Canary Deployments with Flagger, Linkerd and SMI

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Agenda


Service Mesh Overview


Deploying the Linkerd Service Mesh

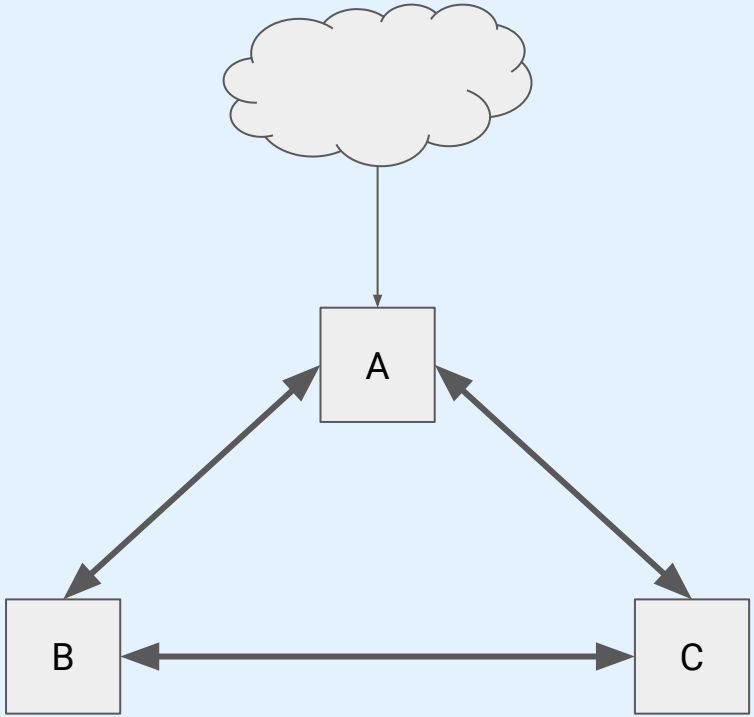

SMI and Flagger

Splitting Traffic

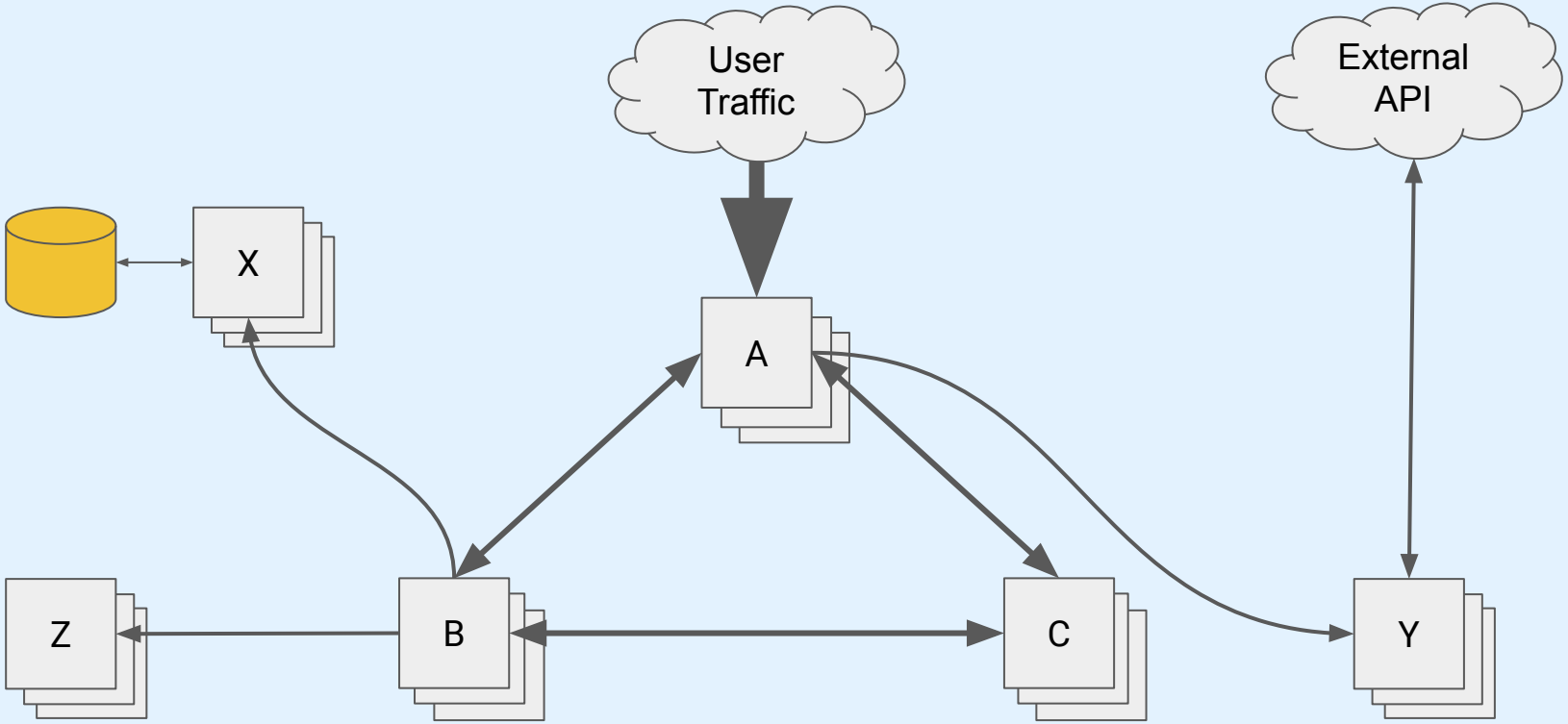
Questions/Discussion

Service Mesh Overview

What's a service mesh?



