
AWS
re:Invent
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PRT053

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Drive positive impact with feature flags and data

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We’re all on the feature flagging journey

Making informed decisions every step of the way

Basic Flags



Enable psychological safety for releases with a quick kill/off switch.

Decouple releases.

Advanced Flags



Build in audience targeting and percentage based rollouts to reduce impact radius.

Enable measurement.

Measure & Learn



Manage features and releases at scale with increased velocity and risk mitigation.

Understand impact of releases to drive decisions.

Experiment



Optimize releases, features, and experiences with hypothesis based testing.

Iterate!

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Moving towards an experimentation mindset

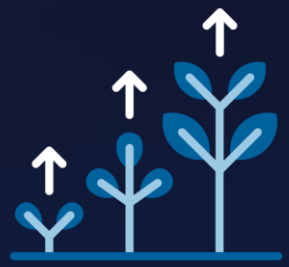
Embracing the challenge



Be curious and ask questions



Understand impact of releases



Start small and keep going



Stay humble and embrace mistakes



Make data-led decisions



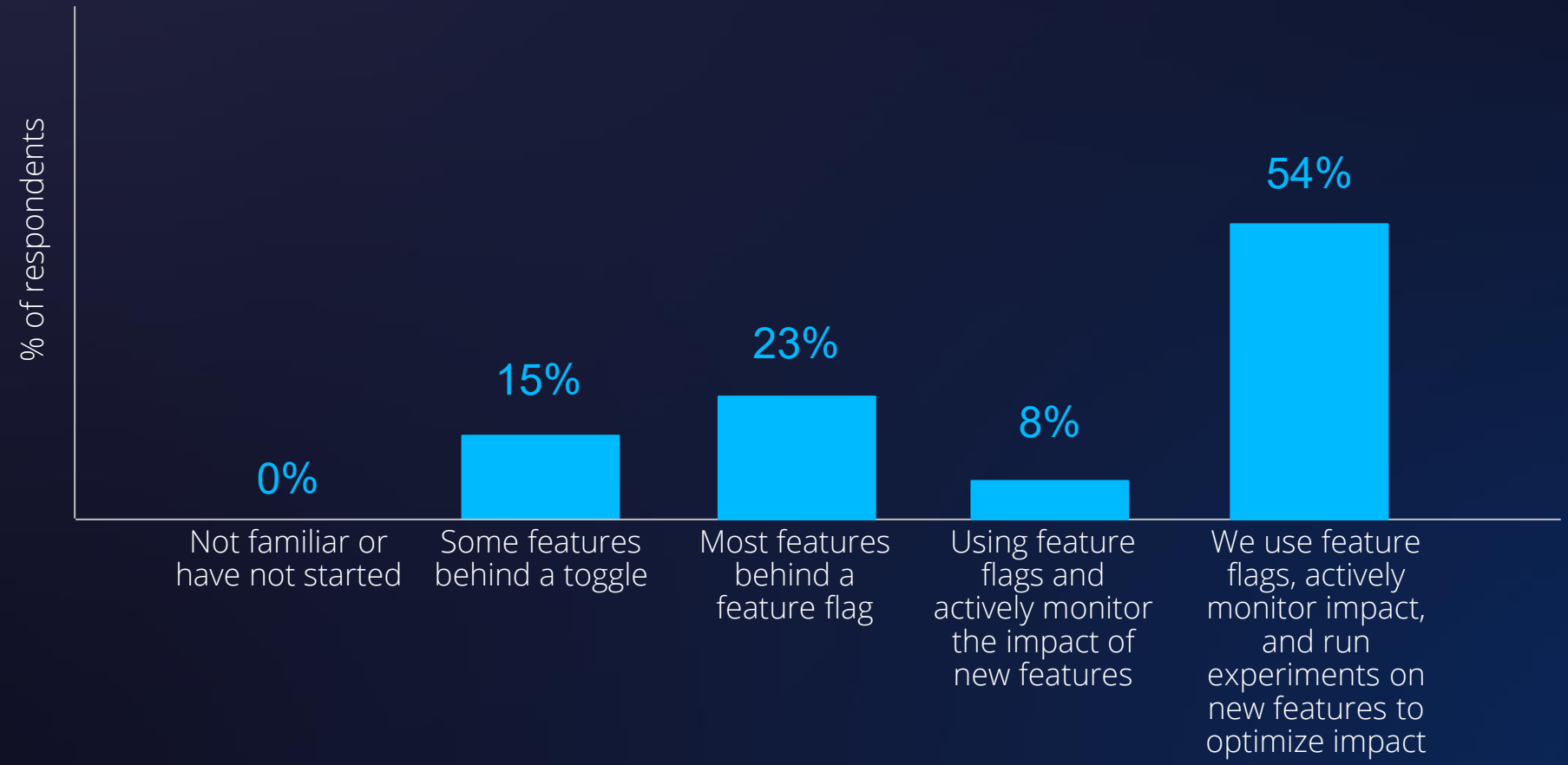
Collaborate and get feedback

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Each of us are at a different stage

Important to understand and explore best practices and use cases to move between across stages



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Source: Split Customer Survey, 2022

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Monitoring impact and reducing risks with Feature Flags + Data

Achieving zero-downtime migrations

We use Feature Flags + Data to Mirror Traffic and/or run Tap Compare Tests while monitoring for unintended consequences to help us safely migrate from one implementation to another with zero downtime.

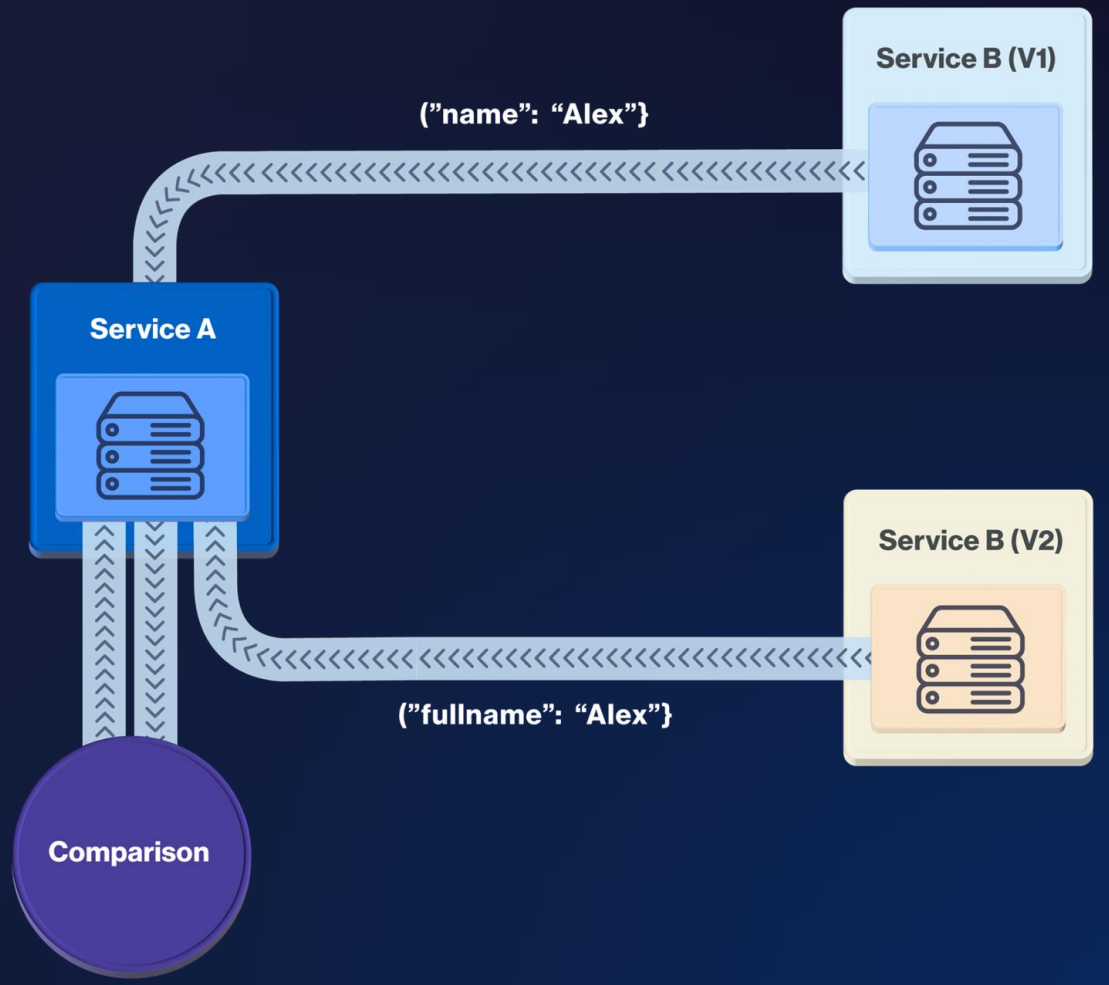
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What is a Tap Compare Testing?

