Level 1, however, at the point the where a payee’s contact is setup there could be a selection for “look-up user in Payments Directory” to complete the Contact setup.

**Business to Person (B2P)** scheme leverages existing processes to complete a B2P payment (process may vary by financial institution, but would be acceptable to their respective customers).

Step 1 – Financial institution identifies the payee  
Step 2 – Financial institution creates a payment to payee  
Step 3 – Payment is processed using existing rails (ACH) process  
Step 4 – Payee’s participating financial institution will note the payment in the payee’s statement  
Step 5 – End
Level 2, where both parties have the All Payments App on their mobile devices, but use accounts at different financial institutions, would not apply to this section since there is only one user with the All Payments App.

Level 3, where each party participates in different, compatible faster payments schemes and are connected by the central Payments Directory, would follow the same process as Level 1. However, at the point the where a financial institution or user needs routing information, a query would be sent to the Payments Directory.
Business to financial institution leverages existing processes to complete a B2B payment

   Step 1 – Financial institution identifies the payee
   Step 2 – Financial institution creates a payment to payee
   Step 3 – Payment is processed utilizing existing rails (ACH) process
   Step 4 – Payee’s participating financial institution will note the payment in the payee’s statement
   Step 5 – End
Level 2, where both parties have the All Payments App on their mobile devices, but use accounts at different, financial institutions would not apply to this section since there no person in this process.

Level 3, where each party participates in different, compatible faster payments schemes and is connected by the central Payments Directory, would follow the same process as Level 1. However, at the point the
where a financial institution or user needs routing information, a query would be sent to the Payments Directory.

**U.1 (Accessibility - The Solution should enable any Entity (e.g., consumer, business, government agency, or financial institution) to initiate and/or receive payments to/from any Entity consistent with applicable legal restriction. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

Consumer accessibility is addressed through the All Payments App interface (Figure 8), which is currently demonstrated in an iOS format. It is highly accessible due to its inherent design, the ease with which it can be obtained by downloading the app, and its close integration with the ACH system which itself is highly accessibility.

**Figure 8: All Payments App Login and Payment screens**

![All Payments App Login and Payment screens](image)

Accessibility for businesses, financial institutions and government agencies will be achieved through the use of the Payments Directory and will allow the reuse of existing rails processes currently in place.

**U.2 (Usability means that the Solution should provide a straightforward and simple end-user experience and be available anytime, anywhere, any way, using a variety of access points. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

The usability of the All Payments App is achieved by simplicity and clarity in each step of the payment process-- from selecting a contact and entering a payment amount to confirming the payment of funds. The screens are uncluttered and the user is given a high degree of confidence that the payment process is working through payment confirmation emails.
Figure 9: All Payments App User Interface

- An on-app table and Payments Directory are the basis for secure routing of transactions extending usability to customers of all participating financial institutions, even those participating in competing faster payments schemes.
- The software is highly scalable and further enhances usability. The employment of commercial software ensures both the quality and the automatic upgrading of the base software platform. The All Payments App scheme operates on any:
  - mobile smartphone; current implementation uses iOS operating system;
  - mobile on-board security protocol, including fingerprint or other biometric identification;
  - existing mobile equipment and wireless networks, near-field communication and Bluetooth; and
  - existing payments networks, including ACH, wire, and dual-message card transaction. Current implementation uses ACH only.

U.3 (Predictability means that the solution should have a reliable and standard end-user experience for its baseline features. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria) Once a payer has setup a payee, the payer is assured that subsequent payments to this payee will follow the same path, thus greatly curtailing human error in payment initiation.

Tests with non-technical users who were provided only a simple one-time demonstration prove that most customers can adapt to the system quickly and perform subsequent transactions with ease.
U.4 (Contextual data capability means that the solution should support the transfer or association of relevant information needed by end-users. Such information describes the reason for, or is otherwise related to the funds transfer, as appropriate to the use case. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

The All Payments App has the capability to log a payment made to a contact at a specific time. Additional payment information is collected through the financial institution during standard transaction processing (see Figure 10).

**Figure 10: History**

![Payment History](image)

By using the contextual capabilities of mobile connected devices, the system will be able to participate in transactions using the extensive information capabilities of the ACH network. The system’s portability makes it ideal for delivery dockside confirmation of goods arrival and for letter of credit transactions as payment for delivered goods, and can be initiated safely.

U.5 (Cross-border functionality means that the solution should enable convenient, cost-effective, timely, secure and legal payments to and from other countries. Ratings are in Self-Assessment Against Effectiveness Criteria)

Currently, the system is being used for domestic transactions. Expansion to cross-border payments is accomplished by using the system to initiate ACH transactions using the IAT Standard Entry Class code (see Figure 11).

This service provides cross-border functionality and uses the Federal Reserve’s FedGlobal Service. Business practices and rules for transactions between participating countries is essentially pre-installed.
Figure 11: International Process

U.6 (Applicability to multiple use cases means that the solution should support payments in multiple use cases, and should demonstrate its ability to be extensible and flexible to additional payment use cases in the future. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

The All Payments App scheme is extremely extensible and flexible in its design by leveraging the latest in mobile application technology and the existing ACH process which meets the following uses cases and improves their features and services to other areas in business.

The following use cases are demonstrated in Part A Section 2 – Use Case Descriptions: P2P; P2B (e.g. merchant, bill payment); B2P (such as payroll distribution); and B2B (small scale, where the complexity of the use case or the necessity to provide documentation with the payment such as a letter of credit is not part of the B2B use case).

E.4 (Payment format standards means that the solution should be interoperable with current payment format standards (e.g., ISO 20022) and adaptable to future needs and standards. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

The payment formats used by the All Payments App follow established ACH record formats. The ACH network has been in operation for over 40 years and the record formats are widely recognized and adopted.
**S.7 (Security controls means that the solution has layered and robust technical, access, operational, procedural, and managerial controls to address and foster security, including but not limited to the integrity and protection of confidential, private and sensitive data. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

The All Payments App provides the user with a passcode challenge response when the user accesses the application from the mobile device. Also, the device performs a challenge response request at the point of payment with a final approval prior to committing a payment request to the financial institution. In addition to the login being device-specific, the access control features are easy to use with big buttons and large, clear text instructing the user throughout the process.

Passcodes are used for user authentication to the application and the device operating system security is used to confirm payment requests.

**S.9 (End-user data protection means that the Solution should have controls and mechanisms to prevent the unintended exposure of end-user data. End-user data, both digital and physical, should be protected in transit and at rest, before, during, and after a transaction, so that it is not exposed in-the-clear. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

The All Payments App includes Passcode security for accessing the application as well as iOS security to ensure that a payment is secured.

- iOS has inherent security for accessing the device.
- Masked passcode for access the All Payments App within the device.
- iOS security is leveraged for confirming a payment.

All contact and payment history data is masked for security within the device itself and cannot be read through clear text. In addition to the device security, the All Payments App will leverage the security protocols established by the participating financial institution and existing ACH security rules.
2. Authentication

The All Payments App end-user identity is created by performing the prerequisites mentioned in Section 1 of Part A. This section focuses on the security features associated with authentication, including protecting sensitive information. In addition, the Initiation stage of a payment, the following have been identified as strengths of the solution in relation to a number of Faster Payments criteria:

- U.2 (Usability)
- U.3 (Predictability)
- S.7 (Security controls)
- S.9 (End-user data protection)
- S.10 (End-user/provider authentication)

Level 1 will be used as the baseline for illustrating the detailed end-to-end payments flow description. Differences between Level 1, Level 2 and Level 3 will be noted in each section but not illustrated.

The scheme processes payments between users as credit push transactions, which reduces concerns related to fraud and counter-party failure. The following process enables a payer to send payments via the All Payments App:

Person to Person (P2P), Person to Business (P2B), Business to Person (B2P) and Business-to-Business (B2B) will follow the same process as noted below and per the illustration.

- User Identity – Secured in All Payments App through masking.
- Device Access – Uses iOS device security.
- Application Access – User credentials for application access are securely masked in the All Payments App.
- Payment Submission – Payment credentials are secured by leveraging the iOS security framework.
- Business and financial institution access and authentication – Leverages existing solution to enable extensibility and flexibility with changes in payments security, thereby protects the service the technology provider’s reputation is attached to.
Figure 12: Authentication Process


- **Start**
- Business identifies payee
- Submit payment to payee (via bank)
- Account verification and validation
- User Action
- Bank
- Authentication

**Legend**

- Business
- Bank
- Authentication

**Flowchart Details**

1. Business identifies payee
2. Submit payment to payee (via bank)
3. Account verification and validation
4. Payment is prepared by bank
5. Payment is received by bank
6. Bank statement
7. End
Level 2, where both parties have the All Payments App on their mobile devices, but use accounts at different financial institutions, would follow the same process as Level 1. The Authentication process may vary with the financial institution, but would be what each participating financial institution’s customers find acceptable.

Level 3, where each party participates in different, compatible faster payments schemes and are connected by the central Payments Directory, would follow the same process as Level 1.

U.2 (Usability means that the Solution should provide a straightforward and simple end-user experience and be available anytime, anywhere, any way, using a variety of access point. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

- The usability of the All Payments App is achieved by simplicity and clarity in each step of the Authentication process: from accessing the All Payments App to entering a payment and confirming the payment of funds. The Authentication process is uncluttered and the user is given a high degree of confidence that the payment process is working through payment confirmation emails.
- An on-app table and central Payments Directory are the basis for secure routing of transactions extending usability to customers of all participating financial institutions, even those participating in competing faster payments schemes.
- The software is highly scalable in both directions and further enhances authentication usability. The employment of commercial software ensures both the quality and the automatic upgrading of the base software platform. The All Payments App scheme operates on any:
  - mobile smartphone; current implementation uses iOS operating system;
  - mobile on-board security protocol, including fingerprint or other biometric identification;
  - existing mobile equipment and wireless networks, NFC, and Bluetooth; and
  - existing payments networks, including ACH, wire, and dual-message card transaction.
  Current implementation uses ACH only.

U.3 (Predictability means that the Solution should have a reliable and standard end-user experience for its baseline features. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

Once a payer has setup the All Payments App and created the initial password and payment passcode the user can be assured that subsequent authentication challenges will follow the same path, thus greatly reducing security risks in the payment process.

Tests with non-technical users who were provided only a simple one-time demo have demonstrated that average financial institution customers can easily learn to use the system.

S.7 (Security controls means that the Solution has layered and robust technical, access, operational, procedural, and managerial controls to address and foster security, including but not limited to the integrity and protection of confidential, private and sensitive data. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

The All Payments App provides the user with a request to authentication, by use of the passcode the user is able to the application from the mobile device. The device performs a challenge response request at the point of payment with a final approval prior to committing a payment request to the financial
institution. In addition to the login being device-specific, the previously mentioned access control features are easy to use with big buttons and large, clear text instructing the user throughout the process.

S.9 (End-user data protection means that the Solution should have controls and mechanisms to prevent the unintended exposure of end-user data. End-user data, both digital and physical, should be protected in transit and at rest, before, during, and after a transaction, so that it is not exposed in-the-clear. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

All Payments App includes passcode security for accessing the application as well as iOS security to ensure that a payment is secured:

- iOS has inherent security for accessing the device;
- masked passcode for access the All Payments App within the device; and
- iOS security is leveraged for confirming a payment.

All contact and payment history data is masked for security within the device itself and cannot be read through clear text. In addition to the device security the All Payments App will leverage the security protocols established by the participating financial institution and existing ACH security rules.

S.10 (End-user/provider authentication – The level of end-user/provider authentication would vary with the financial institution, but would be what each participating financial institution’s customers find acceptable. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

The All Payments App performs end-user/provider authentication through several methods using its own level of security and device level security. Provider authentication will be accomplished through existing ACH processes; a new authentication process for providers is not required.
3. Payer Authorization

The All Payments App payer authorization process is for the end-user to enter a passcode confirming they wish to make a payment then they will be prompted to confirm the payment prior to the payment being sent to a participating financial institution.

Revoking a payment will require the assistance of participating financial institution to ensure the payment is not processed. Pre-authorization and changing of relevant parameters for pre-authorization will follow existing processes which may vary with the financial institution, but would be what each participating financial institution’s customers find acceptable. In addition, the Initiation stage of a payment, the following have been identified as strengths of the solution in relation to a number of Faster Payments criteria:

- U.2 (Usability)
- U.3 (Predictability)
- S.7 (Security controls)
- S.9 (End-user data protection)
- S.10 (End-user /provider authentication)

Figure 13 illustrates the process flow for payer authorization for P2P and P2B. B2P and B2B would follow existing payer authorization processes.
Level 2, where both parties have the All Payments App on their mobile devices, but use accounts at different financial institutions would follow the same process as Level 1. The payer authorization process may vary with the financial institution, but would be what each participating financial institution’s customers find acceptable.
Level 3, where each party participates in different, compatible faster payments schemes and are connected by the central Payments Directory would follow the same process as Level 1 for payer authorization.

**U.2 (Usability means that the Solution should provide a straightforward and simple end-user experience and be available anytime, anywhere, any way, using a variety of access points. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**
The All Payments App simplistically payer authorization process in the payments area offers the user the ability to “double-check” their payment information prior to committing to the payment process. The screens are uncluttered and the user is given a high degree of confidence that the payment process is working through payment confirmation emails.

**U.3 (Predictability means that the Solution should have a reliable and standard end-user experience for its baseline features. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**
Once a payer has setup a payment and has confirmed through the All Payments App that the information they entered is correct, then the payer authorization process is complete on the end-user’s side, financial institution portion of a payer’s authorization and pre-authorization will remain as they are today. The payer is assured that subsequent payments through this process will follow the same path, thus greatly curtailing human error in payer authorization process.

**S.2 (Payer authorization. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**
The All Payments App payer authorization process is accomplished through the Confirmation process and the existing financial institution authorization processes.

**S.7 (Security controls for Payer Authentication. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria).**
The All Payments App payer authorization process uses a two-step process where the end-user must provide a passcode to create a payment and confirm they wish to make a payment. Payer authorization for B2B and B2P will follow existing process and practices for authorization.

**S.9 (End-user data protection means that the Solution should have controls and mechanisms to prevent the unintended exposure of end-user data. End-user data, both digital and physical, should be protected in transit and at rest, before, during, and after a transaction, so that it is not exposed in-the-clear. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**
All Payments App includes Passcode security for accessing the application as well as iOS security to ensure that a payment is secured:

- iOS has inherent security for accessing the device;
- masked passcode for access the All Payments App within the device; and
- iOS security is leveraged for confirming a payment.

All contact and payment history data is masked for security within the device itself and cannot be read through clear text. In addition to the device security, the All Payments App will leverage the security protocols established by the participating financial institution and existing ACH security rules to securely complete a payer authorization.
4. Approval by the Payer’s Provider

The All Payments App receives an approval by the payer’s providers upon a successful completion of the payment request/funds validation which is shown on payer’s All Payments App. The participating financial institution would generate an approval only once the payment is approved by the financial institution to be processed, as shown in the Figure 14.

In addition, the Initiation stage of a payment, the following have been identified as strengths of the solution in relation to a number of Faster Payments criteria:

- S.3 (Payment finality)
- S.7 (Security controls)
- S.9 (End-user data protection)
- F.1 (Fast approval)
- F.2 (Fast clearing)

This is illustrated in Figure 14 below.
Level 2, where both parties have the All Payments App on their mobile devices, but use accounts at different financial institutions would follow the same process as Level 1. The approval by payer’s
provider process may vary with the financial institution, but would be what each participating financial institution’s customers find acceptable.

Level 3, where each party participates in different, compatible faster payments schemes and are connected by the central Payments Directory would follow the same process as Level 1 for the approval by payer’s provider.

**S.3 (Payment finality in the context of approval by the payer’s provider Authentication. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

Once the Payment is completed and the payee receives confirmation by email and in the All Payments App History, the payment is considered complete.

**S.7 (Security controls finality in the context of approval by the payer’s provider authentication. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

The All Payments App uses existing financial institution security and efficiencies to produce an approval to the payer. The application will store the payment approval in the payment history and can be viewed at any time by the end-user.

**S.9 (End-user data protection means that the Solution should have controls and mechanisms to prevent the unintended exposure of end-user data. End-user data, both digital and physical, should be protected in transit and at rest, before, during, and after a transaction, so that it is not exposed in-the-clear. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

All payment history data is masked for security within the device itself and cannot be read through clear text. In addition to the device security, the All Payments App will leverage the security protocols established by the participating financial institution and existing ACH security rules to securely complete the approval to the payer.

**F.1 (Fast approval in the context of approval by the payer’s provider authentication, Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria).**

The All Payments App uses the mobile devices connection to the internet to process the payment and gain a fast approval of the payment. The mobile network as well as leveraging existing high speed banking platforms allow the All Payments App to receive approval form the payer’s provider in record time.

**F.5 (Prompt visibility of payment status in the context of approval by the payer’s provider Authentication. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

The All Payments App provides the payee with a visual representation of the payment and its approval by the provider. The history portion (Figure 15) of the application retains this information securely.
5. Clearing

The process for the exchange of relevant payment information between a payer’s and a payee’s providers (financial institution or regulated non-financial institution account provider) uses existing processes, so no change is required to the existing solution. This includes payment format (message) standards used, the necessary communication processes, and how long the clearing process will take from the point of completion of payment initiation completed through leveraging the highly secure and reliable solution that exists today in FIs.

In addition, the Initiation stage of a payment, the following have been identified as strengths of the solution in relation to a number of Faster Payments criteria:

- E.4 (Payment format standards)
- S.7 (Security controls)
- S.9 (End-user data protection)
- F.2 (Fast clearing)

Level 2 and Level 3 would both follow this process for clearing.

**E.4 (Payment format standards. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

Existing payment format standards are used in clearing, therefore no change is necessary for successful processing of All Payments App payments.
S.7 (Security controls in the context of clearing standards. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Existing security controls are used in clearing, therefore, no change is necessary for successful processing of All Payments App payments.

S.9 (End-user data protection in the context of clearing. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
End-user data protection in the context of clearing will leverage existing processes and rules to ensure the successful processing of All Payments App payments.

F.2 (Fast clearing in the context of clearing. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Fast clearing is accomplished by leveraging the existing financial institution clearing processes.

6. Receipt
The Receipt is visible to the payer on their device once the payment is submitted and then through a confirmation email from the participating financial institution once the payment is completely processed. The payee will be provided a receipt from their participating financial institution by way of a statement, as shown in the following Figure 16.

In addition, the Initiation stage of a payment, the following have been identified as strengths of the solution in relation to a number of Faster Payments criteria:

- U.1 (Accessibility)
- U.2 (Usability)
- U.3 (Predictability)
- U.6 (Applicability to multiple use cases)
- S.5 (Handling disputed payments)
- S.7 (Security controls)
- S.9 (End-user data protection)
- F.3 (Fast availability of good funds to payee)
- F.5 (Prompt visibility of payment status)

The All Payments App leverages the existing security process for receipt processing and delivery.
Level 2, where both parties have the All Payments App on their mobile devices, but use accounts at different financial institutions, would follow the same process as Level 1.

Level 3, where each party participates in different, compatible faster payments schemes and are connected by the Payments Directory, would follow the same process as Level 1.
U.1 (Accessibility - The Solution should enable any entity (e.g., Consumer, business, government agency, or financial institution) to initiate and/or receive payments to/from any Entity consistent with applicable legal restriction. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Receipt accessibility is addressed by the All Payments App History and email confirmation that is sent once the payment is processed successfully. The documentation contained in the receipt would vary by financial institution but can be assumed to meet the accessibility requirements of each financial institution’s customers.

U.2 (Usability means that the Solution should provide a straightforward and simple End-User experience and be available anytime, anywhere, any way, using a variety of access points. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
The All Payments App displays transaction history and payment confirmation information clearly and precisely via the user interface on the device.

U.3 (Predictability means that the Solution should have a reliable and standard end-user experience for its baseline features. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
The All Payments App has several means of ensuring predictability of the receipt. The end-users statement, All Payments App history, and email confirmation will serve as the means in which a receipt is provided.

U.6 (Applicability to multiple use cases means that the Solution should support payments in multiple use cases, and should demonstrate its ability to be extensible and flexible to additional payment use cases in the future. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
The All Payments App receipt can be seen in several contexts, end-users statement, All Payments App history, and email confirmation. Payment receipts will vary by financial institution but can be assumed to meet the fast availability of good funds to payee requirements of each financial institution’s customers.

S.5 (Handling disputed payments in the context of receipt. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria).
The All Payments App will leverage existing processes for disputes.

S.7 (Security controls means that the Solution has layered and robust technical, access, operational, procedural, and managerial controls to address and foster security, including but not limited to the integrity and protection of confidential, private and sensitive data. Ratings are in Self-Assessment Against Effectiveness Criteria)
The All Payments App security controls are used to provide a secure manner in which the payment receipt can be viewed in the All Payments App history and the end-users email (setup during prerequisites).
S.9 (End-user data protection means that the Solution should have controls and mechanisms to prevent the unintended exposure of end-user data. End-user data, both digital and physical, should be protected in transit and at rest, before, during, and after a transaction, so that it is not exposed in-the-clear. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
End-user data protection is inherent in the application by masking of the All Payments App history and through existing financial institution security processes.

F.3 (Fast availability of good funds to payee in the context of receipt. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Fast availability of good funds to payee is maintained through leveraging the existing financial institution processes and would vary by financial institution but can be assumed to meet the fast availability of good funds to payee requirements of each financial institution’s customers.

F.5 (Prompt visibility of payment status in the context of receipt. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Prompt visibility of payment status is maintained through leveraging the existing financial institution processes and would vary by financial institution but can be assumed to meet the prompt visibility of payment status requirements of each financial institution’s customers.
7. Settlement

Settlement for the All Payments App is completed by financial institutions and thereby offers the protection of regulated, examined institution.

In addition, the Initiation stage of a payment, the following have been identified as strengths of the solution in relation to a number of Faster Payments criteria:

- S.4 (Settlement approach)
- S.7 (Security controls)
- S.9 (End-user data protection)
- F.4 (Fast settlement among depository institutions and regulated non-financial institution account providers)

Level 2 and Level 3 will follow the same process for Settlement.

S.4 (Settlement approach. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Settlement is addressed through existing financial institution processes.

S.7 (Security controls. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Security controls are maintained through leveraging the existing financial institution processes.

S.9 (End-user data protection. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
End-user data protection is maintained through leveraging the existing financial institution processes.

F.4 (Fast settlement among depository institutions and regulated non-financial institution account providers. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Fast settlement among depository institutions and regulated non-financial institution account providers is maintained through leveraging the existing financial institution processes.
8. Reconciliation

Reconciliation is done by financial institutions and thereby protects the service the technology provider’s reputation that the service is attached to.

In addition, the Initiation stage of a payment, the following have been identified as strengths of the solution in relation to a number of Faster Payments criteria:

- U.3 (Predictability);
- E.7 (Exceptions and investigations process)
- S.5 (Handling disputed payments)
- S.6 (Fraud information sharing)
- S.7 (Security controls)
- S.9 (End-user data protection)

Level 2 and Level 3 will follow the same process for Reconciliation.

U.3 (Predictability. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Predictability is maintained through leveraging the existing financial institution processes.

E.7 (Exceptions and investigations process. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Exceptions and investigations process is addressed through leveraging the existing financial institution processes.

S.5 (Handling disputed payments. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Handling disputed payments is maintained through leveraging the existing financial institution processes.

S.6 (Fraud information sharing. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Fraud information sharing adheres to existing financial institution processes.

S.7 (Security controls. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Security controls are maintained through leveraging the existing financial institution processes.

S.9 (End-user data protection. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
End-user data protection is maintained through leveraging the existing financial institution processes.
Section 2: Use Case Description

In this section we will show the details around the following four use cases:

- Person to Person Use Case #1 (Figure 17)
- Person to Business Use Case #2 (Figure 18)
- Business to Person Use Case #3 (Figure 19)
- Business to Business Use Case #4 (Figure 20)

Level 1, where both parties use accounts at the same participating financial institution in the All Payments App scheme, will be used in the following use cases. Payment processing involves multiple stakeholders, which are defined as parties being affected by an action. The following stakeholder matrix demonstrates the same process in a more detailed format (see below). These stakeholders will be used in the remainder of this document.

Table 2: Stakeholders Involved in the Use Case Description

<table>
<thead>
<tr>
<th>Stakeholder/Actors</th>
<th>Role</th>
<th>Available Actions</th>
<th>Payment Flow</th>
</tr>
</thead>
</table>
| Payee | Authenticated User of the All Payments App | • Make a Payment  
• Create/Edit/Remove a contact  
• Edit Profile  
• Review Payment Application History | Send Payment |
| FI | Financial Institution | • Processing Payment  
• Transaction History  
• Payee Confirmation for All Payments App | Processing Payment |
| Payer | Authenticated User of the All Payments App | • Make a Payment  
• Create/Edit/Remove a contact  
• Edit Profile  
• Review Payment Application History | Receives Payment |
| Business | Business of selling goods and services | • Make a Payment  
• Receive a Payment | Merchant |
Person-to-Person Use Case #1

In this use case, we take a detailed look into each submission and receipt of information between two individuals. The details are communicated in a Unified Modeling Language that is intended to provide a standard way to visualize the design of the All Payments App.

Table 3: Person-to-Person Use Case #1

<table>
<thead>
<tr>
<th>Actor(s)</th>
<th>Action</th>
<th>Intended Result</th>
<th>Alternative Result</th>
<th>Alternative Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payer</td>
<td>Application (Setup/Config)</td>
<td>Confirmation from participating FI on application configuration</td>
<td>Failed confirmation</td>
<td>Retry application load</td>
</tr>
<tr>
<td></td>
<td>Create Contact</td>
<td>Successful payment to contact</td>
<td>Failed payment</td>
<td>Reconfigure contact (Edit)</td>
</tr>
<tr>
<td></td>
<td>Payment</td>
<td>Confirmation from participating FI that payment was successful (email)</td>
<td>Failed payment</td>
<td>Check contact settings and/or contact participating FI</td>
</tr>
<tr>
<td>Payer - FI</td>
<td>Existing Processes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payee – FI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payee</td>
<td>Receive Payment</td>
<td>Successful confirmation from financial institution that funds are transferred</td>
<td>Failed payment</td>
<td>Follow existing processes for failed payment</td>
</tr>
</tbody>
</table>
Figure 17: Person-to-Person Use Case Flow
Person-to-Business Use Case #2

In this use case, we take a detailed look into each submission and receipt of information between a person and a business. The details are communicated in a Unified Modeling Language that is intended to provide a standard way to visualize the design of the All Payments App.

Table 4: Person-to-Business Use Case #2

<table>
<thead>
<tr>
<th>Actor(s)</th>
<th>Action</th>
<th>Intended Result</th>
<th>Alternative Result</th>
<th>Alternative Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payer &amp;</td>
<td>Application</td>
<td>Confirmation from participating FI on application configuration</td>
<td>Failed confirmation</td>
<td>Retry application load</td>
</tr>
<tr>
<td>Payer FI</td>
<td>(Setup/Config)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Create Contact</td>
<td>Successful payment to contact (confirmation from FI)</td>
<td>Failed payment</td>
<td>Reconfigure contact (edit)</td>
</tr>
<tr>
<td></td>
<td>Payment</td>
<td>Confirmation from participating FI that payment was successful (email)</td>
<td>Failed payment</td>
<td>Check contact settings and/or Contact Participating FI</td>
</tr>
<tr>
<td>Business</td>
<td>Receive Payment</td>
<td>Successful confirmation from financial institution that funds are transferred</td>
<td>Failed payment</td>
<td>Follow existing processes for failed payment</td>
</tr>
</tbody>
</table>

Figure 18: Person-to-Business Use Case Flow
Business-to-Person Use Case #3

In this use case, we take a detailed look into each submission and receipt of information between a business and a person. The details are communicated in a Unified Modeling Language that is intended to provide a standard way to visualize the design of the All Payments App.

Table 5: Business-to-Person Use Case #3

<table>
<thead>
<tr>
<th>Actor(s)</th>
<th>Action</th>
<th>Intended Result</th>
<th>Alternative Result</th>
<th>Alternative Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business</strong></td>
<td>Payment</td>
<td>Confirmation from FI that payment was successful</td>
<td>Existing Process</td>
<td></td>
</tr>
<tr>
<td>(Business FI)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Payee</strong></td>
<td>Receive Payment</td>
<td>Successful confirmation from financial institution that</td>
<td>Failed payment</td>
<td>Follow existing processes for failed payment</td>
</tr>
<tr>
<td>(Payee FI)</td>
<td></td>
<td>funds are transferred</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 19: Business-to-Person Use Case Flow
Business-to-Business Use Case #4

At this time, the business-to-business process would be a future enhancement to the existing product. The Payments Directory would be used in processing the B2B payment.

The Payments Directory approach uses a table of routing information that is connected with account information. Figure 20 assumes that the payment is withdrawn from and deposited into the correct account. This routing approach leverages existing payments networks used for decades, with proven and effective accuracy, security and speed.

Figure 20: Business-to-Business Use Case Flow
## Section 3: Use Case by Effectiveness Criteria

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initiation</strong></td>
<td>U.1</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>U.2</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>U.3</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>U.4</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>U.5</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>U.6</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
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<td></td>
<td>E.4</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>S.7</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>S.9</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Authentication</strong></td>
<td>U.2</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>U.3</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>S.7</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>S.9</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>S.10</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Payer Authorization</strong></td>
<td>U.2</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>U.3</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>S.2</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>S.7</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>S.9</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Approval by the Payer’s Provider</strong></td>
<td>S.3</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Clearing</td>
<td>S.7</td>
<td>N</td>
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</tr>
<tr>
<td></td>
<td>S.9</td>
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</tr>
<tr>
<td></td>
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<td>S.9</td>
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<td>U.3</td>
<td>U.6</td>
<td>S.5</td>
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<td>-----</td>
<td>-----</td>
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</tr>
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</tr>
<tr>
<td><strong>Settlement</strong></td>
<td>S.4</td>
<td>S.7</td>
<td>S.9</td>
<td>F.4</td>
<td></td>
</tr>
<tr>
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<td>N</td>
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<td>Y</td>
</tr>
<tr>
<td><strong>Reconciliation</strong></td>
<td>U.3</td>
<td>E.7</td>
<td>S.5</td>
<td>S.6</td>
<td>S.7</td>
</tr>
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</tr>
</tbody>
</table>
PART B: BUSINESS CONSIDERATIONS

Introduction

This submission to the Faster Payments Task Force is being made by North American Banking Company and Independent Community Banks of America® (ICBA). The proposed solution includes two components designed to provide an ongoing path to a ubiquitous, secure and efficient faster payments system in the United States:

1. All Payments App system
2. Payments Directory

These two components work together to achieve global reach, promote competition and enable interoperability with existing and proposed payment schemes.

The key to our proposed system is that it leverages existing payments systems on the back-end and current consumer practices on the front-end. It is also designed to accommodate the widest range of financial institution, network and vendor approaches. The system allows for scalability and provides multiple business models to help financial institutions and technology firms serve their customers and align to their business practices and risk assessments. In short, the proposed faster payments system has been developed to benefit individuals, households, businesses and government entities that need to make payments fast, efficiently and securely with a minimum of additional technology on a simple, intuitive device that in most cases they already have.

North American Banking Company, a community bank with $400 million in assets, is located in the Twin Cities of Minneapolis-St. Paul, Minnesota. From its inception in 1998, the bank has had extensive experience in processing high volumes of checks and automated clearinghouse (ACH) payments. One of its founders, Michael Bilski, has been involved with payments processing his entire career, starting with rebate checks in the 1970s, experimenting with FRB Minneapolis using image technology in the late 1980s and early 1990s, and now pioneering the use of a mobile application to affect value exchange. Mr. Bilski is well known in the payments industry, serving as board member and executive officer of both NACHA - The Electronic Payments Association and UMACHA, a regional payments association. He serves on the ICBA Bank Operations and Payments Committee, The Remittance Coalition, and the Federal Reserve Faster Payment Task Force.

The Independent Community Bankers of America® (ICBA), the nation’s voice for more than 6,000 community banks of all sizes and charter types, is dedicated to representing the interests of the community banking industry and its membership through effective advocacy, education and high-quality products and services. With 51,000 locations nationwide, community banks employ 700,000 people, hold $3.8 trillion in assets, $3.1 trillion in deposits, and have $2.6 trillion in loans outstanding to consumers, small businesses and the agricultural community.

ICBA’s Bank Operations and Payments Committee is a member-driven committee that provides leadership for ICBA on payments, bank operations and technology matters. Its threefold mission is to: 1) address policy issues related to the delivery and security of financial services and payments, 2)
create and support industry efforts at payment systems improvement to ensure the relevancy of community banks in the payments system and in online financial services, and 3) maintain ongoing relationships with public and private sector organizations that play a crucial role in shaping the payments framework through regulations, rules and standards.

ICBA staff serve on the Board of Directors of the Accredited Standards Committee X9, and are active in the NACHA rulemaking process, and in both Federal Reserve’s Faster Payments and Secure Payments Task Forces.

**Scheme and System Overview**

ICBA and North American Banking Company, the developer of the All Payments App system, have been closely involved for the past seven years in the emergence and evolution of app-based mobile payments. This experience has provided both organizations with a depth of experience in mobile, faster payments that is matched by few others in the United States. Specifically, we have in-depth experience with the technological and regulatory aspects of a faster payments ecosystem, the critical front-end user experience aspects of the All Payments App, and the detailed procedures and security aspects of back-end integrated financial institution processing.

The first component, the All Payments App system, operates using the following components:

- Mobile smartphone, currently implemented using the iOS operating system.
- Mobile on-board security protocol, including fingerprint or other biometric identification.
- Existing mobile equipment and wireless networks, including NFC and Bluetooth.
- Existing payments networks, currently based on ACH processing, with the ability to handle wire and dual-message card transaction networks.

