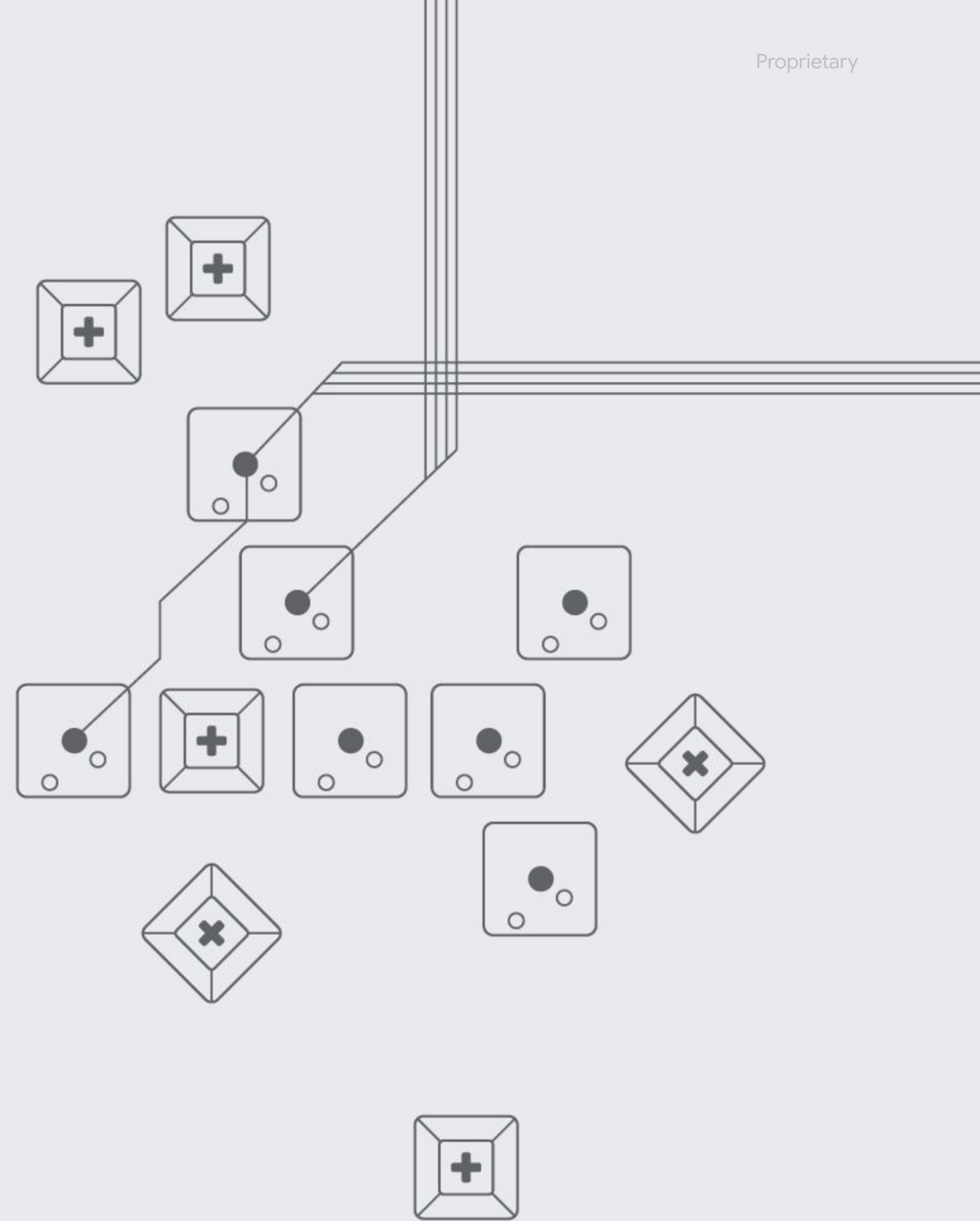# Google Cloud

Measuring Reliability in Production

Step By Step SLO Creation in Cloud Operations

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The Most **Important** **Feature** of Any System is its **Reliability**

SRE is what you get when you treat **operations** as a **software problem**.

What is the Level of reliability we need?

Terminology

CUJ

User interacts with Service to achieve Goal

Critical User Journeys: Your most important user journeys

SLIs

Metrics that describe users' experiences
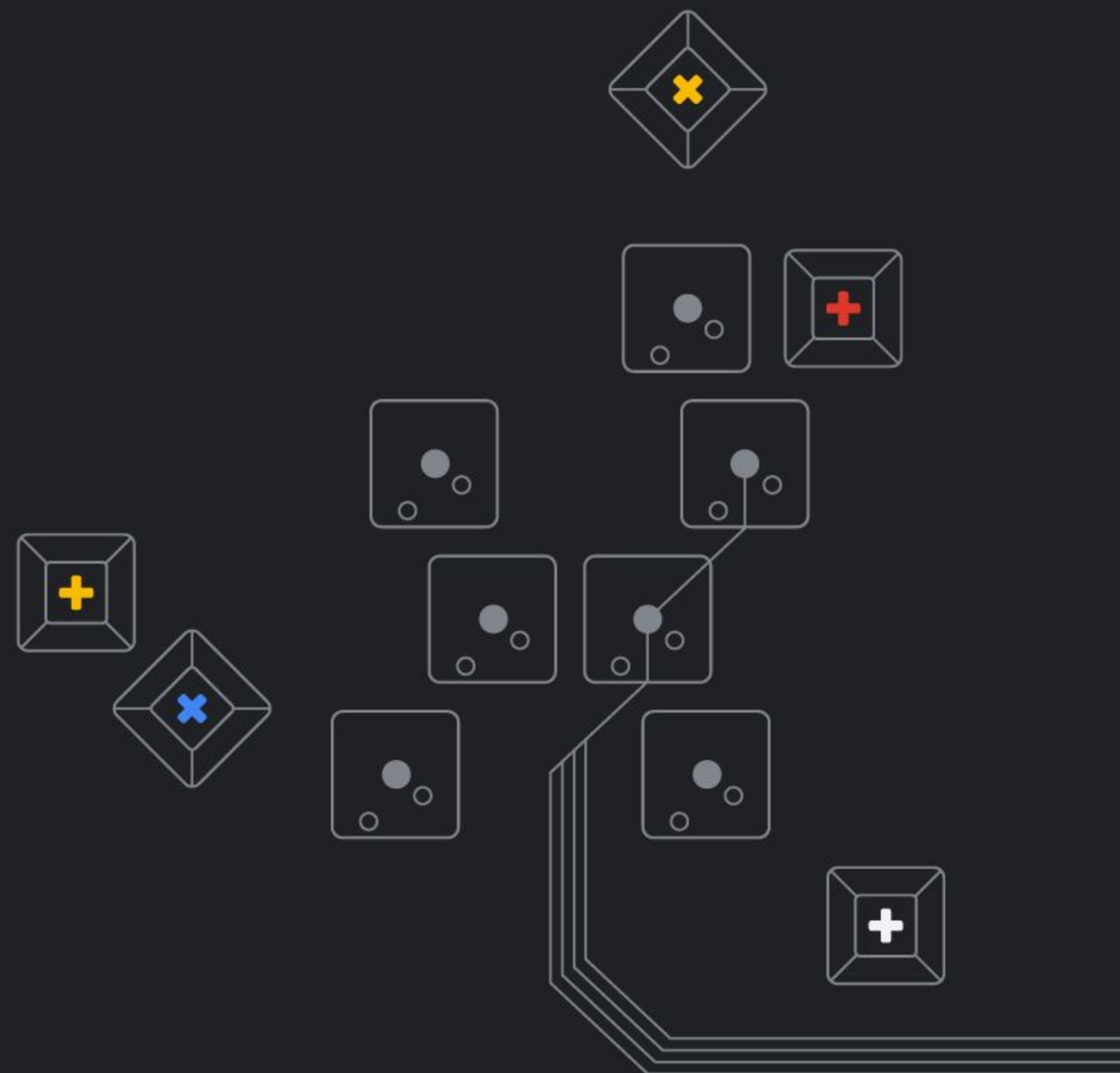
SLOs