"Tap compare" is a testing technique that allows you to test the behavior and performance of the new service by comparing its results against the old service.

- *Tap Compare Testing with Diferencia and Java Microservices, InfoQ*



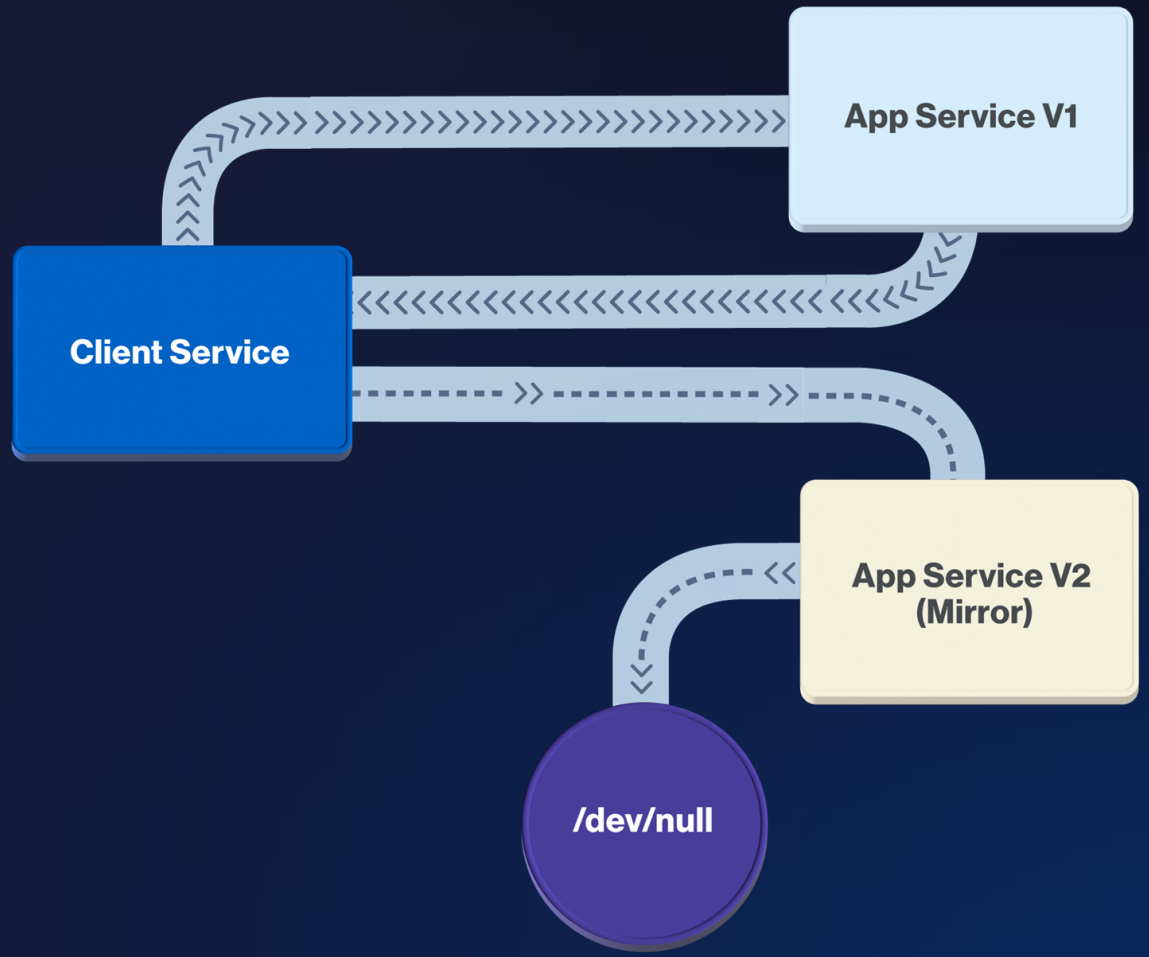
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What is Traffic Mirroring?

