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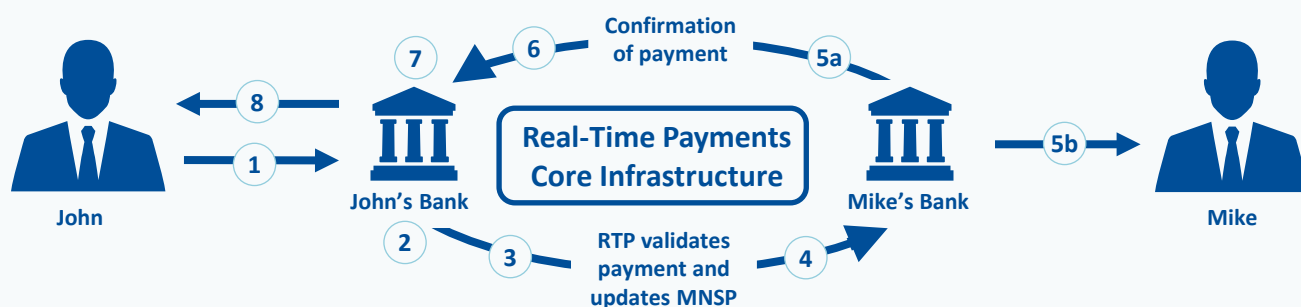**Sample P2P RTP Scenario**   Sample B2B RTP Scenario   Sample B2C RTP Scenario   Sample C2B RTP Scenario

03: How do Real-Time Payments Work?

Sample P2P RTP Scenario

Real-time payments are executed through a sequence of payment messages. It starts with a customer sending a payment instruction via a channel made available by their FI. The FI ensures funds availability, conducts required screening, and securely sends the payment instruction message to the TCH RTP core infrastructure. The TCH RTP core infrastructure validates the transaction and routes it to the receiving FI. The receiving FI acknowledges the message and posts the transaction to the receiving customer's account. This provides immediate availability of funds to the recipient. The TCH RTP core infrastructure provides an acknowledgment message to the receiving bank, manages the multi-lateral net settlement positions (clearing) between banks, and periodically settles positions based on predefined settlement windows.
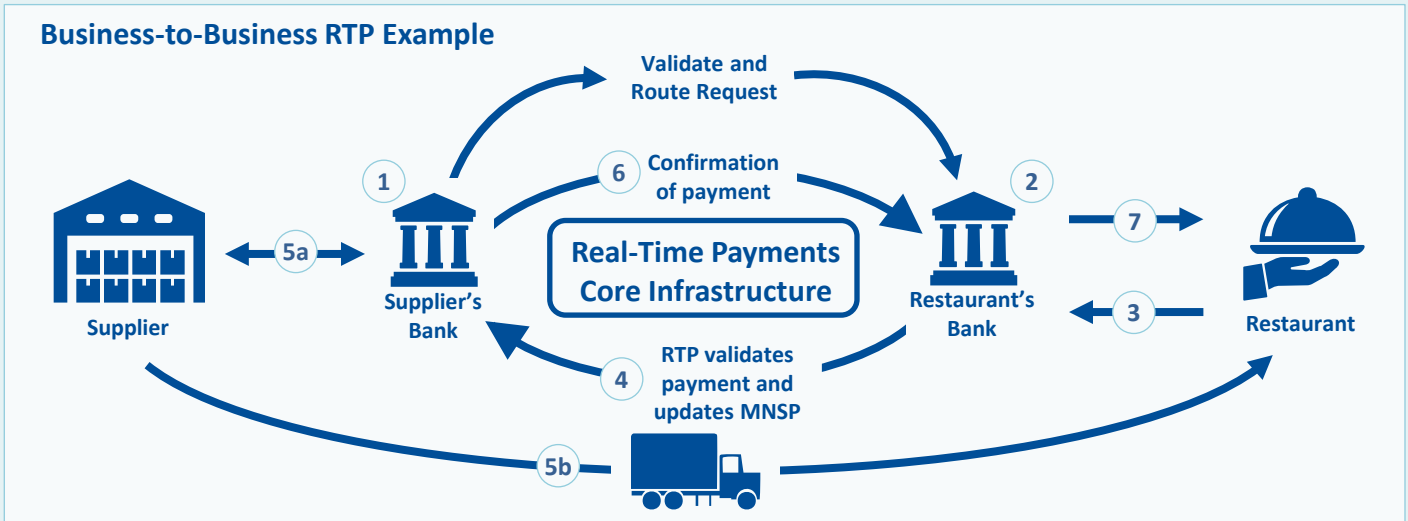
Person-to-Person RTP Example

Use case scenario: *The flow of information and funds for an RTP transaction can be demonstrated in a simple person-to-person (P2P) transaction. In our scenario, John wants to pay his roommate, Mike, for his half of the current month's rent. Mike has a bank account at a different bank than John.*

1 John's bank carries out its normal authentication process to verify John as the account owner. John instructs his bank through Online Banking to pay Mike immediately. He includes Mike's alias or routing and tokenized account number to address the payment. He may also add additional reference information so that Mike knows what the payment is for.