Users can change mobile device type, model or brand and export the payments app to the newly acquired device. Similarly, a change in mobile transmission carrier or service provider will not impact compatibility.

We are not aware of any major, widely used, financial institution-connected mobile fast payments system in the U.S. today that is easier to use than the All Payment App system. The steps required to complete a transaction with the app are clear, familiar, intuitive and logical. Tests with non-technical users who were provided a simple one-time demo have demonstrated that average financial institution customers can easily learn to use the system. During testing, subsequent transactions became second nature to system users.

One key to the All Payment App’s simplicity is that it uses the existing financial institution accounts of the sender and receiver (payer and payee) and leverages the ACH system for clearing and settlement, including Same Day ACH scheduled for September 2016 implementation. The scheme processes payments between users as credit push transactions, which reduces concerns related to fraud and counter-party failure. Initiated at one end and confirmed at the other end by mobile devices the solution uses existing infrastructure, which will result in faster implementation and lower barriers to adoption.
The use of the ACH network ensures connection to every bank and credit union in the United States, enabling payment senders to send payments to any receiver’s DDA account. Error notification and resolution is standardized between the participating financial institutions by the ACH Operating Rules and existing payments regulations. The system deploys standard communication and messaging protocols and uses two channels of the mobile phone. The ACH network is used for the remainder of the transaction.

**All Payments App Transaction Model**

Neither ICBA, North American Banking Company, nor the payments consultants hired by the proposers, have encountered a mainstream, successful consumer mobile device based payments system that is as fast-from initiation to settlement by a financial institution--and easy to use as the All Payment App system. Schemes that might at first seem to be exceptions do not provide fast payment from the consumer’s perspective. To a consumer, fast payment means that the transaction made appears on his or her demand deposit account (DDA) right away. The ICBA-North American Banking proposal builds a payment system that moves funds from the sender’s financial institution account to the receiver’s financial institution account, with funds availability determined directly by financial institution and NACHA rules, in contrast to the following:

- **Dwolla and PayPal** – The timing of the eventual link to a financial institution account is variable with both systems.

- **M-Pesa or similar schemes** -- The speed of transaction applies only to the mobile phone credits that are used as markers until, hours, days or weeks later when they are exchanged for cash.

- **clearXchange (a consortium six of the largest banks)** -- There is an extra fee to sender if the payment is going to a clearXchange bank other than the sender’s. There are daily limits on amounts transferred. Payments not withdrawn from the sender’s account only as used. Senders must prefund a scheme account. Funds are not available to the recipient for two to three business days.

- **The Clearing House** -- (Initial rollout will involve its 20 large-bank members and is oriented towards large and high volume transactions. It lacks any consumer level services or user support and would also require an intermediary for other providers to participate.

Again, unlike the other examples referenced above, the All Payments App system has none of these limitations, in which access to the payment value is either outside the user’s control or dependent on separate, post-payment processing actions taken by an intermediary.

In the proposed scheme, a payment instruction begins on the payer’s mobile device and is immediately transmitted to the payer’s financial institution and from there to the ACH network. The speed of settlement is determined by the payer and the payer’s financial institution and is governed by NACHA Operating Rules. Given that the ACH network is progressing along a planned track of faster transaction completion, beginning with the current same-day settlement standard, the proposed system can accommodate secure, ubiquitous, faster payments upon start up. At the same time, the infrastructure of the proposed scheme is flexible enough to accommodate other payment networks with faster settlement capabilities, both existing payment schemes and other proposed schemes.

Accordingly, the proposed system’s design provides a path from the DDA of the payment sender to
the DDA of the receiver and represents the faster mobile-based payments scenario best suited to U.S.
payers, payees and U.S. financial institutions. The ACH system is well established, cost-effective,
and close to ubiquitous, including international transactions via the international ACH transaction
(IAT) participating countries. ICBA and North American Banking Company envision expansion of
the scheme potentially to include additional payments networks.

Payments Directory Operating Model

The Payments Directory component provides an easy and secure way for consumers to identify one
another when making and receiving payments. It is designed to build on schemes used in existing
payments apps without requiring additional credentials or putting financial institution information at
risk. Experience from deploying the All Payments App demonstrates that a Payments Directory
containing routing information provides the most effective approach to maintaining security and
usability.

The proposed Payments Directory is detailed later in this proposal. In brief, the directory approach
uses a table of routing information that is connected with account information. This table assures that
the payment is withdrawn from the correct account and deposited into the correct account. An
important strength of this routing approach is that it leverages existing payments networks, has been
used for decades, and has proven to be effective in respect to accuracy, security and speed.

Because the user relies on the directory displaying only the recipient’s name, not the specific account
number, segregation of confidential information and security are assured. Only the financial
institutions involved with sending and receiving the transaction have access to the sensitive account-
level information.

The Payments Directory also contains information that facilitates payments between the proposed
and existing payments schemes. This approach will facilitate the use of a unique alias for each
participant (e.g., email address) to be cross-referenced with a user’s financial institution routing
information. An important strength of this approach is that the alias can be widely distributed—even
to strangers—with little risk to the accountholder, as this is a credit push transaction scheme.

The proposal’s Payments Directory solution is a powerful tool for both ubiquity and increased
competition in faster payments. With a securely hosted directory managing the most complex
element in the completion of a transaction, the competitive field for initiating payments and
receiving payment is opened to a wide set of current and potential participants. These new
competitors include not only those whose offering mimics the proposed All Payments App system,
but also new competitors that handle the initiation and receipt of a payment in a different way.
1. Implementation Timeline, Phasing and Milestone Dates

The evolution of the proposal, including both the All Payments App and the Payments Directory, will scale in the following fashion through three levels:

**Table 6: Implementation Levels**

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>Both parties have the app on their mobile devices</td>
</tr>
<tr>
<td></td>
<td>Both parties use accounts at the same FI which participates in the scheme</td>
</tr>
<tr>
<td>Level 2</td>
<td>Both parties have the app on their mobile devices but use accounts at different FIs</td>
</tr>
<tr>
<td></td>
<td>Both FIs participate in the scheme</td>
</tr>
<tr>
<td>Level 3</td>
<td>Both parties have the app on their mobile devices but use accounts at different FIs</td>
</tr>
<tr>
<td></td>
<td>One FI participates in the scheme</td>
</tr>
<tr>
<td></td>
<td>The other FI participates in a different, compatible app-based mobile payments scheme</td>
</tr>
</tbody>
</table>

The system is presently at Level 2. The Payments Directory concept comes into play at Level 3.

**Table 7: Timeline**

<table>
<thead>
<tr>
<th>Implementation Milestone</th>
<th>Status / Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Testing (2 banks, 20 users, 400 transactions)</td>
<td>Completed 2013</td>
</tr>
<tr>
<td>Signing of Agreements with Participating FIs</td>
<td>2013 and continuing</td>
</tr>
<tr>
<td>Enable use by two parties with accounts at the same FI or two parties with accounts at different FIs both participating in the scheme</td>
<td>2016</td>
</tr>
<tr>
<td>Distribution of software application to participating FIs</td>
<td>2016 and continuing</td>
</tr>
<tr>
<td>Distribution of software application to payers/payees</td>
<td>2016 and continuing</td>
</tr>
<tr>
<td>Development and third party hosting of the Payments Directory</td>
<td>2017 – 2020</td>
</tr>
</tbody>
</table>

The proposed mobile faster payments system was first developed and tested in 2013. It was originally built with iOS6, updated to iOS7 and can be further updated. The Payment Directory element of the system is *not required* for the system to work in two of its three levels when transactions are between mutually known parties. The scheme can be up and running in a matter of months at smaller institutions and within a year to 18 months at very large financial institutions. The implementation timeline to the third payment level consists of two tasks: 1) distribution of the software app to more payers and payees and 2) development and ongoing operation of the Payments Directory.

The use of the ACH network ensures connection to every bank and credit union in the United States, enabling payment senders to send payments to any receiver’s DDA. Error notification and resolution
is standardized between the participating financial institutions by the ACH Operating Rules and existing payments regulations. The system deploys standard communication and messaging protocols and uses two channels of the mobile phone; the ACH network is used for the remainder of the transaction.

Following the initial implementation, migration from phase to phase (level to level) is simplified because as the generation of the payment instruction does not change. Instead, the added sophistication of in-app tables and the Payments Directory continue to grow to allow additional endpoints for the payments. Existing technology and processes accomplish all of the following:

- validation of the payment request to the sender;
- notification of payment delivery to the sender;
- format and transmission of the payment instruction to the sending and receiving financial institutions;
- funds withdrawal from the sender’s account and funds deposit to the recipient’s account;
- clearing and settlement;
- account posting and statement rendition; and
- security and customer service.

**Use Cases -- Domestic Functionality**

The proposed All Payments App system has been designed so that none of its technology, functionality or features alter the security protocols of the ACH system or law that guarantees the security of the outsourcing financial institution’s customer records. The system assures that transactions made using the scheme are as secure, certain of delivery and accurate as any ACH transaction.

Just as the majority of current ACH transactions by value are handled using the functions and capacities of The Clearing House and the Federal Reserve Banks, the same security and certainty of payment would automatically apply to payments conducted with the All Payments App system. This holds true whether the payment is person-to-person (P2P), business-to-person (B2P), person-to-business (P2B) or the envisioned business-to-business (B2B) function. Use cases are detailed in the following sections.

**Person to Person Payments (P2P)**

P2P encompasses a broad range of relatively high volume, mostly low value payment scenarios, such as the often cited splitting of the tab for dinner, paying the baby sitter, etc. It also includes time critical payments to a family member or other party. These scenarios can be achieved because the proposed system is inexpensive, easy for users to obtain, easy to learn to use, and backed by the user’s own financial institution.

**Person to Business (P2B)**

On-line purchases are similar to today’s process. In-store purchases can be made at any store where the merchant has the app. All that is necessary for a merchant to begin receiving payments is to receive and download the personal payment from the user’s financial institution. Given that most chain merchants bank with one of the largest financial institutions, in most instances, P2B systems
will be available early in the system’s development.

**Business to Business (B2B) and Contextual Functionality**

B2B payments, such as stores paying for delivered merchandise, can be received upon delivery. The B2B scenarios also include instances of contextual functionality in which the payment is an element of context of a business transaction that could include bills of lading, export licenses, quota control documents, confirmation of receipt for delivered goods, proof of in-transit insurance, etc. Such contextual information could be appended to the transaction by scanning documents into the context field of the payment. The system’s portability makes it ideal for delivery of dockside confirmation of goods arrival, and for Letter of Credit transactions as payment for delivered goods that can be initiated safely from the location at which delivery can be physically confirmed.

**Use Cases - Cross Border Functionality**

Cross-border functionality is provided to all IAT member countries through scheme-initiated payments processed from the sender’s financial institution to the payee’s financial institution via the ACH. This use of existing technology is another example of how easily the system can scale.

**Effectiveness Criteria – Implementation Timeline**

Following are specific comments on the implementation timeline for the Effectiveness Criteria.

**Accessibility**

The proposed system is highly accessible due to its simple, intuitive design; the ease with which it can be obtained by downloading the app; and its close integration with the ACH system. Unlike some other mobile phone-based payments systems, the All Payments App system does not require either party to possess or use a credit card. This makes the system available to a wider group of potential users and reduces costs.

The proposed system is also accessible to the universe of other faster payments schemes. The requirements for accessing the system are:

- possession of or access to a mobile phone or tablet;
- connection of the mobile phone or tablet to a mobile network carrier;
- possession a financial institution DDA;
- ability of the user to execute a very simple, intuitive set of steps to send or receive a payment; and
- limit on the language requirements of the app (users must be able to spell a limited lexicon of simple words in English to use the system, we expect that versions of the system in languages other than English would be rapidly developed and deployed).

Access for users with limited sight can be enabled through the provision of sound prompts. By using the current visual display there is no requirement for speaking to operate the system. Access for users with limited digital function could be enabled through voice to text software.

Access by new entrants and competitors is also addressed in the design. Competitors can participate
in the Payments Directory without necessarily having to endorse the All Payments App scheme. The directory holds the potential of converting the natural competition between faster payments schemes into a competitive advantage for all schemes, thereby greatly speeding the point at which ubiquity can be reached.

**Usability**
The system and scheme are highly usable:

- payments settlement that meets expectations set by existing payments schemes (ACH, cards);
- the Payments Directory serves as the basis for secure routing between faster payments schemes;
- the software that is highly scalable; and
- integration with commercial software, where possible.

Users can change mobile device type, model or iOS level and export the scheme to the newly acquired device. Similarly, a change in mobile carrier or service provider will not impact compatibility. While the account information of frequent payees or current stored in-app on the individual device, with the deployment of the Payments Directory, recipient account information would not have to be ported from a current device to a new device.

**Key Dependencies**
The dependencies in this proposal include:

- adoption and deployment of the All Payments App by financial institutions;
- mobile network connectivity and capacity;
- ACH system availability and continued operation as a ubiquitous and cost-effective payments network;
- maintenance of externally sourced software;
- distribution of the app to payers and payees, which is accomplished using the financial institutions as distribution hubs;
- implementation of the Payments Directory that enables payments exchange between financial institutions using the All Payment App solution and financial institutions supporting other mobile payments systems;
- certification of the directory by the appropriate regulatory authorities; and
- sufficient customer demand to generate enough revenue to cover operational costs.

**Possible Risks to the Timeline**
The principal risk to the delivery timeline is a delay in the development of the Payments Directory, which becomes an element of the system in the final phase. Although ubiquity is ultimately defined by user demand, delay in the system build-out could risk full system capability which can only be achieved by connecting multiple payment schemes.
2. Value Proposition and Competition

The App Payments App and Payments Directory scheme is designed to provide high value to all stakeholders at each stage of the payments lifecycle. The proposal allows stakeholders to develop their own competitive offerings, designed for their user market. At the same time, it is designed to use the standard industry systems and procedures that already enable access to new entrants and maintain a fair playing field for all types and sizes of institutions and firms, as follows.

Value to End-Users

- **Initiation** – Provides end-users a rapid, financial institution-centric, secure, easy to execute, low cost payments scheme.
- **Authentication** – Assures end-users that transactions are validated when initiated.
- **Payer Authorization** – Assures end-users the payer is valid.
- **Approval by Payer’s Provider** – Puts a regulated financial institution into the approval process before any funds are transmitted.
- **Clearing** – Assures end-users that clearing occurs rapidly and securely between financial institutions via the Federal Reserve.
- **Receipt** – Provides end-users with proof of the transaction from a financial institution.
- **Settlement** – Financial institution-to-financial institution settlement gives end-users surety against reversal of the transaction.
- **Reconciliation** – Finalizes the transaction for end-users.

Value to Technology Providers

- **Initiation** – Adds a valuable new functionality to the mobile phone.
- **Authentication** – Transactions are made by financial institutions and thereby protects the technology provider’s reputation.
- **Payer Authorization** – Transactions are made by financial institutions and thereby protects the technology provider’s reputation.
- **Approval by Payer’s Provider** – Transactions are made by financial institutions and thereby protects the technology provider’s reputation.
- **Clearing** – Transactions are made by financial institutions and thereby protects the technology provider’s reputation.
- **Receipt** – Transactions are made by financial institutions and thereby protects the technology provider’s reputation.
- **Settlement** – Settlement is performed by financial institutions and thereby protects the technology provider’s reputation.
- **Reconciliation** – Reconciliation is performed by financial institutions and thereby protects the technology provider’s reputation.

Value to Processors

- **Initiation** – Provides additional payments to be processed.
- **Authentication** – Authentication is performed by financial institutions and thereby protects the processor’s reputation.
• **Payer Authorization** – Authorization is conducted by financial institutions and thereby protects the processor’s reputation.

• **Approval by Payer’s Provider** – Approvals are done by financial institutions and thereby protect the processor’s reputation.

• **Clearing** – Clearing is done by financial institutions and thereby protects the processor’s reputation.

• **Receipt** – Receipt is handled by financial institutions and thereby protects the processor’s reputation.

• **Settlement** – Settlement is performed by financial institutions and thereby protects the processor’s reputation.

• **Reconciliation** – Reconciliation is performed by financial institutions and thereby protects the processor’s reputation.

Processors that act as insources for financial institutions, either on a technology or business process outsourcing model, will have an additional capability to offer the financial institutions for whom they process and a new service to leverage to potential additional financial institutions.

**Effectiveness Criteria – Value Proposition**

Additional comments on the Effectiveness Criteria and the value proposition of the proposed system are addressed in the sections below.

**Enables Competition**

In addition to the competitive features of the design detailed above, the proposed system enables competition by providing a path to system adoption. By ensuring adoption by all types of users, all types and sizes, and all types and sizes of technology providers and vendors, the proposed system will ensure continued fair competition and innovation in the U.S. payments system.

**End-Users** – End-users will adopt the system as it combines a familiar, easy way to make a faster payment that is conducted by their financial institution. Confidence in the ACH network is supported by its history of successful payments transmission, low error rates with a standardized method of error resolution, rules that are enforced and the oversight of the Federal Reserve System and NACHA. End-users probably will not know the names of the entities that provide them with a safe and secure new way to make faster payments, but they will be more likely to be early adopters due to their trust in their financial institution. In addition, financial institutions will likely conduct marketing campaigns to promote the new system— including the names of the ancillary producers—to their customers.

**Technology Providers** – Technology providers will be interested in the transaction volume available to them by supporting and/or operating the system. The All Payments App system presents an opportunity for additional earnings from a familiar, low-risk combination of the iOS operating system, the banking system and the ACH.

**Processors** – Processors will adopt the system because it offers higher transaction fees and lower risk than participating in a new payments method whose operating model or ownership is not transparent. Processing a transaction on the All Payments App carries no additional risk to the
processor and offers a higher volume of transactions.

**Predictability**
The system offers high predictability that payments will be completed safely and correctly. The primary systems with any potential for system failure are the application, the mobile telephone transmission, the ACH system and the processing systems of the financial intuitions at each end of the transaction. The predictability of the latter two, ACH and financial institution processing, is among the highest predictability of commercial systems. The predictability of the telephone system also quite high.

**Value-Added Services**
Value-added services include the email notification to the recipient of the initiated payment and the large capacity for contextual data to travel with ACH payment. The scheme may also enable additional value added services in the future with advancements in mobile technology or the payments systems to which it links. The openness of the directory model also fosters a high expectation the system will continue to enable value-added services, primarily through the linkage to other faster payments systems.
3. Integration Effort

The personal payment feature of the All Payments App has been tested for three years and initial development is complete. While additional features may be added in the future, the system is ready for expanded market deployment, as follows:

- Level 1 -- Payments are made between people or businesses holding DDA accounts with the same financial institution.
- Level 2 -- Payments are made among multiple financial institutions using the personal payment app feature.

Continued expansion to holders of U.S. financial institution accounts known to the sender only depends on the continued population of the in-app table or the use of the Payments Directory. The directory allows the exchange of payments between parties that provide routing information to each other for the ACH system or to parties for whom the sender knows only the party’s email address and then via the ACH.

For use cases P2P, P2B, B2B, B2P, points of integration include:

- For users with accounts at the same financial institution:
  1. Each user downloads the app.
  2. The financial institution implements the personal payment app system.

For users at with accounts at different financial institutions:

- For users where one of the parties to the transaction uses a different mobile payments scheme:
  1. Establish a Payments Directory function that switches the personal payment app user’s message to the other user’s mobile payments scheme.
  2. Identify and certify a Payments Directory operator.

In the user steps below, the eight stages of the payment lifecycle are delineated. The functions accomplished by the ACH are not described in detail, as this is an existing and standard process.

For users with accounts at the same financial institution or different financial institutions:

- **Initiation** – Sender downloads the personal payment app.
- **Authentication** – Sender is enabled by financial institution to initiate payments.
- **Payer Authorization** – Sender uses mobile device security to sign-on to app.
- **Approval by Payer’s Provider** – Financial institution accepts and initiates payment instruction (velocity and frequency limits employed).
- **Clearing** – Clearing is accomplished through the ACH network.
- **Receipt** - Receipt is accomplished by the financial institution retrieving a file from the ACH Operator.
- **Settlement**- Settlement is either inter-account within the financial institution or via the ACH.
Reconciliation – Reconciliation is either inter-account within the same financial institution or via the ACH reconciliation process for different financial institutions.

For the Level 3 scenario in which payer and payee participate in different payments schemes, the Payments Directory helps to achieve the additional step of switching transactions between payments schemes.

Expanded Integration

Given the critical importance of expanding access to the U.S. payments system to all interested parties, from consumers to financial institutions to vendors, the proposed system would enable ongoing integration and expanded competition. Continued expansion to holders of U.S. financial institution accounts interested in participating in the scheme would proceed as described below.

- Two or more financial institutions install the system and begin payments exchanges via the ACH network.
- The in-app table continues to be expanded with each new financial institution participant.
- As additional schemes come online, a Payments Directory is established to switch transactions between schemes via the financial institutions participating in each scheme.

The proposal’s Payment Directory element is a powerful force for increased competition and scheme connectivity for faster payments. With the Payments Directory managing the most complex element in switching transactions between schemes, the competitive field is opened to a wide set of current and future participants. These new competitors would include not only those offering similar personal payment app systems, but also new competitors who handle the payment initiation and receipt information differently.

The entity that takes on the role of Payments Directory operator enables the full expansion of the system. The approach is not unlike that which is successfully evolving in other countries in which a single entity provides the underlying network and multiple competitors plug into it (after security certification.) In the proposed approach, the directory provides the level playing field and the competitors can differentiate their solutions with various capabilities.

A Plan and Model for Achieving Ubiquity

The Federal Reserve System in its papers and guidelines for faster payments in the United States has repeatedly stressed the importance of achieving ubiquity in any new payments system. The proposed system scales rapidly to ubiquity without the auxiliary efforts many other current and proposed systems require. Under the All Payments App scheme, the process of achieving ubiquity is a natural, market-driven expansion of users and financial institutions using the scheme to initiate transactions and receive transactions.

The task to be performed is not one of setting up a ubiquitous payments network—such a network, the ACH, already exists. Nor is the task one of gaining acceptance of a new payment type—the payment type is an ACH transaction. Because the personal payment app leverages investments made in the existing ACH network and rules, financial institutions do not need to make additional
investments to participate. This improves the potential return on investment and provides an incentive for all financial institutions to support the proposed system.

Accordingly, natural market demand is the driving force behind the achievement of ubiquity, in a system open to all and operated under fair and established rules. As users in the payments market download the app and begin to send and receive transactions intermediated by the ACH, the system will expand and unfamiliar procedures or closed networks and systems will not hinder ubiquity.

Ubiquity comes about as a result of five market forces.

1. People who have the app tell other people that want to send payments or receive payments. As each new participant downloads the app, another step toward ubiquity has been taken.
2. The financial institutions that participate in the scheme market the All Payments App by deploying the usual marketing strategies and methods.
3. To further encourage financial institutions to join, the software is provided to a financial institution in a white label format. The financial institution needs simply to customize the labels with its own brand and integrate the solution with existing systems and processes.
4. Participating financial institutions encourage and actively solicit other financial institutions to participate, thereby increasing the size of the closed loop network.
5. The financial institutions utilizing different schemes leverage the Payments Directory to participate with financial institutions and accountholders using the All Payments App.

Ubiquity in a payment scheme is, to a great extent, a matter of the topography of the network and getting it wrong poses two risks: the risk of not reaching populations who would use the system if connected; and the cost of building out the network ahead of active users. The proposed approach eschews trying to predict which populations and geographies would need to be included to achieve ubiquity and instead relies on market demand, the existing ACH system, and network economics. This system does not require creating a new payments infrastructure, with associated risks and costs and uncertain consumer participation. Rather, ubiquity will be achieved organically across the existing ACH network.
Part C: Self-Assessment Against Effectiveness Criteria

1. Ubiquity

Self-assessed rating:

<table>
<thead>
<tr>
<th>Effectiveness Criteria</th>
<th>Effectiveness Criteria Self-Assessment (Check One)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Criteria Name</strong></td>
<td><strong>#</strong></td>
<td><strong>Consideration Name</strong></td>
</tr>
<tr>
<td>Ubiquity</td>
<td>U.1</td>
<td>Accessibility</td>
</tr>
<tr>
<td>Ubiquity</td>
<td>U.2</td>
<td>Usability</td>
</tr>
<tr>
<td>Ubiquity</td>
<td>U.3</td>
<td>Predictability</td>
</tr>
<tr>
<td>Ubiquity</td>
<td>U.4</td>
<td>Contextual data capability</td>
</tr>
<tr>
<td>Ubiquity</td>
<td>U.5</td>
<td>Cross-border functionality</td>
</tr>
<tr>
<td>Ubiquity</td>
<td>U.6</td>
<td>Applicability to multiple use cases</td>
</tr>
</tbody>
</table>

Justification for U.1:
The system currently uses the ACH network and is therefore accessible to any consumer or business with access to a checking account.

Justification for U.2:
The system currently uses the ACH network and formats.

Justification for U.3:
The system currently uses the ACH network and formats.

Justification for U.4:
The system currently uses the ACH “WEB” Standard Entry Code for credit push payments and leverages the available addenda record to pass contextual data from payer to payee.

Justification for U.5:
Cross-border functionality is currently not used but could be employed in the future using the ACH “IAT” Standard Entry Class or a dual-message card credit push transaction.

Justification for U.6:
The system could be used for P2P, P2B, and B2P payments utilizing the unique identifier, or alias, of the receiver. This will require implementation of the Payments Directory function.

2. Efficiency

Self-assessed rating:

<table>
<thead>
<tr>
<th>Effectiveness Criteria</th>
<th>Effectiveness Criteria Self-Assessment (Check One)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criteria Name</td>
<td>#</td>
<td>Consideration Name</td>
</tr>
<tr>
<td>Efficiency</td>
<td>E.1</td>
<td>Enables competition</td>
</tr>
<tr>
<td>Efficiency</td>
<td>E.2</td>
<td>Capability to enable value-added services</td>
</tr>
<tr>
<td>Efficiency</td>
<td>E.3</td>
<td>Implementation timeline</td>
</tr>
<tr>
<td>Efficiency</td>
<td>E.4</td>
<td>Payment format standards</td>
</tr>
<tr>
<td>Efficiency</td>
<td>E.5</td>
<td>Comprehensive-ness</td>
</tr>
<tr>
<td>Efficiency</td>
<td>E.6</td>
<td>Scalability and adaptability</td>
</tr>
<tr>
<td>Efficiency</td>
<td>E.7</td>
<td>Exceptions and investigations process</td>
</tr>
</tbody>
</table>

Justification for E.1:
Competitors in multiple payment channels could use the central Payments Directory to connect closed loop networks.

Justification for E.2:
The Payments Directory can be leveraged to provide interoperability and ACH Addenda records provide remittance data for value added services.

Justification for E.3:
ICBA determines a standards and rollout strategy among existing distribution points. The demand level will determine availability and rate of expansion.
Justification for E.4:

The mobile app currently uses the ACH network and can be expanded to other faster payments networks upon completion of the central Payments Directory.

Justification for E.5:
The central Payments Directory can scale to multiple faster payments networks.

Justification for E.6:
The central Payments Directory can scale to multiple faster payments networks.

Justification for E.7: Credit push approach, application controls, and phone security limit the number of exceptions. The system uses existing Regulation E process; an additional layer of rules will be determined upon program expansion.
3. **Safety and Security**  
Self-assessed rating:

<table>
<thead>
<tr>
<th>Effectiveness Criteria</th>
<th>Effectiveness Criteria Self-Assessment</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criteria Name</td>
<td># Consideration Name</td>
<td>VE</td>
</tr>
<tr>
<td>Safety and Security</td>
<td>S.1 Risk management</td>
<td>X</td>
</tr>
<tr>
<td>Safety and Security</td>
<td>S.2 Payer authorization</td>
<td>X</td>
</tr>
<tr>
<td>Safety and Security</td>
<td>S.3 Payment finality</td>
<td>X</td>
</tr>
<tr>
<td>Safety and Security</td>
<td>S.4 Settlement approach</td>
<td>X</td>
</tr>
<tr>
<td>Safety and Security</td>
<td>S.5 Handling disputed payments</td>
<td>X</td>
</tr>
<tr>
<td>Safety and Security</td>
<td>S.6 Fraud information sharing</td>
<td></td>
</tr>
<tr>
<td>Safety and Security</td>
<td>S.7 Security controls</td>
<td>X</td>
</tr>
<tr>
<td>Safety and Security</td>
<td>S.8 Resiliency</td>
<td></td>
</tr>
<tr>
<td>Safety and Security</td>
<td>S.9 End-user data protection</td>
<td>X</td>
</tr>
<tr>
<td>Safety and Security</td>
<td>S.10 End-user/provider authentication</td>
<td>X</td>
</tr>
<tr>
<td>Safety and Security</td>
<td>S.11 Participation requirements</td>
<td>X</td>
</tr>
</tbody>
</table>

**Justification for S.1:**  
Each financial institution limits availability of the mobile application to known and approved account holders. Each institution also sets tiered value and velocity limits to meet their risk tolerances.

**Justification for S.2:**  
The mobile application uses underlying phone-based authentication technology such as fingerprint and passcodes to authenticate payments.
Justification for S.3:
The ACH credit push model provides finality of the payment.

Justification for S.4:
The mobile application uses the ACH network to settle credit items. The solution does not allow for overdraft from payer accounts, unless the service is otherwise offered by the receiving FI and selected by the accountholder.

Justification for S.5:
The system uses the existing Regulation E process or implements more restrictive rules on payment providers if desired. The solution does not allow for overdraft from payer accounts, unless the service is otherwise offered by the receiving FI and selected by the accountholder.

Justification for S.6:
The financial institutions offering the mobile application have information regarding fraudulent items and share this information with other mobile application providers.

Justification for S.7:
The security controls are based on the controls available on the user’s mobile phone.

Justification for S.8:
The distributed nature of the Payments Directory and mobile application enables resiliency. Each institution’s business continuity plan further enables resiliency.

Justification for S.9:
End-user’s data resides on the mobile device and is protected by mobile phone security. All account numbers are masked on the mobile application, further protecting the end-user data.

Justification for S.10:
End-user’s data resides on the mobile device and is protected by an application password. The user is also required to input a passcode in order to validate each transaction. Access to the application is restricted to users approved by the financial institution offering the mobile application.

Justification for S.11:
Participation in the mobile application and directory are not "required", but market competition can push parties to participate. The payee does not have to participate to receive a transaction.
4. **Speed (Fast)**

Self-assessed rating:

<table>
<thead>
<tr>
<th>Effectiveness Criteria</th>
<th>Effectiveness Criteria Self-Assessment (Check One)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Criteria Name</strong></td>
<td><strong>Consideration Name</strong></td>
<td><strong>VE</strong></td>
</tr>
<tr>
<td>Speed (Fast) F.1</td>
<td>Fast approval</td>
<td>X</td>
</tr>
<tr>
<td>Speed (Fast) F.2</td>
<td>Fast clearing</td>
<td></td>
</tr>
<tr>
<td>Speed (Fast) F.3</td>
<td>Fast availability of good funds to payee</td>
<td>X</td>
</tr>
<tr>
<td>Speed (Fast) F.4</td>
<td>Fast settlement among depository institutions and regulated non-FI account providers</td>
<td></td>
</tr>
<tr>
<td>Speed (Fast) F.5</td>
<td>Prompt visibility of payment status</td>
<td></td>
</tr>
</tbody>
</table>

**Justification for F.1:**
Approval of the transaction is accomplished quickly by debiting funds from the payer’s account to a General Ledger settlement (similar to the A2A model).

**Justification for F.2:**
The application uses the ACH network and will process transactions at the quickest speed, as identified in the transaction. The mobile application was tested with Same Day ACH utilizing the Federal Reserve’s optional Same Day ACH service.

**Justification for F.3:**
The application uses the ACH network and will process transactions at the quickest speed, as identified in the transaction. The mobile application was tested utilizing the Federal Reserve’s optional Same Day ACH service.

**Justification for F.4:**
The application uses the ACH network and will process transactions at the quickest speed, as identified in the transaction. The mobile application was tested utilizing the Federal Reserve’s optional Same Day ACH service.

**Justification for F.5:**
Visibility can be provided via in-app messaging, automatic confirmation for payment receipt, etc. See Interface section of proposal for further details.

5. Legal Framework

Self-assessed rating:

<table>
<thead>
<tr>
<th>Criteria Name</th>
<th>#</th>
<th>Consideration Name</th>
<th>Effectiveness Criteria Self-Assessment (Check One)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal Framework</td>
<td>L.1</td>
<td>Legal framework</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Legal Framework</td>
<td>L.2</td>
<td>Payment system rules</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Legal Framework</td>
<td>L.3</td>
<td>Consumer protections</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Legal Framework</td>
<td>L.4</td>
<td>Data privacy</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Legal Framework</td>
<td>L.5</td>
<td>Intellectual property</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Justification for L.1:
The mobile application leverages the existing framework of Regulation E and the ACH Rules and could be extended to other networks such as existing card networks or new payment networks, as they emerge.

Justification for L.2:
The mobile application leverages the existing framework of Regulation E and the ACH Rules and could be extended to other networks such as existing card networks or new payment networks, as they emerge.

Justification for L.3:
The mobile application leverages the existing framework of Regulation E and the ACH Rules and could be extended to other networks such as existing card networks or new payment networks, as they emerge.

Justification for L.4:
The mobile application leverages the existing framework of Regulation E and the ACH Rules and could be extended to other networks such as existing card networks or new payment networks, as they emerge.
Justification for L.5:
There is currently no patent on the mobile application, which could be used by multiple parties quickly and easily. The existing code will be offered to the public domain for continued development and improvement.

