



aws INNOVATE

MODERN APPLICATIONS EDITION

27 & 28 October 2021

Application integration patterns for microservices

Karan Desai

Senior Solutions Architect
AISPL



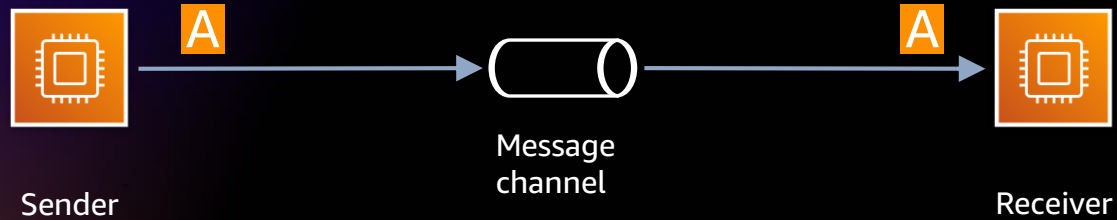
Agenda

- Application integration patterns
- Examples with demo

Application integration patterns

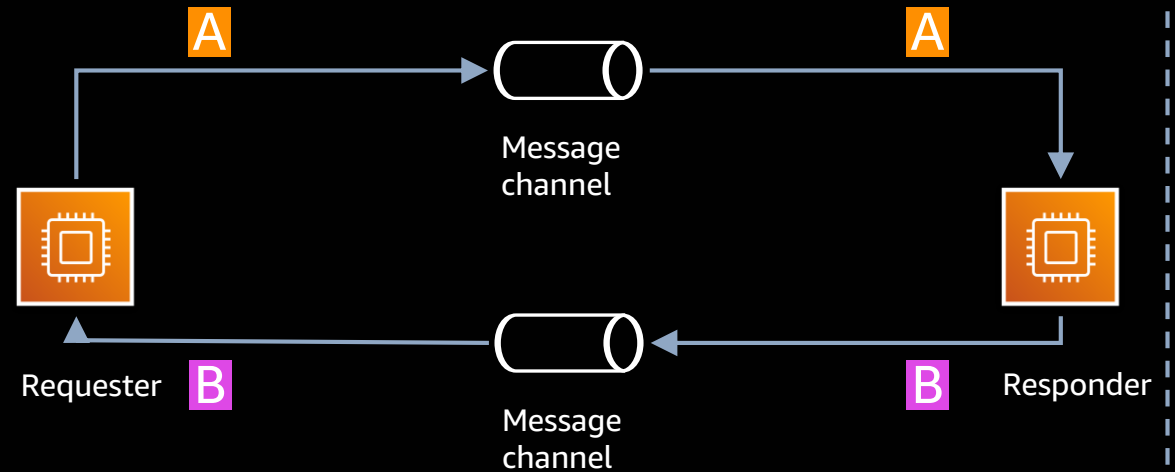
Message exchange

One-way



No response expected

Request-response



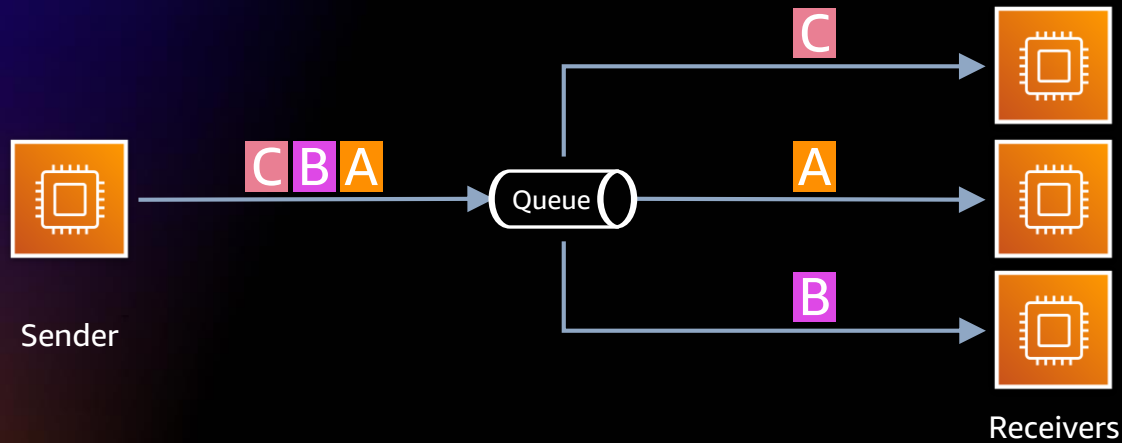
Response expected

Return address

Correlation ID

Message channels

Point-to-point (queue)

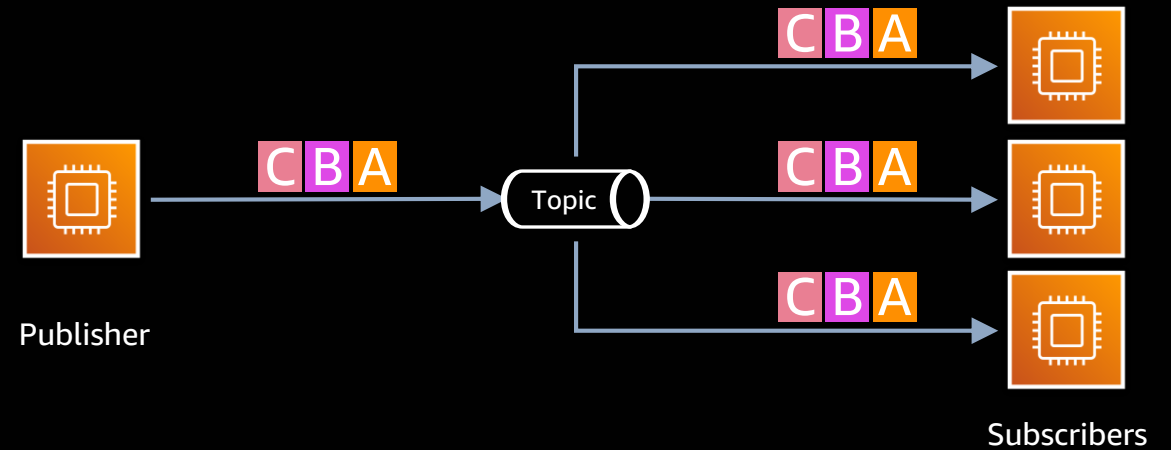


Consumed by one receiver

Easy to scale

Flatten peak loads

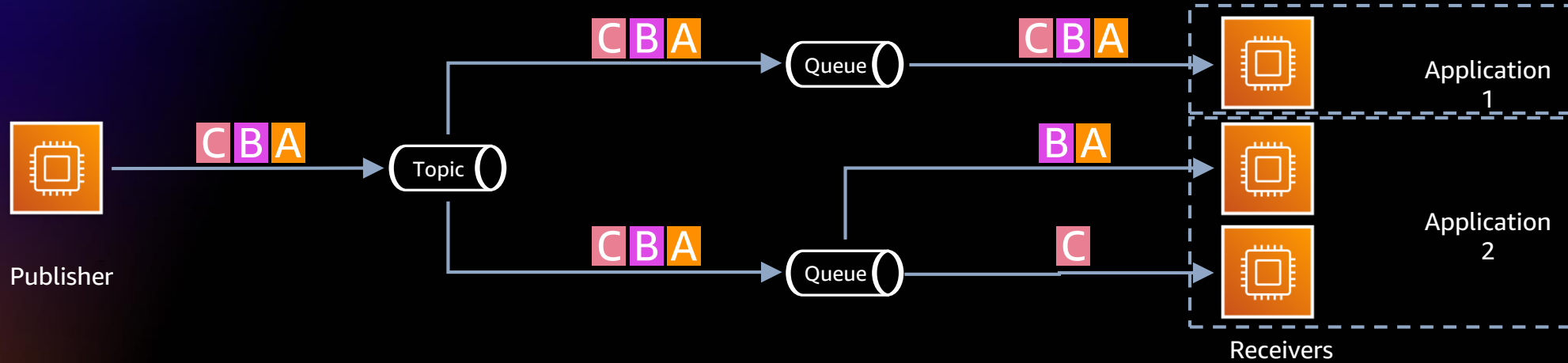
Publish-subscribe (topic)