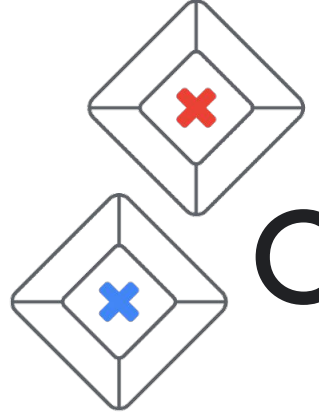Targets for the overall health of a service

SLAs

Contractual obligations
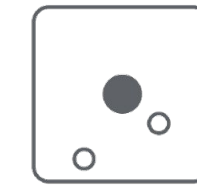
Alignment throughout the Product Life Cycle

Business Process

Concept

Business

Development

Operations

Market

**Alignment
through SLOs**

Creating SLI/O
Step By Step

Cloud Operations Sandbox

Click-to-deploy open sourced learning experience that helps practitioners gain an understanding of how to use Cloud Operations tools and apply SRE practices in an isolated cloud environment with synthetic traffic, that is similar to real production.

- A "playground environment" to evaluate Cloud Operations as close as possible to real production
- Includes: Demo Service, One-click deployment script, Interactive walkthrough , Synthetic Load Generator, SRE Recipes, etc.
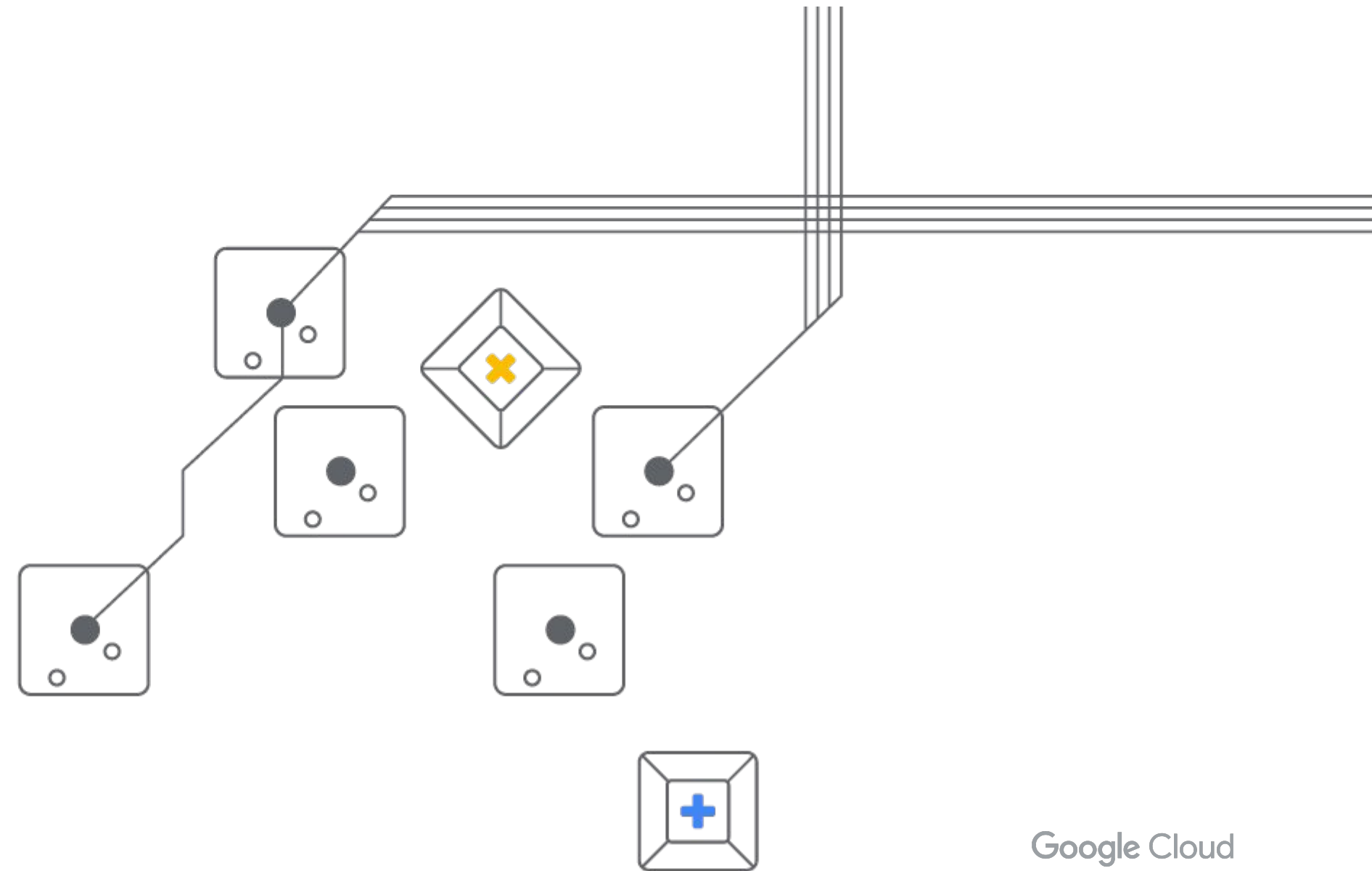- **Start here:** cloud-ops-sandbox.dev
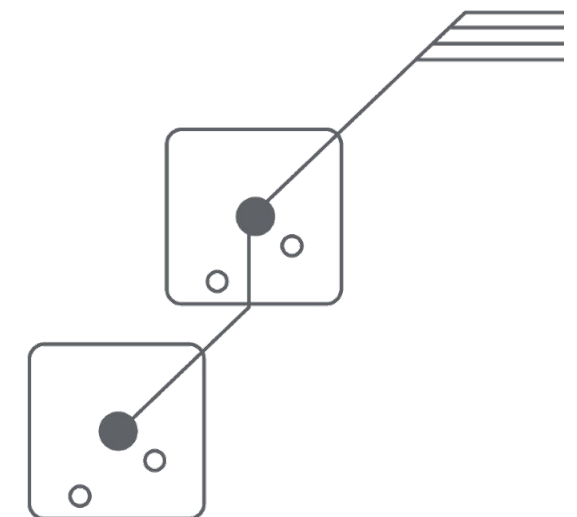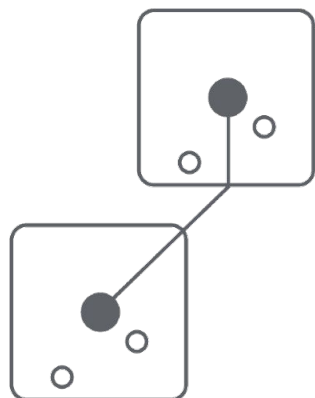
Hipster Shop
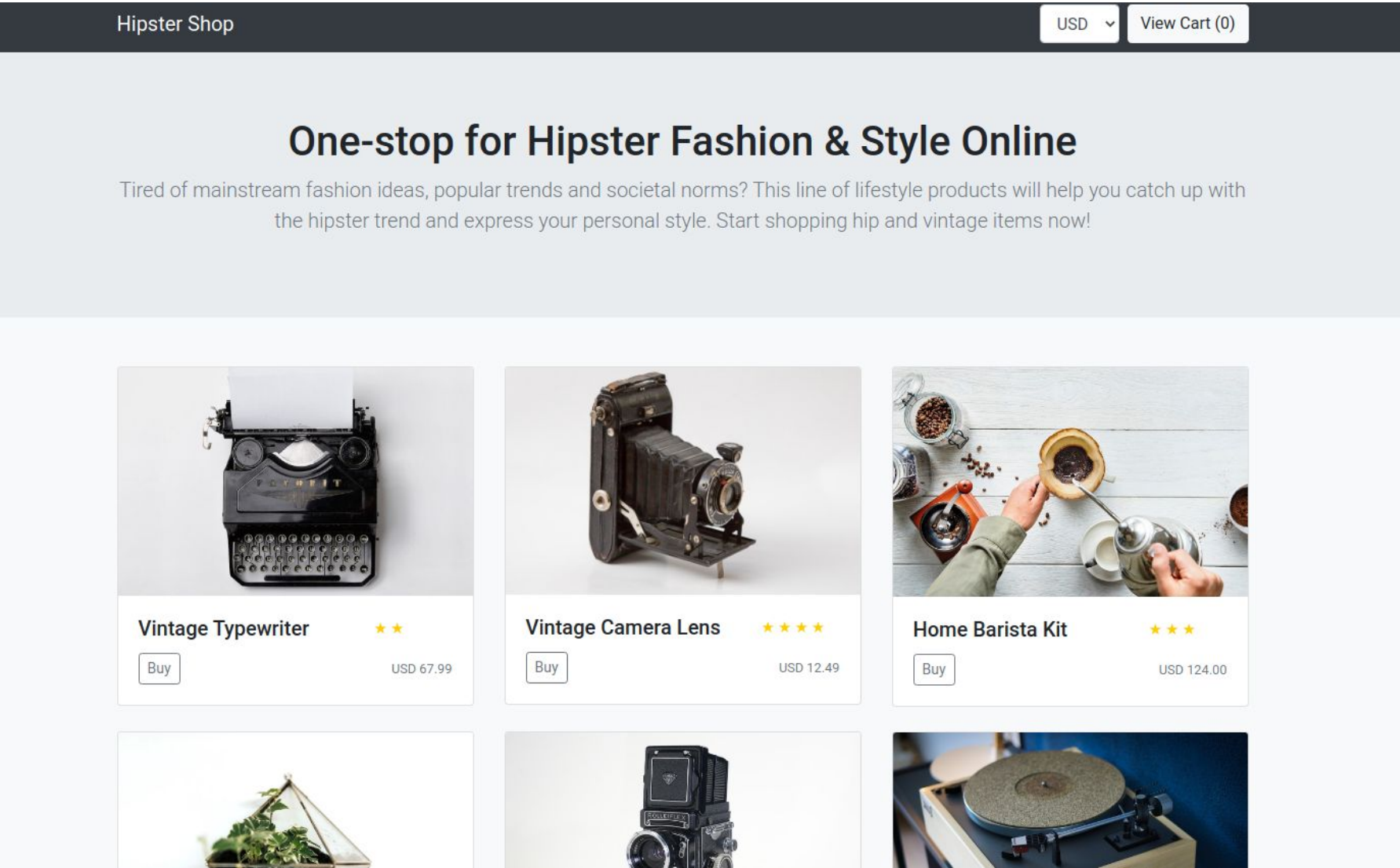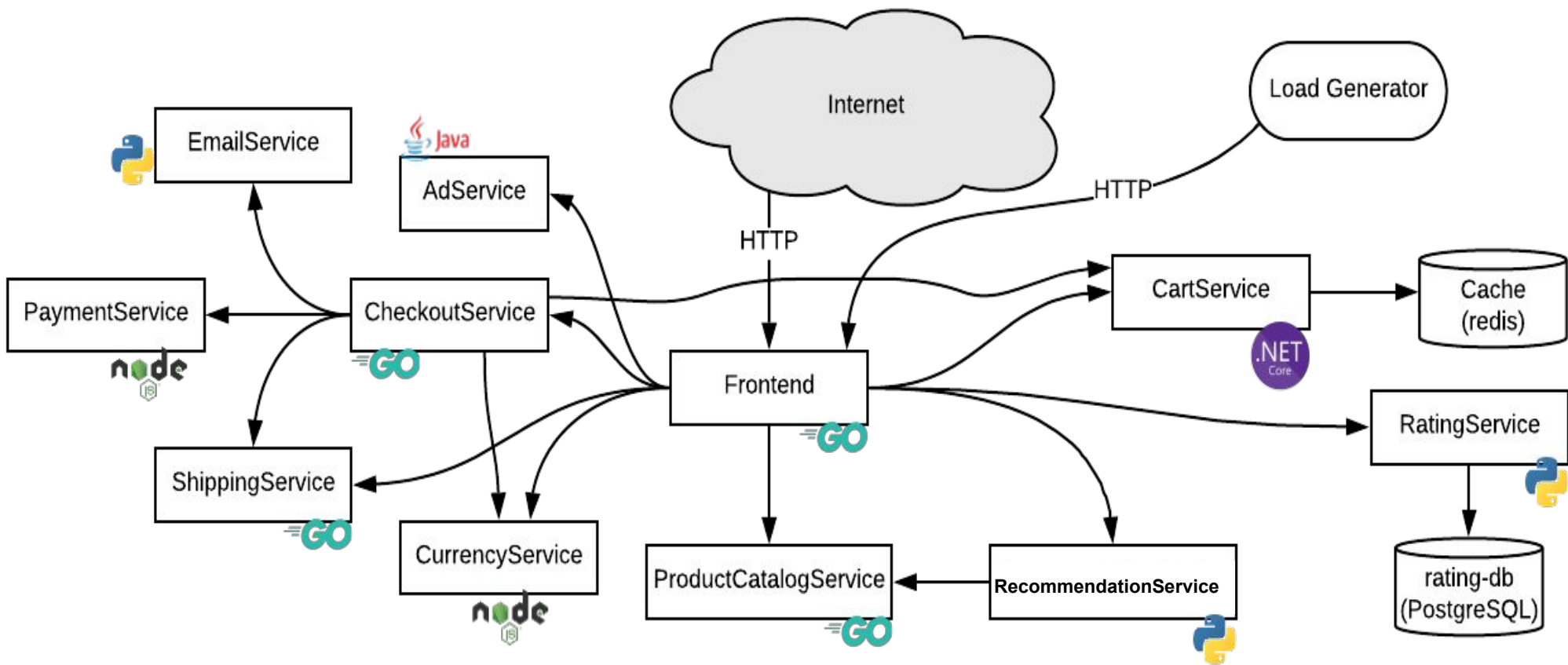
1. SLO Process -CUJ