Service Mesh: The basics



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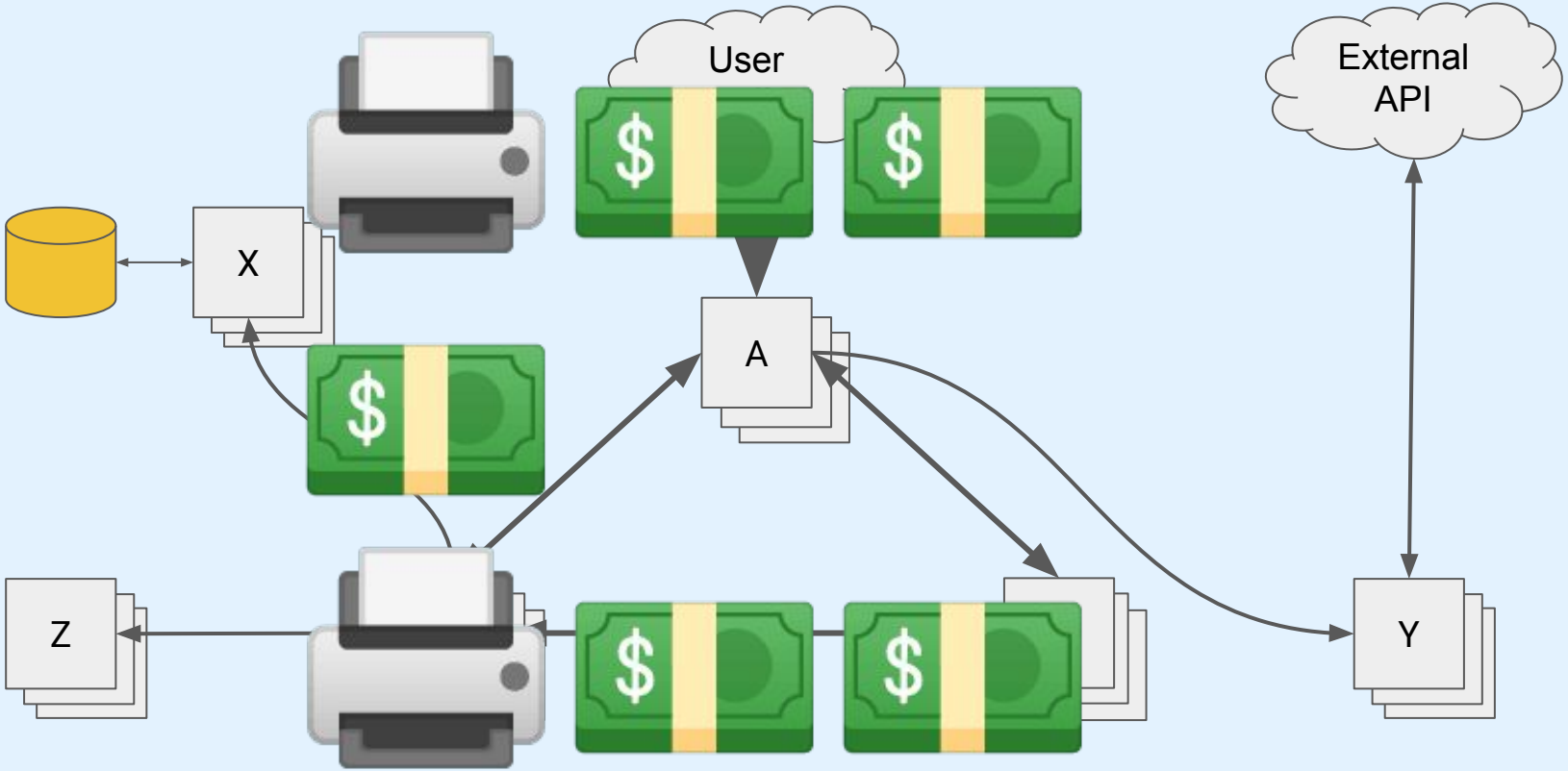

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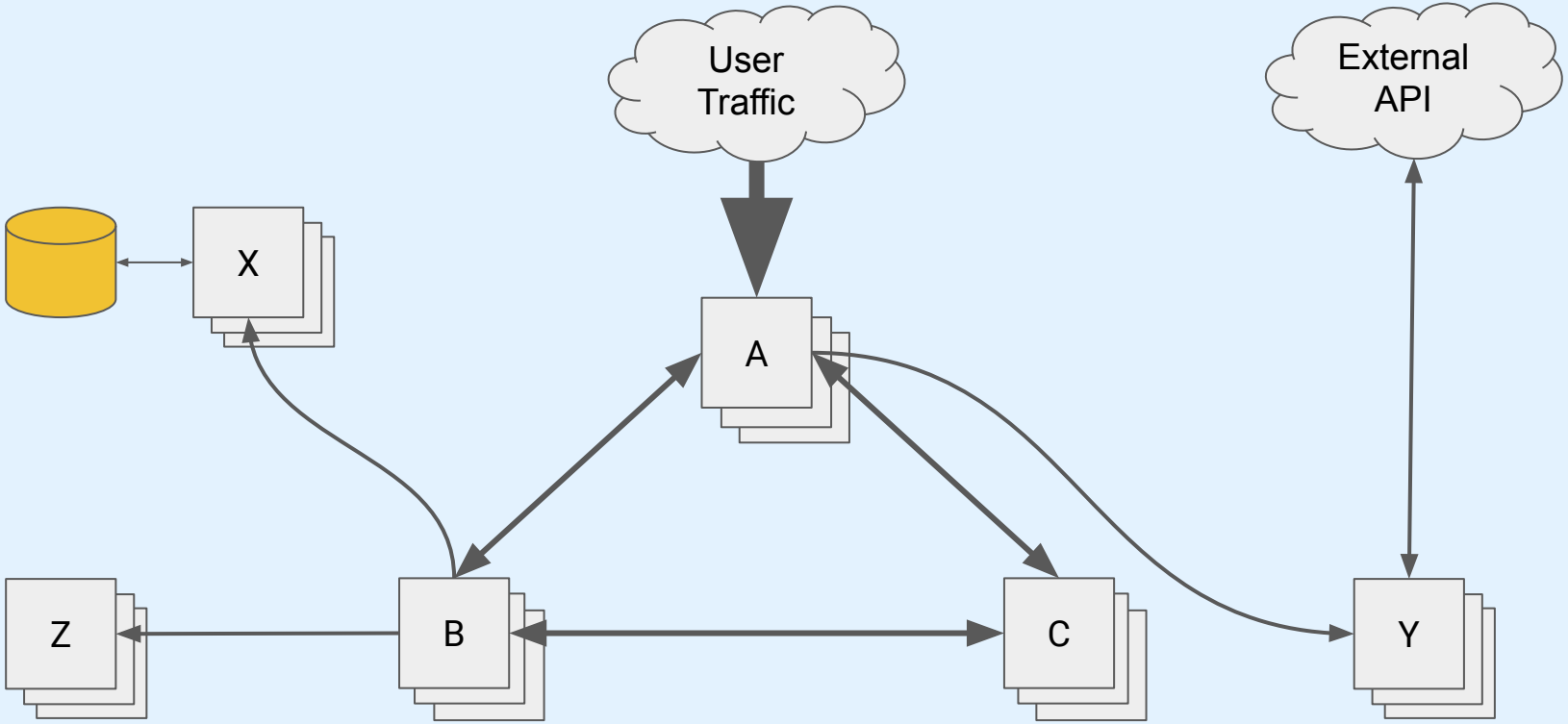