Consumed by all subscribers

Message channels

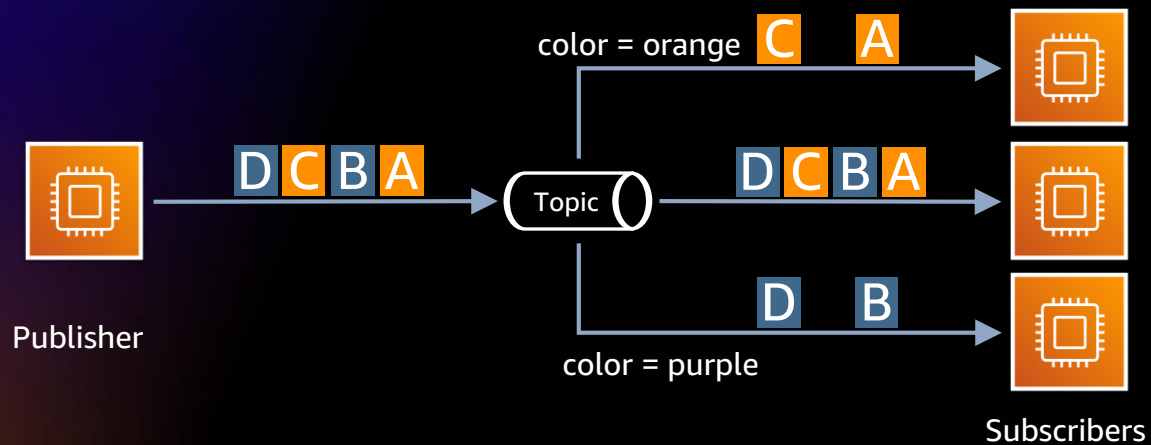
Topic-queue-chaining



Allows fan-out and receiver scale-out at the same time

Message routing

Message filter

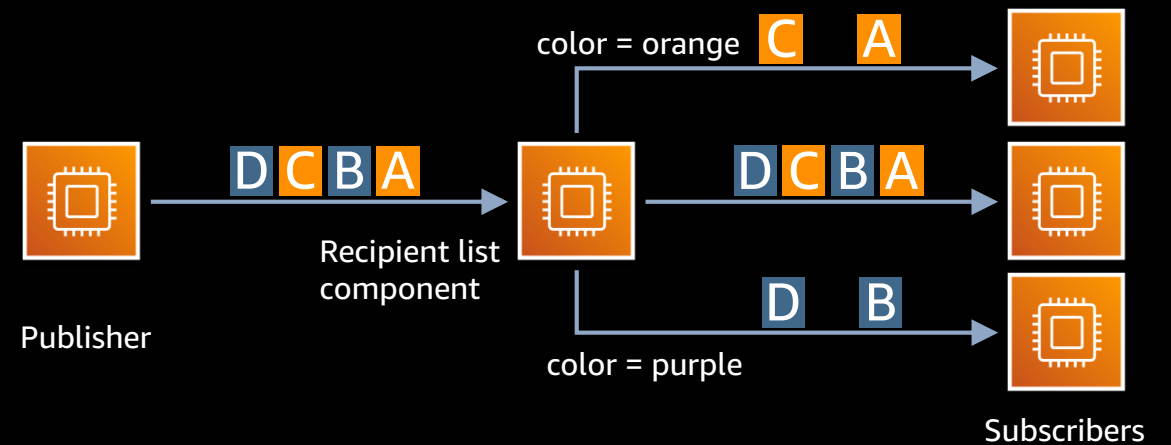


Receive only a relevant subset of messages

Controlled by subscriber

Publisher remains completely unaware

Recipient list



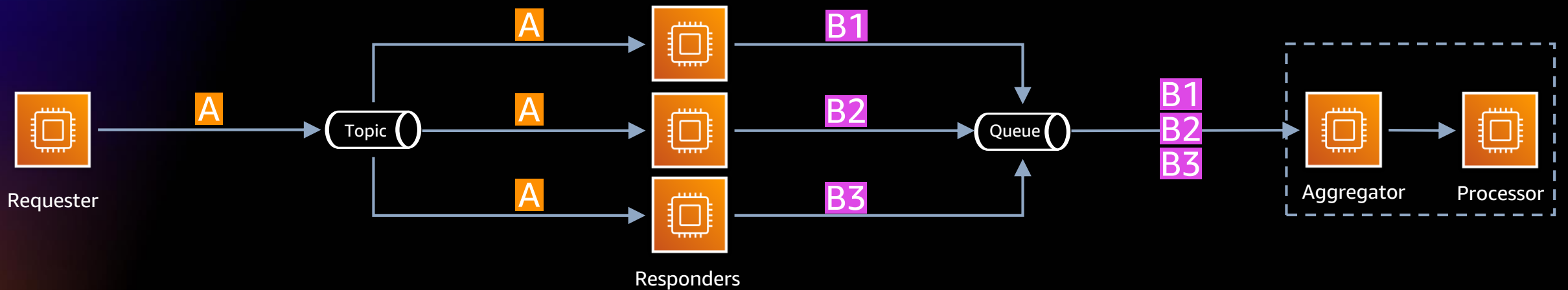
Send only a relevant subset of messages to a subscriber

Controlled by publisher or separate component

Potentially adds coupling

Message routing

Scatter-Gather



How to distribute a request across potentially interested/relevant parties and capture their individual responses?

Election or parallel processing scenarios, i.e., search for **best** response or **accumulate** responses