"Traffic mirroring" is when you deploy a new dark version of an application and copy traffic to it that the current live version is receiving. The traffic is sent in a "fire and forget" fashion, with the responses from the mirrored instance being ignored.

You can then observe and monitor the dark version for errors without impacting the live version.



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Amazon Kinesis to Kafka Migration

Goals & Strategy

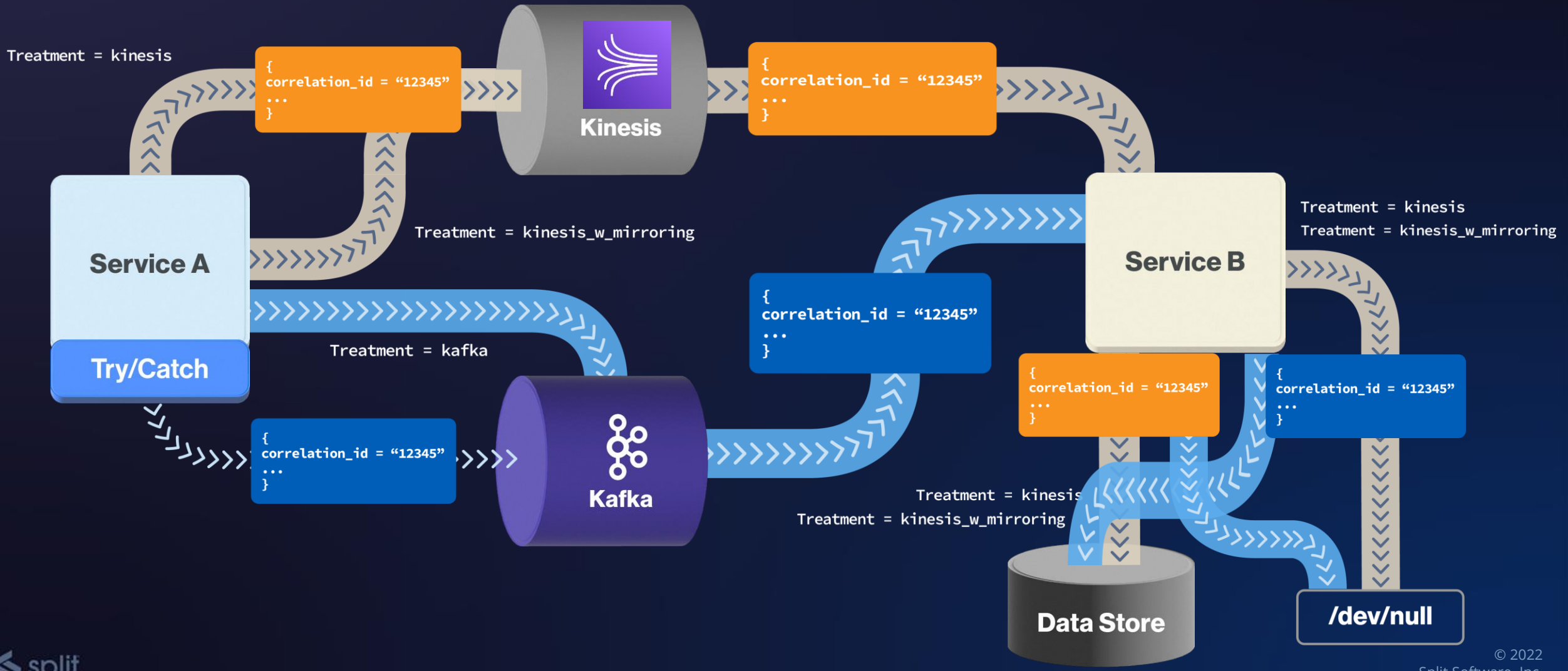
- Why: Reduce overall costs for our data pipelines
- Constraints:
  - Zero lost events
  - No increase in latency
  - No decrease in throughput