6. Governance

Self-assessed rating:

<table>
<thead>
<tr>
<th>Effectiveness Criteria</th>
<th>Effectiveness Criteria Self-Assessment (Check One)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criteria Name</td>
<td># Consideration Name</td>
<td>VE E SE NE</td>
</tr>
<tr>
<td>Governance</td>
<td>G.1 Effective governance</td>
<td>X</td>
</tr>
<tr>
<td>Governance</td>
<td>G.2 Inclusive governance</td>
<td>X</td>
</tr>
</tbody>
</table>

Justification for G.1:
The mobile application leverages the existing framework of Regulation E and the ACH Rules and could be extended to other networks such as existing card networks or new payment networks, as they emerge.

Justification for G.2:
The mobile application leverages the existing framework of Regulation E and the ACH Rules and could be extended to other networks such as existing card networks or new payment networks, as they emerge.
ALL PAYMENTS APP
AND PAYMENTS DIRECTORY:
FASTER PAYMENTS PROPOSAL

ORIGINAL PROPOSAL DATE: **APRIL 30, 2016**
REVISED TO REFLECT QIAT ASSESSMENT: **AUGUST 26, 2016**

Submitted by:

Michael Bilski, North American Banking Company
Cary Whaley, Independent Community Bankers of America®
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Background

Strategy 2 of the Federal Reserve’s *Strategies for Improving the U.S. Payment System* paper is to “Identify effective approach(es) for implementing a safe, ubiquitous, faster payments capability in the United States.” The Faster Payments Task Force was created to support this strategy and has designed the Faster Payments Effectiveness Criteria (Effectiveness Criteria) and process for assessing alternative faster payments proposals. The Effectiveness Criteria is consistent with Strategy 2, as well as the broader set of “desired outcomes” set out in the Federal Reserve’s Strategies paper. These desired outcomes include:

- **Speed:** A ubiquitous, safe, faster electronic solution(s) for making a broad variety of business and personal payments, supported by a flexible and cost-effective means for payment clearing and settlement groups to settle their positions rapidly and with finality.

- **Security:** U.S. payment system security remains very strong, public confidence remains high, and protections and incident response keep pace with the rapidly evolving and expanding threats.

- **Efficiency:** Greater proportion of payments originated and received electronically to reduce the average end-to-end (societal) costs of payment transactions and enable innovative payment services that deliver improved value to consumers and businesses.

- **International:** Better choices for U.S. consumers and businesses to send and receive convenient, cost-effective and timely cross-border payments.

- **Collaboration:** Needed payment system improvements are collectively identified and embraced by a broad array of payment participants, with material progress in implementing them.

All proposals submitted through the Task Force’s assessment process will be assessed against the Effectiveness Criteria to determine how well solutions can achieve the desired outcomes associated with improving the U.S. payments system.

The following proposal by North American Banking Company and the Independent Community Bankers of America® (ICBA) is submitted as part of this process.
Executive Summary

The Independent Community Bankers of America (ICBA) and North American Banking Company have developed a faster payment solution that achieves the two objectives of the Faster Payments Task Force: 1) it has been tested to meet consumers’ requirements for convenience, simplicity and security, and 2) it aligns with the goals of the Faster Payments Task Force to achieve a safe, ubiquitous and faster payments capability in the United States.

The proposed solution has two primary components:

I. **All Payments App**: The All Payments App is a mobile application that financial institutions can white-label and offer to their customers to originate secure transactions that clear and settle through the ACH network using Same Day ACH credit push. The app is secure, intuitive and easy to use. It also has the security, surety, record keeping and other critical elements that accrue to any payment made by ACH credit. It uses existing processes and rules where possible but extends them in a way to ensure flexibility while maintaining security, openness and competition.

II. **Payments Directory**: The Payments Directory facilitates the payment made with the All Payments App by mapping a participant’s email address or a unique alias identification to financial institution routing information. The directory is interoperable with other faster payment solutions, enables ubiquity, and eliminates the need for payers to know recipients’ sensitive (personally identifiable) information.

Together, the **All Payments App** and the **Payments Directory** leverage the vastness and connectivity of the ACH network and achieve the two critical success factors: security and convenience. Security safeguards include state-of-the-art security functionality built into the app’s design and the use of the ACH network. The All Payments App also offers 24/7 mobile access on any device and is offered by the user’s financial institution, which offers convenient customer support. It also accelerates adoption by using existing infrastructure and technology, such as the ACH network and onboard mobile security.

Our proposal is based on the mutual interests of financial institutions and consumers. The system has been developed, tested, and deployed and is ready for broader utilization. Moreover, it offers a self-funding growth plan to promote widespread implementation as the mobile-based faster payments solution for the United States.
## Use Case Coverage

### Supported Use Case Coverage Summary

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Supported (Y/N)</th>
<th>Cross-border (Y/N)</th>
<th>Examples of payments supported</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business to Business (B2B)</td>
<td>N</td>
<td>N</td>
<td>Currently does not apply</td>
<td>This use case is expected to grow with expanded distribution of the All Payments App intended for B2B use.</td>
</tr>
<tr>
<td>Business to Person (B2P)</td>
<td>Y</td>
<td>N</td>
<td>The solution may be used by businesses to process payments to individuals for recurring items such as payroll or ad hoc payments such as bonuses, commissions, expense reimbursements, or payments for insurance claims.</td>
<td>The solution enables businesses to send regular or ad hoc payments to a majority of their employees by making the app available to them from an FI currently offering it, as well as connecting with other FIs as ubiquity is achieved.</td>
</tr>
<tr>
<td>Person to Business (P2B)</td>
<td>Y</td>
<td>N</td>
<td>This solution allows P2B payments to be initiated by a consumer to a business via an online/web authorization, mobile authorization (via SMS or a mobile app), or in-store via technology such as RFID or NFC communication.</td>
<td>Current implementation limits transactions to $1,000. Each sending FI defines velocity and transaction limits. The solution enables businesses to accept consumer-initiated payments for purchases of merchandise or bill payments for single or recurring bills.</td>
</tr>
<tr>
<td>Person to Person (P2P)</td>
<td>Y</td>
<td>Y</td>
<td>The solution is used to initiate P2P payments via a mobile app or SMS message. As the directory grows and achieves ubiquity, payments can be sent to a growing number of recipients. The growth phases include: Level 1- Users who bank at the same institution. Level 2- Users who bank at two different institutions that both participate in the scheme. Level 3- Users who participate in two different payments schemes and are connected via the Payments Directory. Future phases of the solution allow for SMS text notifications notating the purpose of the payment to be sent from the Originator to the Recipient</td>
<td>The solution enables P2P payments to a growing number of accounts as the directory grows.</td>
</tr>
</tbody>
</table>
## Cross-border Use Case Coverage

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Non-US Corridor(s) and Systems</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business to Business (B2B)</strong></td>
<td>Not presently applicable</td>
<td>Not currently implemented. The system can be expanded to include IAT transactions via if ACH when the customer demand arises.</td>
</tr>
<tr>
<td><strong>Business to Person (B2P)</strong></td>
<td>Not presently applicable</td>
<td>Not currently implemented. The system can be expanded to include IAT transactions via if ACH when the customer demand arises.</td>
</tr>
<tr>
<td><strong>Person to Business (P2B)</strong></td>
<td>Not presently applicable</td>
<td>Not currently implemented. The system can be expanded to include IAT transactions via if ACH when the customer demand arises.</td>
</tr>
<tr>
<td><strong>Person to Person (P2P)</strong></td>
<td>Limited present applicability</td>
<td>P2P payments where one party’s enrolled All Payments App account was at a foreign branch of a participating U.S. FI in an IAT country.</td>
</tr>
</tbody>
</table>
Proposal Assumptions

The key assumption of the proposed faster payments solution is the continued operation of the ACH network with its robust features, high level of security, capability to reach almost every financial institution, its existing rules, and a rule-making process regarding faster payments.

The second important assumption is that the Payments Directory described in this proposal will be developed and implemented either by bank, a group of banks, a multi-bank servicing organization such as the Federal Reserve and/or The Clearing House.

A third assumption is that a sufficient number of financial institutions will choose to participate by making the All Payments App available to their customers.

The proposers assert that there is a high likelihood that these three assumptions will be met and the faster payments scheme will grow rapidly.
Part A: Detailed End-to-End Payments Flow Description

Section 1: Solution Description

The All Payments App has been designed to facilitate end-to-end payment transactions, including: initiation, authentication, payer authentication, approvals by the payer’s provider, clearing, receipt, settlement and reconciliation, shown in Figure 1.

In addition to these eight stages of a payment, the solution also addresses a number of Faster Payments criteria:

- U.1 (Accessibility)
- U.2 (Usability)
- U.3 (Predictability)
- U.4 (Contextual data capability)
- U.5 (Cross-border functionality)
- U.6 (Applicability to multiple use cases)
- E.4 (Payment format standards)
- E.7 (Exceptions and investigations process)
- S.2 (Payer authorization)
- S.3 (Payment finality)
- S.4 (Settlement approach)
- S.5 (Handling disputed payments)
- S.6 (Fraud information sharing)
- S.7 (Security controls)
- S.9 (End-user data protection)
- S.10 (End-user /provider authentication)
The proposed faster payments scenario is described as follows:

- **F.1** (Fast approval)
- **F.2** (Fast clearing)
- **F.3** (Fast availability of good funds to payee)
- **F.4** (Fast settlement among depository institutions and regulated non-financial institution account providers)
- **F.5** (Prompt visibility of payment status)

The three scenarios below show phases of implementation in the evolution of the All Payments App lifecycle:

- **Level 1** – Both parties use accounts at the same financial institution, which is a participant in the All Payments App scheme, or both parties have the All Payments App on their mobile devices, but use accounts at different financial institutions.
- **Level 2** – The parties’ accounts are at different financial institutions. Both financial institutions participate in the All Payments App (Figure 2).
- **Level 3** – Each party participates in different, compatible, faster payments schemes and are connected by the Payments Directory.

*Figure 2: All Payments App Used between Two Financial Institutions*
1. Initiation

Initiation is the start of the payment process, beginning with a set of prerequisite steps made through a user’s participating financial institution. In this example, the payer completes the prerequisite process of loading the All Payments App and creating a payment, as shown in Figure 3 below.

**Figure 3: Initiation**

In addition, the Initiation stage of a payment also addresses a number of Faster Payments criteria:

- U.1 (Accessibility)
- U.2 (Usability)
- U.3 (Predictability)
- U.4 (Contextual data capability)
- U.5 (Cross-border functionality)
- U.6 (Applicability to multiple use cases)
- E.4 (Payment format standards)
- S.7 (Security controls)
- S.9 (End-user data protection)

Payment processing involves multiple stakeholders, which are defined as parties affected by an action. Table 1 shows a stakeholder matrix that demonstrates the same process in a more detailed format. These stakeholders will be used in the remainder of this document.
### Table 1: Stakeholders Involved in the Payment Process

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Role</th>
<th>Available Actions</th>
<th>Payment Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payer</td>
<td>Authenticated User of the All Payments App</td>
<td>• Make a payment&lt;br&gt;• Create/Edit/Remove a payee&lt;br&gt;• Edit profile&lt;br&gt;• Review All Payments App history</td>
<td>Send payment</td>
</tr>
<tr>
<td>Financial Institution</td>
<td>Financial Institution</td>
<td>• Processing payment&lt;br&gt;• Transaction history&lt;br&gt;• Payee confirmation for All Payments App</td>
<td>Processing payment</td>
</tr>
<tr>
<td>Payee</td>
<td>Authenticated User of the All Payments App</td>
<td>• Receive a payment&lt;br&gt;• Create/Edit/Remove a contact&lt;br&gt;• Edit profile&lt;br&gt;• Review All Payments App History</td>
<td>Receives payment</td>
</tr>
</tbody>
</table>

With the All Payments App, there are a few prerequisites to initiation. First, the financial institution’s customer is invited or requests the ability to participate in the program. Once approved, the financial institution provides instructions for downloading the app and may leverage existing application distribution solutions. Once the application is installed on a device, the process is very straightforward:

- **Step 1** – The user accesses his or her participating financial institution’s website where the application can be downloaded securely to their device.
- **Step 2** – Once the application is loaded, the mobile device operating system can request access to contacts, location and cellular data.
- **Step 3** – The application prompts the user to enter a name, email address, mobile number, account to be used for payments, and a password/passcode for security.
- **Step 4** – Confirmation from the user’s participating financial institution is obtained when the application is initially setup.

Level 1 will be used as the baseline for illustrating the detailed end-to-end payments flow description.

**NOTE:** Differences between Level 1, Level 2 and Level 3 will be noted in each section but not illustrated.
Level 1 – Both parties use accounts at the same financial institution, which is a participant in the All Payments App.

Figure 4 show the process, which is a prerequisite to the entire payment process (P2P, P2B and B2P).

**Figure 4: Prerequisites to Payment Request**

<table>
<thead>
<tr>
<th>Prerequisites to Payment Request</th>
<th>(P2P, P2B, B2P)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Application Load</strong></td>
<td></td>
</tr>
<tr>
<td>Start</td>
<td></td>
</tr>
<tr>
<td>Download Application from</td>
<td></td>
</tr>
<tr>
<td>Participating Financial Institution</td>
<td></td>
</tr>
<tr>
<td><strong>User Setup</strong></td>
<td></td>
</tr>
<tr>
<td>User Setup</td>
<td></td>
</tr>
<tr>
<td>Enter User Name</td>
<td></td>
</tr>
<tr>
<td>Enter Email Address</td>
<td></td>
</tr>
<tr>
<td>Enter Cell Phone Number</td>
<td></td>
</tr>
<tr>
<td>Enter Payment Account</td>
<td></td>
</tr>
<tr>
<td>Enter Password</td>
<td></td>
</tr>
<tr>
<td>Confirm Account Setup with Bank</td>
<td></td>
</tr>
<tr>
<td>End</td>
<td></td>
</tr>
</tbody>
</table>

Step 1 – The user selects the participating financial institution’s All Payments App and downloads the application.

Step 2 – Once downloaded, the application setup process begins.

Step 3 – A confirmation from the financial institution confirms that the application is fully functional.

Level 2 – If both parties have the All Payments App on their mobile devices but use accounts at different financial institutions, this prerequisite would be required since the user would still make the payment via the All Payments App.

Level 3 – Each party participates in different, compatible faster payments schemes and is connected by the Payments Directory. Level 3 does not play a role in initiation but enables interoperability and
settlement among other payment solutions and eliminates the need for financial institutions to develop multiple faster payment solutions.

**The All Payments App** scheme processes payments between users as credit push transactions, which reduces fraud and counter-party failure concerns. The following process enables a payer to send payments via the All Payments App. (Person to Person (P2P) and Person to Business (P2B) follow the same process.)

Step 1 – Login into the All Payments App using the passcode (entered during prerequisites phase)
Step 2 – A user can select one of three services:

**Service 1:** Create Contact – Create a payee contact with the appropriate account and financial institution information for sending a payment
   - Step 3 – Enter a payee user name
   - Step 4 – Enter the payee’s mobile number
   - Step 5 – Enter the financial institution’s account number
   - Step 6 – Select a participating financial institution from the on-app table
End

**Service 2:** Create Payment – Create the specific details for a payment (e.g., payee, amount, frequency, date)
   - Step 3 – Select a payee
   - Step 4 – Enter an amount
   - Step 5 – Select frequency of payment
     - One-time payment
     - Daily payment
     - Weekly payment
     - Monthly payment
   - Step 6 – Enter date
   - Step 7 – Confirm payment
   - Step 8 – Enter device security passcode to complete the payment request
   - Step 9 – Financial institution sends confirmation email
   - Step 10 – Financial institution leverages payment network (currently ACH) to complete payment
End

**Service 3:** View History – View all payment history for the All Payments App
   - Step 1 – View history
End
Level 2, where both parties have the All Payments App on their mobile devices, but use accounts at different financial institutions would follow the same process as Level 1. The communication process between financial institutions may vary but would be acceptable to their respective customers.
Level 3, where each party participates in different, compatible faster payments schemes and are connected by the central Payments Directory, would follow the same process as Level 1, however, at the point the where a payee’s contact is setup there could be a selection for “look-up user in Payments Directory” to complete the Contact setup.

**Business to Person (B2P) scheme** leverages existing processes to complete a B2P payment (process may vary by financial institution, but would be acceptable to their respective customers).

- **Step 1** – Financial institution identifies the payee
- **Step 2** – Financial institution creates a payment to payee
- **Step 3** – Payment is processed using existing rails (ACH) process
- **Step 4** – Payee’s participating financial institution will note the payment in the payee’s statement
- **Step 5** – End
Level 2, where both parties have the All Payments App on their mobile devices, but use accounts at different financial institutions, would not apply to this section since there is only one user with the All Payments App.

Level 3, where each party participates in different, compatible faster payments schemes and are connected by the central Payments Directory, would follow the same process as Level 1. However, at the point the where a financial institution or user needs routing information, a query would be sent to the Payments Directory.
Business to financial institution leverages existing processes to complete a B2B payment

Step 1 – Financial institution identifies the payee
Step 2 – Financial institution creates a payment to payee
Step 3 – Payment is processed utilizing existing rails (ACH) process
Step 4 – Payee’s participating financial institution will note the payment in the payee’s statement
Step 5 – End
Figure 7: Initiation Process (B2B)

Level 2, where both parties have the All Payments App on their mobile devices, but use accounts at different, financial institutions would not apply to this section since there no person in this process.

Level 3, where each party participates in different, compatible faster payments schemes and is connected by the central Payments Directory, would follow the same process as Level 1. However, at the point the
where a financial institution or user needs routing information, a query would be sent to the Payments Directory.

**U.1 (Accessibility - The Solution should enable any Entity (e.g., consumer, business, government agency, or financial institution) to initiate and/or receive payments to/from any Entity consistent with applicable legal restriction. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

Consumer accessibility is addressed through the All Payments App interface (Figure 8), which is currently demonstrated in an iOS format. It is highly accessible due to its inherent design, the ease with which it can be obtained by downloading the app, and its close integration with the ACH system which itself is highly accessibility.

**Figure 8: All Payments App Login and Payment screens**

Accessibility for businesses, financial institutions and government agencies will be achieved through the use of the Payments Directory and will allow the reuse of existing rails processes currently in place.

**U.2 (Usability means that the Solution should provide a straightforward and simple end-user experience and be available anytime, anywhere, any way, using a variety of access points. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

The usability of the All Payments App is achieved by simplicity and clarity in each step of the payment process-- from selecting a contact and entering a payment amount to confirming the payment of funds. The screens are uncluttered and the user is given a high degree of confidence that the payment process is working through payment confirmation emails.
• An on-app table and Payments Directory are the basis for secure routing of transactions extending usability to customers of all participating financial institutions, even those participating in competing faster payments schemes.
• The software is highly scalable and further enhances usability. The employment of commercial software ensures both the quality and the automatic upgrading of the base software platform. The All Payments App scheme operates on any:
  – mobile smartphone; current implementation uses iOS operating system;
  – mobile on-board security protocol, including fingerprint or other biometric identification;
  – existing mobile equipment and wireless networks, near-field communication and Bluetooth; and
  – existing payments networks, including ACH, wire, and dual-message card transaction. Current implementation uses ACH only.

U.3 (Predictability means that the solution should have a reliable and standard end-user experience for its baseline features. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

Once a payer has setup a payee, the payer is assured that subsequent payments to this payee will follow the same path, thus greatly curtailing human error in payment initiation.

Tests with non-technical users who were provided only a simple one-time demonstration prove that most customers can adapt to the system quickly and perform subsequent transactions with ease.
U.4 (Contextual data capability means that the solution should support the transfer or association of relevant information needed by end-users. Such information describes the reason for, or is otherwise related to the funds transfer, as appropriate to the use case. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

The All Payments App has the capability to log a payment made to a contact at a specific time. Additional payment information is collected through the financial institution during standard transaction processing (see Figure 10).

Figure 10: History

![History](image)

By using the contextual capabilities of mobile connected devices, the system will be able to participate in transactions using the extensive information capabilities of the ACH network. The system’s portability makes it ideal for delivery dockside confirmation of goods arrival and for letter of credit transactions as payment for delivered goods, and can be initiated safely.

U.5 (Cross-border functionality means that the solution should enable convenient, cost-effective, timely, secure and legal payments to and from other countries. Ratings are in Self-Assessment Against Effectiveness Criteria)

Currently, the system is being used for domestic transactions. Expansion to cross-border payments is accomplished by using the system to initiate ACH transactions using the IAT Standard Entry Class code (see Figure 11).

This service provides cross-border functionality and uses the Federal Reserve’s FedGlobal Service. Business practices and rules for transactions between participating countries is essentially pre-installed.
U.6 (Applicability to multiple use cases means that the solution should support payments in multiple use cases, and should demonstrate its ability to be extensible and flexible to additional payment use cases in the future. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

The All Payments App scheme is extremely extensible and flexible in its design by leveraging the latest in mobile application technology and the existing ACH process which meets the following uses cases and improves their features and services to other areas in business.

The following use cases are demonstrated in Part A Section 2 – Use Case Descriptions: P2P; P2B (e.g. merchant, bill payment); B2P (such as payroll distribution); and B2B (small scale, where the complexity of the use case or the necessity to provide documentation with the payment such as a letter of credit is not part of the B2B use case).

E.4 (Payment format standards means that the solution should be interoperable with current payment format standards (e.g., ISO 20022) and adaptable to future needs and standards. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

The payment formats used by the All Payments App follow established ACH record formats. The ACH network has been in operation for over 40 years and the record formats are widely recognized and adopted.
S.7 (Security controls means that the solution has layered and robust technical, access, operational, procedural, and managerial controls to address and foster security, including but not limited to the integrity and protection of confidential, private and sensitive data. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

The All Payments App provides the user with a passcode challenge response when the user accesses the application from the mobile device. Also, the device performs a challenge response request at the point of payment with a final approval prior to committing a payment request to the financial institution. In addition to the login being device-specific, the access control features are easy to use with big buttons and large, clear text instructing the user throughout the process.

Passcodes are used for user authentication to the application and the device operating system security is used to confirm payment requests.

S.9 (End-user data protection means that the Solution should have controls and mechanisms to prevent the unintended exposure of end-user data. End-user data, both digital and physical, should be protected in transit and at rest, before, during, and after a transaction, so that it is not exposed in-the-clear. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

The All Payments App includes Passcode security for accessing the application as well as iOS security to ensure that a payment is secured.

- iOS has inherent security for accessing the device.
- Masked passcode for access the All Payments App within the device.
- iOS security is leveraged for confirming a payment.

All contact and payment history data is masked for security within the device itself and cannot be read through clear text. In addition to the device security, the All Payments App will leverage the security protocols established by the participating financial institution and existing ACH security rules.
2. Authentication

The All Payments App end-user identity is created by performing the prerequisites mentioned in Section 1 of Part A. This section focuses on the security features associated with authentication, including protecting sensitive information. In addition, the Initiation stage of a payment, the following have been identified as strengths of the solution in relation to a number of Faster Payments criteria:

- U.2 (Usability)
- U.3 (Predictability)
- S.7 (Security controls)
- S.9 (End-user data protection)
- S.10 (End-user /provider authentication)

Level 1 will be used as the baseline for illustrating the detailed end-to-end payments flow description. Differences between Level 1, Level 2 and Level 3 will be noted in each section but not illustrated.

The scheme processes payments between users as credit push transactions, which reduces concerns related to fraud and counter-party failure. The following process enables a payer to send payments via the All Payments App:

Person to Person (P2P), Person to Business (P2B), Business to Person (B2P) and Business-to-Business (B2B) will follow the same process as noted below and per the illustration.

- **User Identity** – Secured in All Payments App through masking.
- **Device Access** – Uses iOS device security.
- **Application Access** – User credentials for application access are securely masked in the All Payments App.
- **Payment Submission** – Payment credentials are secured by leveraging the iOS security framework.
- **Business and financial institution access and authentication** – Leverages existing solution to enable extensibility and flexibility with changes in payments security, thereby protects the service the technology provider’s reputation is attached to.
Figure 12: Authentication Process


- Start
- Business identifies payee
- Submit payment to payee (via bank)
- Business verification and validation

- Payment is prepared by bank
- Leverage Rails (ACH)
- Existing Clearing (CP)
- Existing Reconciliation Process
- Payment is received by bank
- Bank statement
- PAYEE
- End
Level 2, where both parties have the All Payments App on their mobile devices, but use accounts at different financial institutions, would follow the same process as Level 1. The Authentication process may vary with the financial institution, but would be what each participating financial institution’s customers find acceptable.

Level 3, where each party participates in different, compatible faster payments schemes and are connected by the central Payments Directory, would follow the same process as Level 1.

**U.2 (Usability means that the Solution should provide a straightforward and simple end-user experience and be available anytime, anywhere, any way, using a variety of access point. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

- The usability of the All Payments App is achieved by simplicity and clarity in each step of the Authentication process: from accessing the All Payments App to entering a payment and confirming the payment of funds. The Authentication process is uncluttered and the user is given a high degree of confidence that the payment process is working through payment confirmation emails.
- An on-app table and central Payments Directory are the basis for secure routing of transactions extending usability to customers of all participating financial institutions, even those participating in competing faster payments schemes.
- The software is highly scalable in both directions and further enhances authentication usability. The employment of commercial software ensures both the quality and the automatic upgrading of the base software platform. The All Payments App scheme operates on any:
  - mobile smartphone; current implementation uses iOS operating system;
  - mobile on-board security protocol, including fingerprint or other biometric identification;
  - existing mobile equipment and wireless networks, NFC, and Bluetooth; and
  - existing payments networks, including ACH, wire, and dual-message card transaction.
  Current implementation uses ACH only.

**U.3 (Predictability means that the Solution should have a reliable and standard end-user experience for its baseline features. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

Once a payer has setup the All Payments App and created the initial password and payment passcode the user can be assured that subsequent authentication challenges will follow the same path, thus greatly reducing security risks in the payment process.

Tests with non-technical users who were provided only a simple one-time demo have demonstrated that average financial institution customers can easily learn to use the system.

**S.7 (Security controls means that the Solution has layered and robust technical, access, operational, procedural, and managerial controls to address and foster security, including but not limited to the integrity and protection of confidential, private and sensitive data. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

The All Payments App provides the user with a request to authentication, by use of the passcode the user is able to the application from the mobile device. The device performs a challenge response request at the point of payment with a final approval prior to committing a payment request to the financial
In addition to the login being device-specific, the previously mentioned access control features are easy to use with big buttons and large, clear text instructing the user throughout the process.

S.9 (End-user data protection means that the Solution should have controls and mechanisms to prevent the unintended exposure of end-user data. End-user data, both digital and physical, should be protected in transit and at rest, before, during, and after a transaction, so that it is not exposed in-the-clear. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

All Payments App includes passcode security for accessing the application as well as iOS security to ensure that a payment is secured:

- iOS has inherent security for accessing the device;
- masked passcode for access the All Payments App within the device; and
- iOS security is leveraged for confirming a payment.

All contact and payment history data is masked for security within the device itself and cannot be read through clear text. In addition to the device security the All Payments App will leverage the security protocols established by the participating financial institution and existing ACH security rules.

S.10 (End-user/provider authentication – The level of end-user/provider authentication would vary with the financial institution, but would be what each participating financial institution’s customers find acceptable. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

The All Payments App performs end-user/provider authentication through several methods using its own level of security and device level security. Provider authentication will be accomplished through existing ACH processes; a new authentication process for providers is not required.
3. Payer Authorization

The All Payments App payer authorization process is for the end-user to enter a passcode confirming they wish to make a payment then they will be prompted to confirm the payment prior to the payment being sent to a participating financial institution.

Revoking a payment will require the assistance of participating financial institution to ensure the payment is not processed. Pre-authorization and changing of relevant parameters for pre-authorization will follow existing processes which may vary with the financial institution, but would be what each participating financial institution’s customers find acceptable. In addition, the Initiation stage of a payment, the following have been identified as strengths of the solution in relation to a number of Faster Payments criteria:

- U.2 (Usability)
- U.3 (Predictability)
- S.7 (Security controls)
- S.9 (End-user data protection)
- S.10 (End-user /provider authentication)

Figure 13 illustrates the process flow for payer authorization for P2P and P2B. B2P and B2B would follow existing payer authorization processes.
Figure 13: Payer Authorization Process (P2P and P2B)

Level 2, where both parties have the All Payments App on their mobile devices, but use accounts at different financial institutions would follow the same process as Level 1. The payer authorization process may vary with the financial institution, but would be what each participating financial institution’s customers find acceptable.
Level 3, where each party participates in different, compatible faster payments schemes and are connected by the central Payments Directory would follow the same process as Level 1 for payer authorization.

**U.2 (Usability means that the Solution should provide a straightforward and simple end-user experience and be available anytime, anywhere, any way, using a variety of access points. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

The All Payments App simplistically payer authorization process in the payments area offers the user the ability to “double-check” their payment information prior to committing to the payment process. The screens are uncluttered and the user is given a high degree of confidence that the payment process is working through payment confirmation emails.

**U.3 (Predictability means that the Solution should have a reliable and standard end-user experience for its baseline features. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

Once a payer has setup a payment and has confirmed through the All Payments App that the information they entered is correct, then the payer authorization process is complete on the end-user’s side, financial institution portion of a payer’s authorization and pre-authorization will remain as they are today. The payer is assured that subsequent payments through this process will follow the same path, thus greatly curtailing human error in payer authorization process.

**S.2 (Payer authorization. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

The All Payments App payer authorization process is accomplished through the Confirmation process and the existing financial institution authorization processes.

**S.7 (Security controls for Payer Authentication. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria).**

The All Payments App payer authorization process uses a two-step process where the end-user must provide a passcode to create a payment and confirm they wish to make a payment. Payer authorization for B2B and B2P will follow existing process and practices for authorization.

**S.9 (End-user data protection means that the Solution should have controls and mechanisms to prevent the unintended exposure of end-user data. End-user data, both digital and physical, should be protected in transit and at rest, before, during, and after a transaction, so that it is not exposed in-the-clear. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

All Payments App includes Passcode security for accessing the application as well as iOS security to ensure that a payment is secured:

- iOS has inherent security for accessing the device;
- masked passcode for access the All Payments App within the device; and
- iOS security is leveraged for confirming a payment.

All contact and payment history data is masked for security within the device itself and cannot be read through clear text. In addition to the device security, the All Payments App will leverage the security protocols established by the participating financial institution and existing ACH security rules to securely complete a payer authorization.
4. Approval by the Payer’s Provider

The All Payments App receives an approval by the payer’s providers upon a successful completion of the payment request/funds validation which is shown on payer’s All Payments App. The participating financial institution would generate an approval only once the payment is approved by the financial institution to be processed, as shown in the Figure 14.

In addition, the Initiation stage of a payment, the following have been identified as strengths of the solution in relation to a number of Faster Payments criteria:

- S.3 (Payment finality)
- S.7 (Security controls)
- S.9 (End-user data protection)
- F.1 (Fast approval)
- F.2 (Fast clearing)

This is illustrated in Figure 14 below.
Level 2, where both parties have the All Payments App on their mobile devices, but use accounts at different financial institutions would follow the same process as Level 1. The approval by payer’s
provider process may vary with the financial institution, but would be what each participating financial institution’s customers find acceptable.

Level 3, where each party participates in different, compatible faster payments schemes and are connected by the central Payments Directory would follow the same process as Level 1 for the approval by payer’s provider.

**S.3 (Payment finality in the context of approval by the payer’s provider Authentication. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

Once the Payment is completed and the payee receives confirmation by email and in the All Payments App History, the payment is considered complete.

**S.7 (Security controls finality in the context of approval by the payer’s provider authentication. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

The All Payments App uses existing financial institution security and efficiencies to produce an approval to the payer. The application will store the payment approval in the payment history and can be viewed at any time by the end-user.

**S.9 (End-user data protection means that the Solution should have controls and mechanisms to prevent the unintended exposure of end-user data. End-user data, both digital and physical, should be protected in transit and at rest, before, during, and after a transaction, so that it is not exposed in-the-clear. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

All payment history data is masked for security within the device itself and cannot be read through clear text. In addition to the device security, the All Payments App will leverage the security protocols established by the participating financial institution and existing ACH security rules to securely complete the approval to the payer.

**F.1 (Fast approval in the context of approval by the payer’s provider authentication, Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria).**

The All Payments App uses the mobile devices connection to the internet to process the payment and gain a fast approval of the payment. The mobile network as well as leveraging existing high speed banking platforms allow the All Payments App to receive approval form the payer’s provider in record time.

**F.5 (Prompt visibility of payment status in the context of approval by the payer’s provider Authentication. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

The All Payments App provides the payee with a visual representation of the payment and its approval by the provider. The history portion (Figure 15) of the application retains this information securely.
5. Clearing

The process for the exchange of relevant payment information between a payer’s and a payee’s providers (financial institution or regulated non-financial institution account provider) uses existing processes, so no change is required to the existing solution. This includes payment format (message) standards used, the necessary communication processes, and how long the clearing process will take from the point of completion of payment initiation completed through leveraging the highly secure and reliable solution that exists today in FIs.

In addition, the Initiation stage of a payment, the following have been identified as strengths of the solution in relation to a number of Faster Payments criteria:

- E.4 (Payment format standards)
- S.7 (Security controls)
- S.9 (End-user data protection)
- F.2 (Fast clearing)

Level 2 and Level 3 would both follow this process for clearing.

**E.4 (Payment format standards. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**

Existing payment format standards are used in clearing, therefore no change is necessary for successful processing of All Payments App payments.
S.7 (Security controls in the context of clearing standards. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

Existing security controls are used in clearing, therefore, no change is necessary for successful processing of All Payments App payments.

S.9 (End-user data protection in the context of clearing. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

End-user data protection in the context of clearing will leverage existing processes and rules to ensure the successful processing of All Payments App payments.

F.2 (Fast clearing in the context of clearing. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)

Fast clearing is accomplished by leveraging the existing financial institution clearing processes.

