

SOA in Legacy Modernization

Service enabling legacy assets

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Agenda

- Case study of a legacy modernization initiative in a large bank...
- The business challenges
- The technical challenges
- Business services from legacy assets
- Patterns for service enablement

The business problem...

- A large retail bank with...
- Disjointed product systems
 - Checking/Saving Account systems, Credit cards, loans and mortgages
- Fragmented customer view
 - Each product system 'owns' its customers
- ◆ **Impact**
 - ◆ No consolidated customer portfolio view
 - ◆ Customers cannot perform 'cross-transactions'
 - ◆ Limited cross-sell, up-sell opportunities

The business problem...cont'd

- Disjointed channels
 - Each product system has its own internet banking, phone banking etc.
- ◆ Impact
 - ◆ Slow time to market for introducing new channels
 - ◆ Costly IT investments for integration

The IT Challenges

- Different platforms/technologies
 - Accounts system, Credit – z/OS, COBOL, CICS
 - Loans/mortgages – iSeries, RPG
- Custom integration with channels
 - MQ based integration with z/OS
 - Screen scraping + green screen integration with iSeries
- Difficult integration with file-based batch processes

The IT challenges

- Core functionality is locked in big iron...
 - High implementation coupling between consumer/provider
- Duplication of functionality
 - Same core logic with minor variances in inputs from different channels...
 - But no shared, cross-channel service

Crossing the bridge with Business Services

- Reusable business services
 - Deal only with business information
 - Channel independent
 - 'Right' granularity consistent with business use case
 - Capable of interfacing with file-based batch-oriented systems

Enter the legacy service patterns...

- Legacy Wrapper
- Multi Channel Endpoint
- File Gateway

Legacy Wrapper

- Problem
- The JBOWS syndrome – a Web service wrapper for every legacy transaction/message
 - Non standard contract with high technology coupling
 - Leakage of technical data in service contract
 - Mirrors the granularity of the existing legacy APIs
 - => Consumer still indirectly tied to legacy

Legacy Wrapper

- Solution
- Add a neutral, business service wrapper
- Apply '3E' to service contract:
 - Extract (identify technical data)
 - Eliminate (map legacy technical data to appropriate constructs, e.g., error codes to faults/exceptions)
 - Encapsulate (partition technical data and business data into headers and bodies)