List out **critical user journeys** and order them by **business impact:**
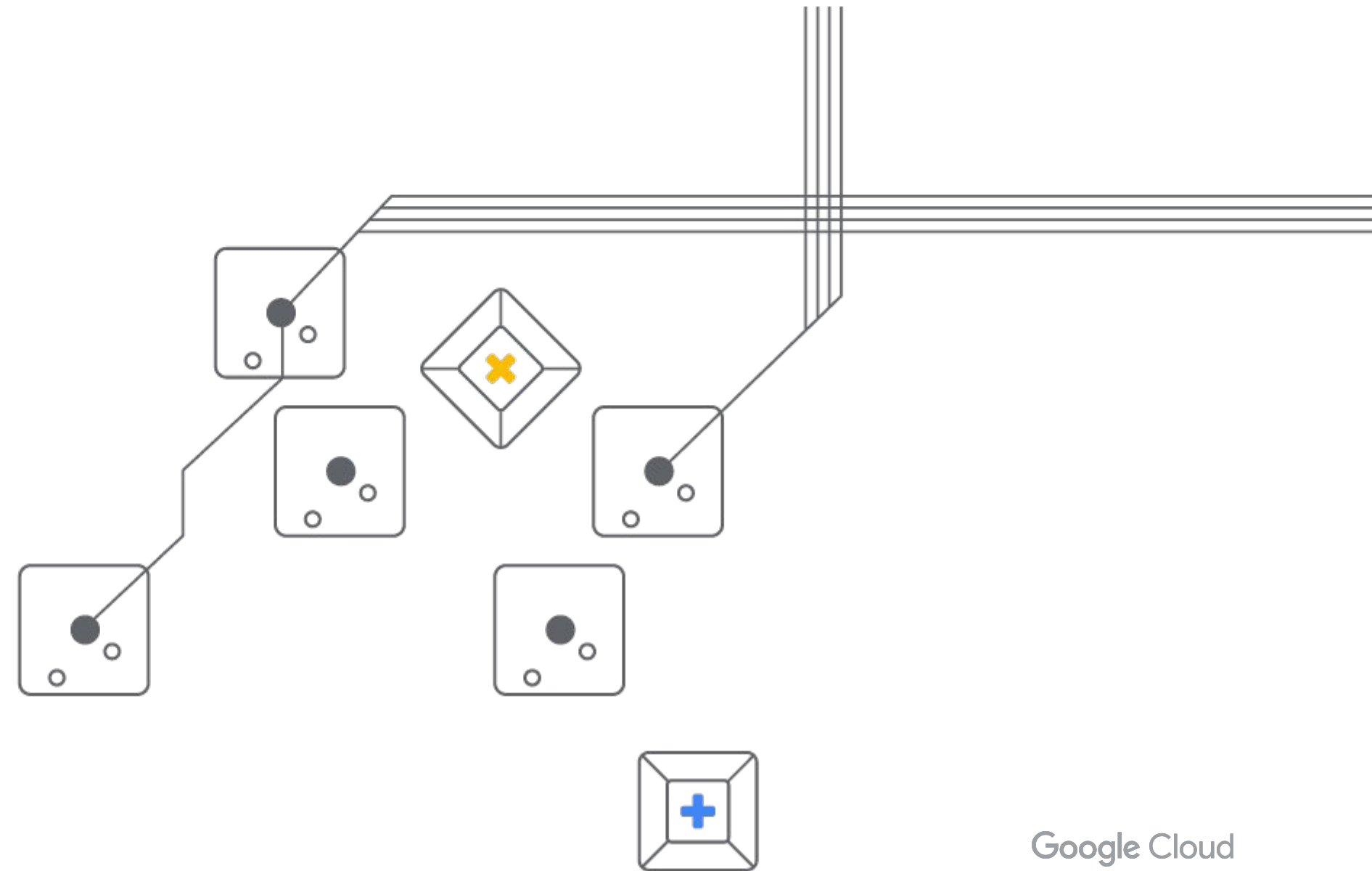
Browse products, Check out, Add to cart