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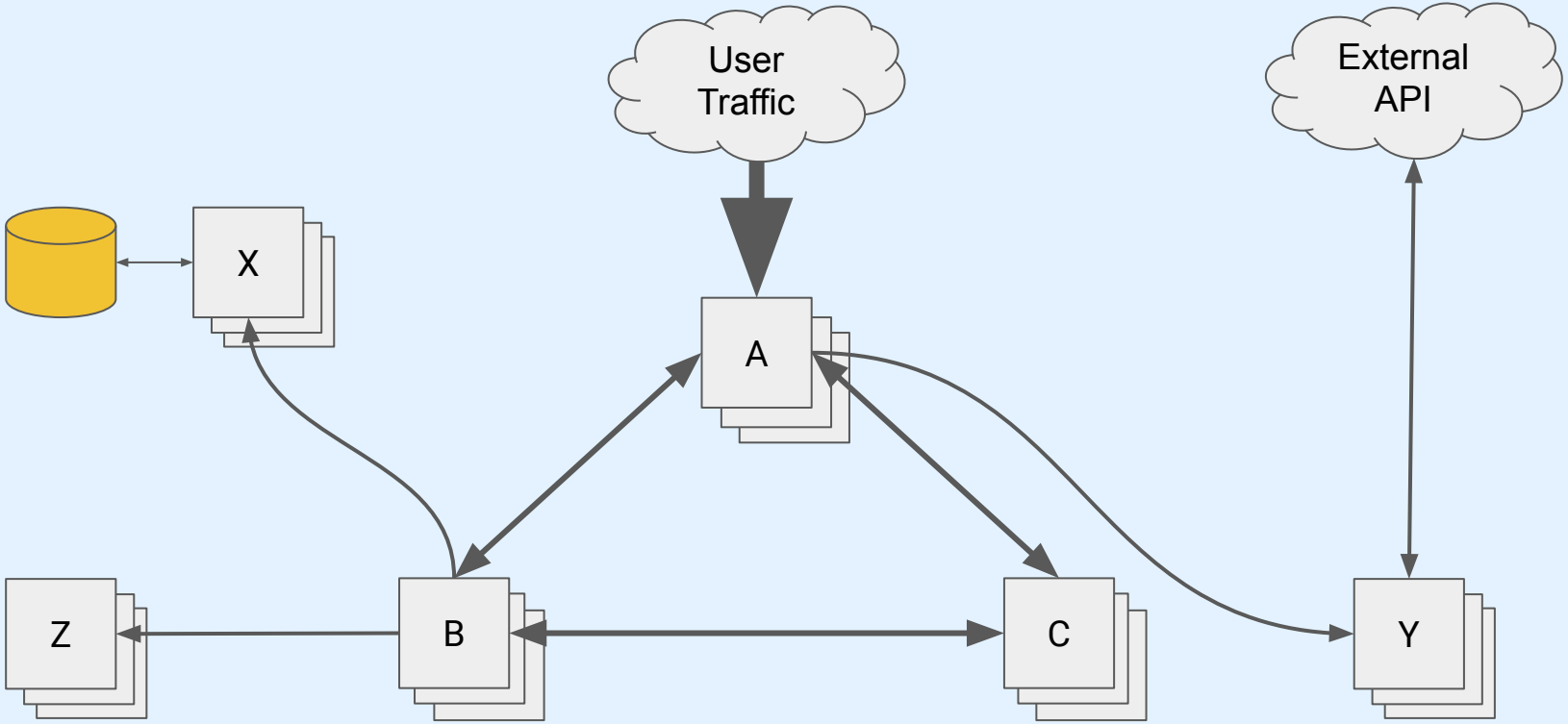

