

PAYMENTS SIGNAL REFERENCE ARCHITECTURE

SYNTHETIC / TRAINING ONLY

Payment operations, exceptions, investigations, reconciliation, reporting, and case management

Give operators one evidence-based view of payment state, settlement, messages, books, ownership, and safe next action.

Version: Payments Signal reference architecture v1

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REFERENCE POSTURE

This blueprint places evidence and settlement state before action. Real operating models divide queues, customer service, investigations, treasury, sanctions, fraud, finance, technology, and incident command differently; schemes and jurisdictions decide which messages, time limits, permissions, and value-recovery processes apply.

COMPONENTS

- 01 Canonical payment and lifecycle view [data-store]
Owner: Payment platform and operations data owner
Combines business, message, rail, settlement, posting, return, and investigation states without collapsing them into one flag.
- 02 Operational monitoring and work queues [application]
Owner: Payment operations and service management
Turns failed controls, ageing items, deadline risk, and service degradation into owned work.
- 03 Payment case and evidence workspace [operations]
Owner: Payment investigations
Keeps one case linked to the payment, messages, journal entries, statements, customer communication, decisions, and deadlines.
- 04 Repair, retry, replay, and release control [control]
Owner: Payment operations with product and control authority
Chooses an allowed recovery action from the last confirmed business and settlement state.
- 05 Network and counterparty investigations [gateway]
Owner: Payment investigations and correspondent operations
Exchanges status requests, cancellation requests, responses, claims, and supporting information with counterparties.
- 06 Payment, settlement, and account reconciliation [control]
Owner: Payments reconciliation and treasury operations
Matches instruction, status, settlement, posting, statement, fee, and return evidence.
- 07 Customer, management, and regulatory reporting [service]
Owner: Operations reporting, product, finance, and compliance
Produces accurate status, advice, statements, service metrics, incident information, and required reports from governed state.
- 08 Incident command and service recovery [operations]
Owner: Service owner and incident commander
Coordinates technical recovery, payment-state control, stakeholder decisions, communication, and post-incident action.

INTERFACES

- 01 Operational event and ageing signal
ops-state-view -> ops-monitoring | event | asynchronous
- 02 Case trigger
ops-monitoring -> ops-case | operator | operator
- 03 Authorised recovery request
ops-case -> ops-repair | control | operator
- 04 Recovery state event
ops-repair -> ops-state-view | event | asynchronous
- 05 Investigation or cancellation message
ops-case -> ops-network-case | message | asynchronous
- 06 Counterparty response
ops-network-case -> ops-state-view | message | asynchronous
- 07 Payment and posting lineage
ops-state-view -> ops-recon | event | asynchronous
- 08 Reconciliation break
ops-recon -> ops-case | operator | operator
- 09 Governed reporting state
ops-state-view -> ops-reporting | api | asynchronous
- 10 Incident recovery authority
ops-command -> ops-repair | control | operator

TRACES AND STRESS CASES

TRACE: Investigate an uncertain payment

1. Expose the uncertainty - Last confirmed state identified
2. Create owned work - Case required
3. Assemble the evidence - Investigation opened
4. Ask the right counterparty - External response pending
5. Choose the safe action - Recovery authorised
6. Reconcile every layer - Financial state aligned
7. Close and report - Case closed with evidence

STRESS: Status arrives after manual action

Settlement: Settlement must be re-evaluated from source evidence.

Funds: There may now be two linked value movements or one duplicate attempt.

Owner: Payment investigations

Safe action: Freeze further action and reconcile both the original and manual attempt.

STRESS: Payment engine recovers before ledger

Settlement: External settlement may or may not have followed.

Funds: A journal may already exist.

Owner: Incident command and ledger operations

Safe action: Keep value-affecting replay disabled until the journal and settlement boundary are reconciled.

STRESS: Recall is mistaken for reversal

Settlement: A recall request does not itself reverse settlement.

Funds: Funds remain where settlement and beneficiary posting placed them until an accepted return or other process moves value.

Owner: Payment investigations

Safe action: Send the correct request only with authority; track the response and any separate return.