2 Before John's bank allows the payment to be made, it will check that his account has sufficient funds and validate the payment request. Under certain cases, the bank may need to hold the payment to perform more extensive fraud protection checks.

3 John's bank submits the transaction to the RTP core infrastructure. At this point, John can no longer cancel the transaction.

4 The RTP core infrastructure validates the transaction details and updates the multi-lateral net settlement position (MNSP) for the debtor and creditor institutions in the amount of the transaction before sending the payment instruction to Mike's bank.

5a Once Mike's bank has received the transaction, it checks that the account number is valid and then sends a message back to the RTP core infrastructure that it has accepted (or rejected) the payment.

5b Mike's bank simultaneously credits his account with the value of the transaction sent by John.

6 The RTP core infrastructure sends a message to John's bank to let them know that the transaction was successful (or rejected).

7 John's bank marks the transaction as complete.

8 John's bank confirms the status of the payment to John. Each sending bank will decide how their customers will be notified of transaction status. In all cases, once a payment has been made, a confirmation message will be sent between banks.

Note: Since Mike's bank has opted to receive RTPs, he should be able to see the credit on his account within seconds and be able to access the funds.

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Sample P2P RTP Scenario   **Sample B2B RTP Scenario**   Sample B2C RTP Scenario   Sample C2B RTP Scenario

Sample B2B RTP Scenario

Immediate payment systems are particularly well-suited to provide value beyond the inherent benefit of fast money movement. A fundamental feature of real-time payments is real-time communication among senders, receivers, and their FIs.

Business-to-Business RTP Example

Use case scenario: A single business-to-business (B2B) transaction between a restaurant and its supplier illustrates the value of extensive immediate messaging. In this scenario, a restaurant orders produce for immediate delivery from a supplier that does not extend trade credit. The restaurant needs the produce for tonight's dinner service and the supplier needs to be paid before shipping the goods. Using the immediate messaging capabilities of a fully-featured RTP system, the supplier can request and receive payment nearly instantly.

1 The supplier reviews an order received from a restaurant and sends a "Request for Payment" (RFP) through their bank. The supplier's bank sends the RFP message to the RTP core infrastructure. Sending the request through a secure, trusted channel reduces fraud risk associated with an e-mail invoice.

2 The RTP core infrastructure validates the request and routes it to the restaurant's bank, which then notifies the restaurant.

3 The restaurant receives the RFP that contains a "Pay Now" button. Upon selecting the "Pay Now" button, a pre-populated payment message that includes all pertinent payment data (e.g., remittance information, payment amount, etc.) is presented to the restaurant so they can make the payment to their supplier quickly and easily.

4 The restaurant's bank submits the transaction to the RTP core infrastructure that validates the transaction details and updates the multilateral net settlement position (MNSP) for the transaction for the debtor and creditor institutions in the amount of the transaction. The payment message is then sent to the supplier's bank that then confirms the account number is valid and accepts the payment.

5a The supplier's bank notifies the supplier of payment. The supplier sends acknowledgement of payment receipt to the restaurant, confirming the produce is on the way.

5b The supplier loads produce for delivery to the restaurant, confident that payment has been made.

6 The supplier's bank sends a message to the RTP core infrastructure with acceptance of the payment and receipt acknowledgement from the supplier.

7 The restaurant's bank notifies the restaurant, confirming that the produce is on the way through a reliable, trusted channel, assuring the restaurant that diners will enjoy dishes made with fresh ingredients that evening.

Note: The exchange of information between buyer and seller goes beyond the remittance detail that typically accompanies B2B electronic payments. Remittance data is essential and allows the supplier to apply payment to the correct invoice, account for any differences, and reconcile those differences. In this immediate payment example, the payment request, notification message, and confirmation message all provide additional value for a time-sensitive transaction.

