THE COMPLETE OVERVIEW OF
Enterprise Integration Patterns
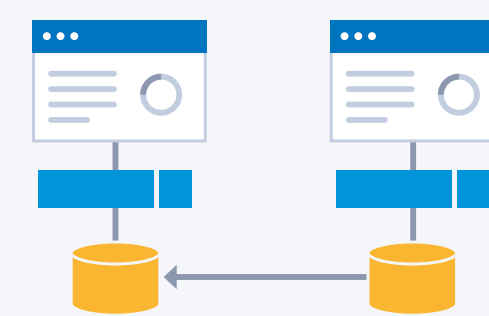
LeanIX

INTEGRATION PROJECTS

Integration projects help design and connect subsystems. Many projects are multifaceted, and can involve both internal and external systems. Here are the six most common integration scenarios.
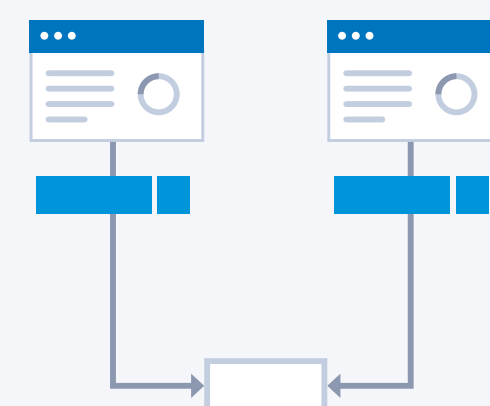
Information Portal

- Aggregates info from multiple systems
- Users work with a single system
- Displays information via screen zones
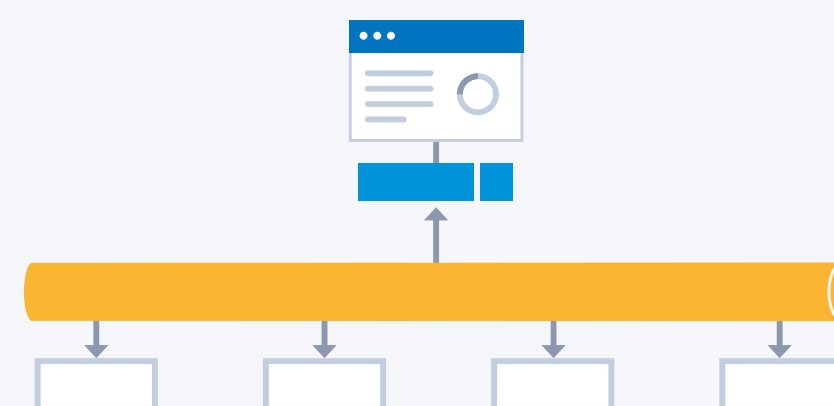
Data Replication

- Accessed by multiple systems at once
- Each system has its own data store
- Updates replicated across data stores

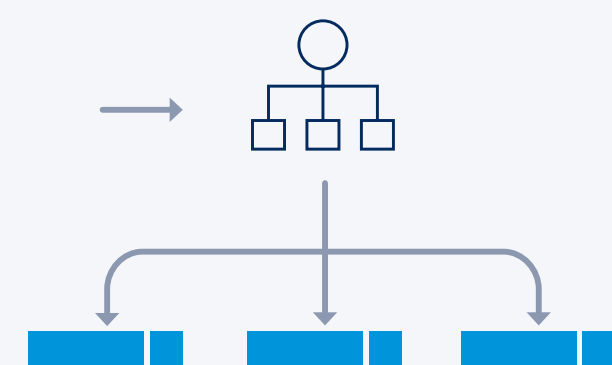### Shared Business Function

- Used to avoid redundant functionalities
- Systems share business functions
- Follows rationale of data replication

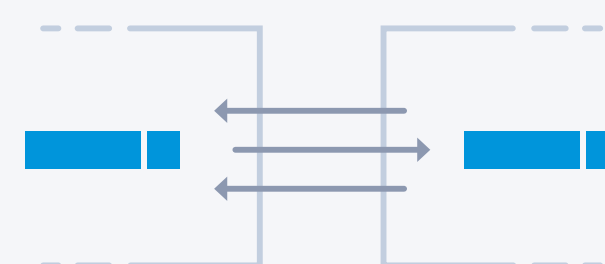### Service-Oriented Architecture

- Manages shared business functions
- Multiple well-defined services
- Built on service bus architecture

Distributed Business Process

- Coordinates between applications
- Transaction is spread across systems
- Manages functions across systems

B2B Integration

- Integrates with external businesses
- Usually communicates via internet
- Requires protocols and security

MESSAGE FLOW & INTEGRATION PATTERNS

Patterns provide technology-independent design guidance to develop robust integration solutions. Find the most useful patterns along the message flow below.

1. Endpoint A → 2. Message → 3. Channel → 4. Router → 5. Monitoring → 6. Translator → 7. Endpoint B

1 Endpoint patterns describe how messaging system clients produce or consume messages.

Message Endpoint

Data — Message Endpoint — Message — Channel — Message Endpoint — Data
Sender Application — Receiver Application

Transaction Client

Transaction — Transaction
Transactional Producer — Message — Transactional Producer
Sender — Receiver

Message Dispatcher

Sender — Messages — Message Dispatcher — Performer / Performer / Performer
Receiver

2 Message construction patterns describe form and intent of messages that travel across the system.

Message

Sender — Message — Receiver

Return Address

Reply Channel 1 / Reply Channel 2 — Request Channel
Requestor 1 — Requests — Replier
Requestor 2 — Reply Channel 1 / Reply Channel 2

Correlation Identifier

Correlation — Message ID
Requestor — Requests / Replies — Correlation ID — Replier

3 Channel patterns describe how messages are transported across a message channel.

Point-to-Point Channel

Sender — Order #1 / Order #2 / Order #3 — Point-to-Point Channel — Order #1 / Order #2 / Order #3 — Receiver

Dead Letter Channel

Delivery Fails
Sender — Message — Channel — Intended Receiver
Reroute Delivery — Dead Message — Dead Letter Channel

Message Bus

Application — Message Bus — Application
Application — Application

4 Routing patterns discuss how messages are routed from a sender to the correct receiver.

Message Router

InQueue — Messages Router — outQueue 1 / outQueue 2

Scatter Gather

Quote Request — Broadcast — Vendor A / Vendor B / Vendor C — Quote
"Best" Request — Aggregator

Process Manager

Trigger Message — Process Manager — 1 Vendor A / 2 Vendor B / 3 Vendor C

5 System management patterns describe the tools to keep a complex message-based system running.

Control Bus

Message Flow — Control Bus

Message Store

Message Store

Test Message

Test Message Injector — Processor — Test Message Separator — Application Messages
Application Messages — Test Message — Test Result — Test Data Verifier
Test Data Generator — Control Bus

6 Transformation patterns change the content of a message.

Message Translator

Incoming Message — Translator — Translated Message

Content Enricher

Source — Wrapper — Messaging System — UnWrapper — Recipient

Envelope Wrapper

Basic Message — Enricher — Enriched Message
Resource

Quelle: Hohpe, G. and Woolf, B.: Enterprise Integration Patterns, Addison-Wesley