6. Receipt

The Receipt is visible to the payer on their device once the payment is submitted and then through a confirmation email from the participating financial institution once the payment is completely processed. The payee will be provided a receipt from their participating financial institution by way of a statement, as shown in the following Figure 16.

In addition, the Initiation stage of a payment, the following have been identified as strengths of the solution in relation to a number of Faster Payments criteria:

- U.1 (Accessibility)
- U.2 (Usability)
- U.3 (Predictability)
- U.6 (Applicability to multiple use cases)
- S.5 (Handling disputed payments)
- S.7 (Security controls)
- S.9 (End-user data protection)
- F.3 (Fast availability of good funds to payee)
- F.5 (Prompt visibility of payment status)

The All Payments App leverages the existing security process for receipt processing and delivery.
Figure 16: Receipt Process (P2P and P2B)

Level 2, where both parties have the All Payments App on their mobile devices, but use accounts at different financial institutions, would follow the same process as Level 1.

Level 3, where each party participates in different, compatible faster payments schemes and are connected by the Payments Directory, would follow the same process as Level 1.
U.1 (Accessibility - The Solution should enable any entity (e.g., Consumer, business, government agency, or financial institution) to initiate and/or receive payments to/from any Entity consistent with applicable legal restriction. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria) Receipt accessibility is addressed by the All Payments App History and email confirmation that is sent once the payment is processed successfully. The documentation contained in the receipt would vary by financial institution but can be assumed to meet the accessibility requirements of each financial institution’s customers.

U.2 (Usability means that the Solution should provide a straightforward and simple End-User experience and be available anytime, anywhere, any way, using a variety of access points. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria) The All Payments App displays transaction history and payment confirmation information clearly and precisely via the user interface on the device.

U.3 (Predictability means that the Solution should have a reliable and standard end-user experience for its baseline features. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria) The All Payments App has several means of ensuring predictability of the receipt. The end-users statement, All Payments App history, and email confirmation will serve as the means in which a receipt is provided.

U.6 (Applicability to multiple use cases means that the Solution should support payments in multiple use cases, and should demonstrate its ability to be extensible and flexible to additional payment use cases in the future. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria) The All Payments App receipt can be seen in several contexts, end-users statement, All Payments App history, and email confirmation. Payment receipts will vary by financial institution but can be assumed to meet the fast availability of good funds to payee requirements of each financial institution’s customers.

S.5 (Handling disputed payments in the context of receipt. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria). The All Payments App will leverage existing processes for disputes.

S.7 (Security controls means that the Solution has layered and robust technical, access, operational, procedural, and managerial controls to address and foster security, including but not limited to the integrity and protection of confidential, private and sensitive data. Ratings are in Self-Assessment Against Effectiveness Criteria) The All Payments App security controls are used to provide a secure manner in which the payment receipt can be viewed in the All Payments App history and the end-users email (setup during prerequisites).
S.9 (End-user data protection means that the Solution should have controls and mechanisms to prevent the unintended exposure of end-user data. End-user data, both digital and physical, should be protected in transit and at rest, before, during, and after a transaction, so that it is not exposed in-the-clear. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
End-user data protection is inherent in the application by masking of the All Payments App history and through existing financial institution security processes.

F.3 (Fast availability of good funds to payee in the context of receipt. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Fast availability of good funds to payee is maintained through leveraging the existing financial institution processes and would vary by financial institution but can be assumed to meet the fast availability of good funds to payee requirements of each financial institution’s customers.

F.5 (Prompt visibility of payment status in the context of receipt. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Prompt visibility of payment status is maintained through leveraging the existing financial institution processes and would vary by financial institution but can be assumed to meet the prompt visibility of payment status requirements of each financial institution’s customers.
7. Settlement

Settlement for the All Payments App is completed by financial institutions and thereby offers the protection of regulated, examined institution.

In addition, the Initiation stage of a payment, the following have been identified as strengths of the solution in relation to a number of Faster Payments criteria:

- S.4 (Settlement approach)
- S.7 (Security controls)
- S.9 (End-user data protection)
- F.4 (Fast settlement among depository institutions and regulated non-financial institution account providers)

Level 2 and Level 3 will follow the same process for Settlement.

**S.4 (Settlement approach. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**
Settlement is addressed through existing financial institution processes.

**S.7 (Security controls. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**
Security controls are maintained through leveraging the existing financial institution processes.

**S.9 (End-user data protection. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**
End-user data protection is maintained through leveraging the existing financial institution processes.

**F.4 (Fast settlement among depository institutions and regulated non-financial institution account providers. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)**
Fast settlement among depository institutions and regulated non-financial institution account providers is maintained through leveraging the existing financial institution processes.
8. Reconciliation

Reconciliation is done by financial institutions and thereby protects the service the technology provider’s reputation that the service is attached to.

In addition, the Initiation stage of a payment, the following have been identified as strengths of the solution in relation to a number of Faster Payments criteria:

- U.3 (Predictability);
- E.7 (Exceptions and investigations process)
- S.5 (Handling disputed payments)
- S.6 (Fraud information sharing)
- S.7 (Security controls)
- S.9 (End-user data protection)

Level 2 and Level 3 will follow the same process for Reconciliation.

U.3 (Predictability. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Predictability is maintained through leveraging the existing financial institution processes.

E.7 (Exceptions and investigations process. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Exceptions and investigations process is addressed through leveraging the existing financial institution processes.

S.5 (Handling disputed payments. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Handling disputed payments is maintained through leveraging the existing financial institution processes.

S.6 (Fraud information sharing. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Fraud information sharing adheres to existing financial institution processes.

S.7 (Security controls. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
Security controls are maintained through leveraging the existing financial institution processes.

S.9 (End-user data protection. Ratings are in Part 3: Self-Assessment Against Effectiveness Criteria)
End-user data protection is maintained through leveraging the existing financial institution processes.
**Section 2: Use Case Description**

In this section we will show the details around the following four use cases:

- Person to Person Use Case #1 (Figure 17)
- Person to Business Use Case #2 (Figure 18)
- Business to Person Use Case #3 (Figure 19)
- Business to Business Use Case #4 (Figure 20)

Level 1, where both parties use accounts at the same participating financial institution in the All Payments App scheme, will be used in the following use cases. Payment processing involves multiple stakeholders, which are defined as parties being affected by an action. The following stakeholder matrix demonstrates the same process in a more detailed format (see below). These stakeholders will be used in the remainder of this document.

**Table 2: Stakeholders Involved in the Use Case Description**

<table>
<thead>
<tr>
<th>Stakeholder/Actors</th>
<th>Role</th>
<th>Available Actions</th>
<th>Payment Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payee</td>
<td>Authenticated User of the All Payments App</td>
<td>• Make a Payment  &lt;br&gt; • Create/Edit/Remove a contact  &lt;br&gt; • Edit Profile  &lt;br&gt; • Review Payment Application History</td>
<td>Send Payment</td>
</tr>
<tr>
<td>FI</td>
<td>Financial Institution</td>
<td>• Processing Payment  &lt;br&gt; • Transaction History  &lt;br&gt; • Payee Confirmation for All Payments App</td>
<td>Processing Payment</td>
</tr>
<tr>
<td>Payer</td>
<td>Authenticated User of the All Payments App</td>
<td>• Make a Payment  &lt;br&gt; • Create/Edit/Remove a contact  &lt;br&gt; • Edit Profile  &lt;br&gt; • Review Payment Application History</td>
<td>Receives Payment</td>
</tr>
<tr>
<td>Business</td>
<td>Business of selling goods and services</td>
<td>• Make a Payment  &lt;br&gt; • Receive a Payment</td>
<td>Merchant</td>
</tr>
</tbody>
</table>
Person-to-Person Use Case #1

In this use case, we take a detailed look into each submission and receipt of information between two individuals. The details are communicated in a Unified Modeling Language that is intended to provide a standard way to visualize the design of the All Payments App.

Table 3: Person-to-Person Use Case #1

<table>
<thead>
<tr>
<th>Actor(s)</th>
<th>Action</th>
<th>Intended Result</th>
<th>Alternative Result</th>
<th>Alternative Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payer</td>
<td>Application (Setup/Config)</td>
<td>Confirmation from participating FI on application configuration</td>
<td>Failed confirmation</td>
<td>Retry application load</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Create Contact</td>
<td>Successful payment to contact</td>
<td>Failed payment</td>
<td>Reconfigure contact (Edit)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Payment</td>
<td>Confirmation from participating FI that payment was successful (email)</td>
<td>Failed payment</td>
<td>Check contact settings and/or contact participating FI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payer - FI</td>
<td>Existing Processes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payee – FI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payee</td>
<td>Receive Payment</td>
<td>Successful confirmation from financial institution that funds are transferred</td>
<td>Failed payment</td>
<td>Follow existing processes for failed payment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 17: Person-to-Person Use Case Flow
Person-to-Business Use Case #2

In this use case, we take a detailed look into each submission and receipt of information between a person and a business. The details are communicated in a Unified Modeling Language that is intended to provide a standard way to visualize the design of the All Payments App.

Table 4: Person-to-Business Use Case #2

<table>
<thead>
<tr>
<th>Actor(s)</th>
<th>Action</th>
<th>Intended Result</th>
<th>Alternative Result</th>
<th>Alternative Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payer &amp; Payer FI</td>
<td>Application (Setup/Config)</td>
<td>Confirmation from participating FI on application configuration</td>
<td>Failed confirmation</td>
<td>Retry application load</td>
</tr>
<tr>
<td>Create Contact</td>
<td>Successful payment to contact (confirmation from FI)</td>
<td>Failed payment</td>
<td>Reconfigure contact (edit)</td>
<td></td>
</tr>
<tr>
<td>Payment</td>
<td>Confirmation from participating FI that payment was successful (email)</td>
<td>Failed payment</td>
<td>Check contact settings and/or Contact Participating FI</td>
<td></td>
</tr>
<tr>
<td>Business</td>
<td>Receive Payment</td>
<td>Successful confirmation from financial institution that funds are transferred</td>
<td>Failed payment</td>
<td>Follow existing processes for failed payment</td>
</tr>
</tbody>
</table>
Figure 18: Person-to-Business Use Case Flow
Business-to-Person Use Case #3

In this use case, we take a detailed look into each submission and receipt of information between a business and a person. The details are communicated in a Unified Modeling Language that is intended to provide a standard way to visualize the design of the All Payments App.

Table 5: Business-to-Person Use Case #3

<table>
<thead>
<tr>
<th>Actor(s)</th>
<th>Action</th>
<th>Intended Result</th>
<th>Alternative Result</th>
<th>Alternative Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business (Business FI)</td>
<td>Payment</td>
<td>Confirmation from FI that payment was successful</td>
<td>Existing Process</td>
<td></td>
</tr>
<tr>
<td>Payee (Payee FI)</td>
<td>Receive Payment</td>
<td>Successful confirmation from financial institution that funds are transferred</td>
<td>Failed payment</td>
<td>Follow existing processes for failed payment</td>
</tr>
</tbody>
</table>

Figure 19: Business-to-Person Use Case Flow
Business-to-Business Use Case #4

At this time, the business-to-business process would be a future enhancement to the existing product. The Payments Directory would be used in processing the B2B payment.

The Payments Directory approach uses a table of routing information that is connected with account information. Figure 20 assumes that the payment is withdrawn from and deposited into the correct account. This routing approach leverages existing payments networks used for decades, with proven and effective accuracy, security and speed.

Figure 20: Business-to-Business Use Case Flow
### Section 3: Use Case by Effectiveness Criteria

<table>
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<td>U.3</td>
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PART B: BUSINESS CONSIDERATIONS

Introduction

This submission to the Faster Payments Task Force is being made by North American Banking Company and Independent Community Banks of America® (ICBA). The proposed solution includes two components designed to provide an ongoing path to a ubiquitous, secure and efficient faster payments system in the United States:

1. All Payments App system
2. Payments Directory

These two components work together to achieve global reach, promote competition and enable interoperability with existing and proposed payment schemes.

The key to our proposed system is that it leverages existing payments systems on the back-end and current consumer practices on the front-end. It is also designed to accommodate the widest range of financial institution, network and vendor approaches. The system allows for scalability and provides multiple business models to help financial institutions and technology firms serve their customers and align to their business practices and risk assessments. In short, the proposed faster payments system has been developed to benefit individuals, households, businesses and government entities that need to make payments fast, efficiently and securely with a minimum of additional technology on a simple, intuitive device that in most cases they already have.

North American Banking Company, a community bank with $400 million in assets, is located in the Twin Cities of Minneapolis-St. Paul, Minnesota. From its inception in 1998, the bank has had extensive experience in processing high volumes of checks and automated clearinghouse (ACH) payments. One of its founders, Michael Bilski, has been involved with payments processing his entire career, starting with rebate checks in the 1970s, experimenting with FRB Minneapolis using image technology in the late 1980s and early 1990s, and now pioneering the use of a mobile application to affect value exchange. Mr. Bilski is well known in the payments industry, serving as board member and executive officer of both NACHA - The Electronic Payments Association and UMACHA, a regional payments association. He serves on the ICBA Bank Operations and Payments Committee, The Remittance Coalition, and the Federal Reserve Faster Payment Task Force.

The Independent Community Bankers of America® (ICBA), the nation’s voice for more than 6,000 community banks of all sizes and charter types, is dedicated to representing the interests of the community banking industry and its membership through effective advocacy, education and high-quality products and services. With 51,000 locations nationwide, community banks employ 700,000 people, hold $3.8 trillion in assets, $3.1 trillion in deposits, and have $2.6 trillion in loans outstanding to consumers, small businesses and the agricultural community.

ICBA’s Bank Operations and Payments Committee is a member-driven committee that provides leadership for ICBA on payments, bank operations and technology matters. Its threefold mission is to: 1) address policy issues related to the delivery and security of financial services and payments, 2) create and support industry efforts at payment systems improvement to ensure the relevancy of
community banks in the payments system and in online financial services, and 3) maintain ongoing relationships with public and private sector organizations that play a crucial role in shaping the payments framework through regulations, rules and standards.

ICBA staff serve on the Board of Directors of the Accredited Standards Committee X9, and are active in the NACHA rulemaking process, and in both Federal Reserve’s Faster Payments and Secure Payments Task Forces.

Scheme and System Overview

ICBA and North American Banking Company, the developer of the All Payments App system, have been closely involved for the past seven years in the emergence and evolution of app-based mobile payments. This experience has provided both organizations with a depth of experience in mobile, faster payments that is matched by few others in the United States. Specifically, we have in-depth experience with the technological and regulatory aspects of a faster payments ecosystem, the critical front-end user experience aspects of the All Payments App, and the detailed procedures and security aspects of back-end integrated financial institution processing.

The first component, the All Payments App system, operates using the following components:

- Mobile smartphone, currently implemented using the iOS operating system.
- Mobile on-board security protocol, including fingerprint or other biometric identification.
- Existing mobile equipment and wireless networks, including NFC and Bluetooth.
- Existing payments networks, currently based on ACH processing, with the ability to handle wire and dual-message card transaction networks.

Users can change mobile device type, model or brand and export the payments app to the newly acquired device. Similarly, a change in mobile transmission carrier or service provider will not impact compatibility.

We are not aware of any major, widely used, financial institution-connected mobile fast payments system in the U.S. today that is easier to use than the All Payment App system. The steps required to complete a transaction with the app are clear, familiar, intuitive and logical. Tests with non-technical users who were provided a simple one-time demo have demonstrated that average financial institution customers can easily learn to use the system. During testing, subsequent transactions became second nature to system users.

One key to the All Payment App’s simplicity is that it uses the existing financial institution accounts of the sender and receiver (payer and payee) and leverages the ACH system for clearing and settlement, including Same Day ACH scheduled for September 2016 implementation. The scheme processes payments between users as credit push transactions, which reduces concerns related to fraud and counter-party failure. Initiated at one end and confirmed at the other end by mobile devices the solution uses existing infrastructure, which will result in faster implementation and lower barriers to adoption.
The use of the ACH network ensures connection to every bank and credit union in the United States, enabling payment senders to send payments to any receiver’s DDA account. Error notification and resolution is standardized between the participating financial institutions by the ACH Operating Rules and existing payments regulations. The system deploys standard communication and messaging protocols and uses two channels of the mobile phone. The ACH network is used for the remainder of the transaction.

All Payments App Transaction Model

Neither ICBA, North American Banking Company, nor the payments consultants hired by the proposers, have encountered a mainstream, successful consumer mobile device based payments system that is as fast—from initiation to settlement by a financial institution—and easy to use as the All Payments App system. Schemes that might at first seem to be exceptions do not provide fast payment from the consumer’s perspective. To a consumer, fast payment means that the transaction made appears on his or her demand deposit account (DDA) right away. The ICBA-North American Banking proposal builds a payment system that moves funds from the sender’s financial institution account to the receiver’s financial institution account, with funds availability determined directly by financial institution and NACHA rules, in contrast to the following:

- Dwolla and PayPal – The timing of the eventual link to a financial institution account is variable with both systems.
- M-Pesa or similar schemes -- The speed of transaction applies only to the mobile phone credits that are used as markers until, hours, days or weeks later when they are exchanged for cash.
- clearXchange (a consortium of six of the largest banks) --. There is an extra fee to sender if the payment is going to a clearXchange bank other than the sender’s. There are daily limits on amounts transferred. Payments not withdrawn from the sender’s account only as used. Senders must prefund a scheme account. Funds are not available to the recipient for two to three business days.
- The Clearing House -- (Initial rollout will involve its 20 large-bank members and is oriented towards large and high volume transactions. It lacks any consumer level services or user support and would also require an intermediary for other providers to participate.

Again, unlike the other examples referenced above, the All Payments App system has none of these limitations, in which access to the payment value is either outside the user’s control or dependent on separate, post-payment processing actions taken by an intermediary.

In the proposed scheme, a payment instruction begins on the payer’s mobile device and is immediately transmitted to the payer’s financial institution and from there to the ACH network. The speed of settlement is determined by the payer and the payer’s financial institution and is governed by NACHA Operating Rules. Given that the ACH network is progressing along a planned track of faster transaction completion, beginning with the current same-day settlement standard, the proposed system can accommodate secure, ubiquitous, faster payments upon start up. At the same time, the infrastructure of the proposed scheme is flexible enough to accommodate other payment networks with faster settlement capabilities, both existing payment schemes and other proposed schemes.
Accordingly, the proposed system’s design provides a path from the DDA of the payment sender to the DDA of the receiver and represents the faster mobile-based payments scenario best suited to U.S. payers, payees and U.S. financial institutions. The ACH system is well established, cost-effective, and close to ubiquitous, including international transactions via the international ACH transaction (IAT) participating countries. ICBA and North American Banking Company envision expansion of the scheme potentially to include additional payments networks.

**Payments Directory Operating Model**

The Payments Directory component provides an easy and secure way for consumers to identify one another when making and receiving payments. It is designed to build on schemes used in existing payments apps without requiring additional credentials or putting financial institution information at risk. Experience from deploying the All Payments App demonstrates that a Payments Directory containing routing information provides the most effective approach to maintaining security and usability.

The proposed Payments Directory is detailed later in this proposal. In brief, the directory approach uses a table of routing information that is connected with account information. This table assures that the payment is withdrawn from the correct account and deposited into the correct account. An important strength of this routing approach is that it leverages existing payments networks, has been used for decades, and has proven to be effective in respect to accuracy, security and speed.

Because the user relies on the directory displaying only the recipient’s name, not the specific account number, segregation of confidential information and security are assured. Only the financial institutions involved with sending and receiving the transaction have access to the sensitive account-level information.

The Payments Directory also contains information that facilitates payments between the proposed and existing payments schemes. This approach will facilitate the use of a unique alias for each participant (e.g., email address) to be cross-referenced with a user’s financial institution routing information. An important strength of this approach is that the alias can be widely distributed—even to strangers—with little risk to the accountholder, as this is a credit push transaction scheme.

The proposal’s Payments Directory solution is a powerful tool for both ubiquity and increased competition in faster payments. With a securely hosted directory managing the most complex element in the completion of a transaction, the competitive field for initiating payments and receiving payment is opened to a wide set of current and potential participants. These new competitors include not only those whose offering mimics the proposed All Payments App system, but also new competitors that handle the initiation and receipt of a payment in a different way.
1. Implementation Timeline, Phasing and Milestone Dates

The evolution of the proposal, including both the All Payments App and the Payments Directory, will scale in the following fashion through three levels:

Table 6: Implementation Levels

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
</table>
| Level 1 | • Both parties have the app on their mobile devices  
          • Both parties use accounts at the same FI which participates in the scheme |
| Level 2 | • Both parties have the app on their mobile devices but use accounts at different FIs  
          • Both FIs participate in the scheme |
| Level 3 | • Both parties have the app on their mobile devices but use accounts at different FIs  
          • One FI participates in the scheme  
          • The other FI participates in a different, compatible app-based mobile payments scheme |

The system is presently at Level 2. The Payments Directory concept comes into play at Level 3.

Table 7: Timeline

<table>
<thead>
<tr>
<th>Implementation Milestone</th>
<th>Status / Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Testing (2 banks, 20 users, 400 transactions)</td>
<td>Completed 2013</td>
</tr>
<tr>
<td>Signing of Agreements with Participating FIs</td>
<td>2013 and continuing</td>
</tr>
<tr>
<td>Enable use by two parties with accounts at the same FI or two parties with accounts at different FIs both participating in the scheme</td>
<td>2016</td>
</tr>
<tr>
<td>Distribution of software application to participating FIs</td>
<td>2016 and continuing</td>
</tr>
<tr>
<td>Distribution of software application to payers/payees</td>
<td>2016 and continuing</td>
</tr>
<tr>
<td>Development and third party hosting of the Payments Directory</td>
<td>2017 – 2020</td>
</tr>
</tbody>
</table>

The proposed mobile faster payments system was first developed and tested in 2013. It was originally built with iOS6, updated to iOS7 and can be further updated. The Payment Directory element of the system is not required for the system to work in two of its three levels when transactions are between mutually known parties. The scheme can be up and running in a matter of months at smaller institutions and within a year to 18 months at very large financial institutions. The implementation timeline to the third payment level consists of two tasks: 1) distribution of the software app to more payers and payees and 2) development and ongoing operation of the Payments Directory.

The use of the ACH network ensures connection to every bank and credit union in the United States, enabling payment senders to send payments to any receiver’s DDA. Error notification and resolution
is standardized between the participating financial institutions by the ACH Operating Rules and existing payments regulations. The system deploys standard communication and messaging protocols and uses two channels of the mobile phone; the ACH network is used for the remainder of the transaction.

Following the initial implementation, migration from phase to phase (level to level) is simplified because as the generation of the payment instruction does not change. Instead, the added sophistication of in-app tables and the Payments Directory continue to grow to allow additional endpoints for the payments. Existing technology and processes accomplish all of the following:

- validation of the payment request to the sender;
- notification of payment delivery to the sender;
- format and transmission of the payment instruction to the sending and receiving financial institutions;
- funds withdrawal from the sender’s account and funds deposit to the recipient’s account;
- clearing and settlement;
- account posting and statement rendition; and
- security and customer service.

Use Cases -- Domestic Functionality

The proposed All Payments App system has been designed so that none of its technology, functionality or features alter the security protocols of the ACH system or law that guarantees the security of the outsourcing financial institution’s customer records. The system assures that transactions made using the scheme are as secure, certain of delivery and accurate as any ACH transaction.

Just as the majority of current ACH transactions by value are handled using the functions and capacities of The Clearing House and the Federal Reserve Banks, the same security and certainty of payment would automatically apply to payments conducted with the All Payments App system. This holds true whether the payment is person-to-person (P2P), business-to-person (B2P), person-to-business (P2B) or the envisioned business-to-business (B2B) function. Use cases are detailed in the following sections.

Person to Person Payments (P2P)

P2P encompasses a broad range of relatively high volume, mostly low value payment scenarios, such as the often cited splitting of the tab for dinner, paying the baby sitter, etc. It also includes time critical payments to a family member or other party. These scenarios can be achieved because the proposed system is inexpensive, easy for users to obtain, easy to learn to use, and backed by the user’s own financial institution.

Person to Business (P2B)

On-line purchases are similar to today’s process. In-store purchases can be made at any store where the merchant has the app. All that is necessary for a merchant to begin receiving payments is to receive and download the personal payment from the user’s financial institution. Given that most
chain merchants bank with one of the largest financial institutions, in most instances, P2B systems will be available early in the system’s development.

**Business to Business (B2B) and Contextual Functionality**

B2B payments, such as stores paying for delivered merchandise, can be received upon delivery. The B2B scenarios also include instances of contextual functionality in which the payment is an element of context of a business transaction that could include bills of lading, export licenses, quota control documents, confirmation of receipt for delivered goods, proof of in-transit insurance, etc. Such contextual information could be appended to the transaction by scanning documents into the context field of the payment. The system’s portability makes it ideal for delivery of dockside confirmation of goods arrival, and for Letter of Credit transactions as payment for delivered goods that can be initiated safely from the location at which delivery can be physically confirmed.

**Use Cases - Cross Border Functionality**

Cross-border functionality is provided to all IAT member countries through scheme-initiated payments processed from the sender’s financial institution to the payee’s financial institution via the ACH. This use of existing technology is another example of how easily the system can scale.

**Effectiveness Criteria – Implementation Timeline**

Following are specific comments on the implementation timeline for the Effectiveness Criteria.

**Accessibility**

The proposed system is highly accessible due to its simple, intuitive design; the ease with which it can be obtained by downloading the app; and its close integration with the ACH system. Unlike some other mobile phone-based payments systems, the All Payments App system does not require either party to possess or use a credit card. This makes the system available to a wider group of potential users and reduces costs.

The proposed system is also accessible to the universe of other faster payments schemes. The requirements for accessing the system are:

- possession of or access to a mobile phone or tablet;
- connection of the mobile phone or tablet to a mobile network carrier;
- possession a financial institution DDA;
- ability of the user to execute a very simple, intuitive set of steps to send or receive a payment: and
- limit on the language requirements of the app (users must be able to spell a limited lexicon of simple words in English to use the system, we expect that versions of the system in languages other than English would be rapidly developed and deployed).

Access for users with limited sight can be enabled through the provision of sound prompts. By using the current visual display there is no requirement for speaking to operate the system. Access for users with limited digital function could be enabled through voice to text software.
Access by new entrants and competitors is also addressed in the design. Competitors can participate in the Payments Directory without necessarily having to endorse the All Payments App scheme. The directory holds the potential of converting the natural competition between faster payments schemes into a competitive advantage for all schemes, thereby greatly speeding the point at which ubiquity can be reached.

**Usability**

The system and scheme are highly usable:

- payments settlement that meets expectations set by existing payments schemes (ACH, cards);
- the Payments Directory serves as the basis for secure routing between faster payments schemes;
- the software that is highly scalable; and
- integration with commercial software, where possible.

Users can change mobile device type, model or iOS level and export the scheme to the newly acquired device. Similarly, a change in mobile carrier or service provider will not impact compatibility. While the account information of frequent payees is currently stored in-app on the individual device, with the deployment of the Payments Directory, recipient account information would not have to be ported from a current device to a new device.

**Key Dependencies**

The dependencies in this proposal include:

- adoption and deployment of the All Payments App by financial institutions;
- mobile network connectivity and capacity;
- ACH system availability and continued operation as a ubiquitous and cost-effective payments network;
- maintenance of externally sourced software;
- distribution of the app to payers and payees, which is accomplished using the financial institutions as distribution hubs;
- implementation of the Payments Directory that enables payments exchange between financial institutions using the All Payment App solution and financial institutions supporting other mobile payments systems;
- certification of the directory by the appropriate regulatory authorities; and
- sufficient customer demand to generate enough revenue to cover operational costs.

**Possible Risks to the Timeline**

The principal risk to the delivery timeline is a delay in the development of the Payments Directory, which becomes an element of the system in the final phase. Although ubiquity is ultimately defined by user demand, delay in the system build-out could risk full system capability which can only be achieved by connecting multiple payment schemes.
2. Value Proposition and Competition

The App Payments App and Payments Directory scheme is designed to provide high value to all stakeholders at each stage of the payments lifecycle. The proposal allows stakeholders to develop their own competitive offerings, designed for their user market. At the same time, it is designed to use the standard industry systems and procedures that already enable access to new entrants and maintain a fair playing field for all types and sizes of institutions and firms, as follows.

Value to End-Users

- **Initiation** – Provides end-users a rapid, financial institution-centric, secure, easy to execute, low cost payments scheme.
- **Authentication** – Assures end-users that transactions are validated when initiated.
- **Payer Authorization** – Assures end-users the payer is valid.
- **Approval by Payer’s Provider** – Puts a regulated financial institution into the approval process before any funds are transmitted.
- **Clearing** – Assures end-users that clearing occurs rapidly and securely between financial institutions via the Federal Reserve.
- **Receipt** – Provides end-users with proof of the transaction from a financial institution.
- **Settlement** – Financial institution-to-financial institution settlement gives end-users surety against reversal of the transaction.
- **Reconciliation** – Finalizes the transaction for end-users.

Value to Technology Providers

- **Initiation** – Adds a valuable new functionality to the mobile phone.
- **Authentication** – Transactions are made by financial institutions and thereby protects the technology provider’s reputation.
- **Payer Authorization** – Transactions are made by financial institutions and thereby protects the technology provider’s reputation.
- **Approval by Payer’s Provider** – Transactions are made by financial institutions and thereby protects the technology provider’s reputation.
- **Clearing** – Transactions are made by financial institutions and thereby protects the technology provider’s reputation.
- **Receipt** – Transactions are made by financial institutions and thereby protects the technology provider’s reputation.
- **Settlement** – Settlement is performed by financial institutions and thereby protects the technology provider’s reputation.
- **Reconciliation** – Reconciliation is performed by financial institutions and thereby protects the technology provider’s reputation.

Value to Processors

- **Initiation** – Provides additional payments to be processed.
- **Authentication** – Authentication is performed by financial institutions and thereby protects the processor’s reputation.
Payer Authorization – Authorization is conducted by financial institutions and thereby protects the processor’s reputation.

Approval by Payer’s Provider – Approvals are done by financial institutions and thereby protect the processor’s reputation.

Clearing – Clearing is done by financial institutions and thereby protects the processor’s reputation.

Receipt – Receipt is handled by financial institutions and thereby protects the processor’s reputation.

Settlement – Settlement is performed by financial institutions and thereby protects the processor’s reputation.

Reconciliation – Reconciliation is performed by financial institutions and thereby protects the processor’s reputation.

Processors that act as insources for financial institutions, either on a technology or business process outsourcing model, will have an additional capability to offer the financial institutions for whom they process and a new service to leverage to potential additional financial institutions.

Effectiveness Criteria – Value Proposition

Additional comments on the Effectiveness Criteria and the value proposition of the proposed system are addressed in the sections below.

Enables Competition

In addition to the competitive features of the design detailed above, the proposed system enables competition by providing a path to system adoption. By ensuring adoption by all types of users, all types and sizes, and all types and sizes of technology providers and vendors, the proposed system will ensure continued fair competition and innovation in the U.S. payments system.

End-Users – End-users will adopt the system as it combines a familiar, easy way to make a faster payment that is conducted by their financial institution. Confidence in the ACH network is supported by its history of successful payments transmission, low error rates with a standardized method of error resolution, rules that are enforced and the oversight of the Federal Reserve System and NACHA. End-users probably will not know the names of the entities that provide them with a safe and secure new way to make faster payments, but they will be more likely to be early adopters due to their trust in their financial institution. In addition, financial institutions will likely conduct marketing campaigns to promote the new system— including the names of the ancillary producers—to their customers.

Technology Providers – Technology providers will be interested in the transaction volume available to them by supporting and/or operating the system. The All Payments App system presents an opportunity for additional earnings from a familiar, low-risk combination of the iOS operating system, the banking system and the ACH.
Processors – Processors will adopt the system because it offers higher transaction fees and lower risk than participating in a new payments method whose operating model or ownership is not transparent. Processing a transaction on the All Payments App carries no additional risk to the processor and offers a higher volume of transactions.

Predictability
The system offers high predictability that payments will be completed safely and correctly. The primary systems with any potential for system failure are the application, the mobile telephone transmission, the ACH system and the processing systems of the financial intuitions at each end of the transaction. The predictability of the latter two, ACH and financial institution processing, is among the highest predictability of commercial systems. The predictability of the telephone system also quite high.

Value-Added Services
Value-added services include the email notification to the recipient of the initiated payment and the large capacity for contextual data to travel with ACH payment. The scheme may also enable additional value added services in the future with advancements in mobile technology or the payments systems to which it links. The openness of the directory model also fosters a high expectation the system will continue to enable value-added services, primarily through the linkage to other faster payments systems.
3. Integration Effort

The personal payment feature of the All Payments App has been tested for three years and initial development is complete. While additional features may be added in the future, the system is ready for expanded market deployment, as follows:

- Level 1 -- Payments are made between people or businesses holding DDA accounts with the same financial institution.
- Level 2 -- Payments are made among multiple financial institutions using the personal payment app feature.

Continued expansion to holders of U.S. financial institution accounts known to the sender only depends on the continued population of the in-app table or the use of the Payments Directory. The directory allows the exchange of payments between parties that provide routing information to each other for the ACH system or to parties for whom the sender knows only the party’s email address and then via the ACH.

For use cases P2P, P2B, B2B, B2P, points of integration include:

- For users with accounts at the same financial institution:
  1. Each user downloads the app.
  2. The financial institution implements the personal payment app system.

For users at accounts at different financial institutions:

- Each user downloads the app.
- Each financial institution implements the personal payment app system.

- For users where one of the parties to the transaction uses a different mobile payments scheme:
  1. Establish a Payments Directory function that switches the personal payment app user’s message to the other user’s mobile payments scheme.
  2. Identify and certify a Payments Directory operator.

In the user steps below, the eight stages of the payment lifecycle are delineated. The functions accomplished by the ACH are not described in detail, as this is an existing and standard process.

