Engineering casebook

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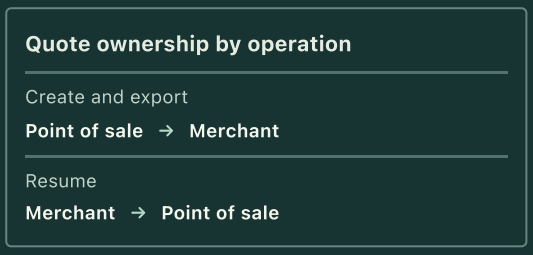
Notes on commerce systems, data correctness, and operational failures. Each case follows a specific change and the engineering decisions behind it.

Case notes

SALESFORCE / MERCHANT INTEGRATIONS

Which system owns the quote?

A quote starts at the point of sale. Once a merchant system receives it, it can have a newer version. I built Java flows that distinguished those two states and added React controls to configure the connector.



SALESFORCE / RETAIL REPORTING

Keeping net sales consistent across reports

I implemented net sales excluding tax across SQL, Java, and React. I aligned refund eligibility with the original sale and preserved decimal precision so hourly, sales, and reconciliation reports could use the same metric.

SALESFORCE / MERCHANT ONBOARDING

Keeping locale behavior consistent

During a 25-country merchant setup expansion, I aligned country, currency, and language in the React admin console with backend localization and language-specific Solr analysis.

SALESFORCE / SEARCH PLATFORM

Preparing retail search for Solr 9

I contributed Solr 9 index configurations for new retail locales and aligned language analysis across product, bundle, store, and image search where those indexes were used.

SALESFORCE / ORDER MANAGEMENT

Recovering order imports from MySQL deadlocks

I traced intermittent return lookup failures to deadlocks in concurrent order imports. I narrowed writes to specific primary keys and added bounded retries for transient lock failures while preserving atomic imports.

SALESFORCE / ADMIN CONSOLE

Making inventory access more granular

I added permissions for adjustments, transfers, and cycle counts across the React role editor, navigation, and route guards. I preserved compatibility for roles that used a single inventory permission.

AMERICAN EXPRESS / COMMUNICATIONS

Migrating a legacy template library

I built tooling to migrate more than 7,000 legacy email and letter templates. In a separate change to the same platform, caching improved message assembly performance by about 30%.

AMERICAN EXPRESS / RELEASE ENGINEERING

Making communications releases repeatable

I automated Jenkins pipelines and scripted document promotion across email, SMS, and other channels. The pipeline automation cut deployment time by 50%.

AI tooling notes

CLAUDE CODE / LOCAL PROTOTYPE

Finding breaking API changes before merge

`api-contract-sync` is a skill prototype designed to review changes to Java endpoints and request or response models, trace affected callers in React and Swift, and flag changes that may require a client update.

Shared Retail Cloud Claude Code toolkit

24 team-maintained skills

Design and testing

`prd-review`
Review requirements for gaps, ambiguity, and feasibility.

`create-hld`
Turn requirements into a high-level design and implementation spec.

`implement-hld`
Guide implementation and verification from an approved design.

`feature-analyze`
Trace feature dependencies and assess the impact of a change.

`feature-test-suite`
Build test plans and API coverage across the backend, admin console, and POS app.

`e2e-test-plan`
Produce and run end-to-end tests from design documents.

Investigation and support

`ask-retail-cloud-help`
Answer product questions using documentation and code references.

`check-logs`
Filter application logs and trace errors to code.

`fetch-from-db`
Look up data to support an investigation.

`gus-investigate`
Triage issue tickets and document evidence and findings.

`gus-investigate-v2-beta`
Extend ticket investigations with shared findings and usage tracking.

`investigation-log`
Record findings and search prior investigations.

`pos-investigate`
Route POS support issues into the investigation workflow.

`reproduce-scenario`
Turn a POS scenario into a repeatable sequence of API requests.

Developer onboarding

`setup`
Prepare the development workspace and connect related repositories.

`onboard`
Guide developers to the setup for their area of work.

`onboard-app`
Set up the Swift POS app development environment.

`onboard-backend`
Set up the Java services and backend developer tools.

`onboard-cms`
Set up the React admin console and its dependencies.

Infrastructure

`add-pos-stack`
Guide configuration for a new POS application environment.

`aws-jit-export`
Help developers use temporary AWS access in their terminal.

`cdk-deploy-eb`
Guide review and deployment of AWS application environments.

`setup-tunnels`
Help developers connect to authorized application infrastructure.

`tomcat`
Manage a local Tomcat server and inspect its runtime state.

About the author

I'm Akanksha Maheshwari. I've worked on retail commerce at Salesforce and enterprise communications at American Express. I'm interested in what happens at system boundaries, especially when records disagree, writes contend, or older clients depend on a contract.