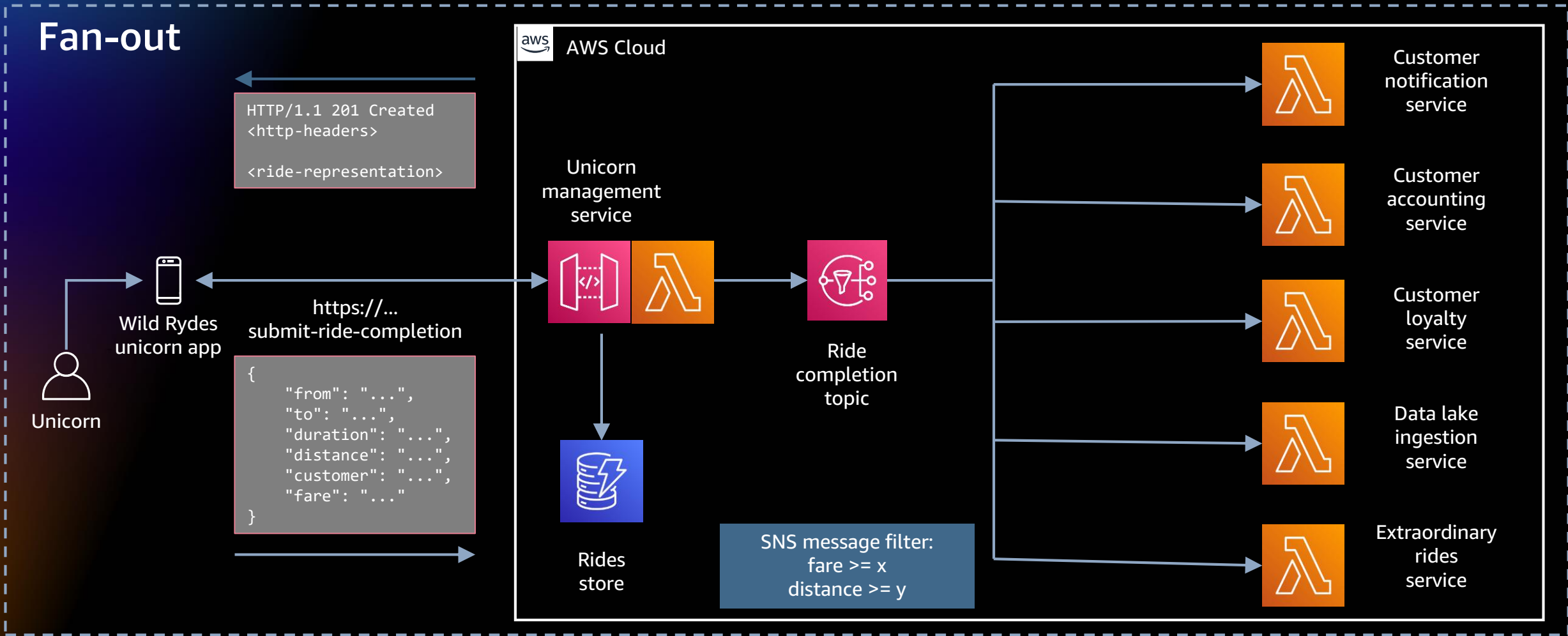
Use-cases for different patterns

Context: Wild Rydes



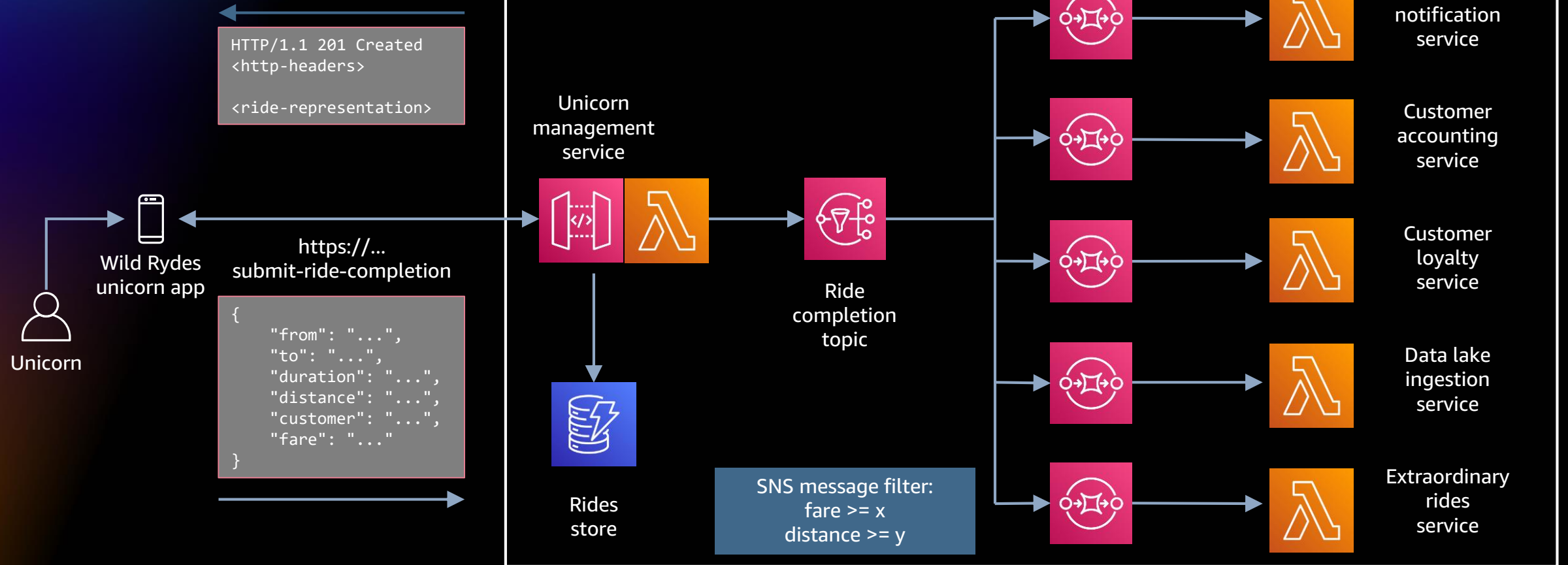
Use-case: Submit a ride completion

Use case: Submit a ride completion



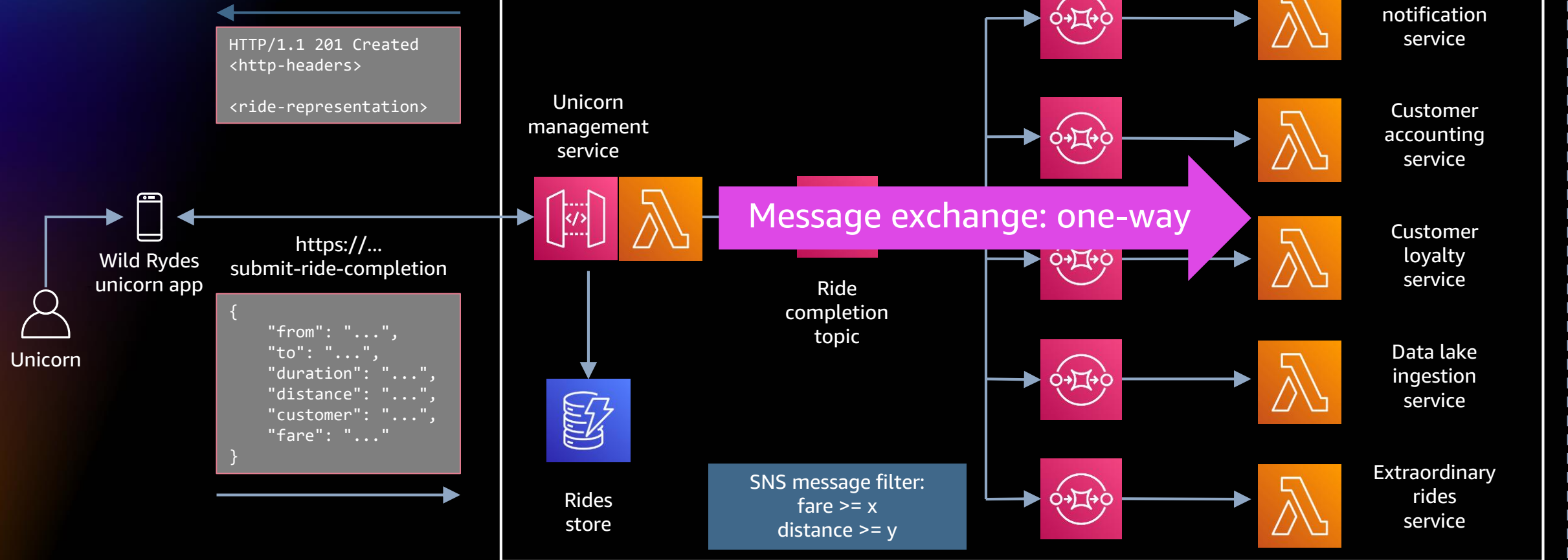
Use case: Submit a ride completion

Topic-queue-chaining