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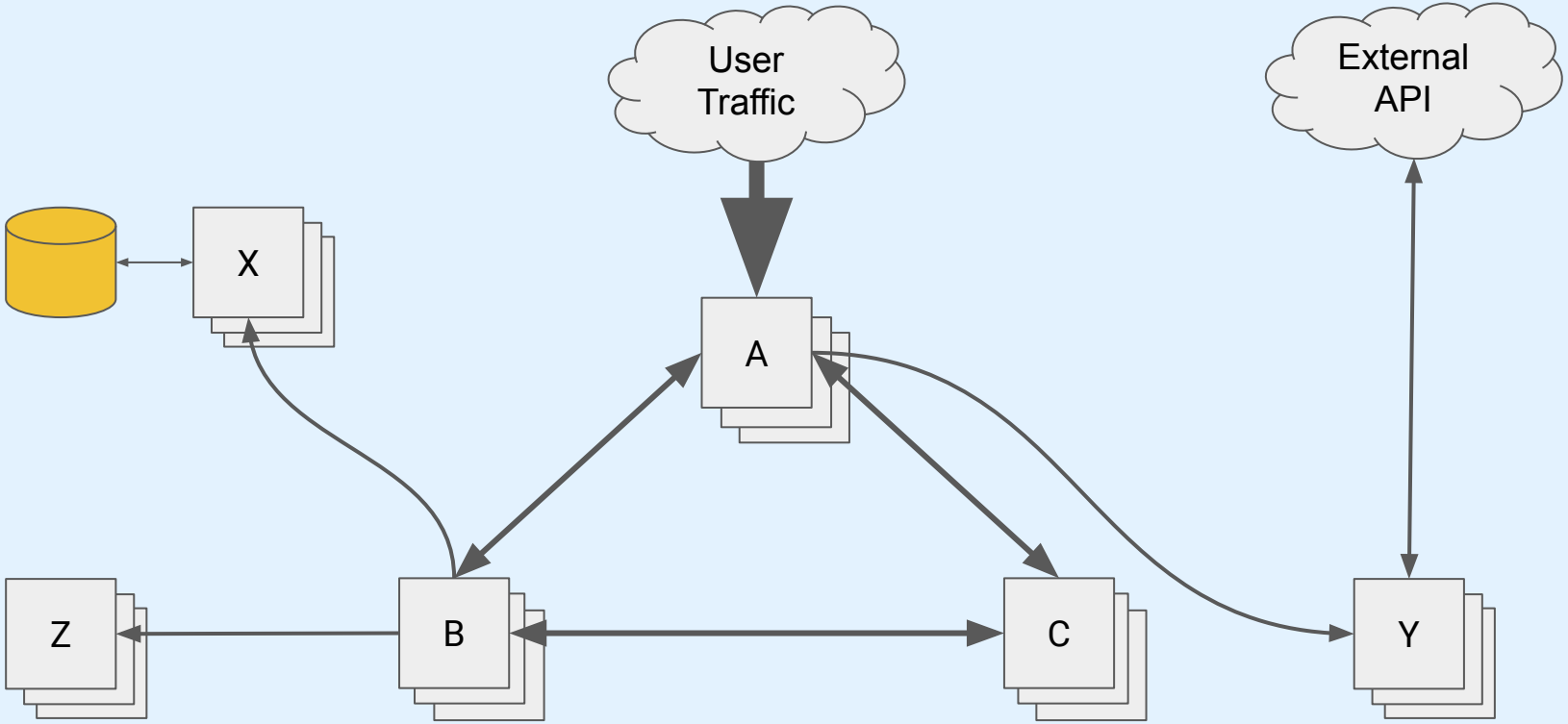