For users with accounts at the same financial institution or different financial institutions:

- **Initiation** – Sender downloads the personal payment app.
- **Authentication** – Sender is enabled by financial institution to initiate payments.
- **Payer Authorization** – Sender uses mobile device security to sign-on to app.
- **Approval by Payer’s Provider** – Financial institution accepts and initiates payment instruction (velocity and frequency limits employed).
- **Clearing** – Clearing is accomplished through the ACH network.
- **Receipt** - Receipt is accomplished by the financial institution retrieving a file from the ACH Operator.
- **Settlement** - Settlement is either inter-account within the financial institution or via the ACH.
Reconciliation – Reconciliation is either inter-account within the same financial institution or via the ACH reconciliation process for different financial institutions.

For the Level 3 scenario in which payer and payee participate in different payments schemes, the Payments Directory helps to achieve the additional step of switching transactions between payments schemes.

Expanded Integration

Given the critical importance of expanding access to the U.S. payments system to all interested parties, from consumers to financial institutions to vendors, the proposed system would enable ongoing integration and expanded competition. Continued expansion to holders of U.S. financial institution accounts interested in participating in the scheme would proceed as described below.

- Two or more financial institutions install the system and begin payments exchanges via the ACH network.
- The in-app table continues to be expanded with each new financial institution participant.
- As additional schemes come online, a Payments Directory is established to switch transactions between schemes via the financial institutions participating in each scheme.

The proposal’s Payment Directory element is a powerful force for increased competition and scheme connectivity for faster payments. With the Payments Directory managing the most complex element in switching transactions between schemes, the competitive field is opened to a wide set of current and future participants. These new competitors would include not only those offering similar personal payment app systems, but also new competitors who handle the payment initiation and receipt information differently.

The entity that takes on the role of Payments Directory operator enables the full expansion of the system. The approach is not unlike that which is successfully evolving in other countries in which a single entity provides the underlying network and multiple competitors plug into it (after security certification.) In the proposed approach, the directory provides the level playing field and the competitors can differentiate their solutions with various capabilities.

A Plan and Model for Achieving Ubiquity

The Federal Reserve System in its papers and guidelines for faster payments in the United States has repeatedly stressed the importance of achieving ubiquity in any new payments system. The proposed system scales rapidly to ubiquity without the auxiliary efforts many other current and proposed systems require. Under the All Payments App scheme, the process of achieving ubiquity is a natural, market-driven expansion of users and financial institutions using the scheme to initiate transactions and receive transactions.

The task to be performed is not one of setting up a ubiquitous payments network—such a network, the ACH, already exists. Nor is the task one of gaining acceptance of a new payment type—the payment type is an ACH transaction. Because the personal payment app leverages investments made in the existing ACH network and rules, financial institutions do not need to make additional...
investments to participate. This improves the potential return on investment and provides an incentive for all financial institutions to support the proposed system.

Accordingly, natural market demand is the driving force behind the achievement of ubiquity, in a system open to all and operated under fair and established rules. As users in the payments market download the app and begin to send and receive transactions intermediated by the ACH, the system will expand and unfamiliar procedures or closed networks and systems will not hinder ubiquity.

Ubiquity comes about as a result of five market forces.

1. People who have the app tell other people that want to send payments or receive payments. As each new participant downloads the app, another step toward ubiquity has been taken.
2. The financial institutions that participate in the scheme market the All Payments App by deploying the usual marketing strategies and methods.
3. To further encourage financial institutions to join, the software is provided to a financial institution in a white label format. The financial institution needs simply to customize the labels with its own brand and integrate the solution with existing systems and processes.
4. Participating financial institutions encourage and actively solicit other financial institutions to participate, thereby increasing the size of the closed loop network.
5. The financial institutions utilizing different schemes leverage the Payments Directory to participate with financial institutions and accountholders using the All Payments App.

Ubiquity in a payment scheme is, to a great extent, a matter of the topography of the network and getting it wrong poses two risks: the risk of not reaching populations who would use the system if connected; and the cost of building out the network ahead of active users. The proposed approach eschews trying to predict which populations and geographies would need to be included to achieve ubiquity and instead relies on market demand, the existing ACH system, and network economics. This system does not require creating a new payments infrastructure, with associated risks and costs and uncertain consumer participation. Rather, ubiquity will be achieved organically across the existing ACH network.
Part C: Self-Assessment Against Effectiveness Criteria

1. Ubiquity

Self-assessed rating:

<table>
<thead>
<tr>
<th>Effectiveness Criteria</th>
<th>Effectiveness Criteria Self-Assessment (Check One)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criteria Name</td>
<td># Consideration Name</td>
<td>VE E SE NE Proposal Page #</td>
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<tr>
<td>Ubiquity U.1</td>
<td>Accessibility</td>
<td>X</td>
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<td>Ubiquity U.4</td>
<td>Contextual data capability</td>
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<td>Ubiquity U.5</td>
<td>Cross-border functionality</td>
<td></td>
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<tr>
<td>Ubiquity U.6</td>
<td>Applicability to multiple use cases</td>
<td>X</td>
</tr>
</tbody>
</table>

Justification for U.1:
The system currently uses the ACH network and is therefore accessible to any consumer or business with access to a checking account.

Justification for U.2:
The system currently uses the ACH network and formats.

Justification for U.3:
The system currently uses the ACH network and formats.

Justification for U.4:
The system currently uses the ACH “WEB” Standard Entry Code for credit push payments and leverages the available addenda record to pass contextual data from payer to payee.
Justification for U.5:
Cross-border functionality is currently not used but could be employed in the future using the ACH “IAT” Standard Entry Class or a dual-message card credit push transaction.

Justification for U.6:
The system could be used for P2P, P2B, and B2P payments utilizing the unique identifier, or alias, of the receiver. This will require implementation of the Payments Directory function.

2. Efficiency

Self-assessed rating:

<table>
<thead>
<tr>
<th>Effectiveness Criteria</th>
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<td>E.2 Capability to enable value-added services</td>
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<td>Efficiency</td>
<td>E.6 Scalability and adaptability</td>
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</tr>
<tr>
<td>Efficiency</td>
<td>E.7 Exceptions and investigations process</td>
<td>X</td>
</tr>
</tbody>
</table>

Justification for E.1:
Competitors in multiple payment channels could use the central Payments Directory to connect closed loop networks.

Justification for E.2:
The Payments Directory can be leveraged to provide interoperability and ACH Addenda records provide remittance data for value added services.

Justification for E.3:
ICBA determines a standards and rollout strategy among existing distribution points. The demand level will determine availability and rate of expansion.
Justification for E.4:

The mobile app currently uses the ACH network and can be expanded to other faster payments networks upon completion of the central Payments Directory.

Justification for E.5:
The central Payments Directory can scale to multiple faster payments networks.

Justification for E.6:
The central Payments Directory can scale to multiple faster payments networks.

Justification for E.7: Credit push approach, application controls, and phone security limit the number of exceptions. The system uses existing Regulation E process; an additional layer of rules will be determined upon program expansion.
3. **Safety and Security**  
Self-assessed rating:

<table>
<thead>
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<td>S.2</td>
<td>Payer authorization</td>
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<td>Payment finality</td>
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<td>S.4</td>
<td>Settlement approach</td>
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<td>Handling disputed payments</td>
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<td>Resiliency</td>
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<td>S.9</td>
<td>End-user data protection</td>
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<td>Safety and Security</td>
<td>S.10</td>
<td>End-user /provider authentication</td>
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<tr>
<td>Safety and Security</td>
<td>S.11</td>
<td>Participation requirements</td>
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</tbody>
</table>

**Justification for S.1:**  
Each financial institution limits availability of the mobile application to known and approved account holders. Each institution also sets tiered value and velocity limits to meet their risk tolerances.

**Justification for S.2:**  
The mobile application uses underlying phone-based authentication technology such as fingerprint and passcodes to authenticate payments.

**Justification for S.3:**  
The ACH credit push model provides finality of the payment.
Justification for S.4:
The mobile application uses the ACH network to settle credit items. The solution does not allow for overdraft from payer accounts, unless the service is otherwise offered by the receiving FI and selected by the accountholder.

Justification for S.5:
The system uses the existing Regulation E process or implements more restrictive rules on payment providers if desired. The solution does not allow for overdraft from payer accounts, unless the service is otherwise offered by the receiving FI and selected by the accountholder.

Justification for S.6:
The financial institutions offering the mobile application have information regarding fraudulent items and share this information with other mobile application providers.

Justification for S.7:
The security controls are based on the controls available on the user’s mobile phone.

Justification for S.8:
The distributed nature of the Payments Directory and mobile application enables resiliency. Each institution’s business continuity plan further enables resiliency.

Justification for S.9:
End-user’s data resides on the mobile device and is protected by mobile phone security. All account numbers are masked on the mobile application, further protecting the end-user data.

Justification for S.10:
End-user’s data resides on the mobile device and is protected by an application password. The user is also required to input a passcode in order to validate each transaction. Access to the application is restricted to users approved by the financial institution offering the mobile application.

Justification for S.11:
Participation in the mobile application and directory are not "required", but market competition can push parties to participate. The payee does not have to participate to receive a transaction.
4. **Speed (Fast)**

Self-assessed rating:

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<td>Fast clearing</td>
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<td>Fast availability of good funds to payee</td>
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<td>Speed (Fast)</td>
<td>F.4</td>
<td>Fast settlement among depository institutions and regulated non-FI account providers</td>
</tr>
<tr>
<td>Speed (Fast)</td>
<td>F.5</td>
<td>Prompt visibility of payment status</td>
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</table>

Justification for F.1:
Approval of the transaction is accomplished quickly by debiting funds from the payer’s account to a General Ledger settlement (similar to the A2A model).

Justification for F.2:
The application uses the ACH network and will process transactions at the quickest speed, as identified in the transaction. The mobile application was tested with Same Day ACH utilizing the Federal Reserve’s optional Same Day ACH service.

Justification for F.3:
The application uses the ACH network and will process transactions at the quickest speed, as identified in the transaction. The mobile application was tested utilizing the Federal Reserve’s optional Same Day ACH service.

Justification for F.4:
The application uses the ACH network and will process transactions at the quickest speed, as identified in the transaction. The mobile application was tested utilizing the Federal Reserve’s optional Same Day ACH service.
Justification for F.5:
Visibility can be provided via in-app messaging, automatic confirmation for payment receipt, etc. See Interface section of proposal for further details.

5. Legal Framework

Self-assessed rating:

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<tr>
<td>Legal Framework</td>
<td>L.5</td>
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Justification for L.1:
The mobile application leverages the existing framework of Regulation E and the ACH Rules and could be extended to other networks such as existing card networks or new payment networks, as they emerge.

Justification for L.2:
The mobile application leverages the existing framework of Regulation E and the ACH Rules and could be extended to other networks such as existing card networks or new payment networks, as they emerge.

Justification for L.3:
The mobile application leverages the existing framework of Regulation E and the ACH Rules and could be extended to other networks such as existing card networks or new payment networks, as they emerge.

Justification for L.4:
The mobile application leverages the existing framework of Regulation E and the ACH Rules and could be extended to other networks such as existing card networks or new payment networks, as they emerge.
Justification for L.5:
There is currently no patent on the mobile application, which could be used by multiple parties quickly and easily. The existing code will be offered to the public domain for continued development and improvement.

6. Governance

Self-assessed rating:

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<tr>
<td>Governance</td>
<td>G.2</td>
<td>Inclusive governance</td>
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Justification for G.1:
The mobile application leverages the existing framework of Regulation E and the ACH Rules and could be extended to other networks such as existing card networks or new payment networks, as they emerge.

Justification for G.2:
The mobile application leverages the existing framework of Regulation E and the ACH Rules and could be extended to other networks such as existing card networks or new payment networks, as they emerge.
Appendix A: Questions from the QIAT Team

The questions below are the questions that were submitted to the proposers on behalf of the QIAT, as part of the Faster Payments Task Force process. They are listed here, as originally received by the QIAT assessor.

Ubiquity

U.1.2: How are parties in FIs that are not part of the Payments Directory allowed to participate in the Solution? How do unbanked End Users access the Solution?

U.1.6: Please explain how interoperability is achieved between multiple operators or networks.

U.2.2: Does an end user need to provide any account or bank information for a payee during the initial setup of that payee as a contact? The Solution relies on the Payments Directory which is not yet implemented. For now, it appears that payers and payees need to know account numbers.

U.2.3: If payments are initiated over the weekend, would end users still have visibility into payment status and the availability of Good Funds?

U.3.5: What are the error resolution protections, rights and liabilities of the payer and payee?

U.4.1: How does the Solution provide for contextual data beyond what is currently possible in the legacy ACH environment?

U.4.2: Is ACH integrated into business and personal finance systems today? Please describe the process for how the Solution interfaces with business and personal finance systems.

Efficiency

E.2.1: How do providers integrate with the Solution? Is it through open, accessible standards, or is this software that banks download?

E.2.1: How does the solution enable and encourage value-added services through its architecture and design?

E.2.3: "ACH addenda providing remittance data for value-added services" – what are the value-added services in this reference?

E.3.1: Why will it take such an extended period of time to develop the Payments Directory? How long will it then take to get the Payments Directory up and running? How will implementation be funded? What hurdles might arise and how will the Solution overcome them? Which entities will adopt the Solution?

E.4.1: Can the ACH format interoperate with ISO 20022 and other formats? Are there plans to support ISO 20022?

E.4.4: How will the legacy message formats support and facilitate innovation?
E.6.2: Please provide details as to how the Payments Directory will be stress tested and what its anticipated peak volume will be. What are its projected volumes and how does its technical design scale to support it?

Safety and Security

S.1.1: What is the risk management framework?
S.3.2: When does the payments become irrevocable in the process?
S.5.3: Can end users request a return of funds in ACH? How does the application enable requests for the return of funds?
S.6.1: Is there a plan to require the sharing of fraud information across the Solution?
S.7.1: How will the Payments Directory be made secure? Are the security features of the phone (iPhone) and ACH sufficient?
S.8.1: What are the Solution’s target availability metrics?
S.8.2: Please provide details on how the distributed nature of the Payments Directory and mobile application enables resiliency. The overall resiliency plan relies primarily on the FIs. Please describe the business continuity of the Solution itself.
S.8.4: What level of specific resources is needed to attain and sustain resiliency?
S.9.1: How will data be encrypted? Are there specific encryption standards that the Solution requires? How is account information masked in the All Payments App? How will the Payments Directory data be protected?
S.9.1: How does the Solution ensure it is aligned with regulatory guidance and industry standards?
S.10.4: How would authentication vary based on risk-weighting of a given transaction? The proposal says the user has to input a passcode in order to validate each transaction; is this correct?
S.10.5: Will end users be required to re-authenticate based on the risk-weighting of a transaction?
S.11.1: Please provide more details regarding participation requirements.

Speed (Fast)

F.1: Can the Solution share typical approval times? How quickly will the Solution require the provider to assure good funds?
F.2: Can the Solution provide typical clearing times for transactions that leverage it?
F.3.1: How will the Solution ensure availability of good funds to the payee in a manner that satisfies the Faster Payments Effectiveness Criteria?
F.4.1: This should be available 24/7/365 but ACH does not settle on the weekends or holidays. What is the Solution’s approach to manage the inter-provider credit and liquidity risk exposure?

F.5.1: Please confirm that this capability exists within the Solution.

Legal

L.4.5: Please provide more details regarding the Solution’s approach to data breaches at the Solution, end user, or provider level. What will be the responsibilities of end users and providers? Will the Solution allocate financial or other responsibilities among end users and providers?

L.5.1: Please provide more details regarding whether the Solution has undertaken or will undertake a due diligence review of potentially applicable intellectual property rights.

Governance

G.1: Please provide more details regarding effective governance, including decision and rule-making processes that are transparent and support both the Solution's objectives and Public Policy Objectives. In doing so, please specifically address how the Solution supports the four effective governance subcriteria.

G.2: Please provide more details regarding inclusive governance, including input and representation from diverse stakeholders, and support for the public interest. In doing so, please specifically address how the Solution supports the five inclusive governance subcriteria.
Appendix B

North American Banking Company and ICBA Responses to the QIAT Team

Ubiquity

U.1.2: How are parties in FIs that are not part of the Payments Directory allowed to participate in the Solution? How do unbanked End Users access the Solution?

At the point of initial launch, every business and consumer checking account at every bank and credit union connected to the ACH (100%) can receive payments via the All Payments App. Because ACH processes payment delivery and connects to virtually every account at every bank and credit union, the All Payments App can send payments to well over 150 million account holders on Day One. This achieves broad and instant ubiquity—and demonstrates value—for the receivers of the transaction for whom immediate value was not apparent in previous new payment systems. This solution addresses ubiquity among both banked and unbanked users.

The banking market is highly concentrated with the dozen or so largest financial institutions holding around half of all transaction accounts. These banks will already be familiar with the All Payments App transactions which will facilitate adoption.

In addition, because the system can deliver payments to a payroll card or government benefit card, the universe of potential participants is even greater.

How do unbanked End Users access the Solution?

Those who currently receive payroll and government benefits via a pre-paid card are, by definition, unbanked. The Payments Directory will be created by linking existing directories whose bank members choose to participate. For unbanked consumers, a Payments Directory would be created jointly by the banks that have joined the system. There is precedent for allowing industry to determine the specifics. For example, when the two card associations, Viewpoint, Early Warning and other shared databases were created, the industry determined how the Payments Directory would be organized. As ACH operators, the Federal Reserve ACH and The Clearing House use a shared standard to achieve 100% ubiquity among financial institutions.

The proposed solution offers another advantage for the unbanked, using a mobile phone to connect the users of the system. Because virtually every banked and unbanked customer owns a mobile phone, there is a higher probability of engaging the unbanked than other means that have been proposed in previous payments systems. Additionally, the unbanked can be reached through general purpose, reloadable prepaid cards purchased from a retailer and issued by a bank. The ACH network can be used to send funds to the holder of the card.

Historically, the main reason unbanked have become customers of banks or credit unions is that the banks and credit unions began offering products that met their needs, such as dependable remittance
services, low cost and low balance accounts or loans tailored to their needs regarding payment schedules and terms. There is every reason to expect the number of the unbanked to decrease when the All Payments App becomes available through banks and credit unions. Participating credit unions and banks in cooperation with Federal, State and local government programs and community organizations would likely develop targeted advertising, multi-lingual instructions and help-lines, and other programs that have been successful in launching other financial products and services in the past for the All Payments App.

In addition, because the system can deliver payments to a payroll card or government benefit card, the universe of potential unbanked participants is even greater.

**U.1.6: Please explain how interoperability is achieved between multiple operators or networks.**
Interoperability between multiple operators or networks is built into the All Payments App through its use of the ACH. The ACH would interconnect the All Payments App to all bank accounts and other payment systems including credit or debit cards such as Apple Pay, clearXchange and others. It would not be necessary for the system to interoperate with other payment systems except those that do not use bank or credit union account. In addition, the Payments Directory could transfer payments and messages and provide a common connectivity standard to link together multiple operators and networks.

As Apple Pay, clearXchange and other third-party mobile payment systems demonstrate today, the use of bank debit card accounts is becoming a preferred method for users and financial institutions alike. Many mobile payment systems that originally did not connect with banks, but required senders and receivers to deposit money into an escrow account, are now adding debit card accounts as an alternate payment initiation and fulfillment model. For example, Apple’s decision to base Apple Pay on a bank credit card account model being seen as a predictor of consumer preference for the use of bank debit cards for mobile phone initiated payments.

**U.2.2: Does an end user need to provide any account or bank information for a payee during the initial setup of that payee as a contact?** The Solution relies on the Payments Directory which is not yet implemented. For now, it appears that payers and payees need to know account numbers. Currently, the payee’s account number must be entered in the payer’s All Payments App. During the setup process, however, the mobile device can be handed to the payee to load his or her own account number. After the setup process is complete, the payer has no access to the account number for the established contact. The Payments Directory allows contacts to be loaded using the Payments Directory ID, which would eliminate the need for the account number to be entered at any time subsequent to the initial entry or registration of the account in the app. As with the current process, the Payments Directory ID would only need to be loaded at the time the contact is set up.

**U.2.3: If payments are initiated over the weekend, would end users still have visibility into payment status and the availability of Good Funds?**
End users would receive confirmation of transactions via receipts as well as confirmations which can be provided via the All Payments App and other communication channels such as email.

ACH does not process on weekends. Any payments initiated after the Same Day ACH settlement on a Friday after 2:00 p.m. would not settle through ACH until Monday morning at 10:00 a.m.
However, messages could be passed through in-app messaging, SMS, or email to let payers and payees know when transactions will settle.

Going forward, posting to user accounts could be done by messaging between financial institutions with inter-financial institution settlement occurring later via ACH. For instance, if the payer sends funds to the payee on Saturday, the payee’s bank would receive a message when the payment is sent and post the funds to the account from a general ledger account. The settlement for the items could then occur in an ACH batch format on the following Monday at 10:00 a.m.

**U.3.5: What are the error resolution protections, rights and liabilities of the payer and payee?**
Regulation E and the NACHA Operating Rules provide error resolution protections, rights and liabilities of the payer and payee. These protections give consumers rights such as the ability to dispute items for up to 60 days from the date on which the first statement containing a transaction is sent. Consumers are not held liable for items disputed under Regulation E protection. These processes are well established and work effectively.

**U.4.1: How does the Solution provide for contextual data beyond what is currently possible in the legacy ACH environment?**
The All Payments App is able to process 80 characters of remittance data through the ACH Addenda record. If more than 80 characters of information is required, this information can be sent via in-app or email communication. Once it is established, the Payments Directory could transfer payments and messages, including contextual data, without the restrictions of the ACH format. Contextual data includes relevant information end users need, such as the description, reason or uses of the payment including tax payment information, information to facilitate investigations of fraud or error, loyalty/rewards information or a short message that accompanies the payment.

**U.4.2: Is ACH integrated into business and personal finance systems today? Please describe the process for how the Solution interfaces with business and personal finance systems.**
Many financial institutions already offer capabilities that enable customers to upload statement and transactions information to personal financial systems. The capabilities already accommodate ACH transactions.

The integration allows businesses and individuals to initiate and receive payments. With the All Payment App individuals may not be aware that the ACH system is the transmission backbone for their transaction to initiate or receive a payment. What they know is that they are paying the bill or receiving their paycheck through their bank or credit union. The trust people have in their bank or credit union is a key advantage of the All Payments App system.

When the All Payments App was being conceived and designed, the design team faced the challenge that all new payments systems encounter: how will we get people to trust it? The All Payments App is designed to take advantage of the trust people have in their bank or credit union. The bank or credit union they know and trust provides them the app, fields help calls, and oversees the safety and security of the All Payments App. For users of the Personal Payment App trust may be assumed or it may be established if consumers are aware of the guarantees, protections and rights that are provided by the applicable laws, rules and regulation governing banks and credit unions.
Businesses, both large and small, as well as government agencies that use the ACH usually know what the ACH is and how it works. The 40-year safety and security track record of the ACH and its history of innovation, (including the recent introduction of Same Day ACH), offer businesses a proven record of success and trust in the system. For a business, the principal integration with ACH is often payroll processing. ACH integrates with a business’ systems, policies, procedures and legal requirements. Of note, NACHA—the Electronic Payments Association organizational structure includes representatives from government and industry on its board, committees and working groups, and have input on the policies and rules that govern ACH transactions.

In addition to providing tens of millions of employees with their paychecks, the other main service that the ACH also provides is bill payment services to businesses of all sizes. Organizations and consumers alike can pay recurring bills like rent, utilities, etc. automatically via the ACH. Once the business’s billing system is integrated with the ACH the payments are entirely automatic. NACHA’s rules and Regulation E provide substantial customer protections for ACH bill payments, something mobile phone-based bill payment schemes may not always provide.

Government agencies use the ACH to process payroll, collect taxes, distribute tax refunds and for other purposes through the U.S. Treasury.

### Efficiency

**E.2.1(a): How do providers integrate with the Solution? Is it through open, accessible standards, or is this software that banks download?**

The All Payments App is built using standard iOS development tools which integrate with a bank’s processing platform and establish a secure line for transactions and communications. In addition, the All Payments App uses standard text and email messaging formats. Banks may download the All Payments App. The All Payments App offers a faster mobile-based payments system that is best suited to U.S. payers and payees and U.S. financial institutions. It provides a direct path from the demand deposit account (DDA) of the sender to the DDA of the receiver.

The ACH system is well-established, cost-effective, and close to ubiquitous—including international transactions with the twenty international ACH transaction (IAT) participating countries. ICBA and North American Banking Company envision expansion of the system potentially to include additional payments networks.

**E.2.1(b): How does the solution enable and encourage value-added services through its architecture and design?**

The All Payments App offers value-added services because it is easy to use, and extensibility and secure. The All Payments App has been tested and integrated with banks existing payment processing systems. This gives the All Payments App team critical insight to inform future improvements and features.

Figure 1, below, shows a high-level view of the added value offered by the All Payments App in several areas:
Figure 1: Added Value Offered by the All Payments App

Value added services include the email notification to the recipient and the capacity for contextual data over the ACH payment system. The All Payments App may also enable additional future value added services that leverage enhancements in mobile technology or the payments systems to which the system links. The openness of the Payments Directory model offers a high likelihood that the system will continue to enable value added services, including linkage to the other payments systems under consideration by the Faster Payments Task Force.

E.2.3: "ACH addenda providing remittance data for value-added services" – what are the value-added services in this reference?
The value-added services in this reference are the services provided by the payer to the payee or vice versa. For instance, the addenda could be used to reference an invoice or order number or any other information the sender determines to include.

E.3.1: Why will it take such an extended period of time to develop the Payments Directory? How long will it then take to get the Payments Directory up and running? How will implementation be funded? What hurdles might arise and how will the Solution overcome them? Which entities will adopt the Solution?
Ubiquity for payments systems means 1) All parties can receive transactions and 2) All parties can initiate transactions.

Any person or entity that has an account at a bank or credit union accessible by the ACH network can send or receive payments using the All Payments App system. This means 100% of all U.S. bank accounts and a growing portion of foreign accounts reachable by ACH are potential users of the All Payments App system.
The pace at which payment initiation ubiquity occurs will be determined by the rate at which banks adopt the All Payments App. Participation in the All Payments App system is not difficult and is relatively inexpensive. Users only need to download and install the software and distribute the app to customers. During testing new participants were able to download and use the app with little or no training or assistance.

Because the ACH provides universal capability to send and receive payments, the system is fully operative for any participating bank immediately, regardless of the rate at which other banks join the system.

Financial institutions may, of course, select their own marketing approaches. These could include providing the app for no charge or a one-time charge; a charge per time period or a charge per transaction.

Payment receipt ubiquity occurs nationwide, at all banks and credit unions as soon as one All Payments App device is in use. Payment initiation ubiquity occurs at the pace at which banks distribute the All Payments App to their customers. Unlike other approaches, any single participant can send to every bank account in the country the moment she or he acquires the application.

**Addressing an All Payments App Transaction**
Senders do not need to know the bank name or the account number of the intended recipient. Matching of intended receiver e-mail address with account numbers is done internally by the bank receiving the ACH transaction. In addition to speeding the road to ubiquity, this approach also adds an important layer of security by avoiding the exposure of account numbers.

The rate at which ubiquity can be achieved—in which all bank accounts are able to receive payments and all bank account holders are able to send payments—will be determined by the rate of customer adoption. We are not aware of any regulatory, licensing or other hurdles to achieving ubiquity. The system is fully operable to anyone who joins and there are no requirements for joining other than having a bank account at a participating institution.

**Payments Directory**
The system incorporates existing transaction routing directories, notably the existing Payments Directory of ACH-capable financial institutions. The use of ACH reduces costs, possible delays, and enable account holders to extend the system to inter-bank transfers.

In the future, existing services that maintain payment routing directories, such as Early Warning, could provide a payee account identification service.

Directories can be built securely by following the usual protocol: each level in the process knows only the next level of the hierarchy, culminating in the identification of the recipient. An outbound payment would contain only the payee’s bank’s name. The receiving bank would route it to the appropriate “branch” (which is a sub-division of the bank’s customer accounts and not necessarily associated with a particular physical location). The account number is searched and the deposit is made at the “branch” level.
National Payments Directory
A National Payments Directory refers to the networked hierarchies of directories that are used today for routing payments; namely, checks, ACH and credit cards. It can also be viewed as the interconnections among existing networks—including private networks, such as branded card networks—and networks that provide payment capabilities to businesses. A directory/routing function is essential to operating a network.

A National Payments Directory would result as existing directories link to each other to route All Payments App sender transactions. (Receivers are automatically enrolled through their bank’s membership of the ACH.). There is a powerful financial incentive to create linkages between networks and directories. Each time a new participant joins the network becomes more valuable for all participants.

There are three possible paths to achieving a national directory:

1. **A private Payments Directory could be established.** Direct access could be given to the largest financial institutions. The smaller financial institutions would leverage correspondent and service provider relationships to gain access to the directory. This model adds a layer of cost that does not exist for larger banks and places smaller financial institutions at a competitive disadvantage. Additionally, it could cause risk management issues as layered vendor relationships may present additional vulnerabilities.

2. **Multiple directories could operate with a single standard.** This path encourages interoperability and multiple paths to direct access. Developing a common standard would take time and might be the slowest path to establishing a payments directory.

3. **The Payments Directory could be accessible through the Federal Reserve.** This path leverages the ubiquitous access that the Federal Reserve already has and grants smaller financial institutions direct access to the directory, reducing costs and easing risk management concerns.

Timing
Our proposal estimates roll out between 2017-2020 and full implementation by 2020. The full rollout could be complete much sooner, however. The All Payments App has been built and tested and is ready to deploy. The ACH network, which represents 50% of the process, already exists. Furthermore, there are no foreseeable impediments to achieving ubiquity quickly on the sending side.

In addition, two elements driving rapid distribution of the system are built in: 1) simplicity and low cost and 2) the absence of any third party operator. Systems that require linking a third party operator into the process typically grow at a slower rate, which impedes ubiquity. Because the All Payments App uses banks as the distribution points and the ACH as the network, the system, offers a much faster and more certain path to ubiquity.

Market Share and Growth
The market share that the All Payments App might achieve will be determined by the market. There are no technical or regulatory matters that might inhibit growth or rate of adoption of the All Payments App. Development costs have already been absorbed. Distribution costs will be borne by
ALL PAYMENTS APP AND PAYMENTS DIRECTORY: FASTER PAYMENTS PROPOSAL

the banks and credit unions. Based on trials and user groups at Independent Community Banks of America’s member banks, we believe banks and credit unions will see a compelling business case for rapid adoption. Similarly, the growth in market share for mobile payment systems has been rapid. A recent meta-analysis\(^1\) of studies of the growth rate of mobile payments in the U.S. found the highest estimated usage at 14% and the lowest at 5%. Individual’s usage data, however, does not measure market share. Because people make payments in several different ways, the frequency of use for one type of payment often exceeds 100%. Shares of a market of course cannot total more than 100%.

Customer demand for mobile payment options is growing as a higher percentage of the population worldwide use mobile devices for nearly every personal and a growing number of business transactions, particularly banking services.

Because half of the All Payments App solution—the receiving payments component—is already in place and because the other half, distribution of the payments, simply requires banks making the software available to their customers, we foresee rapid adoption and that a significant market share will result.

**E.4.1: Can the ACH format interoperate with ISO 20022 and other formats? Are there plans to support ISO 20022?**

The addenda record of the ACH transaction allows for 80 characters of data to be processed from payer to payee using formats including ISO 20022. The flexibility of the ACH addenda record also enables the utilization of new formats in the future.

The two message formats (ACH and ISO20022) are both designed to provide standardization and enable innovative improvements to payments systems in a controlled, safe and secure manner. NACHA’s rulemaking process frequently results in new rules, such as the recent adoption of rules governing same-day ACH transactions.

The ACH Network currently supports the use of ISO 20022 payment remittance messages. To help support U.S. banks with their global customers that need to execute U.S. ACH payments, NACHA has developed instructions outlining how to map the ISO 20022 payment files to ACH transactions. The ISO 20022 Mapping Guide standardizes the practice of mapping ISO 20022 formatted payment messages to corresponding NACHA file formats.

Payments made using the All Payments App are fully compliant with NACHA rules, including the NACHA process for harmonization with ISO 20022. Innovation within the All Payments App system is expected and welcome. Innovations compliant with ISO 20022 can be integrated readily into the solution under NACHA rules.

**E.4.4: How will the legacy message formats support and facilitate innovation?**

Legacy message formats will be maintained at the participating banks’ direction. These proven formats allow for immediate adoption of mobile technology to send ACH credits.

\(^{1}\) Mobile Payments – Why They Should Matter to You, George Warfel, Principal, WesPay Advisors

North American Banking Company and ICBA

April 30, 2016: Amended August 26, 2016
The All Payments App software lifecycle and release plan is designed to align with the participating banks’ common legacy message formats, which are governed by ANSI and other organizations to maintain message format interoperability. The All Payments App roadmap will identify major releases embodying feature sets that align with a bank’s strategy and governance. Currently the All Payments App is scheduled to be updated in the fourth quarter of 2016.

As new faster payment solutions are developed, the All Payments App could be enhanced to incorporate them, positing the All Payments App as an on-ramp to newer, faster payments solutions. The Payments Directory also could link easily with other payment methods as they gain adoption.

E.6.2. Please provide details as to how the Payments Directory will be stress tested and what its anticipated peak volume will be. What are its projected volumes and how does its technical design scale to support?

The size and scale of the Payments Directory concept is much more than a North American Banking Company and ICBA can develop and will require input from all stakeholders. Prior to deployment, the Payments Directory database will be load- and stress-tested. Load testing will include response time on normal and edited transactions, and fetching time and correctness of the returned file. Stress testing will be based on the expected volume determined by an analysis of the number of unique endpoints in the Payments Directory databases and will include testing for consistency, availability and resource contention. Stress testing also will include loading the system until it fails and calculating the safety margin between the load at failure and the expected highest load on the system.