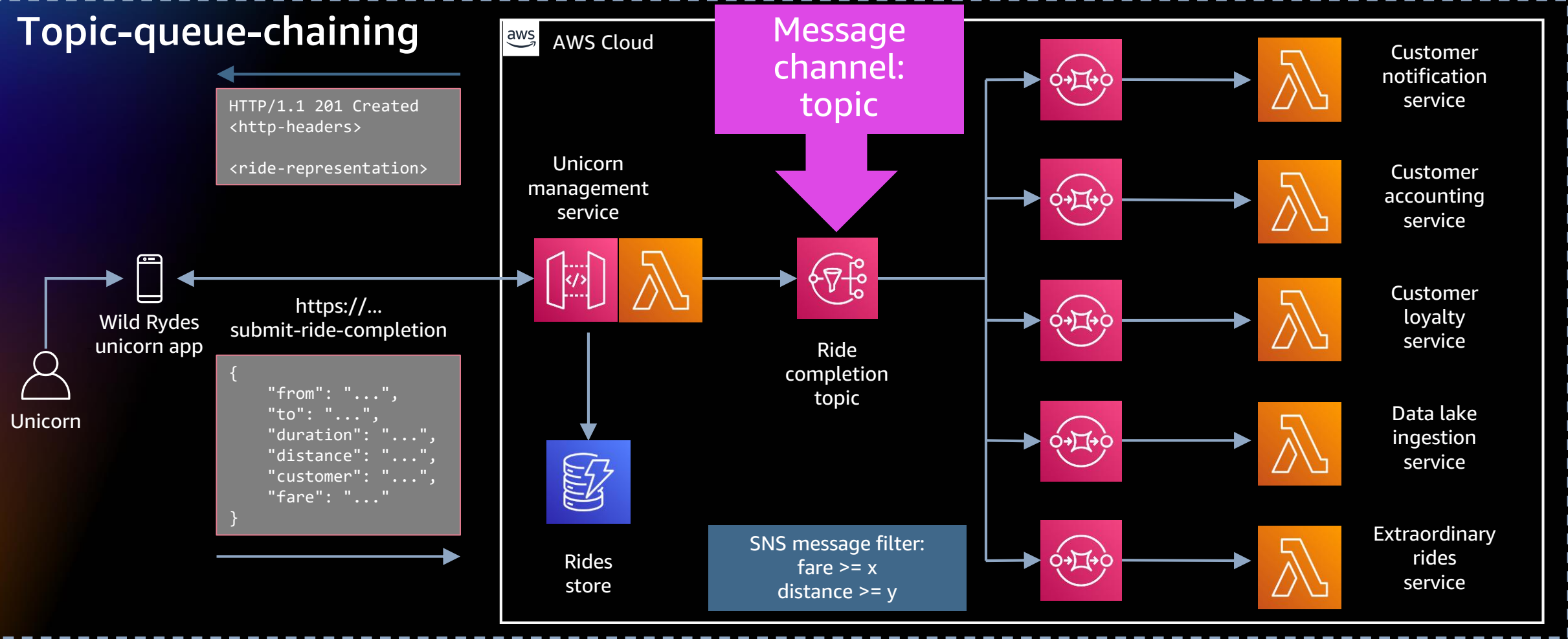
Use case: Submit a ride completion

Topic-queue-chaining



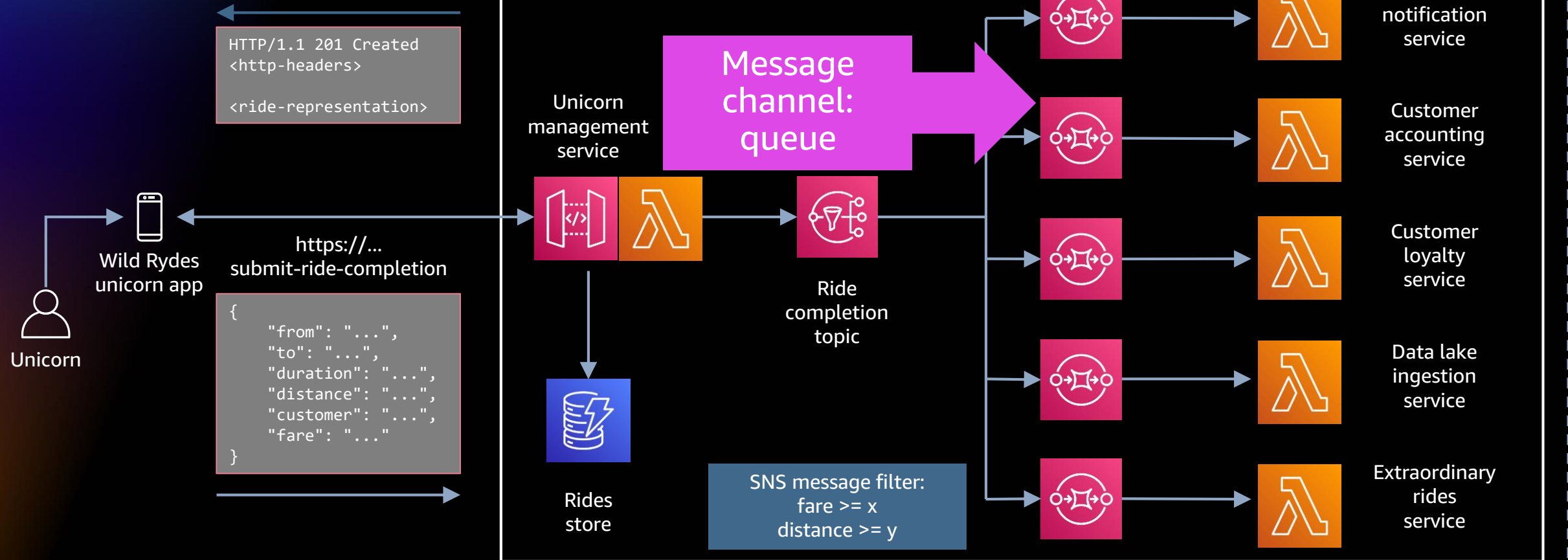
Use case: Submit a ride completion

Topic-queue-chaining



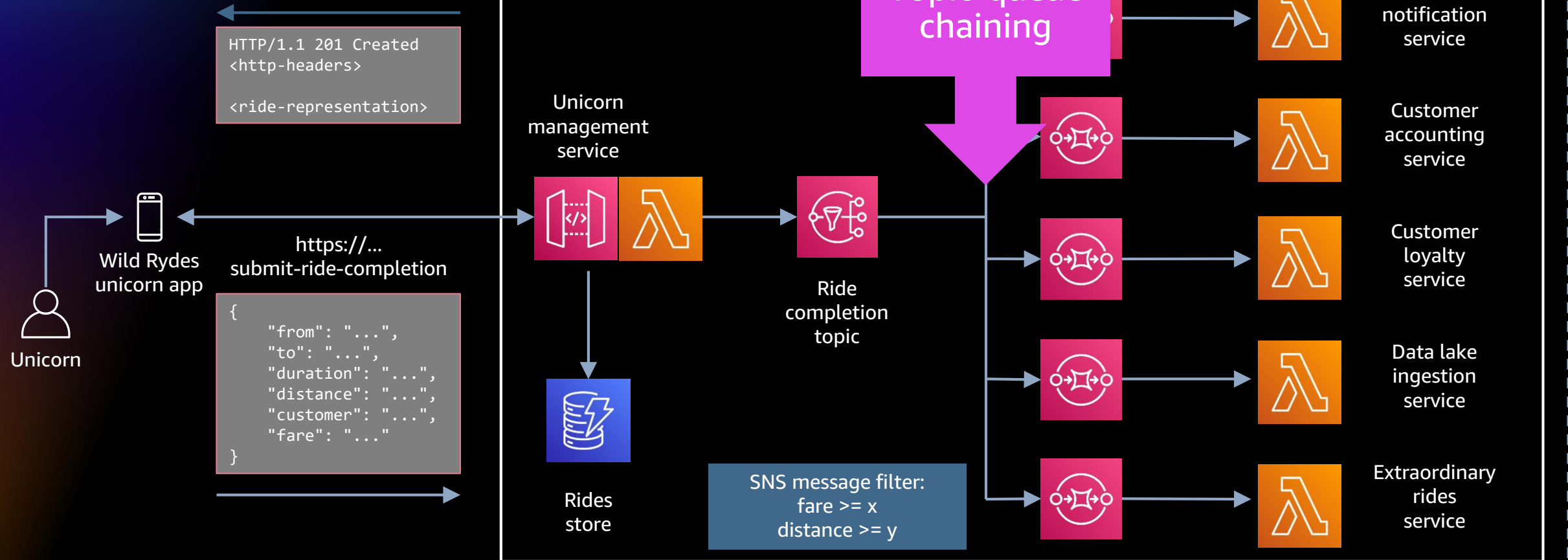
Use case: Submit a ride completion

Topic-queue-chaining



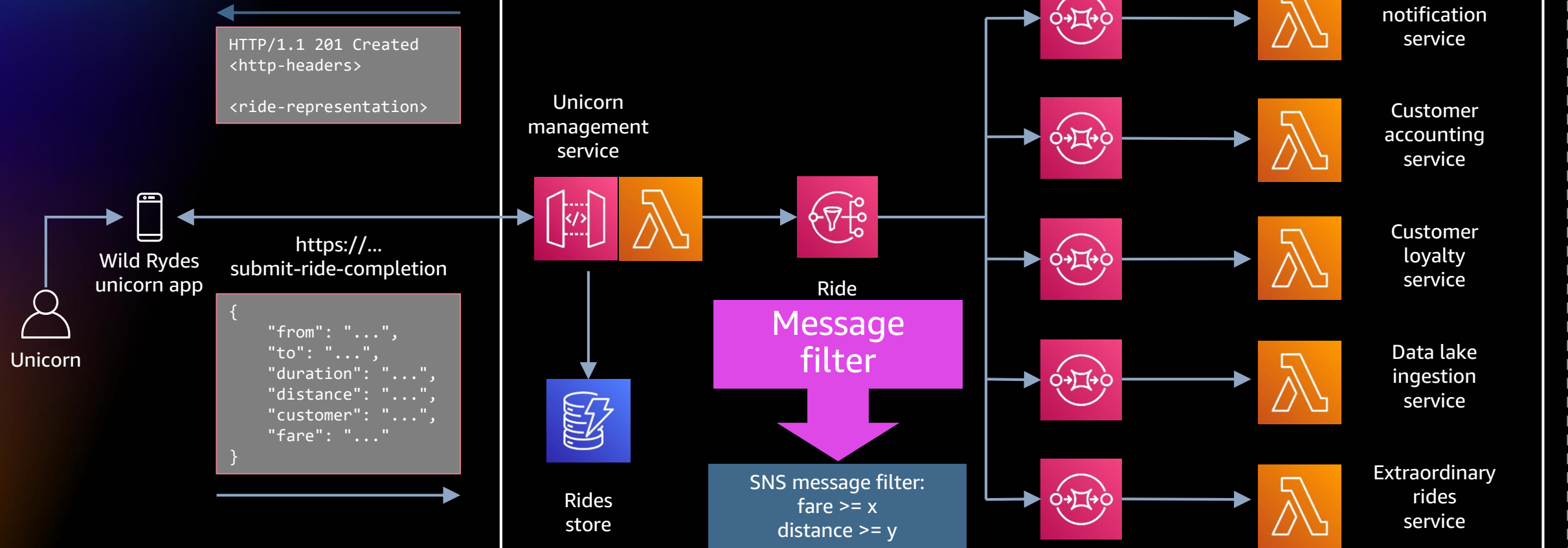