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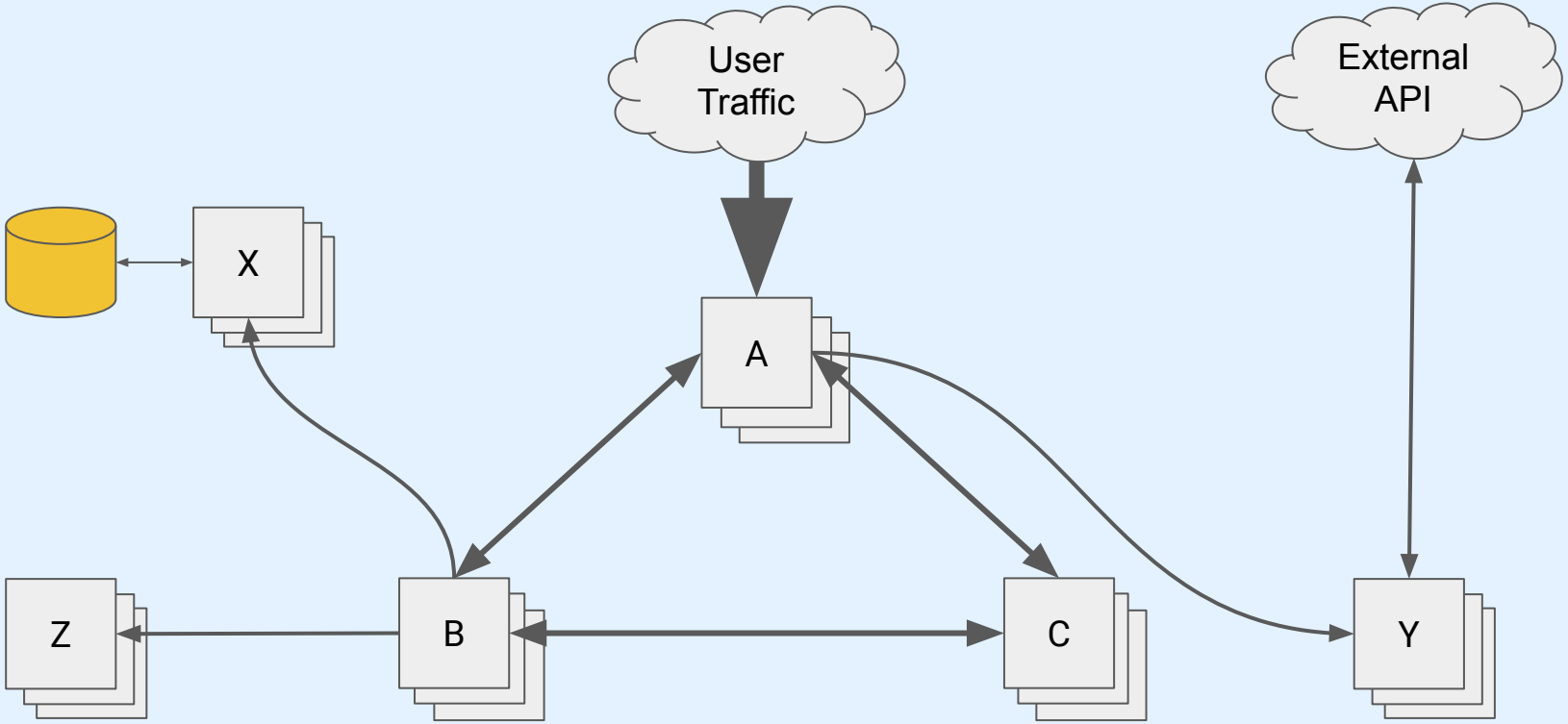
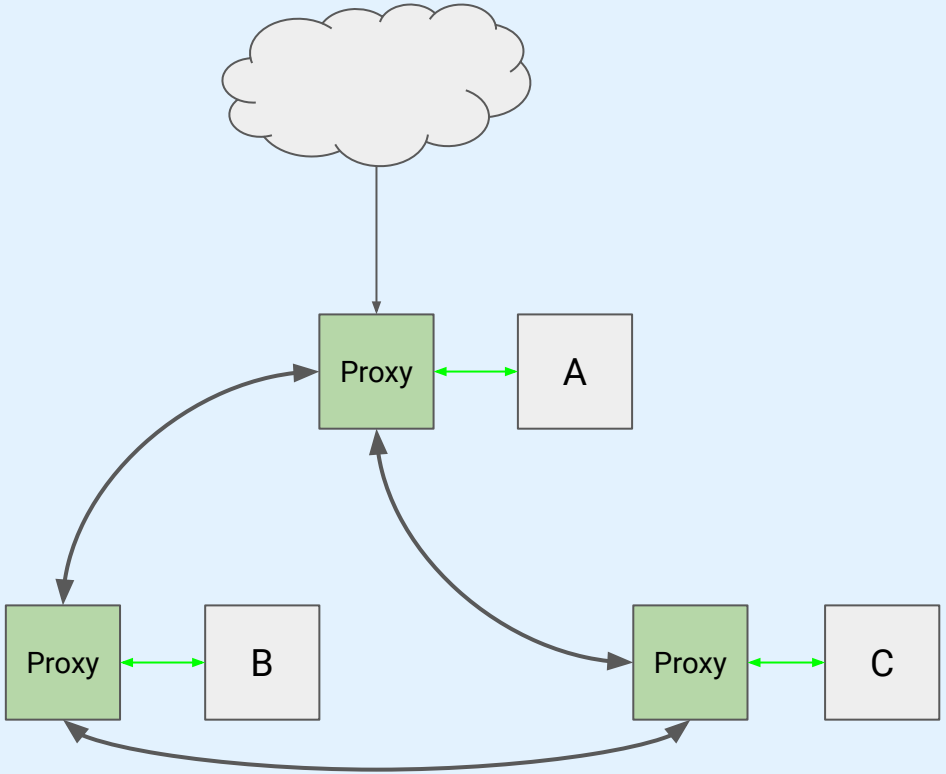
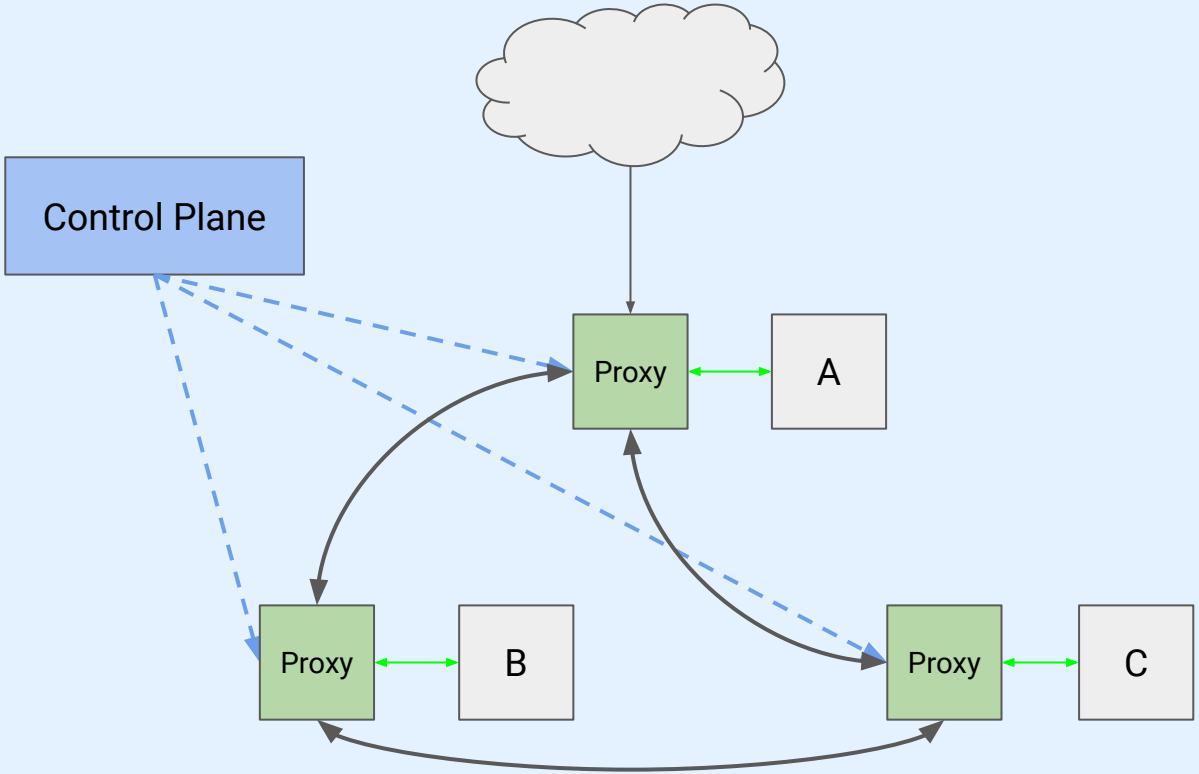