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Sample B2C RTP Scenario

A business-to-consumer (B2C) transaction demonstrates that RTP offers value beyond P2P transactions. One example is the case of an insurance claims adjuster now having the ability to meet with a customer shortly after an accident or claim, assess value of damages, and provide funds immediately, thereby relieving the customer of worry in an already stressful situation.

Business-to-Consumer RTP Example

David (Consumer)

Tom (Agent)

Insurance Company's Bank

Real-Time Payments Core Infrastructure

RTP validates payment and updates MNSP

David's Bank

David (Consumer) — Thanks!

Confirmation of payment

Use case scenario: In this business-to-consumer (B2C) transaction, David has damages to his car from an accident. He calls his insurance company, which sends its local adjustor, Tom, to meet with David and view the damages. Tom inspects the claim, determines the appropriate settlement amount, and approves it remotely. Tom's insurance company immediately sends David the settlement amount.

1. Tom instructs the insurance company's bank to pay David the approved settlement amount. In addition to David's routing and tokenized account number (or alias) used to address the payment, the payment instruction also includes claim information that both the insurance company and David can access. (Extensive claim information could be included in a remittance advice message or through a reference to an external source).

2. The insurance company's bank uses appropriate customer authentication and payment verification processes to verify Tom has authority to initiate payments from this account. They will also ensure that "good funds" are available.

3. The insurance company's bank submits the transaction to the RTP core infrastructure.

4. The RTP core infrastructure validates the transaction details and the payment instruction and updates the multilateral net settlement position (MNSP). Associated claim information is then sent to David's bank.

5a. Once David's bank has received the transaction, it checks that the account number is valid and then sends a message back to the RTP core infrastructure that it has accepted (or rejected) the payment.

5b. If the payment is accepted, David's bank simultaneously credits his account with the claim amount sent by the insurance company so he can have immediate access to the funds.

6. The RTP core infrastructure sends a message to the insurance company's bank to let them know that the transaction has been made successfully. The insurance company's bank marks the transaction as complete.

7. The insurance company's bank confirms the status of the payment and provides transaction details to the insurance company. Each sending bank will decide how their customers will be notified of transaction status. In all cases, once the payment has been made, a confirmation message will always be sent between banks.

Note: The exchange of information between buyer and seller goes beyond the remittance detail that typically accompanies B2C electronic payments. Remittance data is essential and allows the supplier to apply payment to the correct invoice, account for any differences, and reconcile those differences. In this immediate payment example, the payment request, notification message, and confirmation message all provide additional value for a time-sensitive transaction.

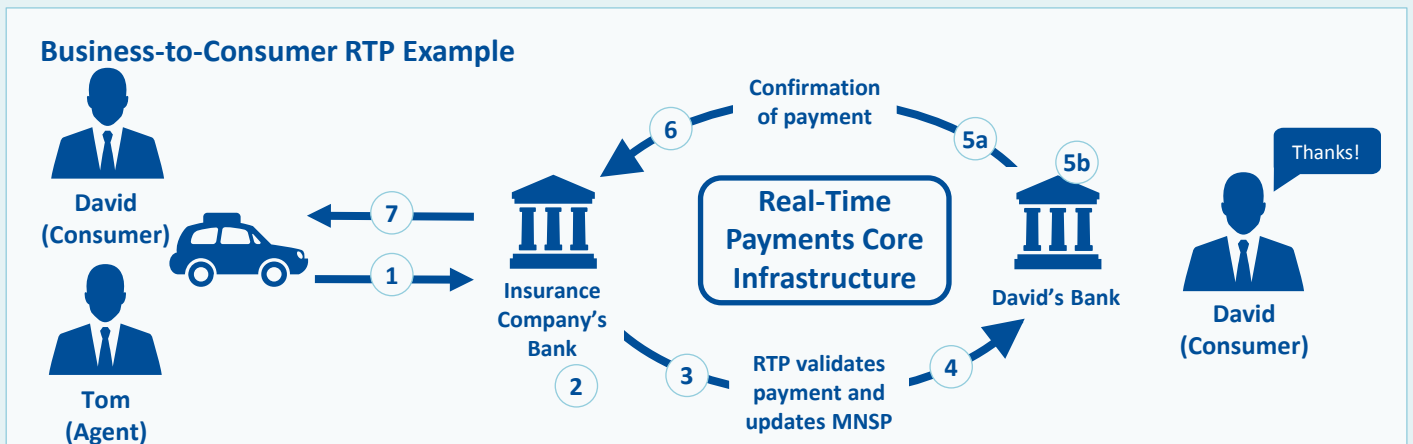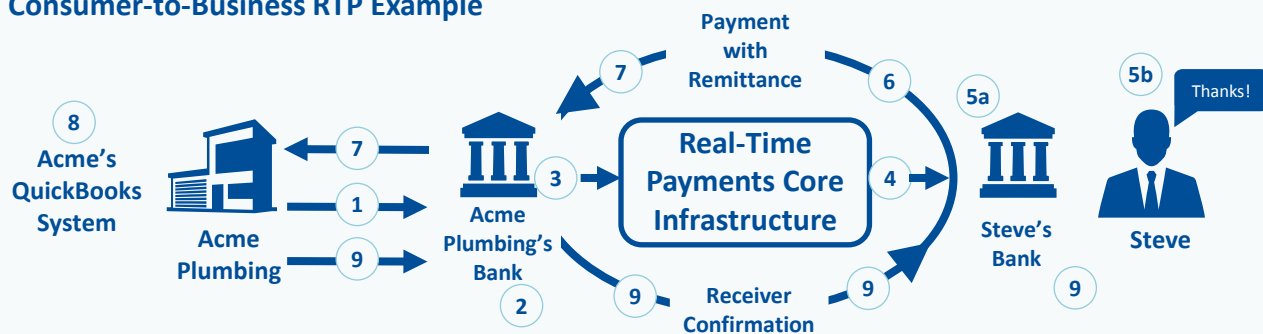| 01 | What is the RTP Playbook?	02 | Overview of Real-Time Payments	03 | How do Real-Time Payments Work?	04 | Business Case Considerations	05 | Impacted Areas: Key Considerations	06 | References and Supporting Documentation	07 | Contact Us