Strategy: Traffic Mirroring

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Kinesis to Kafka Migration

Traffic mirroring with Feature Flags

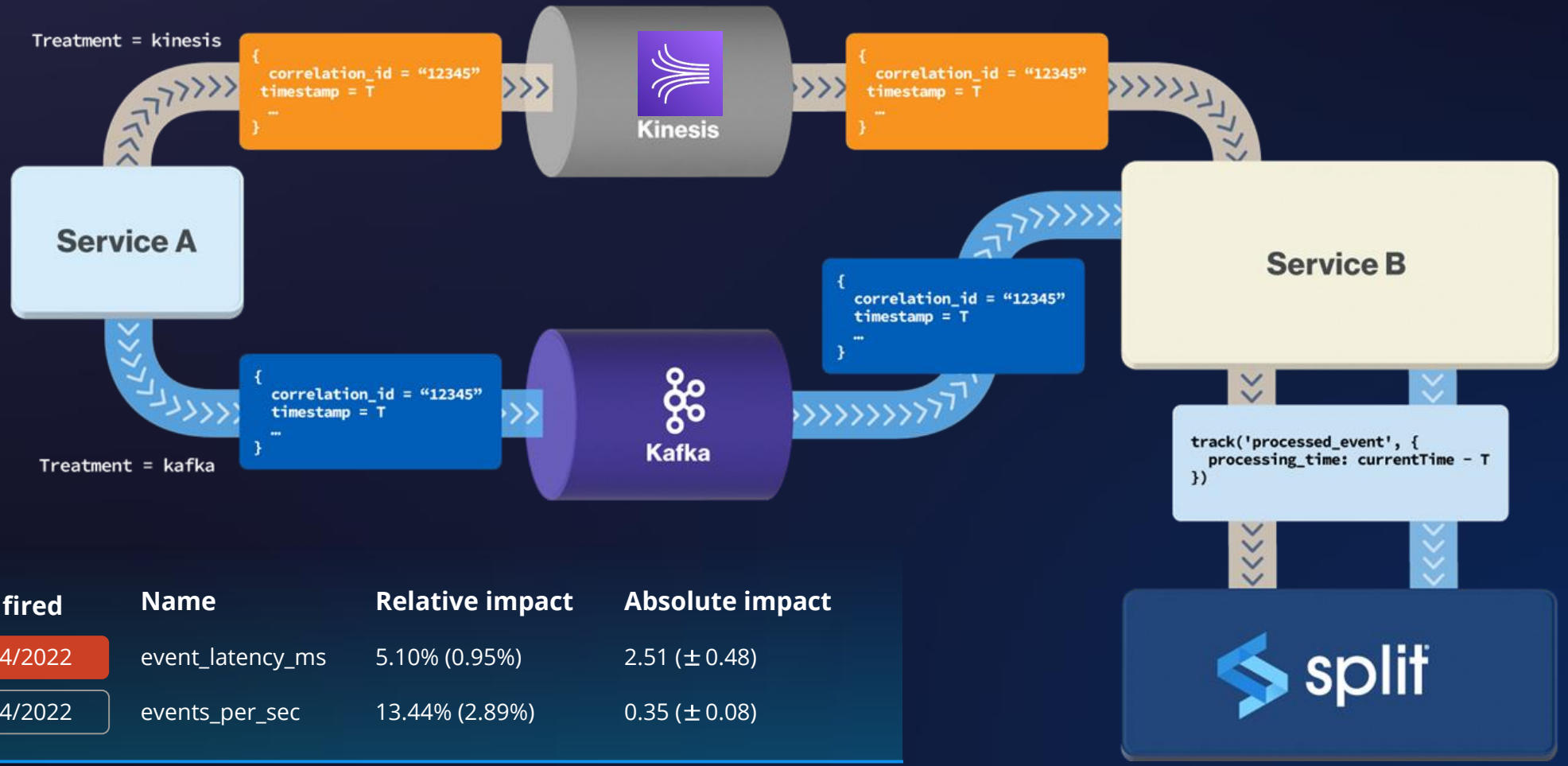


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Kinesis to Kafka Migration

The power of Feature Flags + Data



Alert fired	Name	Relative impact	Absolute impact
08/24/2022	event_latency_ms	5.10% (0.95%)	2.51 (± 0.48)
08/24/2022	events_per_sec	13.44% (2.89%)	0.35 (± 0.08)

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Amazon S3 to MongoDB Migration

Goals & Strategy

- Why: Support more complex queries
- Constraints:
  - Zero data loss
  - Reduce latency
  - Increase write throughput