Service Mesh: Data Plane



Service Mesh: Control Plane



Linkerd

- Observability: Collecting actionable traffic metrics
- Security: Encrypting traffic between services
- Reliability: Ensuring services are available
- Traffic Management: Routing traffic to services

Linkerd: Observability

- Rich traffic metrics: "Golden Metrics"
  - Request rate, Success rate, latency
  - Across many dimensions
- Request inspection
- Distributed Tracing

Linkerd: Security

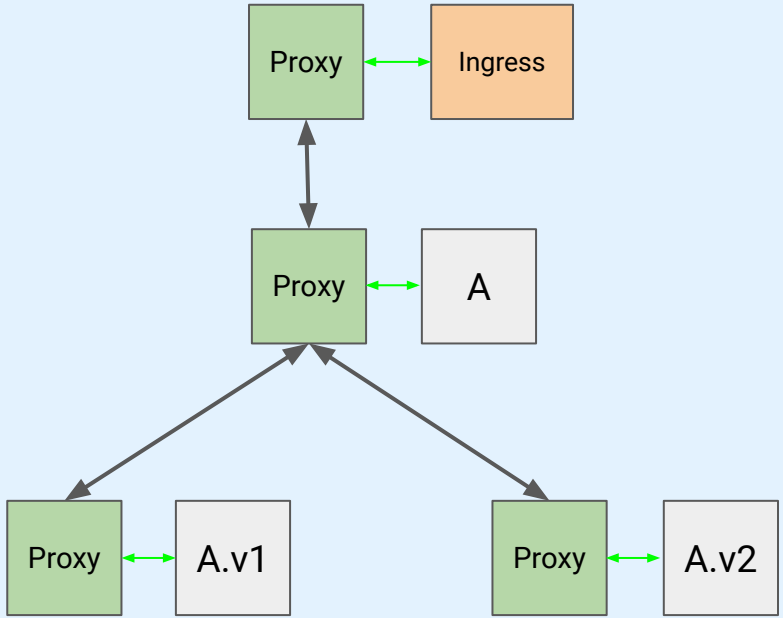
- Cryptographic identity
  - mTLS between services
  - On by default
  - Transparent

Linkerd: Reliability

- Latency aware load balancing
- Retries
- Timeouts

Linkerd: Traffic Management

- Traffic Split
  - Introduced in 2.4.0
  - Enables canary and blue/green deployments



Installing Linkerd

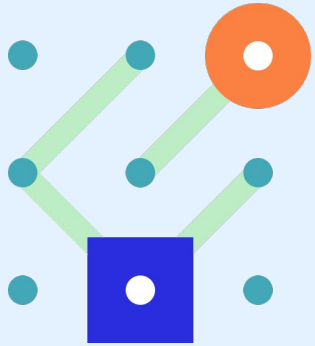
Service Mesh Interface (SMI)

Service Mesh Interface

Announced in May 2019, Service Mesh Interface (SMI) is a specification for service meshes that run on Kubernetes. It defines a common standard that can be implemented by a variety of providers.

Service Mesh Interface provides:

- A standard interface for meshes on Kubernetes
- A basic feature set for the most common mesh use cases
- Flexibility to support new mesh capabilities over time
- Space for the ecosystem to innovate with mesh technology



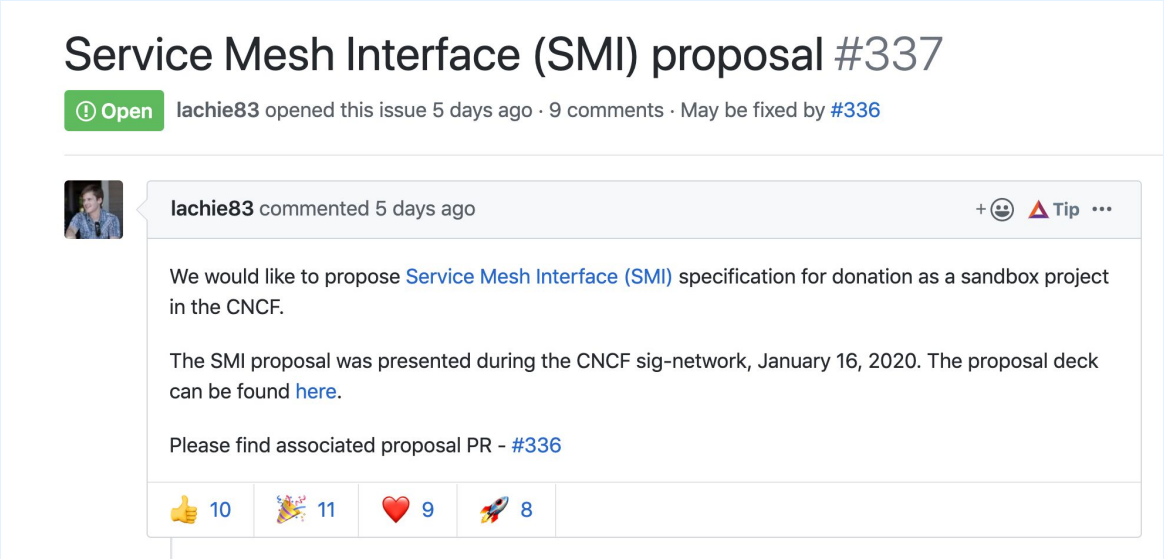
Service Mesh Interface Concepts

Initial specifications for the top three service mesh features covering the most common service mesh capabilities:

- **Traffic policy** – apply policies like identity and transport encryption across services
- **Traffic telemetry** – capture key metrics like error rate and latency between services
- **Traffic management** – shift and weight traffic between different services

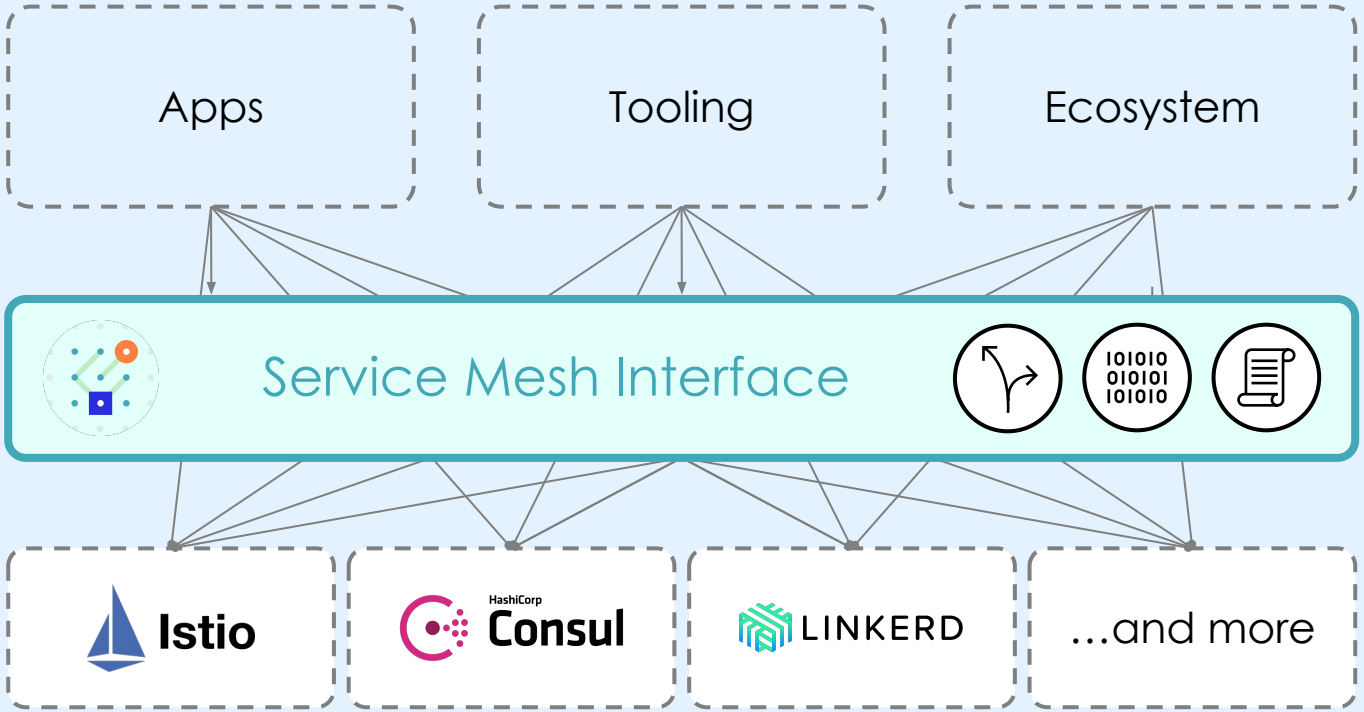
SMI: CNCF Donation

A proposal has been made to donate the Service Mesh Interface specification to the CNCF sandbox!



https://github.com/cncf/toc/issues/337

Service Mesh Interface



Flagger

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Kubernetes Operator that automates the promotion of canary deployments using service mesh routing functionality based on Prometheus metrics