Sample P2P RTP Scenario   Sample B2B RTP Scenario   Sample B2C RTP Scenario   **Sample C2B RTP Scenario**

Sample C2B RTP Scenario

A consumer-to-business (C2B) transaction demonstrates that RTP offers many features beyond traditional money movement. One example is a small business that wants to send electronic invoices to its customers, along with the ability for customers to view and respond immediately with payment. The small business wants to have the payment and remittance data instantly downloaded to its accounting software program to avoid manually entering payment remittances, which can take time and introduce errors.

Consumer-to-Business RTP Example

Use case scenario: Steve, an Acme customer, is presented with a link from his bank's RTP system that displays the bill. An option to immediately pay all or a portion of the invoice is made available. Once Steve is ready to pay, his bank sends the payment directly to Acme's checking account while the remittance information is sent directly to Acme's accounting system via Acme's Bank's QuickBooks interface, where it is immediately posted. Acme confirms receipt of the payment to Steve via RTP.

1 Acme Plumbing creates an invoice in their QuickBooks accounting system to be presented to Steve, their customer, for payment. QuickBooks creates a file containing a link to the invoice, (including remittance info) and a Request for Payment for its customers. The Request for Payment is sent to Steve's bank for distribution through the RTP system.

2 Acme's bank uses appropriate customer authentication and payment verification processes to verify Acme's Accounting personnel has authority to make payment requests.

3 Acme's bank submits the Request for Payment messages to the RTP core infrastructure.

4 The RTP core infrastructure validates the payment request and remittance details and forwards them to Steve's bank for distribution to the customer.

5a Once Steve's bank has received the payment request, it validates that he is eligible to receive RFPs. Steve's bank then posts the message to his online or mobile banking application.

5b Steve is presented with a RFP that has a "Pay Now" button. Upon selecting the "Pay Now" button, Steve is presented with a pre-populated payment message including all pertinent data (i.e., remittance information, payment amount, etc.).

6 Once the payment is authorized and submitted, Steve's bank forwards the payment and remittance message to Acme's bank via RTP.

7 Acme's bank informs Acme Plumbing that the customer's payment, and related remittance data, has been received and funds are available in Acme's account.

8 Acme Plumbing receives remittance information into their QuickBooks accounting system via their bank's interface, avoiding manual entry of payment information, and applies credit to the appropriate customer account.

9 ACME sends confirmation that payment has been posted to Steve vis RTP.

Note: The exchange of information between buyer and seller goes beyond the remittance detail that typically accompanies C2B electronic payments. Remittance data is essential and allows the supplier to apply payment to the correct invoice, account for any differences, and reconcile those differences. In this immediate payment example, the payment request, notification message, and confirmation message all provide additional value for a time-sensitive transaction.