Safety and Security

S.1.1: What is the risk management framework?
There are two major approaches to the risk management framework. Both approaches leverage the existing risk management framework, systems, software, procedures and other assets. The difference is that one approach focuses on the banks and the other focuses on the ACH operators, as follows:

1. Leverage the existing risk management framework, systems, software, procedures and other assets—including risk management personnel and risk training of the banks that provide the All Payments App to their customers.

2. Leverage the existing risk management framework, systems, software, procedures and other assets—including risk management personnel and training of the ACH operators: The Clearing House and the Federal Reserve.

A bank’s participation in the All Payments App system will require self-certification of the bank’s risk management capability to protect the transactions, account numbers, names and other private information of its All Payments App customers. Banks are highly expert in managing risk and under regulatory scrutiny to manage the risks inherent in the banking business, including the risks of payment systems.

The ACH’s risk management framework is dependent on by the nation’s financial institutions, employers and other commercial entities and government agency senders and receivers of ACH
transactions. The risk framework of the ACH has an excellent record throughout its 40 years of operation.

An additional level of risk management surety of a financial institution is the Risk Management Review, conducted annually as part of its participation in the ACH. This Risk Management Review risk analysis framework has been developed to assess and report the risk status, risk awareness, and risk management policies, processes and personnel involved in ACH customer on-boarding, ACH origination and ACH receipt of financial institutions that participate in the ACH system, which would include banks that participate in the All Payments App system.

The mobile transmission portion of an All Payments App transaction falls under the risk framework provided for mobile telecommunications by the operators and regulators of the telecommunications industry.

The risk framework for the Payments Directory will be based on the standards and practices for maintaining the safety and security of bank accounts and bank transactions as provided by bank regulation, as well as any additional policies, procedures and personnel as the owner and operator of the Payments Directory deems prudent. Annual security reviews of the Payments Directory will be conducted under the auspices of the Board of Directors of the organization that operates the Payments Directory (e.g. the Federal Reserve Bank that oversees this, or a private operator, such as The Clearing House).

**S.3.2: When does the payment become irrevocable in the process?**

The payment is irrevocable after the second confirmation of payment from the user and the payment is submitted to the participating banks’ processing solution. The participating bank is able to revoke the payment within its processing solution, but this is determined entirely by the participating banks’ rules and procedures.

Figure 2, on the following page, depicts the payment process for the All Payments App system.
S.5.3: Can end users request a return of funds in ACH? How does the application enable requests for the return of funds?

In the case of a fraudulently initiated transfer, a consumer would be protected by Regulation E and NACHA Rules which are disclosed to the consumer in the account agreement. These protections allow the sender to dispute the transaction with the sending bank and the risk from fraudulently initiated transfers would be borne by the sending bank.
S.6.1: Is there a plan to require the sharing of fraud information across the Solution?
The principal fraud exposure would be in the alteration or the diversion of the payment from one
bank to another. The All Payments App design team, which included people knowledgeable about
bank and payments fraud prevention, concluded that the current anti-fraud systems, practices and
personnel provided by the banks at either end of the transaction— and by the ACH itself—would not
be improved by adding to or changing current processing methods.

S.7.1: How will the Payments Directory be made secure? Are the security features of the phone
(iPhone) and ACH sufficient?
The Payments Directory element of the All Payments App is an integral part of the system and falls
under the safety and security frameworks of the mobile telephony industry, bank safety and security
regulation and ACH safety and security requirements (See S.1.1). These security schemes provide
security to the Payments Directory by assuring that both the account information maintained in the
Payments Directory and the incoming mobile phone and outbound ACH messaging is secure. In
addition, during the establishment of the Payments Directory, additional database security policies
will be adopted that are standard for the mobile telephony industry including: Critical Server Security

S.8.1: What are the Solution’s target availability metrics?
The target availability for the ACH, which is the delivery system for the payments, is 99.9%. We
estimate the target availability for the All Payments App to also be 99.9%. While ACH availability
is consistent, availability for the All Payments App might vary based on the capability of the
providing bank..

S.8.2: Please provide details on how the distributed nature of the Payments Directory and mobile
application enables resiliency. The overall resiliency plan relies primarily on the FIs. Please
describe the business continuity of the Solution itself.
The ACH system has a valid and well-tested Business Continuity Plan. Each participating institution
is required by regulation to have a valid Business Continuity Plan that meets Federal standards. It
applies to all of the institution’s systems and would include the All Payments App.

S.8.4: What level of specific resources is needed to attain and sustain resiliency?
The All Payments App uses the data capacity of the mobile device for installation of the software.
As noted the application utilizes existing Contact lists for Payee information (in iOS “add field” can
be used to add payment specific information – bank, acct, etc.).

Resiliency of the All Payments App is achieved through error handling and notification. The
solution has a defined and extendable notification process in which a few of the resiliency
notifications are noted below:

- If a disconnect occurs in the communication within the All Payments App and the payment
  request is not processed the user will be notified by the All Payments App.
- If a disconnect occurs in the communication with the participating bank on the payment
  request the user will be notified by the All Payments App.
• If a payment cannot be processed by the participating bank the user will be notified by the All Payments App.

All Payments App will leverage existing bank processing resiliency in completing a payment request and posting the payment request.

S.9.1(a): How will data be encrypted? Are there specific encryption standards that the Solution requires? How is account information masked in the All Payments App? How will the Payments Directory be protected?

A key element of safety and security is that the All Payments App uses ACH credits for the transactions. This pushes the funds to the receiver without requiring the sender to provide the account number or other personally identifiable information. ACH standards and rules apply to an All Payments App transaction in which monetary value (“a banking entry,” e.g. a debit or credit) is being transferred from one bank to another to effectuate a request for payment. The All Payments App will initiate the request for payment and that will trigger a notification of receipt of a payment sent by the receiving bank to the receiver. These rules require that during the transmission of any message that transfers an entry, a routing number, an account number, a PIN, and/or other identification symbol from one bank to another bank the message must be either encrypted or transmitted via a secure session, in either case using a technology that provides an industry standard level of security that complies with applicable regulatory requirements.

How is account information masked in the All Payments App? How will the Payments Directory be protected?

Once entered, account information is not accessible in a manner that exposes the information within the app. The Payments Directory element of the All Payments App system is an integral part of the scheme and as such falls under the safety and security frameworks of the bank safety and security regulation and ACH safety and security requirements. While these security schemes stand alone, they also provide security to the Payments Directory by assuring that both the account information maintained in the Payments Directory and the incoming and outbound ACH messaging is secure.

During the establishment of the Payments Directory additional database security policies will be adopted that are standard to the maintenance of database security including: Critical Server Security Standard, Database Server Security Standard, Administrative Privilege Standard, Server Security Baseline Standard and Electronic Media Security Standard. The geographic location and the physical structure that host the Payments Directory database will be required to meet bank database protection standards as established in bank regulation.

S.9.1(b): How does the Solution ensure it is aligned with regulatory guidance and industry standards?

The All Payments App solution ensures alignment with regulatory guidance and industry standards through two mechanisms:

1. Ownership by participating banks, which must ensure that all of their monetary transmission processes, devices and technologies are secure to standards set by their regulators; and

2. Participation in the ACH system which establishes Rules for ACH member banks based on government regulations.
S.10.4: How would authentication vary based on risk-weighting of a given transaction? The proposal says the user has to input a passcode in order to validate each transaction; is this correct?

The All Payments App is complete, tested and fully operable today. It provides the user with a passcode challenge response when the user accesses the application from the mobile device. Also, the device performs a challenge response request at the point of payment with a final approval prior to committing a payment request to the bank. In addition to the login being device-specific, the access control features are easy to use with big buttons and large, clear text instructing the user throughout the process.

S.10.5: Will end users be required to re-authenticate based on the risk-weighting of a transaction?

A user must enter a passcode to confirm a payment request. The authentication is not risk-weighted on the device; the only place authentication may vary due to risk-weighting is at the participating banks.

The user is required to input his or her passcode when making a payment. This process helps reduce error when making payments. Figure 3 on the next page shows the authorization process.
Figure 3: All Payments App: Payer Authorization Process
S.11.1: Please provide more details regarding participation requirements.
Participation to receive payments is automatically extended to account holders who have accounts at regulated banks and credit unions. We expect this blanket receiver side participation will be extended to people who receive payment via payroll cards and to recipients who have government benefit cards. No action is needed to receive an All Payments App payment. Participation to send payments via the All Payments App is offered by banks and credit unions.

Organizations that participate in the All Payments App must be FDIC insured banks or NCUA insured credit unions a status that brings them under regulatory accountability for payments. This requirement addresses both operational and safety and security concerns to ensure that customers’ transmittals of payment from one All Payments App user to another are secure.

Speed (Fast)

F.1: Can the Solution share typical approval times? How quickly will the Solution require the provider to assure good funds?
The sender’s bank will receive the All Payments App instruction to send payment immediately. The sending bank will send the payment in its next scheduled ACH transmission. Because the transaction is a credit push, it is sent as good funds.

F.2: Can the Solution provide typical clearing times for transactions that leverage it?
Clearing times are determined by the two daily settlement deadlines under the ACH Same Day Payments regime of 10:00 a.m. Pacific Time and 2:00 p.m. Pacific Time. It is important to note that these points are daily inter-institution clearing times and do not affect the speed at which transactions can be provisioned as good funds.

F.3.1: How will the Solution ensure availability of good funds to the payee in a manner that satisfies the Faster Payments Effectiveness Criteria?
Because the payment is a credit push, the receiving bank has several options including immediate posting to the customer’s account.

To ensure the immediate availability of funds specified by the Faster Payments Effectiveness Criteria, banks may employ several methods to credit the All Payments App recipient’s account with a “memo post” of the transaction pending settlement later in the day. Several scenarios of available funds are possible, such as fully releasing the funds by allowing a portion of the funds to be withdrawn immediately by the recipient (who is a customer of the bank and one who to whom the bank has made All Payments App available), extending credit to the account holder in the amount of the transaction, or in the case of large transactions, a portion of the transaction, pending settlement.

Banks compete to attract and retain customers for all of its services and payments methods. Providing immediate access to funds that have not yet settled is a competitive advantage. Banks making All Payments App transactions will use the same risk and credit decision processes it uses for other delayed settlement transactions such as checks, letters of credit, etc. The only difference is that the time between making funds available and settlement will be much shorter due to the new ACH settlement times that take effect September 23, 2016.
F.4.1: This should be available 24/7/365 but ACH does not settle on the weekends or holidays. What is the Solution’s approach to manage the inter-provider credit and liquidity risk exposure?

Same Day ACH transactions settle by the end of the business day. During weekends it is a common practice to make all or a portion of funds received on a Friday available to customers for immediate use. Because the All Payment App uses the ACH as the funds transfer element, existing bank policies and procedures regarding pre-funding of transactions that have not yet settled will be incorporated. Banks have had customers that require funding of received payments prior to final settlement long before the All Payments App. Banks have longstanding policies, procedures and safeguards to provide immediate credit for all or part of uncollected business-to-business transactions over a weekend. Banks would likely apply these policies and procedures to transactions using the All Payments App. Because the transaction is a credit push, the receiving bank bears little risk that the transaction will not clear and settle.

To ensure the immediate availability of funds specified by the Faster Payments Effectiveness Criteria, banks may employ several methods to credit the All Payments App recipient’s account with a “memo post” of the transaction pending settlement later in the day. Several scenarios of available funds are possible, such as fully releasing the funds by allowing a portion of the funds to be withdrawn immediately by the recipient (who is a customer of the bank and one who to whom the bank has made All Payments App available), extending credit to the account holder in the amount of the transaction, or in the case of large transactions, a portion of the transaction, pending settlement.

F.5.1: Please confirm that this capability exists within the Solution.

The All Payments App enables prompt visibility of payments in two ways. When a payment is made from party A to party B:

1. The All Payments App sends a mobile telephone communication to the receiver’s phone indicating the payment has been initiated.

2. The receiver also can monitor the status of their account to confirm when the payment settles through an alternate channel, such as the bank’s mobile phone app; the bank’s website through their desktop or, for a business recipient, through a PC business banking channel.

Legal

L.4.5: Please provide more details regarding the Solution’s approach to data breaches at the Solution, end user, or provider level. What will be the responsibilities of end users and providers? Will the Solution allocate financial or other responsibilities among end users and providers?

Payment processing involves multiple stakeholders, which are defined as parties being affected by an action. The following stakeholder matrix demonstrates the same process in a more detailed format (Figure 4, below).
The contextual capabilities of mobile connected devices provide access to the information capabilities of the ACH network. The system’s portability makes it ideal for delivery on location confirmation of goods arrival and for safe Letter of Credit transactions as payment for delivered goods.

End user data protection in the context of clearing will leverage existing processes and rules to ensure successful processing of All Payments App payments and reduce data breaches.

The All Payments App provides the user with a passcode challenge response when the user accesses the application from the mobile device (Passcodes are used for user authentication to the application and the device operating system security is used to confirm payment requests). Also, the device performs a challenge response request at the point of payment with a final approval prior to committing a payment request to the bank. In addition to the login being device-specific, the access control features are easy to use with big buttons and large, clear text instructing the user throughout the process.
The All Payments App includes passcode security for accessing the application as well as iOS security to ensure that a payment is secured. This includes:

- iOS inherent security to access the device;
- Masked passcode to access the All Payments App within the device; and
- Leveraged iOS security to confirm a payment.

All contact and payment history data is masked for security within the device itself and cannot be read through clear text. In addition to the device security the All Payments App will leverage the security protocols established by the participating bank and existing ACH security rules.

All account numbers are masked on the mobile application, further protecting the end user data. No additional allocation of financial or other responsibilities are required among end users and/or providers.

L.5.1: Please provide more details regarding whether the Solution has undertaken or will undertake a due diligence review of potentially applicable intellectual property rights.

North American Banking Company is a community bank located in Minneapolis-St. Paul, Minnesota and one of its founders, Michael Bilski is the intellectual property owner of the All Payments System App. Before the App is broadly distributed, ICBA and North American Banking Company will perform periodic due-diligence reviews to ensure that other patents are not infringed, particularly in conjunction with the Payments Directory. The intellectual property of the ACH is solidly established and provides an open standard. Since is it yet to be developed, the intellectual property for the Payments Directory will be established and owned by its developers.

Governance

G.1 Please provide more details regarding effective governance, including decision and rule-making processes that are transparent and support both the Solution's objectives and Public Policy Objectives. In doing so, please specifically address how the Solution supports the four effective governance subcriteria.

ICBA’s Bank Operations and Payments Committee is comprised of community bank executives and serves as the association’s leadership in bank operations and payments. Its threefold mission is to:

1. Address policy issues related to the delivery and security of financial services and payments;
2. Create and support industry efforts at payment systems improvement to ensure the relevance of community banks in the payments system and in online financial services; and
3. Maintain ongoing relationships with public and private sector organizations that play a crucial role in shaping the payments framework through regulations, rules and standards.

For the past seven years, ICBA and North American Banking Company, the developer of the All Payments App system, have been closely involved in the emergence and evolution of application-based mobile payments. This experience includes familiarity with the technological and regulatory
aspects of a faster payments ecosystem, the front-end user experience aspects of the All Payments App and the back-end integrated bank processing of the App. As a result, North American Banking Company and ICBA, has a breadth and depth of experience in mobile faster payments that is unique in the U.S. Tests with nontechnical users who received a simple, one-time demonstration have shown that bank customers can easily learn to use the system. After using the system one time, test users found the subsequent transactions intuitive and user-friendly.

The All Payments App reuses the participating banks transaction processing and abides by its governance to avoid any conflicts of interest. Because the All Payment App will be distributed among financial institutions of various sizes and charter types, an advisory board will be formed to ensure that all financial institutions are represented.

The ACH has well-established governance and rule-making policies through NACHA, the Electronic Payments Association, and Regulation E, which is maintained by the Consumer Financial Protection Bureau.

G.2: Please provide more details regarding inclusive governance, including input and representation from diverse stakeholders, and support for the public interest. In doing so, please specifically address how the Solution supports the five inclusive governance subcriteria.

The All Payments App user interface is customizable by each participating bank to ensure a “look, tone and-feel” that is consistent with the bank’s brand and positive user experience.

The All Payments App reuses the participating banks transaction processing and abides by its governance to avoid any conflicts of interest. Because the All Payment App will be distributed among financial institutions of various sizes and charter types, an advisory board will be formed to ensure that all financial institutions are represented.

The ACH has well-established governance and rule-making policies through NACHA, the Electronic Payments Association, and Regulation E, which is maintained by the Consumer Financial Protection Bureau. This accountability ensures consumer protections and strong oversight.
Faster Payments QIAT

DRAFT ASSESSMENT

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Proposer: North American Banking Company and Independent Community Bankers of America

Summary Description of Solution:

The solution serves as a front-end conduit to the ACH network using Same Day ACH credit push. It has two components: an All Payments App for end users, which is a mobile application that financial institutions can white-label and offer to their customers to originate transactions 24/7/365; and a Payments Directory, which maps a participant’s email address or a unique alias identification to financial institution routing information, thereby facilitating interoperability with other faster payment solutions.

End users can send and receive payments in any of three ways: at Level 1, both parties have an account at the same participating FI; at Level 2, the parties are at two different FIs that are both participants in the solution; at Level 3, each party is in a separate Faster Payment solution, both of which are connected via the Payments Directory.

EXECUTIVE SUMMARY OF THE PROPOSAL

■ Major strengths
  – The solution accelerates adoption by using existing infrastructure and technology, in particular the ACH network, which already has ubiquity
  – The solution is cost-effective because it uses existing standards, rules, and record formats for Same-Day ACH
  – The solution provides a standard mobile app that financial institutions can white-label and customize, which delivers a usable and predictable end-user experience
  – The Payments Directory, once developed, will enable users to initiate a payment with limited information such as an email address or mobile phone number
  – Error notification and resolution are standardized between participating financial institutions using the ACH Operating Rules and existing payments regulations

■ Areas for improvement and enhancement
  – The solution uses the Same-Day ACH system; given that system’s inherent limitations, the solution does not achieve fast clearing, settlement, nor prompt visibility of payment status
  – The solution does not achieve fast approval and funds availability; those are dependent on financial institutions, without any specified operating rules to which they must adhere
  – Contextual data uses ACH record formats, but the proposal does not provide detail on how the solution will overcome current challenges with standardized use of ACH data fields for business payments
  – The proposal requires some clarification regarding whether the solution is available 24/7/365

■ Use cases addressed
  – The solution addresses three of the four major use cases: P2B, B2P, and P2P (initially, on a limited basis). It addresses P2P in a cross-border setting on a tightly restricted basis.
The solution does not currently cover B2B (pg. 5), although it is expected to distribute an All Payments App designed for B2B

**Proposer’s overall ability to deliver proposed solution**

- The system is currently at Level 2 connectivity, with the Payments Directory still to be developed to reach Level 3
- The All Payments App has already been developed, tested and deployed and is ready for broader adoption and usage
- Tests of the All Payments App with non-technical users who were provided with a one-time demonstration indicated that most customers can quickly learn to use the system and perform transactions easily
Ubiquity

U.1 Accessibility

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Rationale:
The solution facilitates payments to and from all types of payment accounts in the U.S. through the ACH network, which is connected to all financial institutions in the U.S. (U.1.1). Regulated Non-bank Account Providers can access the solution through a financial institution; for unbanked customers (e.g., including those who currently receive payroll or government benefits via a pre-paid card), a Payments Directory will be created jointly by the banks that have joined the system. The solution uses the existing ACH network infrastructure, which will accelerate adoption since financial institutions are already connected to the network; these organizations would need only to offer the mobile app to their customers and participate in the Payments Directory (U.1.5).

While the unbanked can receive a payment on Day 1, the proposal can be strengthened by clearly detailing how the broader unbanked population can initiate a payment on Day 1 (U.1.2). Further, the proposal can be enhanced by clearly outlining the capabilities of the solution to support multi-currency payments (U.1.3).

U.2 Usability

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Rationale:
The solution describes a clear, user-friendly interface to which FIs can make certain customizations. It also provides FIs with clear guidelines on what the customer experience should be (U.2.1) to ensure usability. In addition, once the Payment Directory is developed and adopted, the solution will enable an entity to initiate a payment with limited information, such as email address or mobile number (U.2.2).

However, one of the limitations of the solution is in the initial setup of a payee. The payee’s account number must be entered into the payer’s All Payment App; the solution would benefit from developing a systemic workaround to avoid the payee having to provide the payee with its account number (U.2.2). Because the solution leverages same-day ACH, it cannot receive, clear, or settle on holidays or weekends. The solution can receive transactions real-time, but those transactions cannot be cleared and funds cannot be made available. It would be helpful to understand how end users can initiate payment, have visibility into payment status, and receive final availability of good funds on a 24x7x365 basis. Though the proposer states, “going forward, posting to user accounts could be done by messaging between FIs with inter-FI settlement occurring later via ACH”, the proposer should consider sharing an implementation plan for this as part of the proposal (U.2.3). In addition, since the mobile app is the only way for end users to initiate payments, the solution is limited in being able to deliver on the need to be available to end users through a variety of channels, devices and platforms (U.2.1).
U.3 Predictability

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**Rationale:**

The solution consistently delivers the defined baseline of core features through standard communication and messaging protocols in the Payments App and use of the ACH network (U.3.1, U.3.3, U.3.4). Baseline features of the payment experience and error resolution protections, rights and liabilities are defined, documented, and communicated to end users through the white-label Payments App and existing ACH rules and regulations (U.3.2, U.3.5). The solution is currently described as an “All Payments App”, but it could develop other options for a generic, brand-agnostic term.

U.4 Contextual data capability

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**Rationale:**

The solution uses the ACH "WEB" Standard Entry Code for credit push payments and uses the available addenda record to send contextual data from the payer to the payee (e.g., the All Payments App is able to process 80 characters of remittance data through the ACH Addenda record (U.4.1)). For B2B scenarios (page 56), contextual information can be appended to the transaction by scanning documents into the context field of the payment, and can then be sent through an in-app or email communication (U.4.1).

While B2B is not a targeted use case, the All Payments App will be enhanced in the future to target B2B use. The proposal can be strengthened by outlining a plan for how ACH’s contextual data capabilities will balance flexibility with standardization, (e.g., potentially adopt an emerging message format such as ISO20022 to meet expanded contextual data needs (U.4.3)).

U.5 Cross-border functionality

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**Rationale:**

The solution is currently focused on domestic transactions and can only initiate cross-border payments in one particular instance for the P2P use case. In this example, one party’s All Payments App account is held with a foreign branch of a participating U.S. FI in a country that accepts IAT transactions. The proposal does not detail plans for developing cross-border functionality (U.5.5).
U.6 Applicability to multiple use cases

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**Rationale:**

The solution supports P2P payments (consumer-initiated) as a targeted use case and is extensible to other use cases in the future, such as some business payments, if contextual data capability is improved. The solution is currently limited in its applicability to the B2B segment.

Efficiency

E.1 Enables competition

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**Rationale:**

The solution allows a choice of provider based on services and price, but is limited to banks and credit unions. This presents clear hurdles for third-party providers to compete in the solution. End users can change financial institutions and continue to use the All Payments App by registering with a new financial institution that is also a participant in the solution (E.1.1). The Payments Directory also promotes competition by making it easier for more providers to reach end users and for end users to select among providers regardless of whether they participate in the solution (E.1.2). Any bank that meets the solution’s and ACH’s participant requirements can use the All Payments App and join the Payments Directory (E.1.4).

The proposal can be strengthened by discussing how any entity can easily switch among providers or use multiple providers (e.g., how the Payments Directory could enable easy switching or use of multiple provider accounts via the end user owning their account rather than the provider owning the account, for example) (E.1.2). Further, it should address how the solution will require providers to give customers advance disclosure of any information necessary to easily understand the total cost of using that provider (e.g., through a set of minimum standards created as part of operating or participation rules (E.1.3)).

E.2 Capability to enable value-added services

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**Rationale:**

The proposal states that the Payments Directory can provide interoperability and that the solution supports the provision of value-added services (VAS) across a VAS spectrum, including areas such as: (1) user experience, (2) product service innovation, (3) distribution marketing, (4) digital fulfillment, (5) risk optimization, and (6) enhanced corporate control. (E.2.1, E.2.2).

The All Payments App is built using standard iOS development tools and standard text and email messaging formats; however, the proposal can be strengthened by clearly articulating how value-added services can be built on top of the solution (E.2.1). Similar to E.1, the proposer should clearly address how it will require providers to clearly disclose to their
customer that value-added services are optional (E.2.3). It would be beneficial to the proposal to describe a sampling of potential value-added services that can be layered onto the solution rather than the high-level categories.

### E.3 Implementation timeline

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**Rationale:**

The All Payments App has been built and tested and is ready to deploy. A key component of the solution, the ACH network, already exists. Distribution of the All Payment application to the participating FIs and the payers and payees is expected to occur in 2016. The development and third-party hosting of the Payments Directory, which is essential for the third level of implementation and true ubiquity, will not be complete until 2020.

The key to ubiquity amongst FIs and credit unions will be determined by the rate of customer adoption. The proposal can be strengthened by providing details around various elements of the implementation plan that will assist in understanding the anticipated rate of adoption, including: (1) clear assumptions for market share and growth projections, (2) the various hurdles that may occur and plans to address them, (3) its funding (pg 4 indicates self-funding but further details are not provided), and (4) how its projected timelines compare to similar historical examples (E.3.1).

### E.4 Payment format standards

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**Rationale:**

Because the solution will use existing ACH payments formats for clearing, no change will be necessary to process its payments and it will be cost-effective (E.4.1, E.4.3, E.4.5). It will leverage the IAT code for its limited cross-border transactions. Additionally, the ACH network currently supports ISO20022 payment remittance messages. The ISO20022 Mapping Guide standardizes the practice of mapping ISO20022 formatted payment messages to corresponding NACHA file formats.

While the proposal suggest the All Payments App can be enhanced to incorporate new solutions as they are developed, allowing it to act as an on-ramp for innovations, it would be enhanced by describing how the design of the solution assists in facilitating innovation as well as acting a mechanism for updates (E.4.4).

### E.5 Comprehensive

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**Rationale:**

The solution focuses on initiation. In concert with FIs, which are responsible for the other aspects of the end-to-end payment process, it is able to deliver an end-to-end payment process from initiation to reconciliation (E.5.1). The Solution’s technical design supports all of its features (E.5.2).
E.6 Scalability and adaptability

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Rationale:
The ACH network has proven its effectiveness with very high volumes (E.6.2).

However, there is still a question about how well the solution, specifically the Payments Directory, can scale. The proposer has laid out a plan to load- and stress-test the Payments Directory database prior to deployment (e.g., load testing will include response time on normal and edited transactions and retrieval time and accuracy of a returned file; stress testing will include loading the system until it fails, consistency, availability, and resource contention.)

As the testing is completed, the proposal can be strengthened by including the details of the tests (E.6.2). Further, it can be made more robust by describing how the technical design can be adapted to ongoing developments, particularly how the governance or management of the All Payments App and Directory can ensure appropriate upgrades and enhancements over time (E.6.3).

E.7 Exceptions and investigations process

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Rationale:
The solution addresses exceptions by leveraging financial institutions’ existing exceptions processes and interfacing with their back-office architecture and processes. The ACH network may provide guidance for recording and retaining data for post-transaction evaluation (E.7.2) and has the ability to aggregate exceptions data to spot patterns above the level of an individual FI (E.7.3).

The solution can be strengthened by describing tools it can offer to assist with the exceptions and investigations process. For example, include a messaging or alert feature that informs the end user of exceptions (E.7.1) or provide a tool for Participating Banks to use that identifies patterns by analyzing aggregated data (E.7.3)

Safety and Security

S.1 Risk management

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Rationale:
The solution takes two approaches to the risk management framework, both of which leverage existing frameworks, systems, software, procedures, etc.: (1) Banks that provide the All Payments App to their customers and (2) The Clearing House and the Federal Reserve. An additional level of the framework is the Risk Management Review designed to assess and report the risk status, awareness and policies, processes and personnel involved in ACH
customer onboarding, origination, and receipt that participate in the ACH system. The solution states that financial institutions will limit availability of the mobile application to known and approved account holders and set limits to meet risk tolerances (S.1.4).

The proposal can be strengthened by specifically addressing risk management with regard to the unexpected application of laws or regulations (S.1.1), settlement (S.1.2), operational risks (S.1.3), or unauthorized, fraudulent, or erroneous payments (S.1.4), incentives to operators and providers to address and contain risks (S.1.5), and periodic review and update of the risk management framework (S.1.6).

S.2 Payer authorization

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**Rationale:**

Payer authorization encompasses the solution’s confirmation process (i.e., the payer must confirm the payee’s information twice: first by passcode confirming a wish to make a payment, and then payment confirmation prior to the payment being sent to the financial institution and the financial institution’s existing authorization process (S.1.2).

More detailed information on how pre-authorized transactions would be managed would enhance the proposal. Currently, the proposal states that providers determine how pre-authorizations will be handled, with no details on parameters (S.2.2) or what payers can revoke or change (S.2.3).

S.3 Payment finality

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**Rationale:**

The All Payments App requires an approval by the payer’s provider, however more detail is needed on how the Payer’s Depository Institution will be required to assure good funds in an ACH model (S.3.1).

The payment is irrevocable after the second confirmation of payment from the user and the payment is submitted to the participating banks’ processing solution (pg 33, S.3.2). However, the solution does afford the participating bank with the capability to revoke the payment within its processing solution, but it is determined solely by the participating banks’ rules and procedures.

The solution will leverage existing Regulation E and NACHA Operating Rules to provide error resolution protections, right and liabilities to the payer and payee (U.3.5).

S.4 Settlement approach

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**Rationale:**

The solution’s approach to settlement is to leverage the existing ACH settlement process, which does establish how and when FIs settle obligations (S.4.1); it provides mechanisms for
managing inter-provider credit and liquidity risk (S.4.2); and, it enables settlement to occur in central bank money (S.4.3),

S.5 Handling disputed payments

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**Rationale:**
The solution does not handle disputed payments. Instead, these are handled by the financial institutions and covered under Regulation E (S.5.2., S.5.5). A consumer is protected by Regulation E and NACHA Rules by allowing the sender to dispute the transaction with the sending bank, with the risk being borne by the sending bank.

The proposal can be strengthened by providing detail for how the solution supports addressing unauthorized, fraudulent, erroneous or otherwise disputed payments and providing mechanisms to hold rule violators accountable (e.g., block funds availability) (S.5.1). More clarity would be helpful on the mechanisms for end user to request a return of funds from the payee. Further, while it is clear how Consumers are protected, it would be beneficial for the comprehensiveness of the proposal to discuss the approach to protect business and government payers against losses from fraud or errors (e.g., NACHA Rules, etc.) (S.5.4).

S.6 Fraud information sharing

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**Rationale:**
The solution does not require the sharing of fraud information (S.6.1) and does not gather the information it would need to monitor and track fraud. The solution relies on the current anti-fraud systems, practices, and personnel provided by the banks on both sides of the payment transaction as well as fraud protections provided by the ACH network.

The solution can be strengthened by requiring the sharing of fraud information (e.g., either through additional tools via the solution or explicitly calling for the practice as part of operating rules for the solution) (S.6.1). It can be further enhanced by outlining a more exhaustive approach to fraud information sharing, including: (1) how data will be aggregated and analyzed, (2) how data will be stored, (3) how access to data will be controlled, (4) how it supports real-time and ex-post management and monitoring of fraud, (5) etc.

S.7 Security controls

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**Rationale:**
The solution’s security controls leverage existing FI processes, the features on the end user’s mobile phone, and the security from the ACH network. The Payments Directory portion of the solution is covered by the safety and security frameworks of the mobile telephony industry, bank safety and security regulation, and ACH safety and security requirements (S.7.1-S.7.3). Additionally, as the Payments Directory is established, more database security policies and standards will be adopted from the mobile telephony industry, including: Critical Server

The proposal can be strengthened by providing details of the controls included under the standards they have identified as being applicable to more clearly align with the Effectiveness Criteria. It can be further strengthened by discussing the operational and procedural components and controls for data retention and disposal (S.7.2).

**S.8 Resiliency**

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**Rationale:**

The distributed nature of the Payments Directory and the All Payments App enable resiliency, as do the business continuity and disaster recovery plans of the different participating FIs. The target availability for the solution is designed to mirror the target availability of the ACH network, which is set at 99.9% (S.8.1), but this is anticipated to vary based on the capability of the providing bank.

The proposer expects that the All Payments App will be included in participating FIs’ business continuity plans (BCP) for the broader ACH. The proposal can be strengthened by requiring participating FIs to include the All Payments App in their ACH BCP (e.g., through operational rules and/or participation requirements) along with a set of minimum testing requirements (S.8.2). While the proposal is clear that the All Payments App will leverage existing bank processing resiliency in completing and posting payment transactions, the proposal can be enhanced by clearly describing the process and end user will experience in the event the app crashes and is unable to be accessed for initiating or receiving payments (S.8.4).

**S.9 End-user data protection**

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**Rationale:**

The solution maintains end-user data protection by leveraging existing FI processes, and by employing the mobile phones’ security when accessing the application and confirming payments (S.9.1). The solution utilizes ACH credits, allowing the funds to be pushed to the receiver without requiring the sender to provide the account number or other personally identifiable information (PII) using the Directory. There are rules set up that require data encryption or transmission via secure session of any message that contains a routing number, account number, PIN, or other identification symbol (S.9.1).

