Preventing Duplication through Idempotent Operations

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Reactive Manifesto Review

Responsive

Resilient

Elastic

Message Driven

Globomantics' Translation Initiative

Resilient to failures

Secure

Handle the predicted high demand

Ensure cost savings

Document Translation Platform

Two RESTful web services

Several communication protocols

Customer Workflow

Verify source to target language pair is supported

Upload document

Submit document for translation

Wait for acceptance or rejection

If accepted, wait for translation

Architectural Concerns

Multiple uploads of the same document

Multiple requests for translation of the same document

Resilience and Idempotent Operations

Idempotence

A system behavior or property where given an operation, the operation ends in the same state regardless of the number of times it was executed.

Understanding the Value of Idempotence

Multiple upload requests for same document could lead to potentially large storage bill
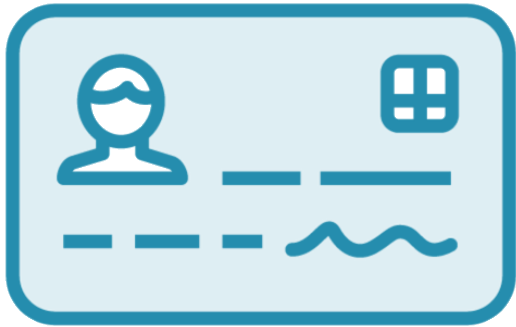
Redundant translation work could cost Globomantics potentially a lot of money
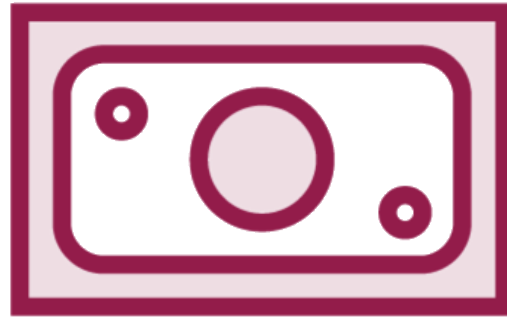
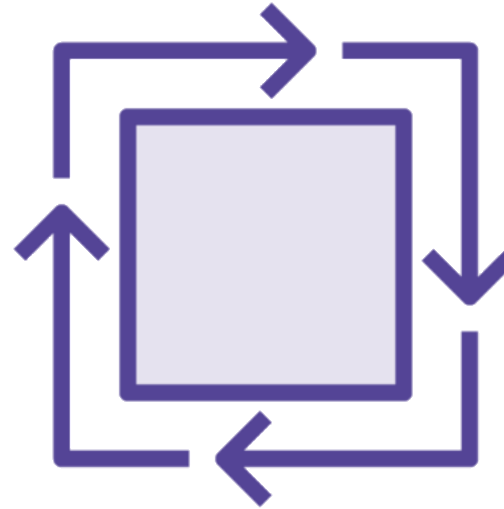Idempotence prevents against duplication

Techniques For Idempotent Operations

Correlation identifier

Check numbers prevent against duplication

Correlation identifiers are derived external to a message

Summarize file contents for correlation identifier

Building the Document Service

Application Overview

Spring Boot application

HTTP API

Upload, download, and delete operations

Lock and unlock APIs

Building the Translation Service

Application Overview

Business customers and translators

Submit translation requests

Check status

Cancel pending requests

Translator registration

Accept translation requests

Bringing It All Together

Testing Customer Behavior

Upload document for translation

Submit document for translation

Cancel the pending request

Upload and submit another revision

Monitor document status

Accept translation request

Summary

Idempotence and deduplication

Document and translation service APIs

Customer driven test

Built a foundation

Event sourcing

Commutativity

SAGAs