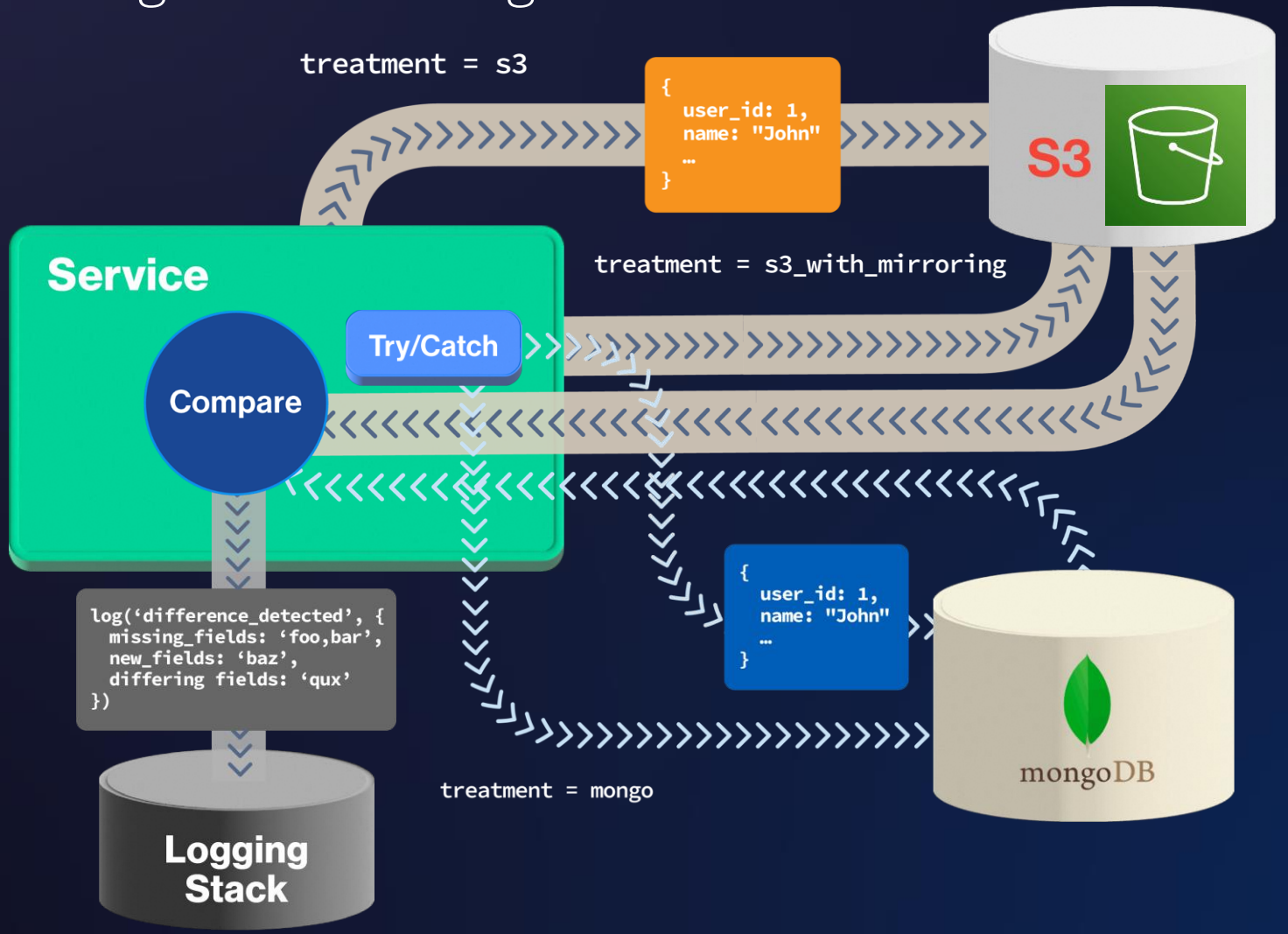
Strategy: Tap Compare via Traffic Mirroring

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Amazon S3 to MongoDB Migration