1. SLO Process -CUJ

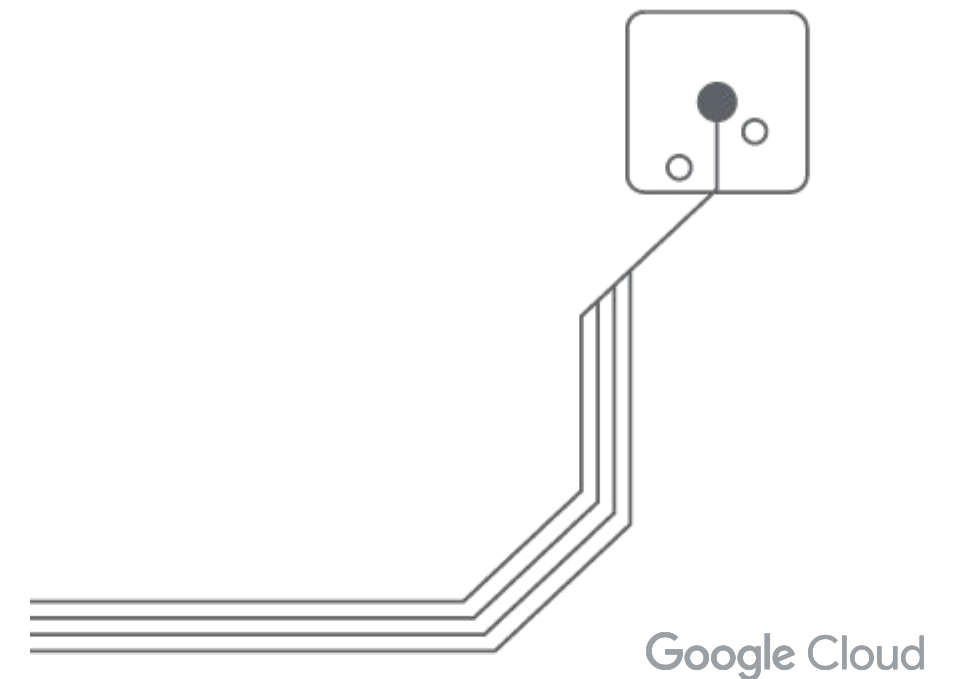List out **critical user journeys** and order them by **business impact:**

1. Check out

2. Add to cart

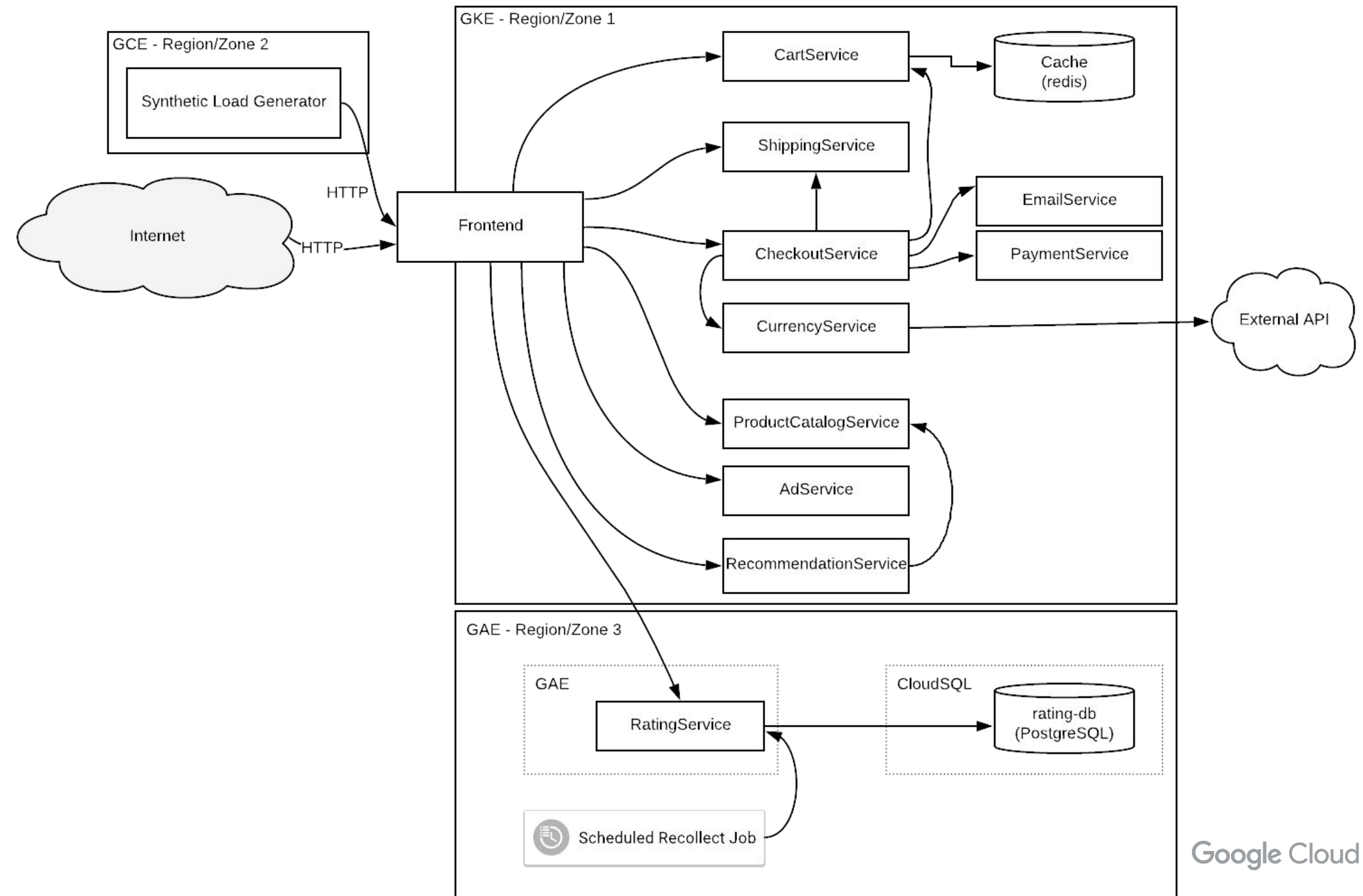3. Browse products

Critical User Journeys

As a **shopper** I want to see purchase (checkout) items in the store.