One concern of the solution is the requirement of account information at setup; while a workaround has been suggested (e.g., handing the device to the payee to input their account information and handing the device back to the payer), the proposal can be strengthened by clearly articulating the controls and mechanisms in place to protect sensitive information at account and transaction setup (S.9.2).
S.10 End-user/provider authentication

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**Rationale:**

The All Payments App performs end-user/provider authentication through several methods that employ the solution’s own levels of security and device-specific security (S.10.1). Specifically, an end user receives a passcode challenges response when accessing the solution from a mobile device and a second challenge at the point of payment with final approval for the payment.

The proposal can benefit by describing: (1) the mechanisms required to ensure that payment reaches the intended payee (S.10.2); (2) how the solution aligns with regulatory guidance and industry standards (S.10.3); (3) whether risk-weighting is a required feature to be leveraged by participating FIs (S.10.4, S.10.5); and, (4) how new authentication models can be adopted and old models decommissioned (S.10.6).

S.11 Participation requirements

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**Rationale:**

Participation to receive payments is automatically extended to account holders who have accounts at regulated banks and credit unions. The proposer anticipates this being extended to include people who receive payment via payroll cards or government benefit cards.

The proposal can be strengthened by clearly articulating a minimum set of standard requirements for participation (S.11.1) for participating FIs to include in their participation requirements with their customers. It can be further enhanced by detailing how the provider will monitor participating FIs and ensure they are complying with the requirements (S.11.3).

**Speed (Fast)**

F.1 Fast approval

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**Rationale:**

The speed of approval is measured from the completion of payment initiation to the point at which the payer’s provider approves or denies the payment, i.e., returns a Good Funds response. The solution is dependent on the financial institution for speed of approval and does not indicate any mandates or guidelines as part of operating rules.

The proposal can be strengthened by discussing the guidelines/requirements for approval that the solution will impose on the participating FIs. It can be further detailed by providing anticipated approval times (e.g., less than 2 seconds, under 10 seconds, etc.) (F.1).
F.2 Fast clearing

- **Very Effective**
- **Effective**
- **Somewhat Effective**
- **Not Effective**

**Rationale:**
The solution’s clearing times are determined by two daily settlement deadlines spelled out under ACH Same Day rules of 10am and 2pm Pacific Time. These times do not affect the speed at which transactions can be declared as good funds.

The proposal can be strengthened by providing likely clearing times for transactions (e.g., within two seconds, within five seconds, within one minute, over one minute) (F.2).

F.3 Fast availability of good funds to payee

- **Very Effective**
- **Effective**
- **Somewhat Effective**
- **Not Effective**

**Rationale:**
The solution relies on the receiving bank for the availability of good funds to the payee. The proposer suggests there a multiple ways to extend availability to the payee, including: (1) memo post pending settlement later in the day, (2) fully releasing the funds by allowing a portion to be withdrawn immediately, and (3) extending credit in the amount of the transaction pending settlement.

Given the reliance on the participating FIs to decide when to extend availability, the solution can be strengthened by clearly articulating how it will ensure that availability will be extended to recipients in the windows defined by the Effectiveness Criteria (e.g., through operating rules, participation requirements, etc.) (F.3).

F.4 Fast settlement among financial institutions and regulated non-bank account providers

- **Very Effective**
- **Effective**
- **Somewhat Effective**
- **Not Effective**

**Rationale:**
FIs handle settlement via their existing settlement processes, which use same-day ACH; settlement should happen by end of day. However, weekends and holidays present challenges for settlement, which would make certain transactions settle in longer than same day.

The proposal can be enhanced by addressing how the solution will work with FIs to proactively manage inter-provider credit and liquidity risk exposure due to lags in transaction finality or differences in FI time zones (F.4.1, F.4.2). It can further be made more robust by clearly articulating how the weekend and holiday issue will be solved in the context of the Effectiveness Criteria, though given the credit push nature of the solution, the risk does not lie with the receiving bank.
F.5  Prompt visibility of payment status

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**Rationale:**

Because the solution leverages FIs’ existing processes when making the payment status visible to the payer, the timing and specific methods would vary by the institution. The payment would only become visible to the payee once the funds are available in their account. Given the batch nature of the Same-Day ACH, the payment would not necessarily be visible at the time it is approved (F.5.2).

The proposal can be made more robust by describing typical time periods for prompt visibility of payment status (e.g., approval of payment, availability of funds, etc.) (F.5.1, F.5.2).

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**Legal**

**L.1  Legal framework**

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**Rationale:**

The solution will use existing Regulation E and ACH rules as its legal framework. These meet all the criteria and can be extended to other networks (e.g., credit card, payments) as these networks emerge.

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**L.2  Payment system rules**

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**Rationale:**

The solution will use existing Regulation E and ACH payment system rules. These meet all the criteria and can be extended to other networks (e.g., credit card, payments) as these networks emerge.

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**L.3  Consumer protections**

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**Rationale:**

The solution will use existing Regulation E and ACH consumer protections. These meet all the criteria and can be extended to other networks (e.g., credit card, payments) as these networks emerge.
L.4  Data privacy

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**Rationale:**

The solution will use existing Regulation E and ACH provisions for data privacy. These can be extended to other networks (e.g., credit card, payments) as these networks emerge. There are several mechanisms in place to ensure data privacy, including: (1) users receive passcode challenges, (2) end user data involved in clearing will be protected under existing processes and rules, (3) contact and payment history data is masked within the device, (4) the All Payments App will leverage security protocols established by participating banks, (5) iOS security to ensure a payment is secure, and (6) all account numbers are masked on the mobile application.

The proposal clearly articulates how it seeks to prevent data breaches, but can be strengthened by clearly articulating what happens in the event of a data breach (e.g., processes, policies, etc.) (L.4.5).

L.5  Intellectual property

| Very Effective | Effective | Somewhat Effective | Not Effective | Not Assessable |
|----------------|-----------|--------------------|---------------|

**Rationale:**

Prior to broad distribution of the solution, periodic due diligence reviews will be performed, particularly for the Payments Directory. Given it is not yet developed, the intellectual property for the Payments Directory will be established and owned by its developers (L.5.1).

Governance

G.1  Effective governance

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**Rationale:**

The solution leverages the existing framework of Regulation E and ACH Rules, so it uses the governance model for the ACH network through the National Automated Clearing House (NACHA). An advisory board will be formed for the All Payments App that is representative of FIs of various sizes and charter types.

The proposal can be strengthened by providing details regarding how the advisory board will work (e.g., handling appeals, ensuring efficient decision making, independent validation of compliance, etc.) (G1.1-1.4).
### G.2 Inclusive governance

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**Rationale:**

The solution leverages the existing framework of Regulation E and ACH Rules, so is using the governance model for the ACH network through the National Automated Clearing House (NACHA). There will be an advisory board setup consisting of representation from financial institutions from a variety of sizes and charter types (G.2.3).

The proposal can be enhanced by providing details regarding: (1) how consideration of public interest will be included in decision making, (2) how all stakeholders can provide input and proportionately influence decisions and outcomes, and (3) how actual and perceived conflict will be addressed (G2.1, G2.2, G2.4, and G2.5).
### APPENDIX A: ASSESSMENT SUMMARY

**UBIQUITY**

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<td>U.1: Accessibility</td>
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<td>U.2: Usability</td>
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<td>U.3: Predictability</td>
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<td>U.4: Contextual data capability</td>
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<td>U.5: Cross-border functionality</td>
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<td>U.6: Multiple use case applicability</td>
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**EFFICIENCY**

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<td>E.1: Enables competition</td>
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<td>E.2: Capability to add value-added services</td>
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<td>E.3: Implementation timeline</td>
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<td>E.4: Payment format standards</td>
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<td>E.5: Comprehensive</td>
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<td>E.6: Scalability and adaptability</td>
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<td>E.7: Exceptions and investigations process</td>
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**SAFETY AND SECURITY**

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<td>S.1: Risk management</td>
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<td>S.2: Payer authorization</td>
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<td>S.3: Payment finality</td>
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<td>S.4: Settlement approach</td>
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<td>S.5: Handling disputed payments</td>
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<td>S.6: Fraud information sharing</td>
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APPENDIX B: PROPOSER RESPONSE TO QIAT ASSESSMENT

Overall, we generally agree with the QIAT assessment of our proposal and its determination of the following three levels of participation:

- Level 1, both parties have an account at the same participating financial institutions;
- Level 2, the parties are at two different FIs;
- Level 3, each party is in a separate Faster Payment solution, both of which are connected via the Payments Directory.

We are concerned, however, that the scoring may be skewed by an assumption of Level 2 participation.

Our solution leverages current standards infrastructure to connect the nation’s 13,000 financial institutions in a proven, cost-effective manner. While initially developed for Same-day ACH, the solution offers a predictable means of facilitating person-to-person (P2P) and business-to-person (B2P) payments that is currently available and can be accessed 24x7 via an easy-to-use mobile app that can be white-labeled by the financial institution. While authorization and transaction speed is limited initially to Same-day ACH, the All Payment App is a flexible platform that can be easily adapted to connect additional payment rails and real-time payments as developed.

Our greatest concern with the assessment is the perception associated with low marks on payment speed. The solution leverages the ACH to ensure immediate rollout, providing same-day, but not real-time functionality. Once the system is rolled out it can be modified to accommodate real-time payment systems.

Ubiquity

The strength of our solution is the ubiquity it offers by leveraging current standards to deliver and connect to virtually every account at every bank and credit union. The All Payments App can send payments to more than 150 million account holders on Day One. It also provides financial institutions with clear guidelines on the optimal customer experience to ensure usability.

The proposed solution also allows the use of a mobile phone to connect system users, which can be particularly valuable in trying to reach unbanked customers. Additionally, the unbanked can be reached through The ACH network and can also be used to send funds to unbanked customers who have general purpose, reloadable prepaid cards purchased from a retailer and issued by a bank.

While customer account information is required during set-up, the All Payments App is easy to sign up for and easier to use. Consumers can sign up and use the service with minimal on-screen instruction. Despite its reliance on Same-day ACH the All Payments App can initiate same-day payments at any time and can accommodate new payment rails as they are developed. While initially a mobile application, this solution has a flexible platform that can easily extended to other channels and devices.

Efficiency
The strong ratings in the efficiency assessment confirm that our solution is an immediate and an efficient means of payment. The All Payments App is built using standard iOS development tools that integrate with a bank’s processing platform and establish a secure line for transactions and communications. In addition, the All Payments App uses standard text and email messaging formats.

The ACH system is well-established, cost-effective and close to ubiquitous—including international transactions with the 20 international ACH transaction (IAT) participating countries.

However, we contend the “Somewhat Effective” rating for Exceptions and Investigation Process (S.7) is not appropriate as our solution leverages existing practices which are proven, well-documented and conform to NACHA Operating Rules and Regulation E.

Safety and Security

Overall, the safety and security assessment captures the strengths of our solution, particularly, our payer authorization and the settlement approach.

We are concerned, however, about the “Somewhat Effective” rating on S.11, Participation Requirements, as these are the same requirements that are extended to every financial institution that participates in the ACH Network. Providing additional requirements for participation seems unnecessary. Likewise, compliance is monitored through well-regulated banking systems and needs no further oversight.

Speed (Fast)

Our greatest concern with the assessment is the perception associated with low marks on payment speed. Receivers of payments from the All Payments App will be notified immediately that a payment was sent and settlement will occur by the end of the day. Funds will be available on the next day and will not be subject to holds.

Our proposal estimates roll out between 2017-2020 and full implementation by 2020. The full rollout could be complete much sooner, however. The All Payments App has been built and tested and is ready to deploy. The ACH network, which represents 50 percent of the process, already exists. Furthermore, there are no foreseeable impediments to achieving ubiquity quickly on the sending side.

In addition, two elements driving rapid distribution of the system are built-in: 1) simplicity and low cost and, 2) the absence of any third-party operator. Systems that require linking a third-party operator into the process typically grow at a slower rate, which impedes ubiquity. Because the All Payments App uses banks as the distribution points and the ACH as the network, the system offers a much faster and more certain path to ubiquity.

The solution leverages the ACH to ensure immediate rollout. Once the system is rolled out it can be modified to accommodate real-time payment systems, ensuring flexibility and relevancy to adapt payments innovation.
Legal

We are encouraged to receive the highest marks possible for the legal criteria section as our solution aims to be compliant with all related rules and regulations.

Governance

We are concerned regarding the “Somewhat Effective” rating on the governance criteria section as the overall governance is already in place. The ACH has well-established governance and rule-making policies through NACHA, the Electronic Payments Association, and Regulation E and bank regulators routinely examine financial institutions for compliance. This accountability ensures consumer protections and strong oversight.

The All Payments App reuses the participating bank’s transaction processing and abides by its governance to avoid any conflicts of interest. Because the All Payments App will be distributed among financial institutions of various sizes and charter types, an advisory board will be formed to ensure that all financial institutions are represented in the development and evolution of the system.
NORTH AMERICAN BANKING COMPANY (NABC) PROPOSAL

TASK FORCE ASSESSMENT COMMENTS

Please share your concerns about this proposal’s assessment against the Effectiveness Criteria.

The proposal uses current rules and governance models that already exist today with FIs, the Fed, and the clearing house, NACHA. NACHA, while it has some faults, has established a set of rules and governance that are effective and inclusive for all financial institutions and their customers. It is also one of the few proposals presented that works today and can be expanded to incorporate developing technologies.

Disagree: Very refreshing to see a product that can actually work now and is something that can be built upon in the future, with such enhancements as a universal or federated directory system. Can work under the existing rules and governance structure and is something that community institutions can offer their customers. I think the proposal was unfairly evaluated in comparison to others as this is real and not conceptual and there are no giant leaps of faith necessary to make (e.g., funding to build a system, federal reserve system as an operator, NSS making processing changes) in order to make it work.

This model is based on a payment application that can be white-labeled to any financial institution although it seems to focus on community banks and small to mid-size FIs.

While there is a proposed interoperable directory, the solution is very limited, with their main transactions being process ACH. Though the solution is evolving, the reviewers don’t believe it could be a good solution for the overall need of Faster Payments.

The rating for this proposer is “Not Effective” as there is nothing different that the existing infrastructure of the U.S. payment eco-systems that could even position this proposal as a Faster Payment Solution. The heavy reliance on the ACH framework does not offer an essence of real-time faster payments. And there isn’t a good solution for the unbanked.

I agree with the proposer that the use of existing functions at participating financial institutions will provide for nearly immediate adoption for a majority of the US public (banked), and I see the argument that IAT systems that exist today would facilitate international transactions quickly while a ramp-up could occur with un/underbanked through the methods discussed by the proposer. This is where my disagreement with the assessment lies. Otherwise, I completely agree with the rest of the assessment, in particular, in the statements with respect to availability of funds and visibility. This is a daily system at best, not a near-real-time system. It is good to see the proposer wants to use and improve existing systems – this is where I see the points being made by the proposer. But I must end with agreement on the assessment that this implies work to improve existing infrastructure which has been terribly slow to occur.
U.1. Accessibility: Instead of “effective,” the assessment should be “somewhat effective” or even “not effective.” The solution does nothing to enhance access to payments for the unbanked. Consumers must have a bank account to participate in the system. The ACH system requires a bank account of any payment participant. Also, because the solution would appear to still use batch processing, it would make it possible for overdrafts to occur. This would be especially the case with debits on weekends.

U.6. Applicability to multiple use cases: This should be “somewhat effective.” RP has a concern that smaller businesses would not be able to use this system for requesting payments. The current ACH system uses a directory, but small businesses generally cannot make pull requests.

E.3. Implementation timeline: this should be “Somewhat effective.” The system will not adopt ISO 20020 for some time. At best, ACH promises full adaption to ISO 20020 by 2020. Many proposals would offer ISO 20020 performance from the beginning. This opinion extends to E.4. For now, the proposed solution would be limited to the capacity of established ACH formats. I don’t think that current ACH complies with ISO 20022.

E.6. Scalability and Adaptability: We agree with “effective” on some aspects of this criterion. It is true that ACH is capable of handling a large volume of payments. But we doubt that adoption would be widespread. Many faster payments participants will not download the “All Payments App” because they might use the solution offered at their larger bank. The APA would have to work with Zelle, for example. If there were multiple directories, the ability to go to scale might run up against limitations.

S.3 Payment finality: I need more clarification on charge-back rights. I see that in S.5. it says that it uses existing laws. Credit transactions are handled with more consumer protections than are debit transactions.

S.11 Participation Requirements. We hold hope that the faster payments regime will foster inclusiveness. The QIAT rated this proposal as “somewhat effective.” We would say that it is “not effective.” It deserves that rating because the solution effects no changes to the level of access in the payments system. It says that holders of payroll cards and government benefits cards will benefit, but these individuals and also those with standard bank accounts are already in the system.

L.3. Consumer protections: The assessment should change to “somewhat effective.” While it is true that bank and credit union account holders would still benefit from the same rights as they do in our current payments approach, the solution does not address solutions for unbanked individuals. Because it is possible that the solution may eventually onboard those consumers, the system should have a means for improving protections to individuals who use non-regulated financial services providers. Additionally, we believe that debit card protections are inadequate regardless. Those transactions should have protections that are equivalent to the ones offered to credit card payments. The FPS revolution should be an opportunity to advance that change.

Reinvestment Partners notes that the QIAT found many limitations to the proposer’s solution. We would agree with that assessment. To the extent that we disagree, it is usually relative rather than absolute in degree. We want to emphasize certain aspects of agreement:
S.7. Security Controls. It has up-front authentication and transaction authentication. There are two authentications (log-in and payment request) inside the app at the initiation of payment. S.9. There are good end-user data protections and S.10 end-user authentications.

The proposal is not in conformance with the requirements of a full solution proposal. The requirements were designed to ensure that McKinsey and Task Force time and resources are focused on end-to-end solution proposals that can be thoroughly and credibly assessed against the criteria. This proposal does not meet the requirements. Proposal has answered all sections of the template but in many cases the response does not provide information that would allow the QIAT to evaluate the proposal. The Proposal Template included instructions for Part C: Self-Assessment against Effectiveness Criteria that asked proposers to include a "detailed discussion of why the rating is justified and how the solution meets each criterion" (page 22 of template). It does not include specific information in Part C as to how or why the proposed solution meets each of the criteria. As a result, the QIAT is unable to evaluate the solution with the information provided. Altering the existing process defined to offer an opportunity for the proposer to include more explicit information in its submission to make the proposal “assessable” would be unfair to proposers who provided complete proposals before the submission deadline. A few of the reasons why the proposal did not meet the requirements are as follows: The solution does not include B2B payments or B2B cross-border payments. The solution includes only P2P cross-border payments. The solution does not handle disputed payments. The solution does not gather or share fraud information. The solution does not specifically address risk management.

Please submit any comments about this proposal’s assessment against the Effectiveness Criteria.

U.6-Applicability to multiple use cases should be Somewhat Effective as the solution only supports one of the uses cases (P2P).

E.1 - Enables competition should be Somewhat Effective as the solution is limited to only banks and credit unions leaving the unbanked out of the option to use the solution.

E.6 - Scalability and adaptability should be Somewhat Effective as the solution is proposing the use of a Payments Directory that has not been implemented or tested.

Mobile application already in use, with SDA as backbone making ubiquity achievable. Details regarding the Directory are not clear. Legal Framework already in place.

ACH-based credit push comprising mobile app and directory facilitating interoperability. Existing infrastructure.

Interoperable, easy for end-users to send money to anyone with limited info e.g., email or tele #. 30 banks have pilots. Same-day ACH thus no fast clearing or funds availability. UX seems good. Since not real-time hard to say how it’s better than today, unless it also includes positive funds verification (unlike today’s ACH).
Probably the most effective and most likely to get implemented of all the proposals. Although simple in its reliance on using existing payment structures, appeared to get docked based upon perception of what does faster payments really mean. Leverages many of the positive attributes of payments within the current payments ecosystem. Also one that the vast majority of the community bank and credit union providers can grasp and adopt AND 90% in place today!

It will be interesting to see if this solution will accommodate interoperability of other payment vehicles in the future.

Great solution leveraging existing rails.

This is a rather simplistic approach in which a simple mobile app sends payment info to a server that in turn generates an ACH file. In my opinion U.6 should be Somewhat Effective because of the minimal use cases. I also feel that S.2 should be rated Somewhat Effective because they did not explain what criteria a Financial Institution would use to "enroll" a new user.

The solution meets and supports the usability and accessibility based on simple utilization of existing payment routing. The Ubiquity assessment is too low.

We disagree with the Speed assessment rating as the solution is banking on SDA, with no solution for real-time funds availability.

This is a straightforward, well written proposal. In all likelihood, this made it easier for the QIAT team to understand the capabilities and fairly assess the proposal against the effectiveness criteria.

Contextual data capability is rated too low as the ACH format already maps to ISO 20022 and natively supports ISO REMT 001 and 002 data, as well as XML and EDI. Either fast clearing or fast settlement should be rated higher. Settlement critique implies creation of credit and liquidity risk, but there is no risk if fast clearing is not done prior to settlement multiple times per day. Rules is rated too highly as solution would benefit from specific rules for the solution to strengthen consistency across all participants.

Overall I agree with the assessment but thought the QIAT was not demanding enough of this solution in the speed category.

NAB et al. propose expansion and acceleration of use of the ACH Same-Day Settlement option currently available to U.S. FIs. Sadly, it does not provide workarounds for the current lack of 7/24 settlement/funds movement nor does it provide for a convenient method for initiating payee enrollment and/or addressing. And payment finality is not close to what the FPTF had in mind when creating that criterion. QIAT got its rating right.

Agree that reliance on ACH system limits speed. Also, the proposal does not fully address how unbanked consumers can engage with the system as senders and receivers. Finally, the proposal could use more specifics on how to handle disputes in situations not fully addressed by Reg E or NACHA rules (e.g., victim-assisted fraud).
The dependence on the ACH Network is important to the solution's effectiveness ratings both positive and negative. On the positive side are accessibility and use cases; on the negative, as the proposers state, is cross-border.

FIs can white-label the mobile app
24/7 mobile access
ACH framework familiar to all stakeholders
Cost-effective
Have live customers using
Can type in name of bank and not know acct# and routing#

Agreed as assessed—because the solution largely relies on the existing ACH framework, it is both benefitted by the existing framework (e.g. GL governance and scalability) and hamstrung by some of its limitations (e.g., speed and lack of comprehensive cross-border functionality).

Generally agree. I would concur that the proposal did not meet the very effective status for speed set out in the criteria but would not agree with the general indication that the proposal failed to meet end-to-end payment expectations. This model has been tested and proven to be an effective same-day end-to-end payment utilizing existing and well established governance, dispute rights, and settlement. Moreover, the governance that this proposal would operate is a well established rules and standards model.

Speed was an issue in the proposal, as noted in the assessment.

The assessment was right on target, especially around the shortcomings regarding how fast the recipient could access funds.

Several areas in the proposal fell short of the criteria; the ratings are correct.

(NOTE: I assisted the proposers in preparing this proposal.) NABC-ICBA's proposal has several factors in its favor: (1) It is running today. (2) it is fully bank-centric using the sender's and receiver's DDA accounts and the ACH. (3) It is intuitive to use. In tests, we found that a new user needs only brief instruction and a trial transaction. (4) It is secure. (5) The plan to white-label it to others should speed distribution. (6) Each participating bank can add unique, competitive features (including pricing) both in the lack of any sensitive information being stored on the mobile device and nothing sensitive is transmitted in the clear. (5) It would require no new regulations. The drawbacks are: (1) The proposing group might not be large enough or well funded enough to put it into broad use rapidly. (2) Although the proposers recognize the need for a directory and have what I feel are correct ideas about how a Directory should be set up (e.g., a federated model), they don't have a plan for getting such a Directory in place, saying it should be done by a "public utility."
Task Force Solution-Enriching Comments

Ubiquity

Thank you for your submission. I appreciate that it uses current networks/methodologies and that it gives unbanked and underbanked the ability to receive payments.

As a medium FI, I would be reluctant to send my users to a stand-alone app. If we were to implement your solution, we would prefer APIs that would allow integration of the functionality into our own mobile applications.

A solution that already has ubiquity!!! Nice. More detail on the roadmap for directory build-out as this will help usability (e.g., don’t need to hand phone over).

Usability sufficient in that solution runs on existing rails making it available to all financial institutions.

The solution could be enriched by incorporating business to business transactions and determining how to implement cross-border functionality within the solution. Also, the system could be enriched by expanding the system’s formatting capabilities beyond the ACH format, which could provide for more rich and complex data exchanges for business partners.

The proposal could be strengthened by showing examples of how it could be used for multiple use cases. The requirement of the payee providing the payer their credentials will limit the use.

There are some questions remaining about ubiquity. I find it interesting that the proposal suggests that the unbanked can receive funds on day one. What was difficult to ascertain is exactly how the unbanked would receive payments from the government to their prepaid card and how that would link to the app? It was also unclear as to how all of this would occur without them creating an account, on the app or otherwise, and still receive payment.

Also, from the proposal it seemed to be inferred that only FIs would be able to participate. Can other financials downstream participate as well and sign up customers?

The proposal states that this may drop the rates of unbanked. I fail to see the cause and effect. If the proposal believes that receiving funds via the app makes them “banked” then maybe that qualifies, but I fail to understand how the app will drive adoption of formal banking services when they aren't currently being utilized. The current service offerings by banks will not change and are not currently considered worthy of use by those avoiding them. How will that change?

Building on the existing payment network is a plus and ensures ubiquity, but with it also comes the lack of instant settlement and ability to send or receive payments at any time of any day.

Describe more fully who will establish the directory or how the directory will be established in order to support ease of reach to all account holders.
The solution appears to be limited to iOS devices, making it incomplete from a ubiquity perspective. iOS devices hold a large share of the mobile device market in the United States, but are far from dominant in that space (according to a Parks Associates report from Feb of 2016, Apple’s share of the smartphone market is 40%). Further, reliance solely on these devices likely prevents participation from more vulnerable populations.

Banks will have to develop the Payments directory – takes time, effort and collaboration, impeding adoption.

End-Users have more than one bank/FI – how to meet multiple providers needs was not clear.

Applies mainly to banked population; does not effectively address unbanked.

Commend the team for leveraging what we have available today to get something in market. Nice work!

NACB-ICBA has solved the ubiquity issue in the most direct and potentially effective manner: the proposed system operates entirely through banks and the ACH. Ubiquity then is purely a matter of how many sign up. The other attractive features of the proposal would seem to indicate that NABC-ICBA has as strong a chance if not a stronger one than any of the others (save The Clearing House) to achieve ubiquity effectively.

**Efficiency**

Easy to integrate, pretty much out-of-the-box ready to go.

The limitation of account providers to current FIs will inhibit competition and drive up end-user cost.

While using the ACH network will certainly help drive adoption of FIs, it is the "easy" option and has its limitations. Even with the advent of same-day ACH for payments, there are still limits. A proposal cannot claim a truly 24/7/365 solution while using the ACH network, even with same-day ACH. ACH does not run over the weekend. Therefore from Friday night after cut-off time to Sunday night, there will be no movement of funds. While provisional credit may be worked out in the system between banks, there is no true finality as discussed by the task force.

Using the ACH network also limits the visibility of the funds transfer and the corresponding payment detail. The lack of corresponding detail may inhibit B2B payment adoption.

It is not clear how added-value services can be consistently deployed across all offering the solution.

Solution relies heavily on the ACH for a number of use cases. ACH has advantages in terms of ubiquity, but does not satisfy the efficiency criteria.

ACH does not settle on holidays or weekends – not 24/7.

Mobile app is the only way to initiate payments.
Prompt visibility of payment status not available. Contingent upon ACH rules evolving to get faster and closer to real time.

The system uses a directory as part of the solution. Do you believe a new directory is necessary or can existing ones be used?

The proposed system is quite efficient in the sense that it uses the existing bank account and ACH system. At the same time, this ties them to the efficiency banks and the ACH achieve with no capability to influence either other banks or the ACH to become more efficient in the future.

Does not address initial customer setup and verification.

Greater transparency and details around the security of how data regarding payments made through the app are stored for reporting would be beneficial.

The solution could be enriched by incorporating finality of payment within the solution.

Payee has to put in their account # in the mobile app – end-user perception on security.

Does not handle Disputed Payments, left up to the FI.

Does not require sharing fraud information between FIs and does not monitor or track fraud – relies on current fraud systems/practices that have a lot of gaps.

Appreciate the forward-looking efforts of a directory to make it easier to input information concerning recipients. However assuming in the short term that individuals will want to share their account number and bank R/T limits the use cases to people you would very much trust, such as family and close friends. Even that may be a bit of a leap. Handing your phone to someone is also not a good solution as a phone has become a very personal device and in many cases the person will not be in front of you.

The proposal has among the highest safety and security due to the three elements it uses (mobile phone, bank account, ACH) and how it has assured security in the one element not currently known to be safe and secure, the mobile phone. The proposer’s solution to mobile phone security seems adequate to the need as no sensitive information is stored on the phone. Addresses of payees stored in the mobile phone are in alias form. Transaction data does not persist on the mobile device once the payment has been sent and at the other end the transaction data goes directly via the ACH into the receiver's bank. Only a message that the transaction has occurred goes to the receiver's phone.

**Speed (Fast)**

Relies on same-day ACH for "quick" settlement but there are cutoff times that have to be met to settle same day.

Suggest more progress to provide real-time funding.
The solution could be enriched by implementing a new faster settlement capability within the proposed solution, as opposed to traditional ACH and utilizing the Same Day ACH processing windows as detailed in the proposal.

Describe further how rules between participants could enable fast clearing (availability of funds) between parties, and surety of approval messages – i.e., commitments from all of the participants to consistently provide funds.

Reliance on ACH for many payments does not meet the criteria established around speed.

Speed criteria not met.

ACH system is not fast enough. I do appreciate the forward-looking statements of being able to use other rails as they become available. If there was a messaging capability that occurred real-time (like some of the card networks), the receiving FI could then memo post immediately making funds available with settlement to follow. This would be an improvement to the existing proposal.

In response to the Fed's call for a faster payment solution, this proposal has as its foundational assumption that the current ACH system is the future, and all it needs is a ubiquitous mobile app and a national directory.

While I agree the national directory (or federation of directories) is a component of a better solution the proposal is unimaginative in ways it can add value to the existing process. The problems highlighted in the Fed's call for proposals aren't addressed (e.g., faster clearing times and availability of good funds). Further, mobile apps are today being provided by a wide variety and number of companies trying to establish or defend their positioning in the payments value chain.

I think the proposal would greatly benefit from a world view of the future of payments put forth by the community bankers that serves the needs of all end-users both in the U.S. and is differentiated based on the unique strengths owned and maintained by community-based financial institutions.

The solution focuses on same-day ACH which works for many transactions but I believe you have built a structure that would allow for other settlement solutions in the future. Have you considered outlining how you could interoperate with other proposers or other settlement solutions? Might be something to consider.

NABC-IBCA's proposal can be faulted to a degree regarding speed as the speed of the ACH is the limiting factor. If one assumes the ACH will continue to increase its speed to meet market demand than the proposer is covered.

Legal

Thank you for having a solution that already has a solid legal framework in place.
The solution could be enriched by describing the effort and timeline to reach Level 3 - Payments Directory and the associated legal framework and Rules associated with the Payments Directory.

I saw no legal issues. NABC holds the patents.

**Governance**

Thank you for having a solution that already has a governance function in place.

The solution could be enriched to identify the governance model associated with a Payments Directory as described within the proposed solution.

Limiting the governance group to participating FIs does not allow for other stakeholders to be able to ensure fairness in the rule making process.

This proposal is lacking in governance from the end-user standpoint. It is true that by using the ACH network much of the governance will fall under Reg E and Nacha's ACH rules. However, it is the end-user’s perspective that additional governance specific to this scheme should include end-user input. To qualify as effective this proposal should outline how the governance will be inclusive and to what degree, which includes percentage rates of participation for non-FIs and details about the different levels of governance.

Provide more details on advisory board that would inform additional rules for participants.

G.1 Effective governance & G.2 Inclusive governance – Not Effective - None was mentioned, seeks to leverage industry best practice "tie to Reg E and ACH Rules."

Governance does not address any method for ensuring that the range of stakeholders involved will have influence.

Governance, like the rest of the proposed scheme, is provided by piggy-backing on the governance of the participating banks and the ACH. This seems adequate.
Thank you for your submission. I appreciate that it uses current networks/methodologies and that it gives unbanked and underbanked the ability to receive payments.

You are welcome.

As a medium FI, I would be reluctant to send my users to a stand-alone app. If we were to implement your solution, we would prefer APIs that would allow integration of the functionality into our own mobile applications.

The app functionality could be built into your own mobile app however the ease of a standalone application is better suited when you are trying to pay someone standing with you, why have your customers go to a complete banking application when they only want to pay someone.

A solution that already has ubiquity!!! Nice. More detail on the roadmap for directory buildout as this will help usability (e.g. don't need to hand phone over).

Directory connection is the next iteration of the app.

Usability sufficient in that solution runs on existing rails making it available to all financial institutions.

Not only existing rails but the most cost effective. The changes will come to the same-day operating windows to make it nearly real time.

The solution could be enriched by incorporating business to business transactions and determining how to implement cross border functionality within the solution. Also, the system could be enriched by expanding the systems formatting capabilities beyond the ACH format, which could provide for more rich and complex data exchanges for business partners.

The solution can be expanded to include those functions. The application does not prohibit B to B now.

The proposal could be strengthen by showing example of how it could be used for multiple use cases. The requirement of the payee providing the payer their credentials will limit the use.

At some point, payor and payee information needs to be exchanged. The ultimate would be to have a secure payee directory for a payor to access which our app anticipates in the future.

There are some questions remaining about ubiquity. I find it interesting that the proposal suggests that the unbanked can receive funds on day one. What was difficult to ascertain is exactly how the unbanked would receive payments from the government to their prepaid card and how that would link to the app? It was also unclear as to how all of this would occur without them creating an account, on the app or otherwise, and still receive payment.

Any form of account that currently can receive an ACH credit, pay cards, can be paid with this app.