Tap compare testing with mirroring

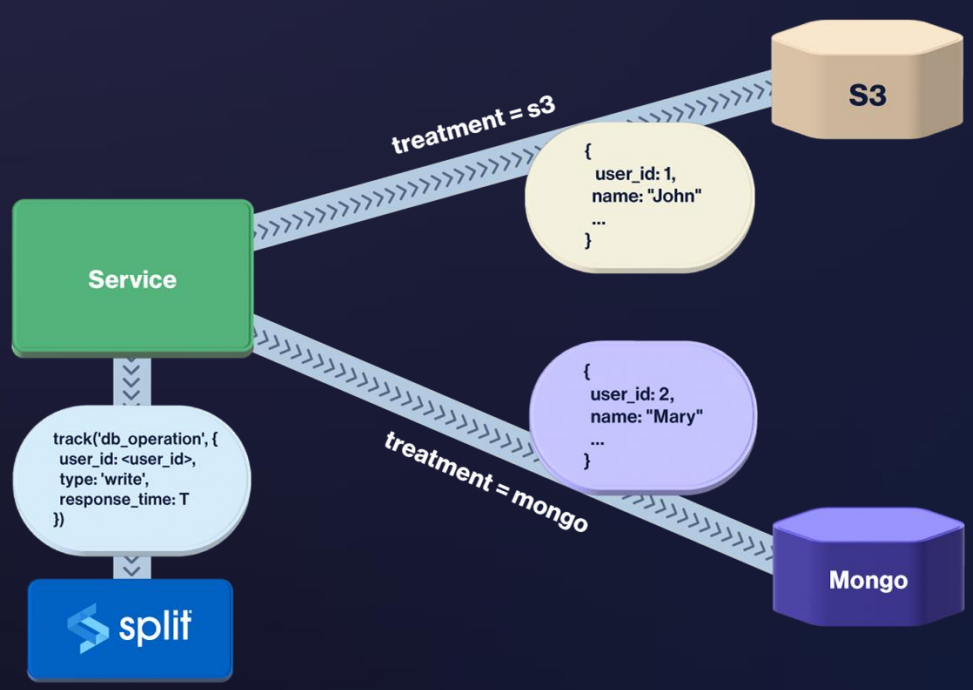


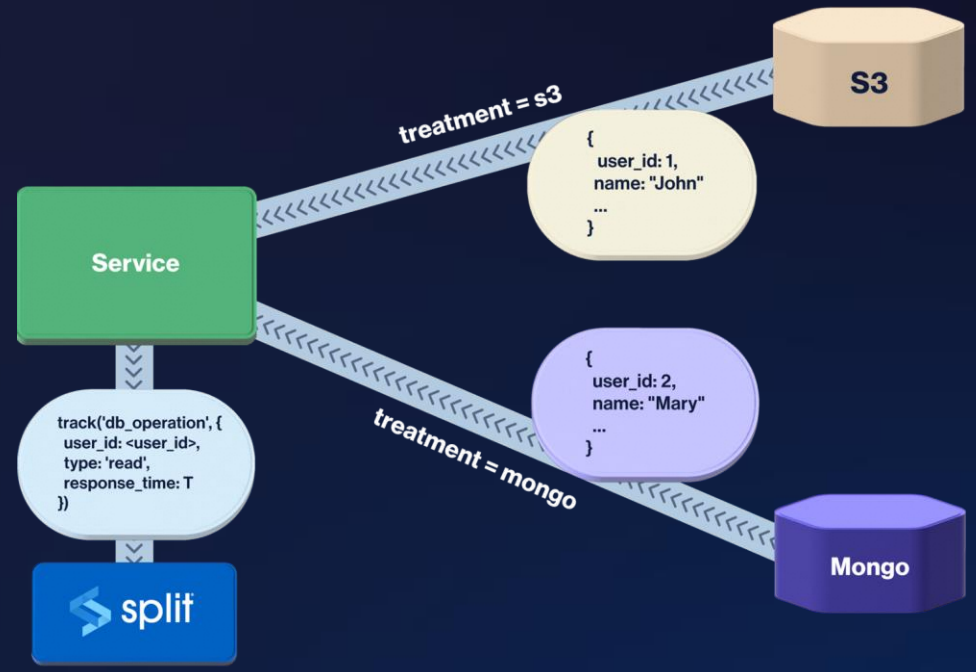
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Amazon S3 to MongoDB Migration

Measuring impact on latency and throughput





DB Operations per minute **DESIRED**

↑ **20.27%**

Impact lies between 15.86% and 24.32%

Read latency UNDESIRED

↑ **19.74%**

Impact lies between 16.36% and-23.12%

Write latency **DESIRED**

↓ **95.19%**

Impact lies between -100.00% and -24.19%

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Thank you!

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