Google Cloud

SLO Process - SLI Creation

Determine which **metrics** to use as service-level indicators (SLIs) to most accurately track the **user experience.**

SLO Process -SLI creation

1. **SLI Type:**

   ○ **Request/response** interaction in a user journey, measure: availability, latency, and quality.

   ○ **Data processing:** freshness, coverage, correctness and throughput.

   ○ **Storage:** throughput and latency.

2. **SLI Specification:** an assessment of service outcome that you think matters to users

   ○ For availability: The proportion of valid events served successfully

   ○ For latency: The proportion of valid events served faster than a threshold

3. **SLI Implementation:** a way to measure the SLI specification

   ○ Includes: event + success criteria + where/how you record the SLI.

   ○ **Measurement Strategies:** Application-level Metrics, Logs Processing, Front-end Infra Metrics, Synthetic Clients/Data, Client-side Instrumentation

SLO Process -Availability SLI creation
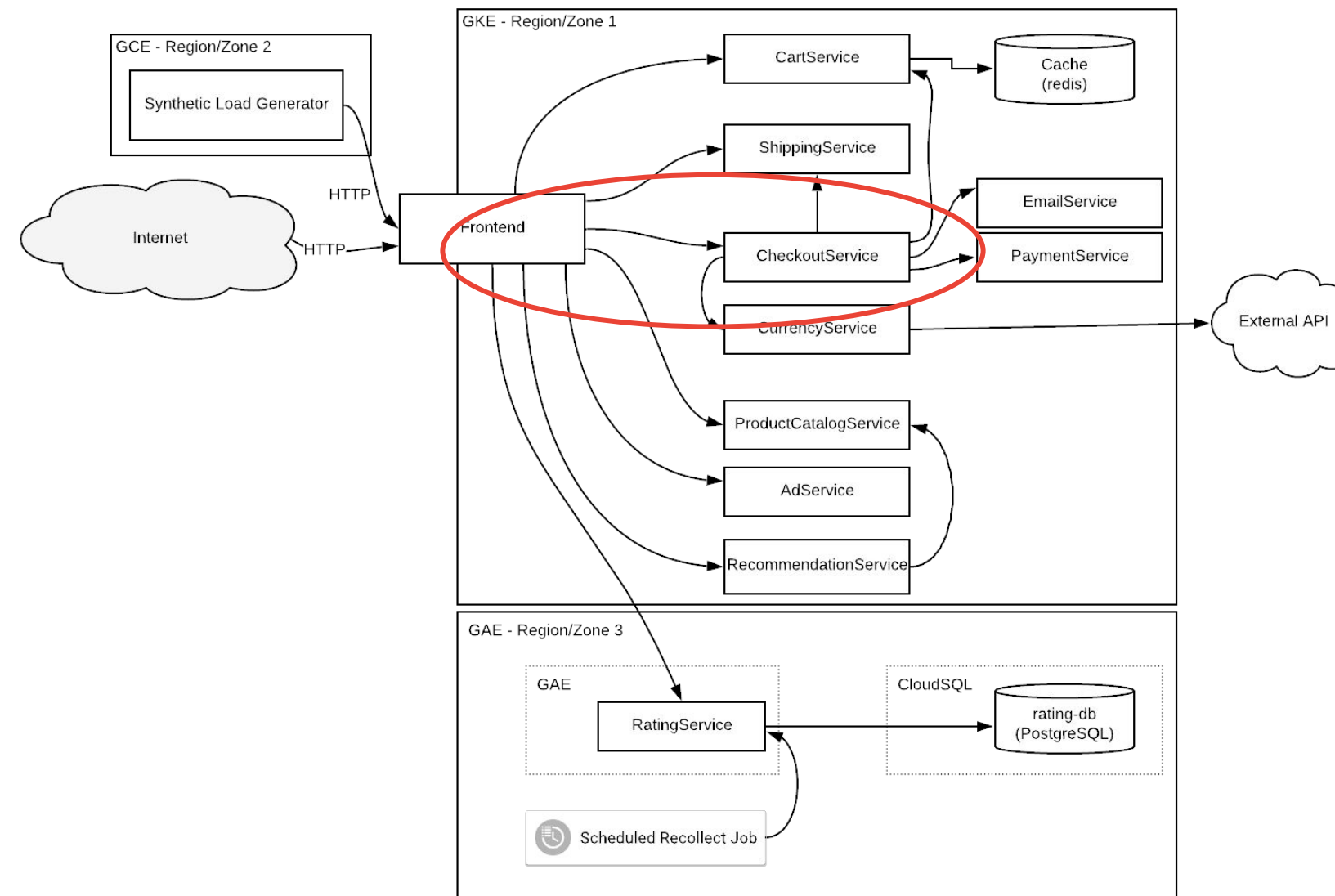
SLI Type: availability

SLI Specification: The proportion of valid checkout events served successfully.
● Requests to the CheckoutService that return HTTP response code 2xx, 3xx, or 4xx (excl. 429)

SLI Implementation: The proportion of HTTP GET requests for /checkout_service/response_counts that do not have 5XX status (3XX and 4XX excluded) measured at the Istio service mesh.
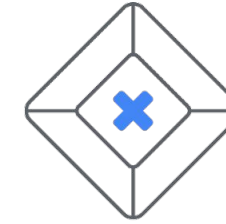
SLO Process - SLO