Legacy Wrapper

A COBOL Copybook for a CICS transaction invoked over MQ

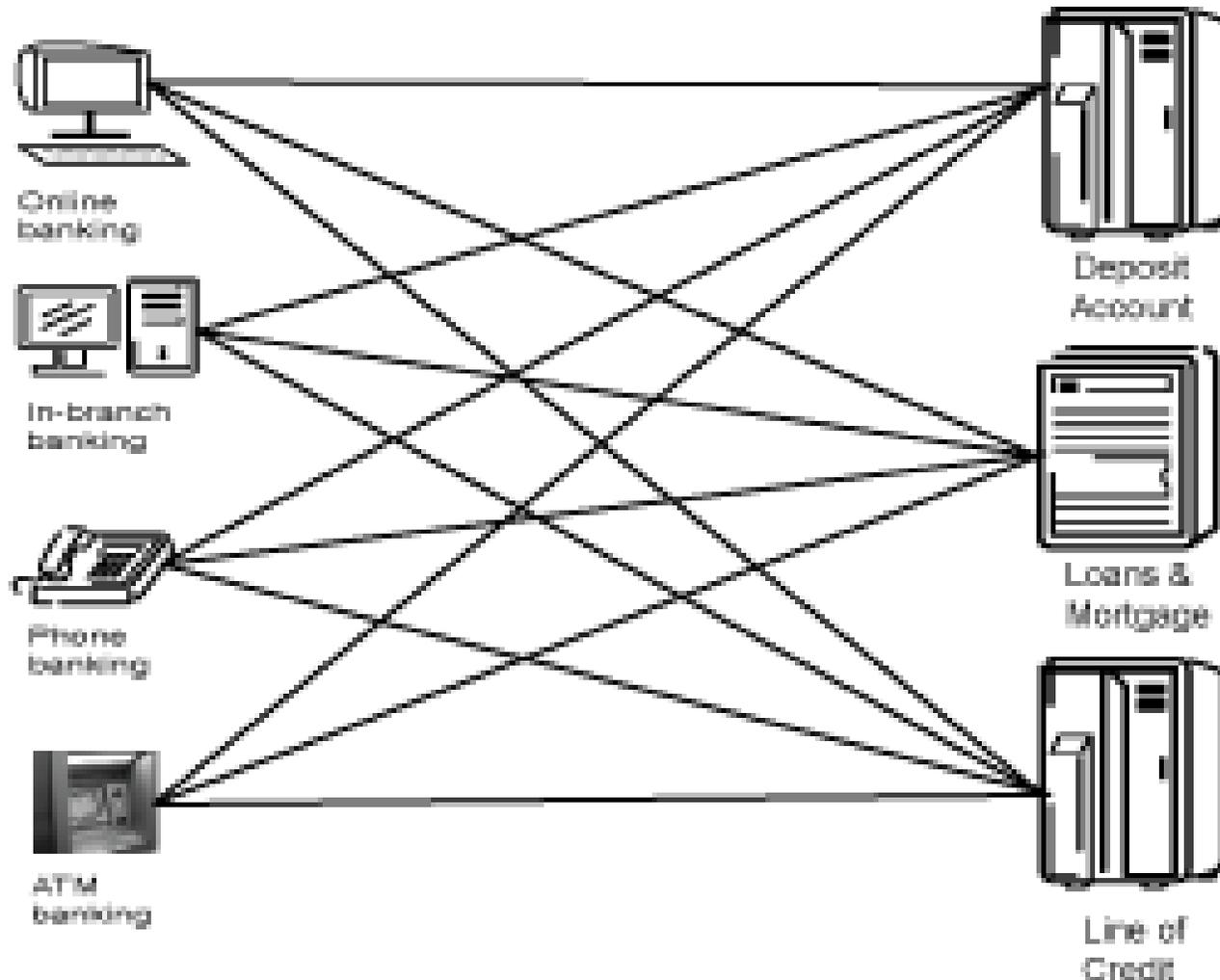
- 000100 01 BALANCE-TRANSFER-REQUEST. 000100 01 TRANSFER-RESPONSE.
- 000200 05 BALANCE-TRANSFER-CONTROL-DATA. 000200 05 CONTROL-DATA.
- 000300 10 SECURITY-TOKEN PIC X(10). 000300 10 MESSAGE-ID PIC X(20).
- 000500 10 MESSAGE-ID PIC X(20). 000400 10 CORR-ID PIC X(20).
- 000600 10 MESSAGE-CORR-ID PIC X(20). 000700 05 RESPONSE-DATA.
- 000700 05 BALANCE-TRANSFER -DATA. 000800 10 RETURN-CODE PIC 9(2).
- 000800 10 CUSTOMER-ID PIC X(20). 000900 10 ERROR-TYPE PIC X(2).
- 000900 10 FROM-ACCOUNT-ID PIC X(10). 000900 10 ERROR-CODE-DESC PIC X(20).
- 001000 10 TO-ACCOUNT-ID PIC X(10).
- 001100 10 AMOUNT PIC 9(8) V99

Legacy Wrapper

- A Wrapper Web service can be a stand-in
 - Eliminate technical information
 - Consumer consumes Web service over HTTP
 - MQ related messaging details are hidden inside service implementation
 - Error codes/descriptions are mapped to appropriate service interface constructs, e.g., SOAP faults/fault codes
 - Encapsulate technical information
 - Partition technical data into a separate header section (can use SOAP implicit headers if using SOAP)

Multi Channel Endpoint

Problem – Tight coupling between channels and backend systems



Multi Channel Endpoint

- Solution
- Channel independent intermediary business services
- Insulate consumers from details of interaction with multiple legacy backend systems
- May require canonicalization of business data at the service layer
- Delegate mediation and orchestration to service infrastructure
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File Gateway

- Problem
- Bi-directional interaction with file oriented batch systems
- File handling tasks mixed with core logic
 - Poll directories for files
 - Data format and model transformation
 - Service invocation
 - file renaming, archiving etc.

File Gateway

- Solution
- Introduce infrastructure component
- Separate out file processing logic from core service logic
- Managed transition to minimal batch windows

Q & A

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