Use case: Submit a ride completion

Topic-queue-chaining

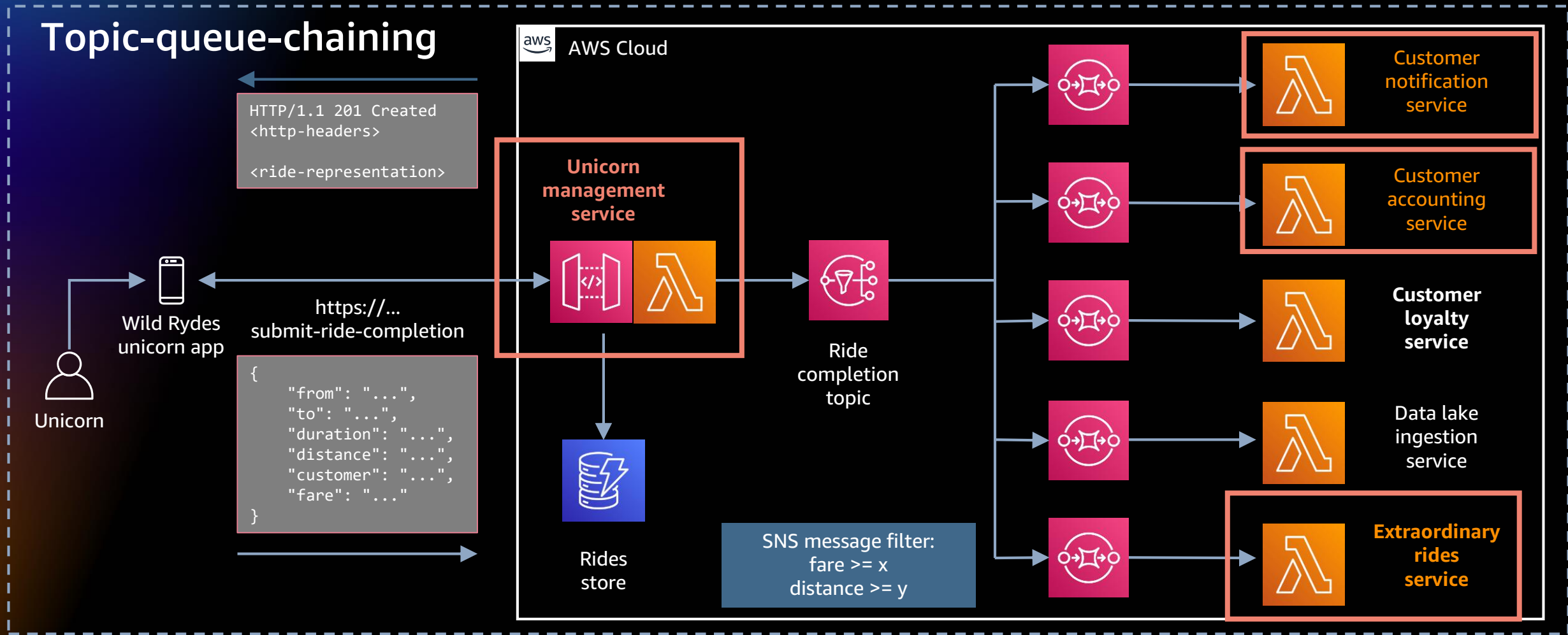


Use case: Submit a ride completion

Topic-queue-chaining



Use case: Submit a ride completion

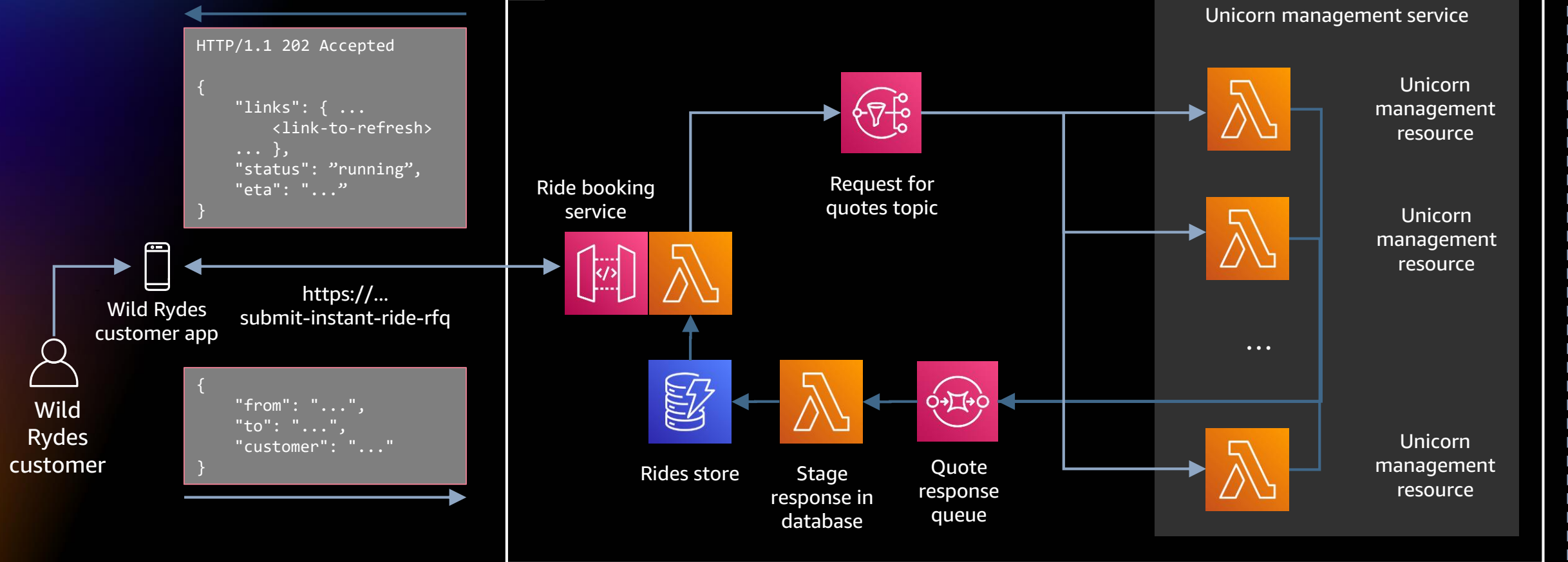


Demo: Topic-queue-chaining

Use-case: Instant ride request for quote (RFQ)