1. Determine SLO target goals

2. Determine SLO measurement period

SLO should include: **target** and a **measurement window:**
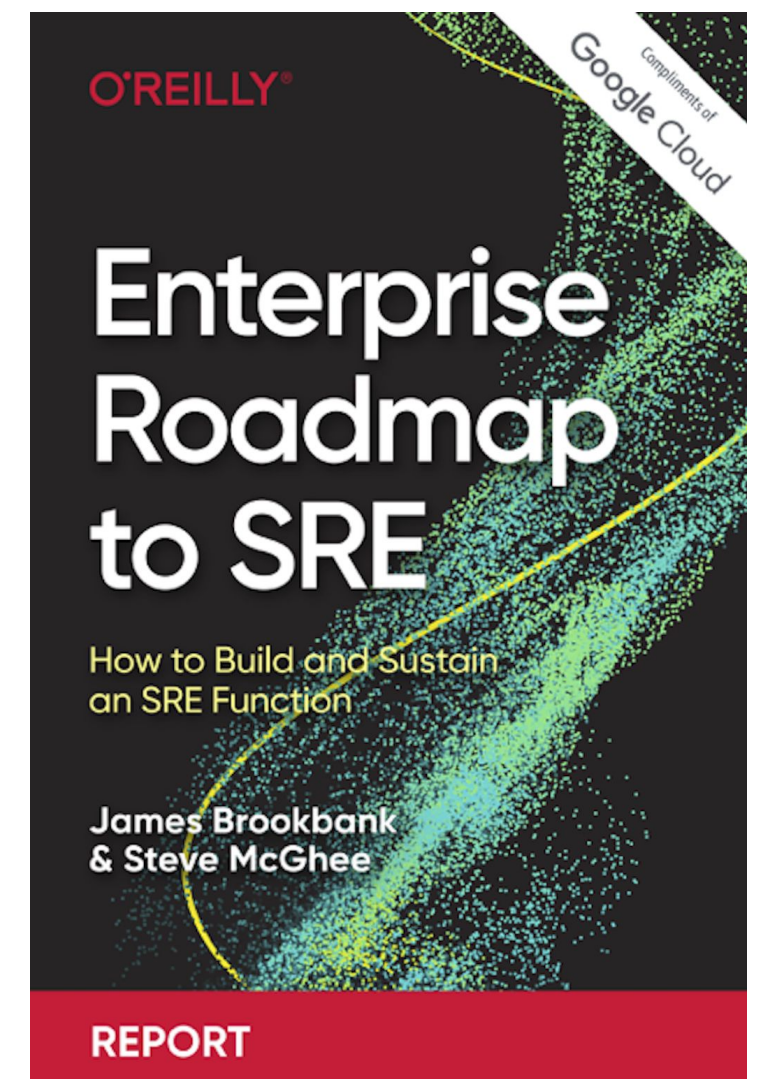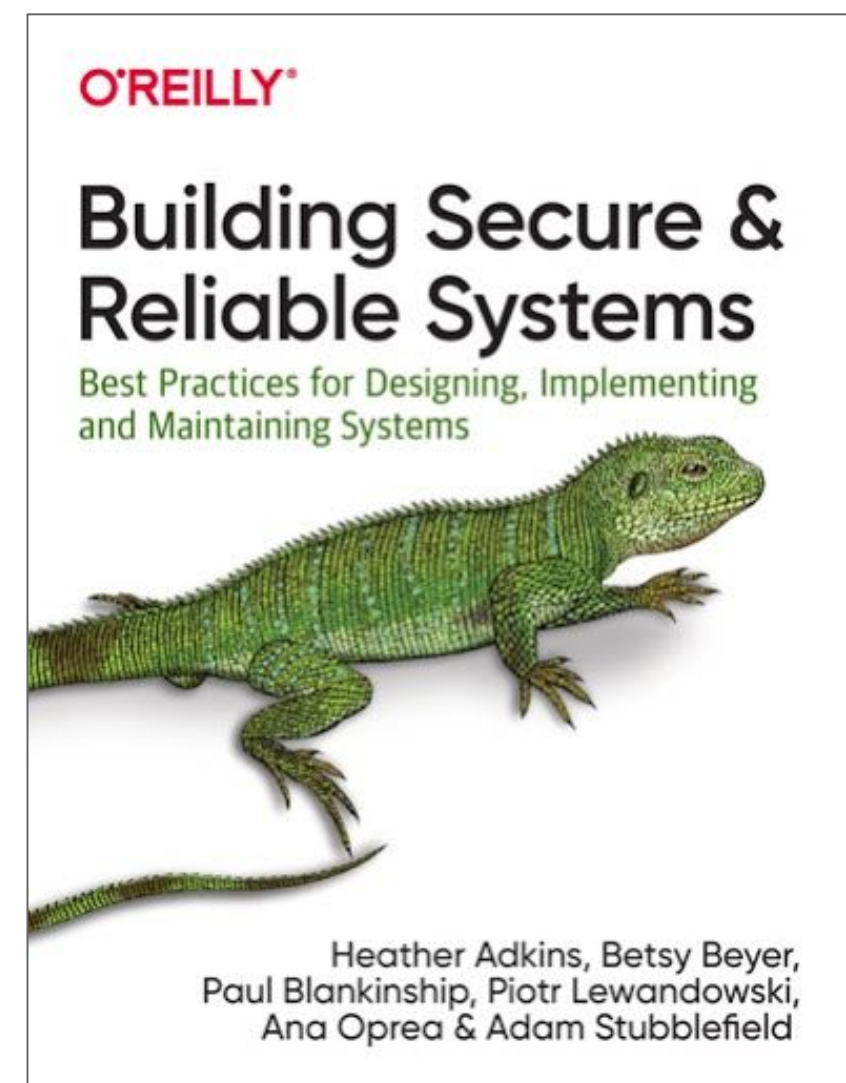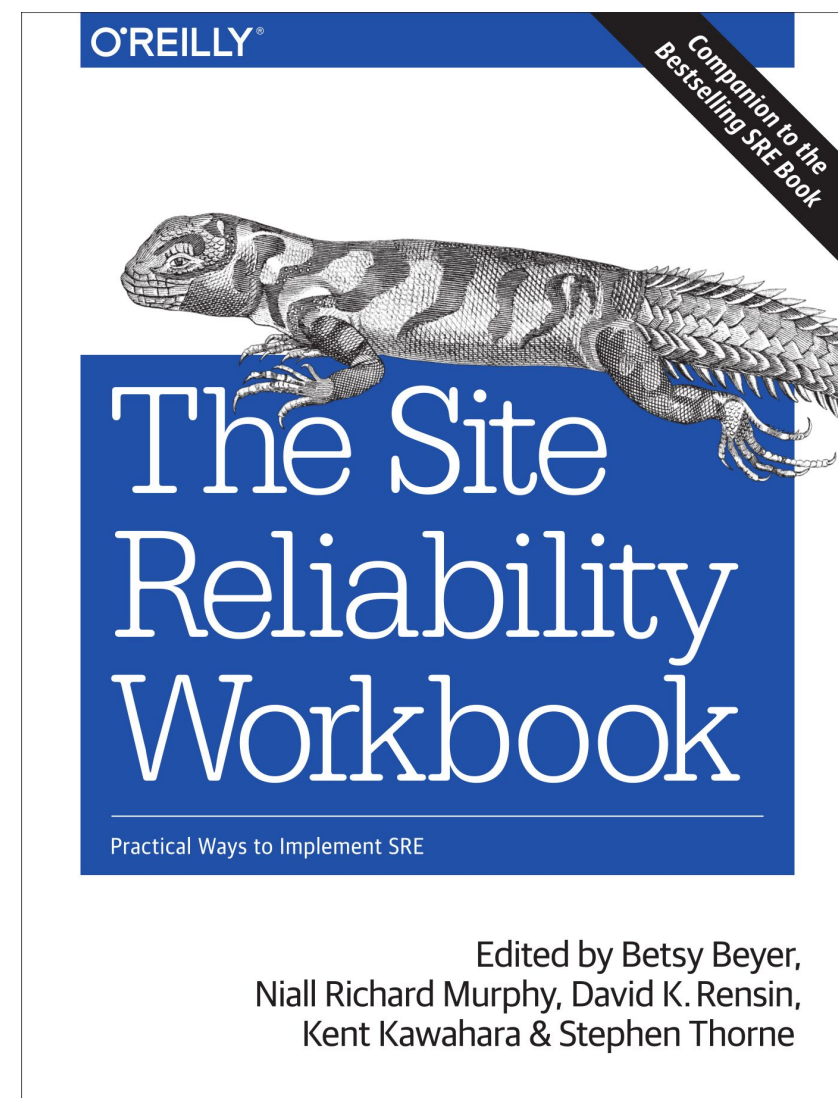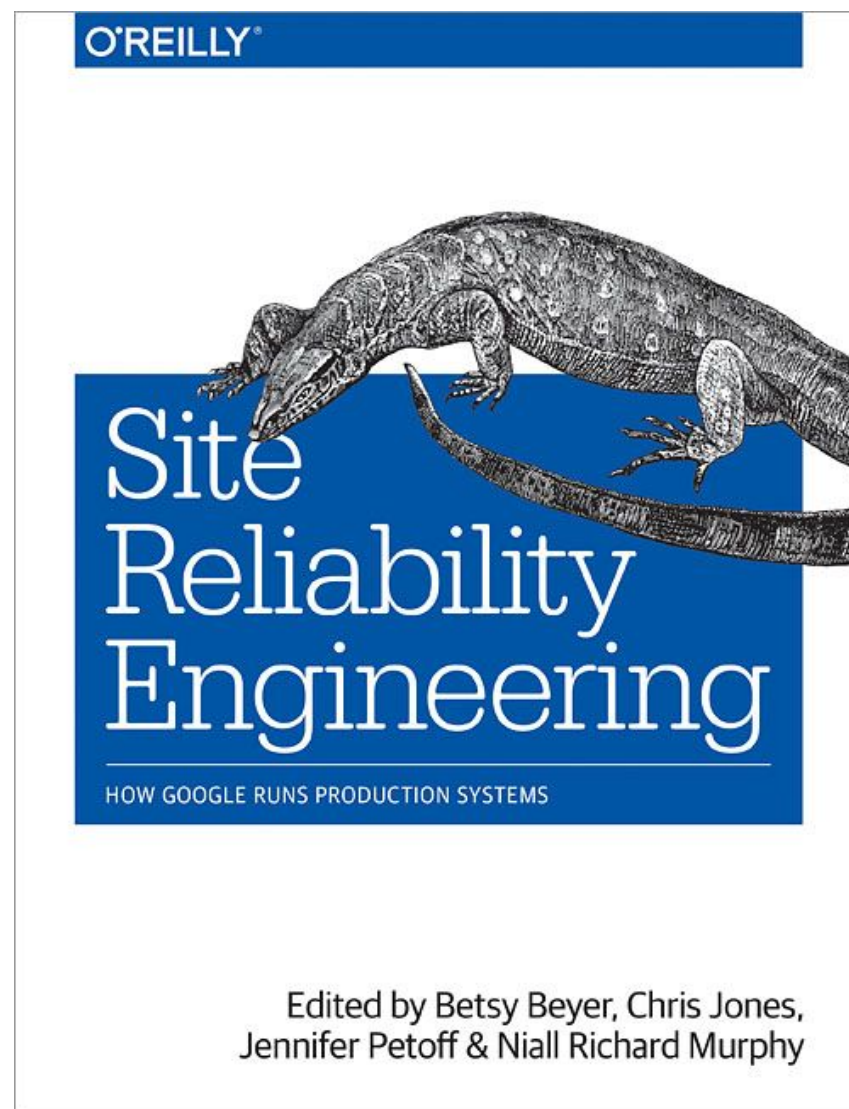- 99.9% of Checkout requests in the past 28 days are successful

SLO Process

1. List out **critical user journeys** and order them by **business impact.**

2. Determine which **metrics** to use as service-level indicators (SLIs) to most accurately track the **user experience.**

3. Determine **SLO target** goals and the **SLO measurement period**.

4. Configure SLI, SLO, and error budget consoles.

5. Configure SLO alerts.
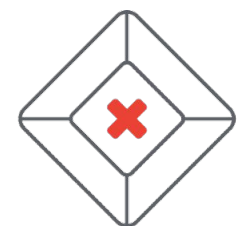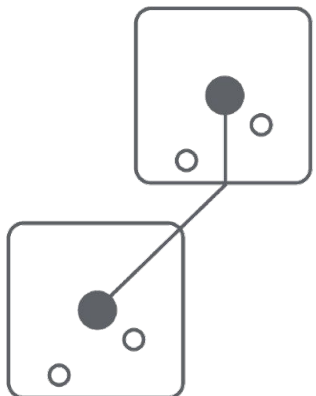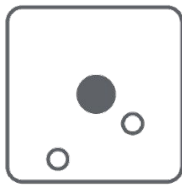
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Thank you!

Google Cloud