PAYMENTS SIGNAL REFERENCE ARCHITECTURE
SYNTHETIC / TRAINING ONLY

Enterprise payments capability and system landscape

Start with the whole estate: the customer asks, the bank controls and records, an external arrangement clears or settles, and operations prove the result.

Version: Reference architecture v1
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REFERENCE POSTURE

The landscape shows one sending institution, one receiving institution, and one external arrangement. Real payments may cross several intermediaries, control platforms, ledgers, gateways, and settlement venues.

COMPONENTS

01 Customer or operations user [actor]
Owner: Customer, corporate treasury, or bank operations
The person or system that asks the bank to move money.

02 Payment channel [channel]
Owner: Digital channels or corporate channels
The controlled doorway through which an instruction enters the bank.

03 Payment hub and processing core [application]
Owner: Payments technology and payments product
The bank s coordinator: it decides what happens next and remembers what already happened.

04 Reference and standing data [data-store]
Owner: Reference-data operations
The controlled facts used to validate, enrich, and route a payment.

05 Screening and fraud controls [control]
Owner: Financial crime and fraud operations
The checkpoints that decide whether processing may continue, must pause, or must stop.

06 Customer and internal ledger [ledger]
Owner: Core banking and finance
The bank s books: holds, debits, credits, suspense, fees, and settlement-account mirrors.

07 Rail or network gateway [gateway]
Owner: Payments connectivity
The edge adapter that speaks one external network s protocol.

08 Payment network or market infrastructure [external-network]
Owner: Scheme, network, clearing system, or central bank
The external arrangement that exchanges, clears, or settles obligations under its own rules.

09 Receiving institution [infrastructure]
Owner: Receiving institution
The institution that accepts the interbank instruction and credits or otherwise services the receiving account.

10 Operations, investigations, and reconciliation [operations]
Owner: Payment operations
The people and queues that resolve anything the automated path cannot prove safely.

INTERFACES

01 Payment request
  customer -> channel | api | synchronous
02 Accepted instruction
  channel -> payment-hub | message | asynchronous
03 Routing facts
  reference-data -> payment-hub | api | synchronous
04 Control decision
  payment-hub -> screening-risk | control | synchronous
05 Posting command
  payment-hub -> customer-ledger | posting | synchronous
06 Released instruction
  payment-hub -> network-gateway | message | asynchronous
07 Network message
  network-gateway -> payment-network | message | asynchronous
08 Cleared or routed payment
  payment-network -> receiving-bank | settlement | asynchronous
09 Status and settlement evidence
  payment-network -> operations | message | asynchronous
10 Internal books
  customer-ledger -> operations | event | asynchronous

TRACES AND STRESS CASES

TRACE: One controlled credit transfer

1. Capture the instruction - RECEIVED
2. Accept into processing - ACCEPTED
3. Resolve the route - ENRICHED
4. Apply control decisions - CONTROLLED
5. Record the customer-side value - POSTED
6. Release to the network - RELEASED
7. Clear or settle under the service rules - NETWORK_ACCEPTED
8. Service the receiving account - BENEFICIARY_CREDITED
9. Prove the result - RECONCILED

STRESS: Screening hold

Settlement: Interbank settlement has not occurred.
Funds: Any customer-side reservation remains controlled on Bank Alfa s books.
Owner: Sanctions investigation with payment operations monitoring the payment state
Safe action: Keep the instruction on hold until an authorised investigator records and applies a disposition.

STRESS: Ledger response timeout

Settlement: The network instruction has not been released.
Funds: The customer may already be debited or reserved, so a blind retry could double post.
Owner: Payment-platform operations with core-ledger support
Safe action: Query the ledger using the original idempotency key before retrying or reversing anything.

STRESS: Unknown network delivery outcome

Settlement: Unknown until network evidence or reporting is received.
Funds: The sending-side posting exists; the external outcome must be established before replay.
Owner: Payment operations and network-connectivity support
Safe action: Use the network enquiry and duplicate-control procedure; do not create a new

payment.