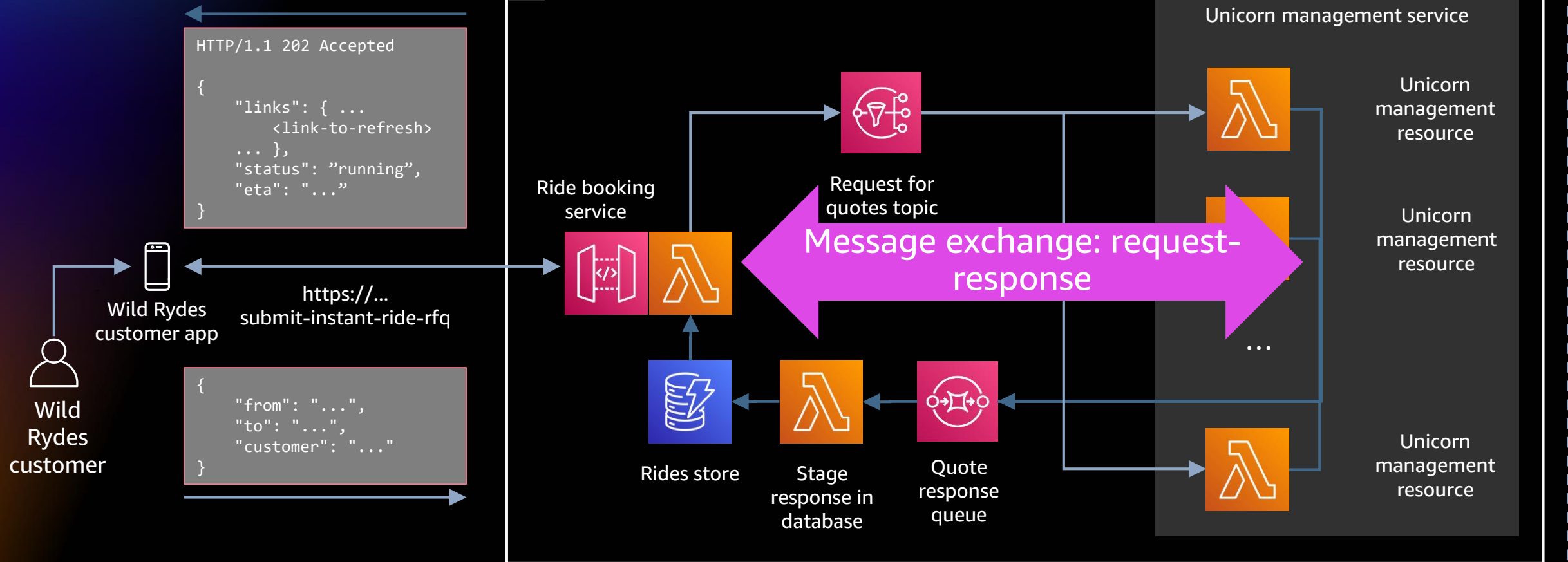
Use case: Instant ride RFQ

Scatter-Gather



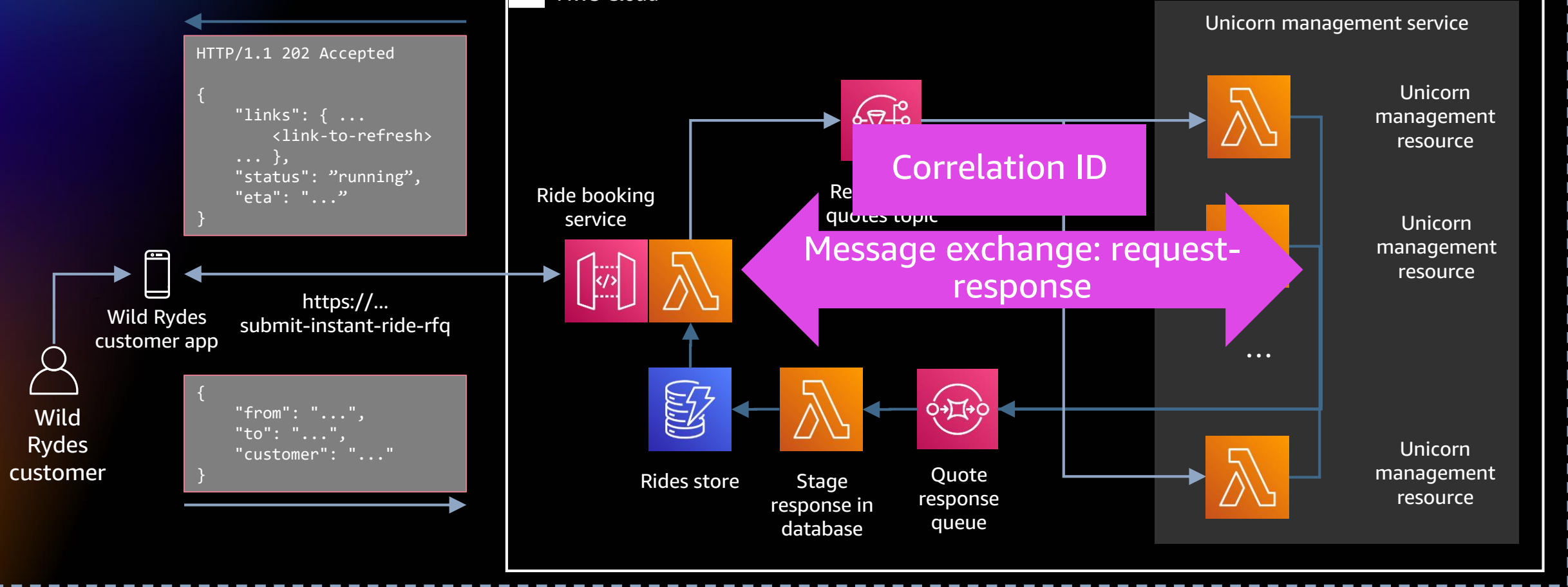
Use case: Instant ride RFQ

Scatter-Gather



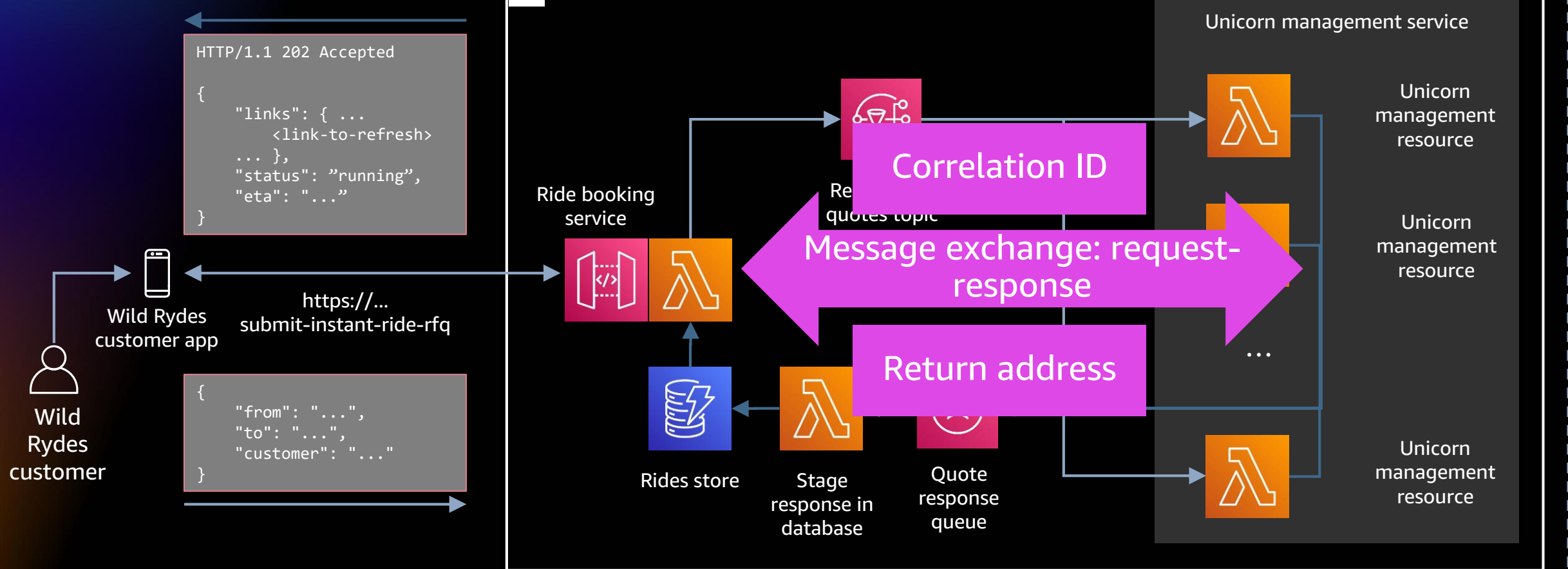
Use case: Instant ride RFQ

Scatter-Gather

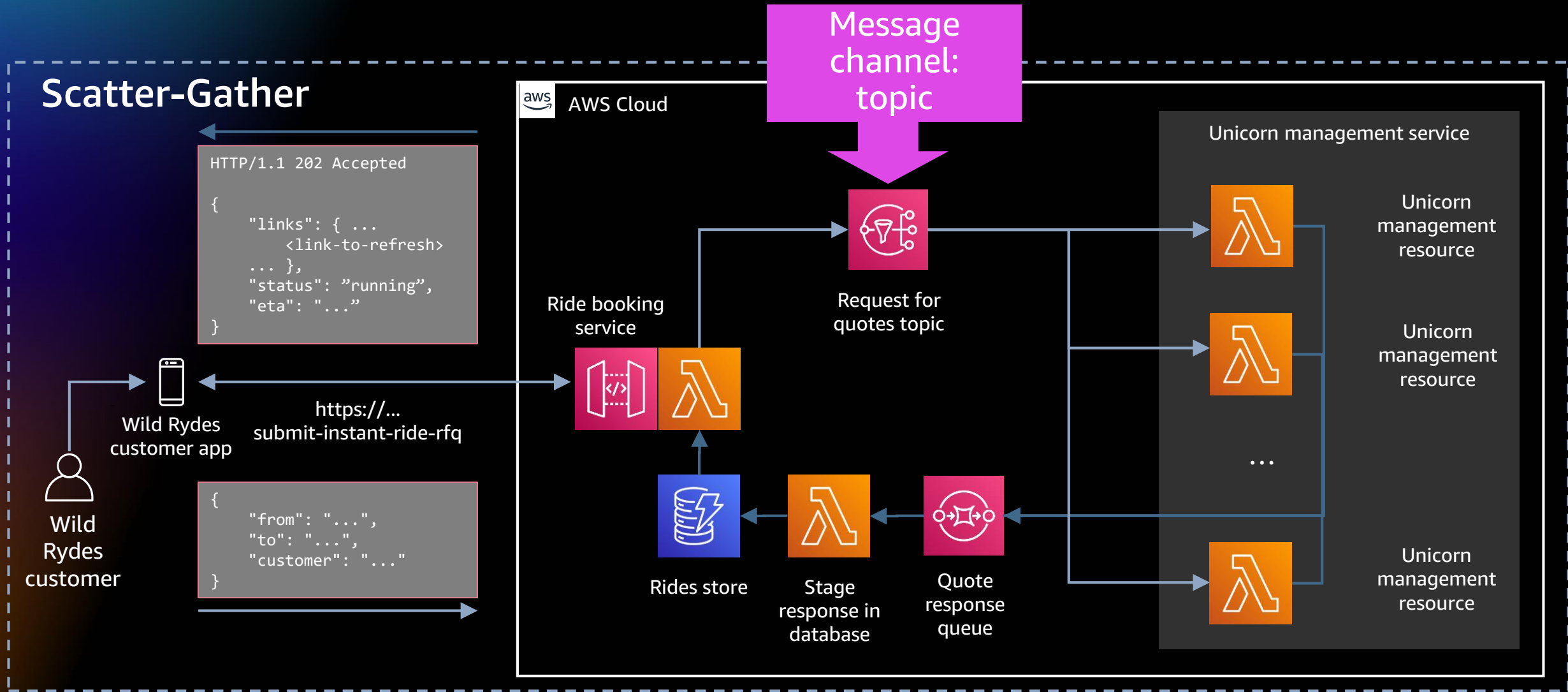


Use case: Instant ride RFQ

Scatter-Gather

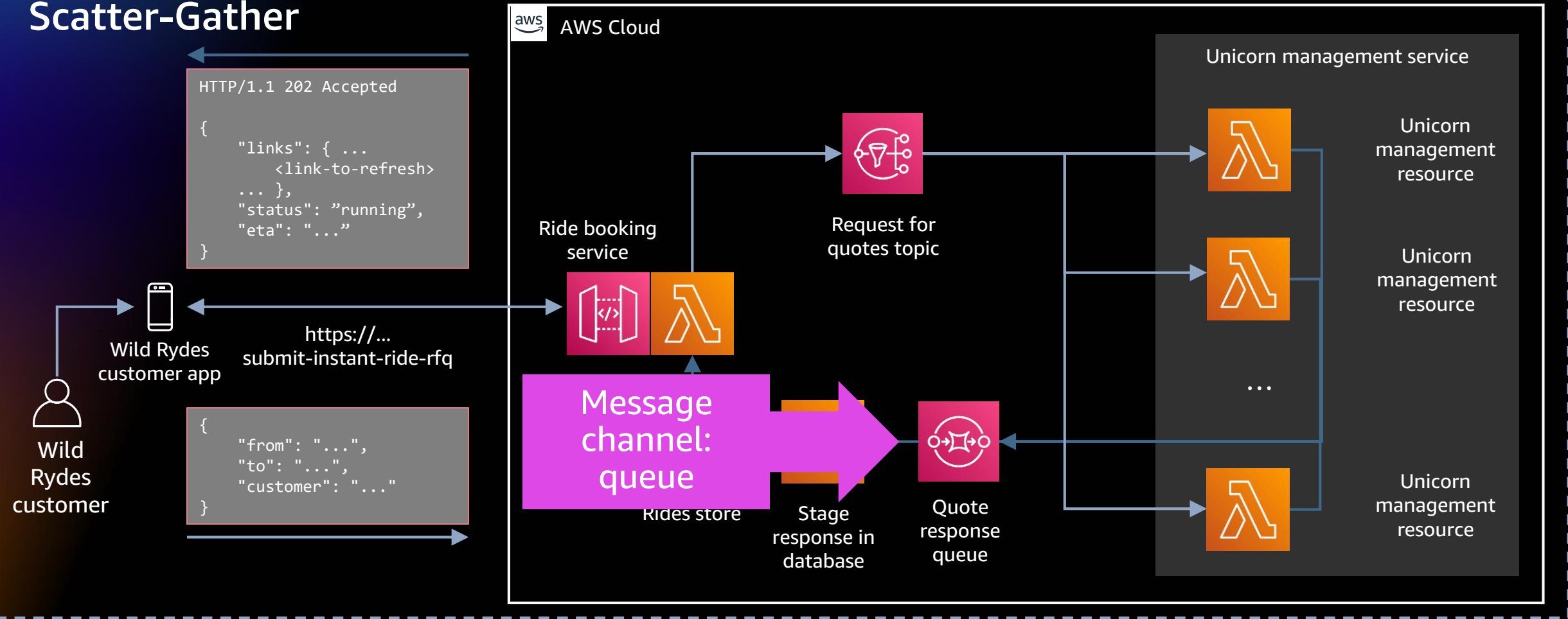


Use case: Instant ride RFQ



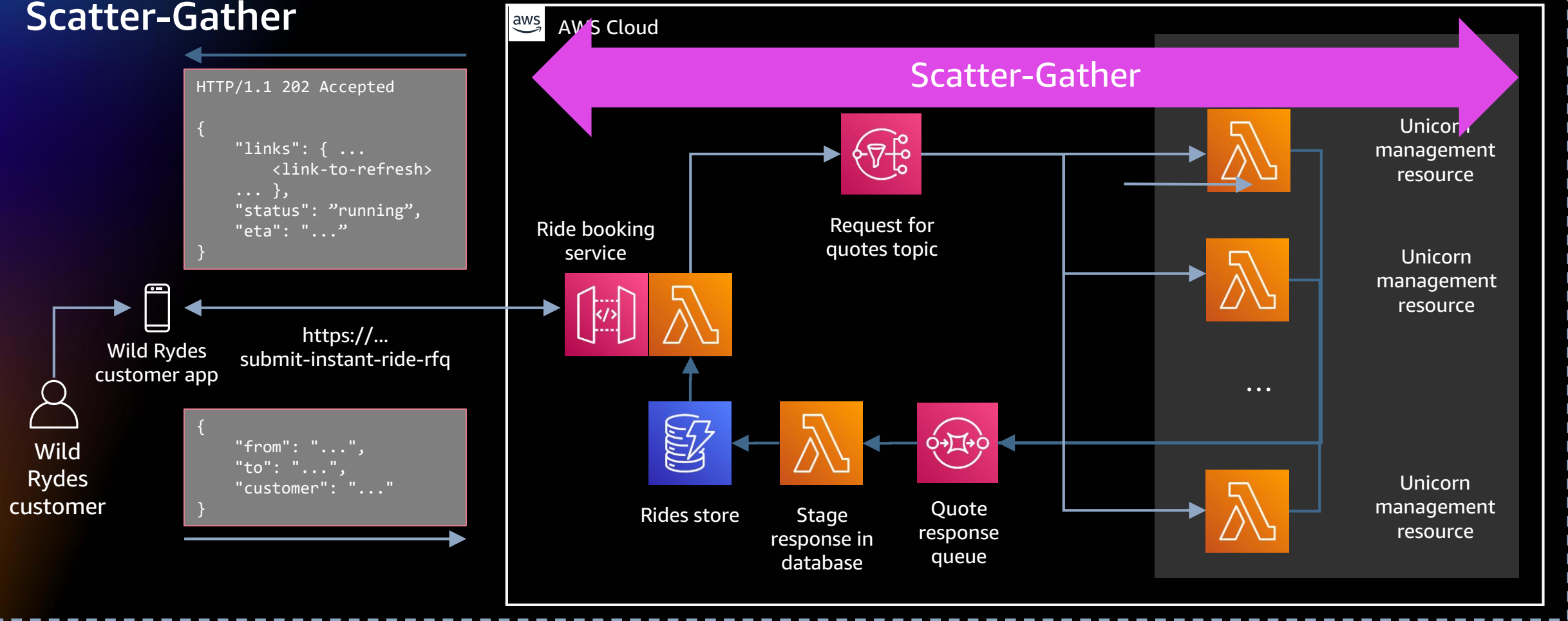
Use case: Instant ride RFQ