Also, from the proposal it seemed to be inferred that only FIs would be able to participate. Can other financials downstream participate as well and sign up customers?
Any institution that can originate ACH could use the app as well.

The proposal states that this may drop the rates of unbanked. I fail to see the cause and effect. If the proposal believes that receiving funds via the app makes them "banked" then maybe that qualifies, but I fail to understand how the app will drive adoption of formal banking services when they aren't currently being utilized. The current service offerings by banks will not change and are not currently considered worthy of use by those avoiding them. How will that change?

It might be a stretch to assume that the unbanked may be reduced. However this is a cost effective convenient model that would hopefully encourage more financial institution usage by the unbanked.

Building on the existing payment network is a plus and ensures ubiquity, but with it also comes the lack of instant settlement and ability to send or receive payments at any time of any day.

There is not a system to day that has the ability to do what you speak of except cash. All systems will require some sort of credit intermediary.

Describe more fully who will establish the directory or how the directory will be established in order to support ease of reach to all account holders.

The directory should be created and governed by a central institution with overall governance by the industry.

The solution appears to be limited to iOS devices, making it incomplete from a ubiquity perspective. iOS devices hold a large share of the mobile device market in the United States, but are far from dominant in that space (according to a Parks Associates report from Feb of 2016, Apple's share of the smartphone market is 40%). Further, reliance solely on these devices likely prevents participation from more vulnerable populations.

The app was first develop for IOS, it can be adopted to any smart phone or tablet.

Banks will have to develop the Payments directory – takes time, effort and collaboration, impeding adoption End Users have more than one bank/FI – how to meet multiple providers needs was not clear applies mainly to banked population; does not effectively address unbanked.

No additional comment.

Commend the team for leveraging what we have available today to get something in market. Nice work!

Thank you!

NACB-ICBA has solved the ubiquity issue in the most direct and potentially effective manner: the proposed system operates entirely through banks and the ACH. Ubiquity then is purely a matter of how many sign up. The other attractive features of the proposal would seem to indicate that NABC-ICBA has as strong a chance if not a stronger one than any of the others (save The Clearing House) to achieve ubiquity effectively.

Thank you!
Efficiency

Easy to integrate, pretty much out-of-the-box ready to go.

Thank you!

The limitation of account providers to current FIs will inhibit competition and drive up end user cost.

Disagree, the app is easy to maintain and the payments are being processed on the lowest cost rail in the industry. The app only processes credits which should reduce the risk component of the cost.

While using the ACH network will certainly help drive adoption of FIs, it is the "easy" option and has its limitations. Even with the advent of same day ACH for payments, there are still limits. A proposal cannot claim a truly 24/7/365 solution while using the ACH network, even with same day ACH. ACH does not run over the weekend. Therefore from Friday, night after cut off time, to Sunday night, there will be no movement of funds. While provisional credit may be worked out in the system between banks, there is no true finality as discussed by the task force.

As the industry evolves tries to evolve to real time payments processing windows will expand and will include weekends with a central bank carrying the credit between FIs on their balance sheet.

Using the ACH network also limits the visibility of the funds transfer and the corresponding payment detail. The lack of corresponding detail may inhibit B2B payment adoption.

All of that detail many be expanded as the industry evolves. NACHA voting members have slowed down the growth of ACH usage.

It is not clear how added value services can be consistently deployed across all offering the solution.

The app could have a feature that allowed the payor to choose, wire, credit card, remotely created check, it is all dependent on the relationship the payor as with its FI.

Solution relies heavily on the ACH for a number of use-cases. ACH has advantages in terms of ubiquity, but does not satisfy the efficiency criteria.

Only because the ACH network growth has been inhibited by its voting members.

ACH does not settle on holidays or weekends – not a 24/7
Mobile app is the only way to initiate payments prompt visibility of payment status not available. Contingent upon ACH rules evolving to get faster and closer to real time

No additional comment.

The system uses a directory as part of the solution. Do you believe a new directory is necessary or can existing ones be used?

A new central one is necessary I believe but it could access existing directories as part of its functionality.
The proposed system is quite efficient in the sense that it uses the existing bank account and ACH system. At the same time, this ties them to the efficiency banks and the ACH achieve with no capability to influence either other banks or the ACH to become more efficient in the future.

As previously stated the voting members of NACHA have held the system in check.

Safety & Security

Does not address initial customer setup and verification.

It does, initial customer setup is handled by the payor's FI.

Greater transparency and details around the security of how data regarding payments made through the app are stored for reporting would be beneficial.

Any end use reporting would be at the account level of the payor and payee. Much like we don't use a checkbook register for end use reporting.

The solution could be enriched by incorporating finality of payment within the solution.

The finality of payment would need to come from the payee's FI.

Payee has to put in their account # in the mobile app – end user perception on security
Does not handle Disputed Payments, left up to the FI
Does not require sharing fraud information between FIs and does not monitor or track fraud – relies on current fraud systems/practices that have a lot of gaps

No additional comment.

Appreciate the forward looking efforts of a directory to make it easier to input information concerning recipients. However assuming in the short term that individuals will want to share their account number and bank R/T limits the use cases to people you would very much trust, such as family and close friends. Even that may be a bit of a leap. Handing your phone to someone is also not a good solution as a phone has become a very personal device and in many cases the person will not be in front of you.

No additional comment.

The proposal has among the highest safety and security due to the three elements it uses (mobile phone, bank account, ACH) and how it has assured security in the one element not currently known to be safe and secure, the mobile phone. The proposer's solution to mobile phone security seems adequate to the need as no sensitive information is stored on the phone. Addresses of payees stored in the mobile phone are in alias form. Transaction data does not persist on the mobile device once the payment has been sent and at the other end the transaction data goes directly via the ACH into the receiver's bank. Only a message that the transaction has occurred goes to the receiver's phone.

No additional comment.
Speed

Relies on same day ACH for "quick" settlement but there are cutoff times that have to be met to settle same day.

**Evolution of ACH needs to occur.**

Suggest more progress to provide real-time funding.

**No additional comment.**

The solution could be enriched by implementing a new faster settlement capability within the proposed solution, as opposed to traditional ACH and utilizing the Same Day ACH processing windows as detailed in the proposal.

**No additional comment.**

Describe further how rules between participants could enable fast clearing (availability of funds) between parties, and surety of approval messages – i.e., commitments from all of the participants to consistently provide funds.

**No additional comment.**

Reliance on ACH for many payments does not meet the criteria established around speed.

**Evolution of ACH needs to occur.**

Speed criteria not met

**Evolution of ACH needs to occur.**

ACH system is not fast enough. I do appreciate the forward looking statements of being able to use other rails as they become available. If there was a messaging capability that occurred real time (like some of the card networks), the receiving FI could then memo post immediately making funds available with settlement to follow. This would be an improvement to the existing proposal.

**Evolution of ACH needs to occur.**

In response to the Fed's call for a faster payment solution, this proposal has as its foundational assumption that the current ACH system is the future, and all it needs is a ubiquitous mobile app and a national directory.

**Evolution of ACH needs to occur.**

While I agree the national directory (or federation of directories) is a component of a better solution the proposal is unimaginative in ways it can add value to the existing process. The problems highlighted in the Fed's call for proposals aren't addressed (e.g. faster clearing times and availability of good funds).
Further, mobile apps are today being provided by a wide variety and number of companies trying to establish or defend their positioning in the payments value chain.

**Evolution of ACH needs to occur.**

I think the proposal would greatly benefit from a world view of the future of payments put forth by the community bankers that serves the needs of all end users both in the U.S. and is differentiated based on the unique strengths owned and maintained by community-based financial institutions.

**No additional comment.**

The solution focuses on same day ACH which works for many transactions but I believe you have built a structure that would allow for other settlement solutions in the future. Have you considered outlining how you could interoperate with other proposers or other settlement solutions? Might be something to consider.

**No additional comment.**

NACB-IBCA’s proposal can be faulted to a degree regarding speed as the speed of the ACH is the limiting factor. If one assumes the ACH will continue to increase its speed to meet market demand than the proposer is covered.

**The key to the proposal is for the handcuffs to be unlocked by the large voting members of NACHA who have stymied the evolution of NACHA rules and innovation for years.**

**Legal**

Thank you for having a solution that already has a solid legal framework in place.

**You are welcome.**

The solution could be enriched by describing the effort and timeline to reach Level 3 - Payments Directory and the associated legal framework and Rules associated with the Payments Directory.

**No additional comment.**

I saw no legal issues. NABC holds the patents.

**No additional comment.**

**Governance**

Thanks you for having a solution that already has a governance function in place.

**We did think that was the best.**
The solution could be enriched to identify the governance model associated with a Payments Directory as described within the proposed solution.

The governance model of NACHA could be changed to incorporate the directory.

Limiting the governance group to participating FI does not allow for other stakeholders to be able to ensure fairness in the rule making process. The governance model of NACHA could be changed to include other stakeholders of the payments network. Even with its faults in current voting it is the best one in the industry. It could be modified to include all stakeholders.

This proposal is lacking in governance from the end user standpoint. It is true that by using the ACH network much of the governance will fall under Reg E and Nacha's ACH rules. However, it is the end users perspective that additional governance specific to this scheme should include end user input. To qualify as effective this proposal should outline how the governance will be inclusive and to what degree, which includes percentage rates of participation for non-FIs and details about the different levels of governance.

Please see previous comment.

Provide more details on advisory board that would inform additional rules for participants.

Please see previous comment.

G.1 Effective governance & G.2 Inclusive governance – Not Effective - None was mentioned, seeks to leveraged industry best practice "tie to Reg E and ACH Rules".

Using existing rules and regulations is the best way to quick adoption of any new payment.

Governance does not address any method for ensuring that the range of stakeholders involved will have influence.

Please see previous comment on expansion of NACHA governance.
Faster Payments QIAT

FINAL ASSESSMENT

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Faster Payments QIAT

FINAL ASSESSMENT

**Proposer:** North American Banking Company and Independent Community Bankers of America

**Summary Description of Solution:**

The solution serves as a front-end conduit to the ACH network using same-day ACH credit push. It has two components: an All Payments App for end-users, which is a mobile application that financial institutions can white-label and offer to their customers to originate transactions 24x7x365; and a Payments Directory, which maps a participant’s email address or a unique alias identification to financial institution routing information, thereby facilitating interoperability with other faster payment solutions.

End-users can send and receive payments in any of three ways. At Level 1, both parties have an account at the same participating FI. At Level 2, the parties are at two different FIs that both participate in the solution – which is critical for reaching ubiquity. At Level 3, each party uses a separate Faster Payment solution, both of which are connected via the Payments Directory.

**EXECUTIVE SUMMARY OF THE PROPOSAL**

**Major strengths**

– The solution accelerates adoption by using existing infrastructure and technology—in particular the ACH network, which already has ubiquity.

– The solution is cost-effective because it uses existing standards, rules, and record formats for same-Day ACH.

– The solution provides a standard mobile app that financial institutions can white-label and customize, thereby delivering a usable and predictable end-user experience.

– The Payments Directory, once developed, will enable users to initiate a payment with limited information, such as an email address or mobile phone number.

– Error notification and resolution are standardized among participating financial institutions using the ACH operating rules and existing payments regulations.

**Areas for improvement and enhancement**

– The solution uses the same-day ACH system; given that system’s inherent limitations, the solution does not achieve fast clearing, settlement, nor prompt visibility of payment status.

– The solution itself does not enable fast approval or fast funds availability; it is up to participating FIs to enable these capabilities. The solution’s operating rules do not specify requirements for the timing of approval or funds availability.

– Contextual data uses ACH record formats, but the proposal does not provide detail on how the solution will overcome current challenges with the standardized use of ACH data fields for business payments.

– Whether the solution is available 24x7x365 is not clear. It would be beneficial for end-users to understand that, while the solution is accessible 24x7x365, part of the time they will effectively be working “offline.”
• **Use cases addressed**
  
  – The solution addresses three of the four major use cases: P2B, B2P, and P2P (initially, on a limited basis). It enables cross-border P2P on a limited basis.
  
  – The solution does not currently cover B2B (p. 5), although it is expected to distribute an All Payments App designed for B2B.

• **Proposer’s overall ability to deliver proposed solution**
  
  – The system is currently at Level 2 connectivity, with the Payments Directory still to be developed to reach Level 3.
  
  – The All Payments App has already been developed, tested, and deployed and is ready for broader adoption and usage.
  
  – Tests of the All Payments App with non-technical users who were provided with a one-time demonstration indicated that most customers can quickly learn to use the app and execute transactions easily.
Ubiquity

U.1 Accessibility

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**Rationale:**

The solution facilitates payments to and from all types of payment accounts in the U.S. through the ACH network, which is connected to all financial institutions in the U.S. (U.1.1). Regulated non-bank account providers can access the solution through a financial institution; for unbanked customers (including those who currently receive payroll or government benefits via a pre-paid card), a Payments Directory will be created jointly by the banks that have joined the system. The solution’s use of the existing ACH network infrastructure will accelerate adoption; participating FIs would need only to offer the mobile app to their customers and participate in the Payments Directory (U.1.5).

While the unbanked can receive a payment on Day 1, the proposal can be strengthened by clearly detailing how the broader unbanked population can initiate a payment on Day 1 (U.1.2). Further, the proposal can be enhanced by clearly outlining the solution’s ability to support multi-currency payments (U.1.3).

U.2 Usability

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**Rationale:**

The proposal describes a clear, user-friendly interface that FIs can customize. To ensure usability, the solution provides FIs with clear guidelines on what the customer experience should be (U.2.1). In addition, once the Payment Directory is developed and adopted, the solution will enable an entity to initiate a payment with limited information, such as an email address or mobile number (U.2.2).

However, one of the solution’s limitations is in the initial set-up of a payee. The payee’s account number must be entered into the payer’s All Payment App; the solution would benefit from developing a systemic workaround to avoid the payee’s having to provide disclose this information to the payer (U.2.2). Because the solution leverages same-day ACH, it cannot receive, clear, or settle on holidays or weekends. The solution can receive transactions in real time, but those transactions cannot be cleared nor funds made available in real time. It would be helpful to understand how end-users can initiate payment, have visibility into payment status, and receive final availability of good funds on a 24x7x365 basis. Though the proposer states, “going forward, posting to user accounts could be done by messaging between FIs with inter-FI settlement occurring later via ACH,” the proposal would be strengthened by sharing an implementation plan for this process (U.2.3). In addition, since end-users can only initiate payments via the mobile app, the solution is not widely available to end-users through a variety of channels, devices, and platforms (U.2.1).
U.3 Predictability

Very Effective    Effective    Somewhat Effective    Not Effective

Rationale:
The solution consistently delivers the defined baseline of core features through standard communication and messaging protocols in the All Payments App and its use of the ACH network (U.3.1, U.3.3-4). Baseline features of the payment experience and error resolution protections, rights, and liabilities are defined, documented, and communicated to end-users through the white-label All Payments App and existing ACH rules and regulations (U.3.2, U.3.5). The solution is currently referred to as “All Payments App,” but a generic, brand-agnostic term could be substituted.

U.4 Contextual data capability

Very Effective    Effective    Somewhat Effective

Rationale
The solution uses the ACH "WEB" Standard Entry Code for credit-push payments and uses the available addenda record to send contextual data from the payer to the payee. The All Payments App is thus able to process 80 characters of remittance data through the ACH Addenda record (U.4.1). For B2B scenarios (p. 56), contextual information can be appended to the transaction by scanning documents into the payment’s context field and then sent through an in-app or email communication (U.4.1).

While B2B is not a targeted use case, the All Payments App will be enhanced in the future to enable B2B use. The proposal can be strengthened by outlining a plan for how ACH’s contextual data capabilities will balance flexibility with standardization—by adopting the ISO 20022 messaging standard to accommodate expanded contextual data, for example (U.4.3).

U.5 Cross-border functionality

Very Effective    Effective    Somewhat Effective

Rationale:
The solution currently focuses on domestic transactions and can only initiate cross-border payments in one particular P2P use case. Specifically, P2P cross-border transactions may be executed if one party’s All Payments App account is held by a foreign branch of a participating U.S. FI in a country that accepts IATs (international ACH transactions). The proposal does not detail plans for developing additional cross-border functionality (U.5.5).

U.6 Applicability to multiple use cases

Very Effective    Effective    Somewhat Effective

Rationale:
The solution supports consumer-initiated P2P payments as a targeted use case and is extensible to other use cases in the future, such as some business payments, if contextual data
capability is improved. The solution is currently limited in its applicability to the B2B use case.

**Efficiency**

**E.1 Enables competition**

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**Rationale:**

The solution allows a choice of providers based on services and price, but the choice is limited to banks and credit unions; third parties cannot directly provide the solution. End-users can change financial institutions and continue to use the All Payments App as long as their new financial institution also participates in the solution (E.1.1). The Payments Directory encourages competition by making it easier for more providers to reach end-users and for end-users to select among providers regardless of whether they participate in the solution (E.1.2). Any bank that meets the participation requirements for the solution and the ACH network can use the All Payments App and join the Payments Directory (E.1.4).

The proposal can be strengthened by discussing how any entity can easily switch among providers or use multiple providers (e.g., how the Payments Directory could enable easy switching or use of multiple provider accounts by allowing end-users, rather than providers, to own their accounts) (E.1.2). Further, it should address how the solution will require providers to disclose to customers in advance the total cost of using that provider (e.g., by establishing a set of minimum standards as part of operating or participation rules) (E.1.3).

**E.2 Capability to enable value-added services**

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**Rationale:**

The proposal states that the Payments Directory can provide interoperability and that the solution supports the provision of value-added services (VAS) related to (1) user experience, (2) product service innovation, (3) distribution marketing, (4) digital fulfillment, (5) risk optimization, and (6) enhanced corporate control (E.2.1-2).

The All Payments App is built using standard iOS development tools and standard text and email messaging formats; however, the proposal can be strengthened by clearly articulating how value-added services can be built on top of the solution (E.2.1). Further, the proposal would benefit from describing how the solution will require providers to clearly disclose to their customers that value-added services are optional (E.2.3). It would be helpful if the proposal were to enumerate a sampling of potential value-added services that could be layered onto the solution.
E.3 Implementation timeline

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**Rationale:**

The All Payments App has been built and tested and is ready to deploy. A key component of the solution, the ACH network, already exists. Distribution of the All Payments App to participating FIs, payers, and payees was expected to occur in 2016. The development and third-party hosting of the Payments Directory, which is essential for the third level of implementation and true ubiquity, will not be complete until 2020.

Ubiquity among FIs and credit unions will be determined by the rate of customer adoption. The proposal can be strengthened by addressing specific factors that will affect the anticipated rate of adoption, such as: (1) market share assumptions and growth projections, (2) potential hurdles to adoption and plans to address them, (3) the solution’s funding (page 4 of the proposal indicates self-funding, but further details are not provided), and (4) how projected timelines compare to similar historical examples (E.3.1).

E.4 Payment format standards

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**Rationale:**

Because the solution will use existing ACH formats for clearing, format changes will not be necessary to process payments, and formats will be cost-effective (E.4.1, E.4.3, E.4.5). The solution will leverage the IAT code for its limited cross-border transactions. The ACH network currently supports ISO 20022 payment remittance messages; the ISO 20022 Mapping Guide standardizes the practice of mapping ISO 20022-formatted payment messages to corresponding NACHA file formats.

While the proposal suggests that the All Payments App can be enhanced to incorporate new solutions as they are developed, thus allowing the app to act as an on-ramp for innovations, the proposal would be enhanced by describing how the solution’s design facilitates innovation and acts as a mechanism for updates (E.4.4).

E.5 Comprehensiveness

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**Rationale:**

The solution focuses on initiation of payments. In concert with FIs, which are responsible for the other aspects of the end-to-end payment process, the solution is able to deliver an end-to-end payment process from initiation to reconciliation (E.5.1). Its technical design supports all of its features (E.5.2).
E.6  Scalability and adaptability

Very Effective  Effective  Somewhat Effective  Not Effective

Rationale:
The ACH network has proven its effectiveness with very high volumes (E.6.2); however, how well the solution—specifically the Payments Directory—can scale is not clear. The proposer has laid out a plan to load- and stress-test the Payments Directory database prior to deployment; for example, load testing will include response time on normal and edited transactions, as well as retrieval time and accuracy of a returned file. Stress testing will include loading the system until it fails and address consistency, availability, and resource contention.

When the testing has been completed, the proposal can be strengthened by including the details of the tests (E.6.2). Further, it can be made more robust by describing how the solution’s technical design can be adapted to ongoing developments, particularly how the governance or management of the All Payments App and Directory can ensure appropriate upgrades and enhancements over time (E.6.3).

E.7  Exceptions and investigations process

Very Effective  Effective  Somewhat Effective  Not Effective

Rationale:
The solution addresses exceptions by leveraging financial institutions’ existing exceptions processes and interfacing with their back-office architecture and processes. The ACH network may provide guidance for recording and retaining data for post-transaction evaluation (E.7.2) and has the ability to aggregate exceptions data to spot patterns beyond the individual-FI level (E.7.3).

The solution can be strengthened by describing the tools the solution offers to assist in the exceptions and investigations process. For example, the solution could include a messaging or alert feature that informs the end-user of exceptions (E.7.1) or provide a tool for that participating banks could use to analyze aggregated data to identify patterns (E.7.3)

Safety and Security

S.1  Risk management

Very Effective  Effective  Somewhat Effective  Not Effective

Rationale:
The solution takes two approaches to the risk management framework, both of which leverage existing frameworks, systems, software, procedures, etc.: (1) Banks that provide the All Payments App to their customers and (2) The Clearing House and the Federal Reserve. The solution includes a Risk Management Review process that is designed to assess and report the risk status, awareness and policies, processes, and personnel involved in ACH customer onboarding, origination, and receipt. The solution stipulates that financial institutions must
limit availability of the mobile application to known and approved account-holders and set limits to meet risk tolerances (S.1.4).

The proposal can be strengthened by specifically addressing risk management with regard to the unexpected application of laws or regulations (S.1.1); settlement (S.1.2); operational risks (S.1.3); unauthorized, fraudulent, or erroneous payments (S.1.4); incentives to operators and providers to address and contain risks (S.1.5); and periodic review and update of the risk management framework (S.1.6).

S.2 Payer authorization

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Rationale:

Payer authorization encompasses the solution’s passcode-enabled payment confirmation process via the app (i.e., the payer must confirm twice: first by passcode confirming a wish to make a payment, and then payment confirmation prior to the payment being sent to the financial institution) and the financial institution’s existing authorization process (S.1.2).

The proposal can be enhanced by providing more detailed information on how pre-authorized transactions would be managed. Currently, the proposal states that providers determine how pre-authorizations will be handled, with no details on parameters (S.2.2) or on what payers can revoke or change (S.2.3).

S.3 Payment finality

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Rationale:

Execution of payment via the All Payments App requires approval by the payer’s provider; however, more detail is needed on how the payer’s Depository Institution will be required to assure good funds in an ACH model (S.3.1).

The payment is irrevocable after the user’s second confirmation of payment and submittal of the payment to the participating banks’ processing solution (p. 33) (S.3.2). However, the solution does allow the participating bank to revoke the payment within its processing solution; this capability is determined solely by the participating banks’ rules and procedures.

The solution will leverage existing Regulation E and NACHA operating rules to provide error resolution protections, rights, and liabilities to the payer and payee (U.3.5).

S.4 Settlement approach

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Rationale:

The solution’s approach to settlement is to leverage the existing ACH settlement process, which does establish how and when FIs settle obligations (S.4.1). The process provides mechanisms for managing inter-provider credit and liquidity risk (S.4.2), and it enables settlement to occur in central bank money (S.4.3).
S.5 Handling disputed payments

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**Rationale:**
The solution does not handle disputed payments. Instead, these are handled by the financial institutions and covered under Regulation E (S.5.2, S.5.5). A consumer is protected by Regulation E and NACHA rules, which allow a payer to dispute a transaction with the sending bank, which bears the related risk.

The proposal can be strengthened by describing in detail how the solution addresses unauthorized, fraudulent, erroneous or otherwise disputed payments and provides mechanisms to hold rule violators accountable (e.g., by blocking funds availability) (S.5.1). More clarity would be helpful on the mechanisms for an end-user to request a return of funds from the payee. Further, while it is clear how consumers are protected, it would be beneficial for to discuss the solution’s approach to protecting business and government payers against losses from fraud or errors (e.g., NACHA rules, etc.) (S.5.4).

S.6 Fraud information-sharing

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**Rationale:**
The solution does not require the sharing of fraud information (S.6.1) and does not gather the information needed to monitor and track fraud. The solution relies on banks’ existing anti-fraud systems, practices, and personnel on both sides of the payment transaction, as well as fraud protections provided by the ACH network.

The solution can be strengthened by requiring the sharing of fraud information (either by offering information-sharing tools or by explicitly requiring fraud information-sharing in the solution’s operating rules) (S.6.1). The proposal can be enhanced by outlining a more exhaustive approach to fraud information-sharing, including: (1) how data will be aggregated and analyzed, (2) how data will be stored, (3) how access to data will be controlled, and (4) how the solution supports real-time and ex-post management and monitoring of fraud.

S.7 Security controls

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**Rationale:**
The solution’s security controls leverage existing FI processes, the features on the end-user’s mobile phone, and the security from the ACH network. The Payments Directory portion of the solution is covered by the safety and security frameworks of the mobile telephony industry, bank safety and security regulation, and ACH safety and security requirements (S.7.1-3). Additionally, as the Payments Directory is established, more database security policies and standards will be adopted from the mobile telephony industry, including: critical server security, database server security, administrative privilege, server security baseline, and electronic media security.
The proposal can be strengthened by detailing how the controls more clearly align with the Effectiveness Criteria. It can be further strengthened by discussing the operational and procedural components and controls for data retention and disposal (S.7.2).

S.8 Resiliency

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Rationale:
The distributed nature of the Payments Directory and the All Payments App enable resiliency, as do the business continuity and disaster recovery plans of participating FIs. The target availability for the solution is designed to mirror the target availability of the ACH network, which is set at 99.9% (S.8.1), but this is anticipated to vary based on the provider bank’s capability.

The proposer expects that the All Payments App will be included in participating FIs’ business continuity plans (BCP) for the broader ACH network. The solution can be strengthened by requiring participating FIs to include the All Payments App in their ACH BCP (e.g., through operational rules and/or participation requirements) along with a set of minimum testing requirements (S.8.2). While the proposal makes clear that the All Payments App will leverage existing bank processing resiliency in completing and posting payment transactions, it can be enhanced by clearly describing the process and end-user experience in the event the app crashes and cannot be accessed for initiating or receiving payments (S.8.4).

S.9 End-user data protection

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Rationale:
The solution protects end-user data by leveraging existing FI processes and by making use of mobile phones’ security when accessing the application and confirming payments (S.9.1). The solution uses ACH credits, allowing the funds to be pushed to the receiver without requiring the sender to provide the payee’s account number or other personally identifiable information (PII) using the Directory. Rules are set up to require data encryption or transmission via secure session of any message that contains a routing number, account number, PIN, or other identifying information (S.9.1)

One concern about the solution is its requirement that the payer provide the payee’s account information at the time of set-up; while a workaround has been suggested (e.g., handing the device to the payee to input their account information and handing the device back to the payer), the proposal can be strengthened by clearly articulating the controls and mechanisms in place to protect sensitive information at account and transaction set-up (S.9.2).
S.10 End-user/provider authentication

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**Rationale:**

The All Payments App authenticates end-users/providers through several methods that employ the solution’s security controls as well as device-specific security (S.10.1). Specifically, an end-user receives a passcode and challenge response when accessing the solution from a mobile device, along with a second challenge at the point of payment.

The proposal can benefit by describing: (1) the mechanisms required to ensure that payment reaches the intended payee (S.10.2); (2) how the solution aligns with regulatory guidance and industry standards (S.10.3); (3) whether risk-weighting is a required feature to be leveraged by participating FIs (S.10.4-5); and (4) how new authentication models can be adopted and old models decommissioned (S.10.6).

S.11 Participation requirements

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**Rationale:**

The ability to receive payments is automatically extended to account-holders who have accounts at regulated banks and credit unions. The proposer anticipates extending this ability to include people who receive payment via payroll cards or government benefit cards.

The proposal can be strengthened by clearly articulating a minimum set of standard participation requirements (S.11.1) that participating FIs should impose on their customers who wish to use this new channel. It can be further enhanced by detailing how the solution will monitor participating FIs and ensure that they are complying with the requirements (S.11.3).

**Speed (Fast)**

F.1 Fast approval

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**Rationale:**

The speed of approval is measured from the completion of payment initiation to the point at which the payer’s provider approves or denies the payment—i.e., returns a good-funds response. The solution depends on the financial institution for speed of approval and does not indicate any mandates or guidelines as part of its operating rules. It should be noted that the proposer envisions the solution’s being able to support payment types beyond ACH; in this case, the solution would be primed to offer real-time capabilities.

The proposal can be strengthened by discussing the guidelines/requirements for approval that the solution will impose on the participating FIs. It can be further enhanced by providing anticipated approval times (e.g., less than two seconds, under ten seconds, etc.) (F.1).
F.2  Fast clearing

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**Rationale:**
The solution’s clearing times are determined by two daily settlement deadlines that are spelled out under ACH same-day rules: 10:00 a.m. and 2:00 p.m. Pacific Time. These times do not affect the speed at which transactions can be declared as good funds.

The proposal can be strengthened by providing likely clearing times for transactions (e.g., within two seconds, within five seconds, within one minute, over one minute) (F.2).

F.3  Fast availability of good funds to payee

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**Rationale:**
The solution relies on the receiving bank for the availability of good funds to the payee. The proposer suggests that there are multiple ways to extend availability to the payee, including: (1) a memo-posting of pending settlement later in the day, (2) fully releasing the funds by allowing a portion to be withdrawn immediately, and (3) extending credit in the amount of the transaction pending settlement.

Given the solution’s reliance on the participating FIs to decide when to extend good-funds availability, the proposal can be strengthened by clearly articulating how the solution will ensure that availability will be extended to recipients in the windows defined by the Effectiveness Criteria (e.g., through operating rules, participation requirements, etc.) (F.3).

F.4  Fast settlement among financial institutions and regulated non-bank account providers

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**Rationale:**
FIs handle settlement via their existing settlement processes, which use same-day ACH; therefore, settlement should happen by end of day. However, weekends and holidays present challenges for settlement; at these times, transactions would not settle on the same day.

The proposal can be enhanced by addressing how the solution will work with FIs to proactively manage inter-provider credit and liquidity risk exposure due to lags in transaction finality or differences in FI time zones (F.4.1, F.4.2). Further, it can be made more robust by clearly articulating how the weekend and holiday issue will be solved in the context of the Effectiveness Criteria, even though the credit-push nature of the solution means that the risk does not lie with the receiving bank.
F.5 Prompt visibility of payment status

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**Rationale:**
Because the solution leverages FIs’ existing processes when making the payment status visible to the payer, the timing and specific methods would vary by the institution. The payment would only become visible to the payee once the funds were available in his/her account. Since same-day ACH transactions are batched, the payment would not necessarily be visible at the time it is approved (F.5.2).

The proposal can be made more robust by describing typical time periods for prompt visibility of payment status (e.g., at approval of payment, at availability of funds, etc.) (F.5.1-2).

Legal

L.1 Legal framework

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**Rationale:**
The solution will use existing Regulation E and ACH rules as its legal framework. These rules meet all of the criteria and can be extended to other networks as they emerge.

L.2 Payment system rules

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**Rationale:**
The solution will use existing Regulation E and ACH payment system rules. These meet all the criteria and can be extended to other networks as they emerge.

L.3 Consumer protections

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**Rationale:**
The solution will use existing Regulation E and ACH consumer protections. These meet all the criteria and can be extended to other networks as they emerge.
L.4  Data privacy

Very Effective  Effective  Somewhat Effective  Not Effective

Rationale:
The solution will use existing Regulation E and ACH provisions for data privacy. These can be extended to other networks as they emerge.

The solution has several mechanisms for ensuring data privacy, including: (1) users receive passcode challenges, (2) end-user data involved in clearing will be protected under existing processes and rules, (3) contact and payment history data is masked within the device, (4) the All Payments App will leverage security protocols established by participating banks, (5) iOS security will ensure that a payment is secure, and (6) all account numbers are masked on the mobile application.

The proposal clearly articulates how it seeks to prevent data breaches but can be strengthened by clearly describing what happens in the event of a data breach (e.g., processes, policies, etc.) (L.4.5).

L.5  Intellectual property

Very Effective  Effective  Somewhat Effective  Not Effective

Rationale:
Prior to broad distribution of the solution, periodic due diligence reviews will be performed, particularly for the Payments Directory. Given that Payments Directory has not yet been developed, intellectual property rights to the directory will be established and owned by its developers (L.5.1).

Governance

G.1  Effective governance

Very Effective  Effective  Somewhat Effective  Not Effective

Rationale:
The solution leverages the existing framework of Regulation E and ACH rules and thus uses the National Automated Clearing House’s (NACHA) governance model for the ACH network. An advisory board will be formed for the All Payments App that is representative of FIs of various sizes and charter types.

The proposal can be strengthened by providing details regarding how the advisory board will work (e.g., handling appeals, ensuring efficient decision-making, independent validation of compliance, etc.) (G1.1-1.4).
### G.2 Inclusive governance

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**Rationale:**

The solution leverages the existing framework of Regulation E and ACH rules and thus uses the National Automated Clearing House’s (NACHA) governance model for the ACH network. An advisory board will be set up to include representatives from financial institutions of various sizes and charter types (G.2.3).

The proposal can be enhanced by providing details regarding: (1) how the public interest will be considered in decision-making, (2) how all stakeholders can provide input and proportionately influence decisions and outcomes, and (3) how actual and perceived conflict will be addressed (G2.1, G2.2, G2.4, and G2.5).