Scatter-Gather



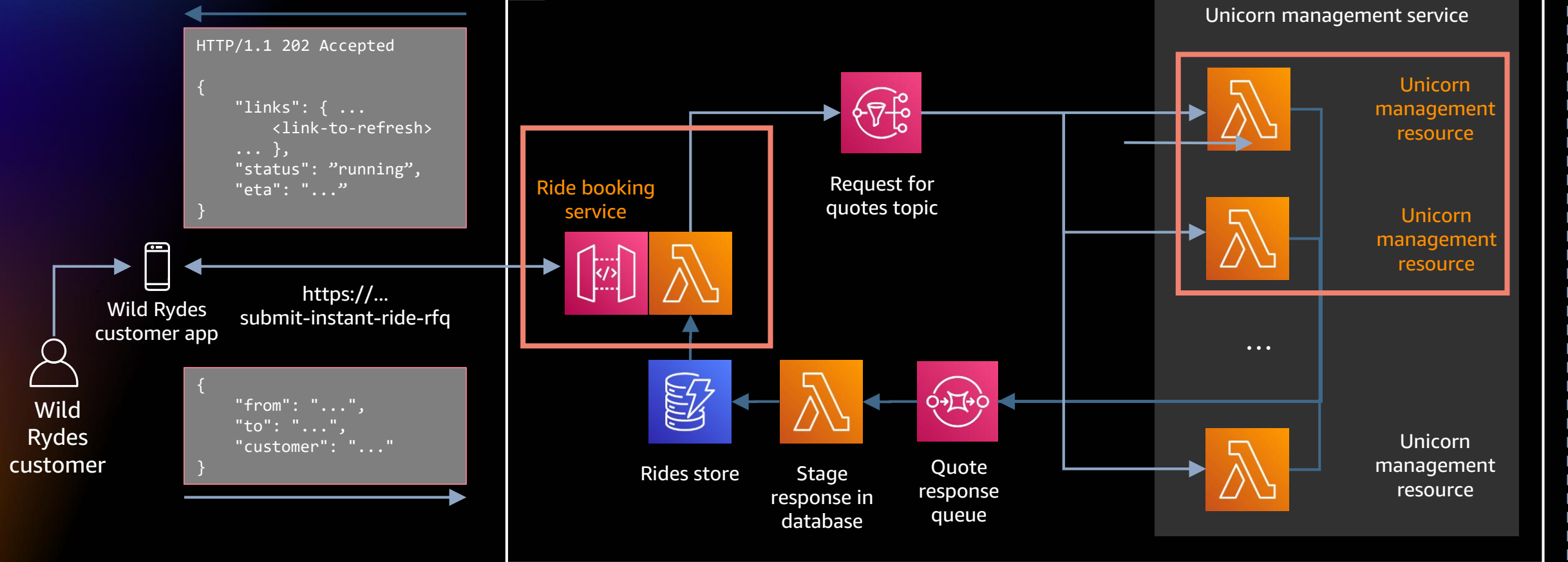
Use case: Instant ride RFQ

Scatter-Gather



Use case: Instant ride RFQ

Scatter-Gather



Demo: Scatter-Gather

Recap

- Design your microservices application loosely coupled so that each service can operate, scale, and evolve independently
- Asynchronous messaging is a fundamental approach for integrating independent systems
- Choose the application integration pattern that's right for each use-case
 - Fan-out and message filtering
 - Topic-queue chaining
 - Scatter-Gather

Resources and next steps

Resources

- AWS blog series discussing the patterns from this talk
 - <http://bit.ly/dd21-a>



SCAN ME

- Hands-on workshop implementing the patterns from this talk
<http://bit.ly/dd21-b>



SCAN ME

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Dive deeper with these resources to help you develop an effective plan for your modernization journey.

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