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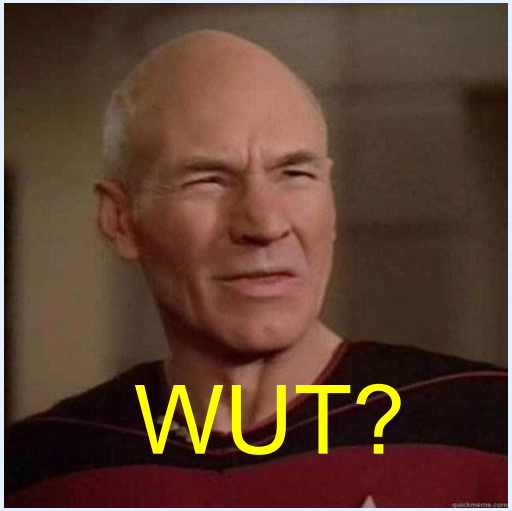
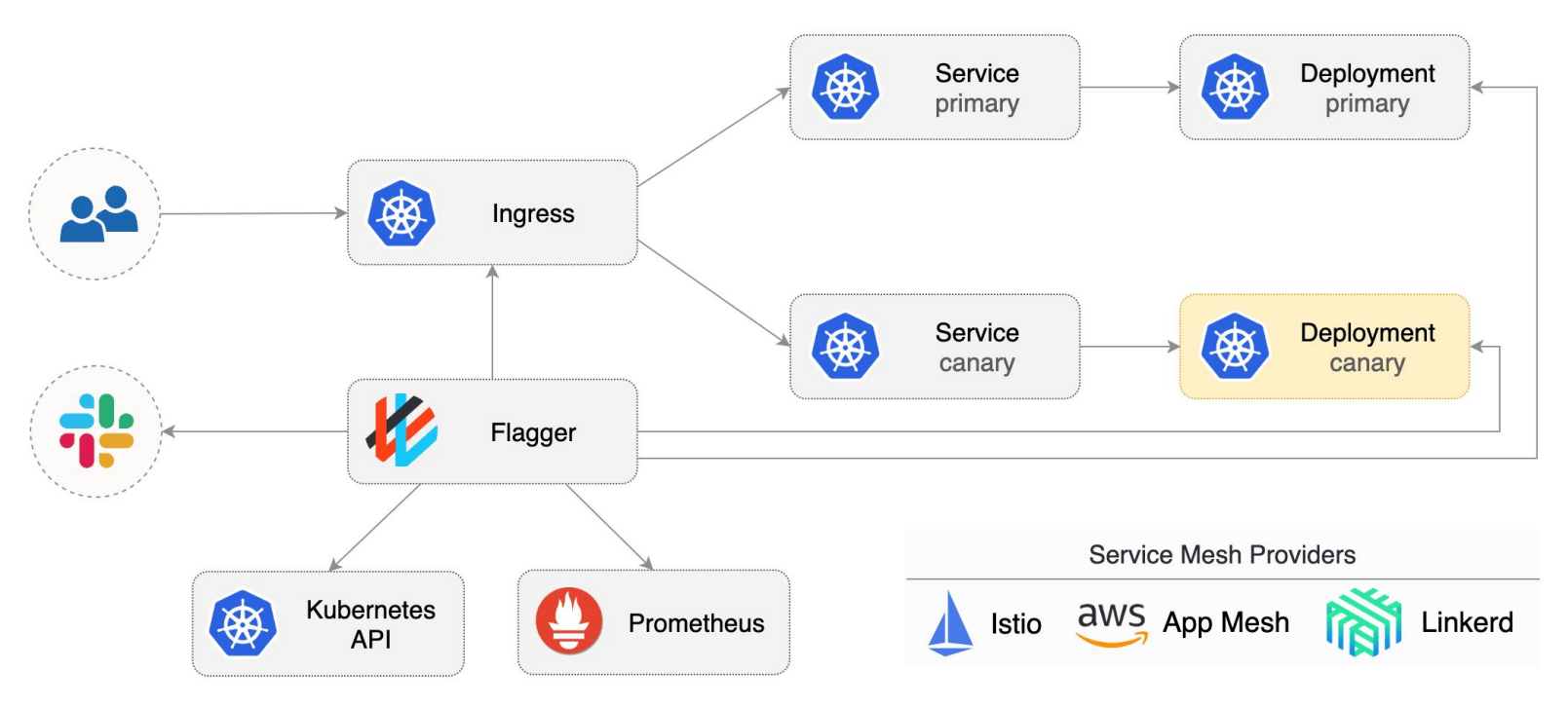


Flagger Architecture



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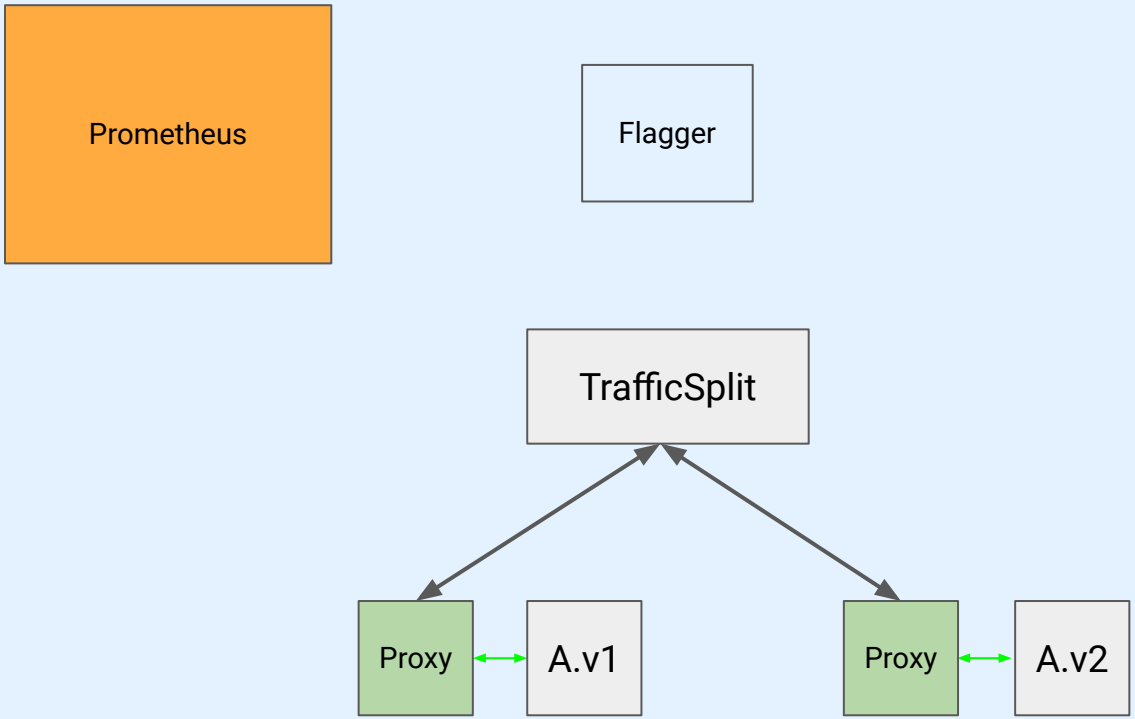

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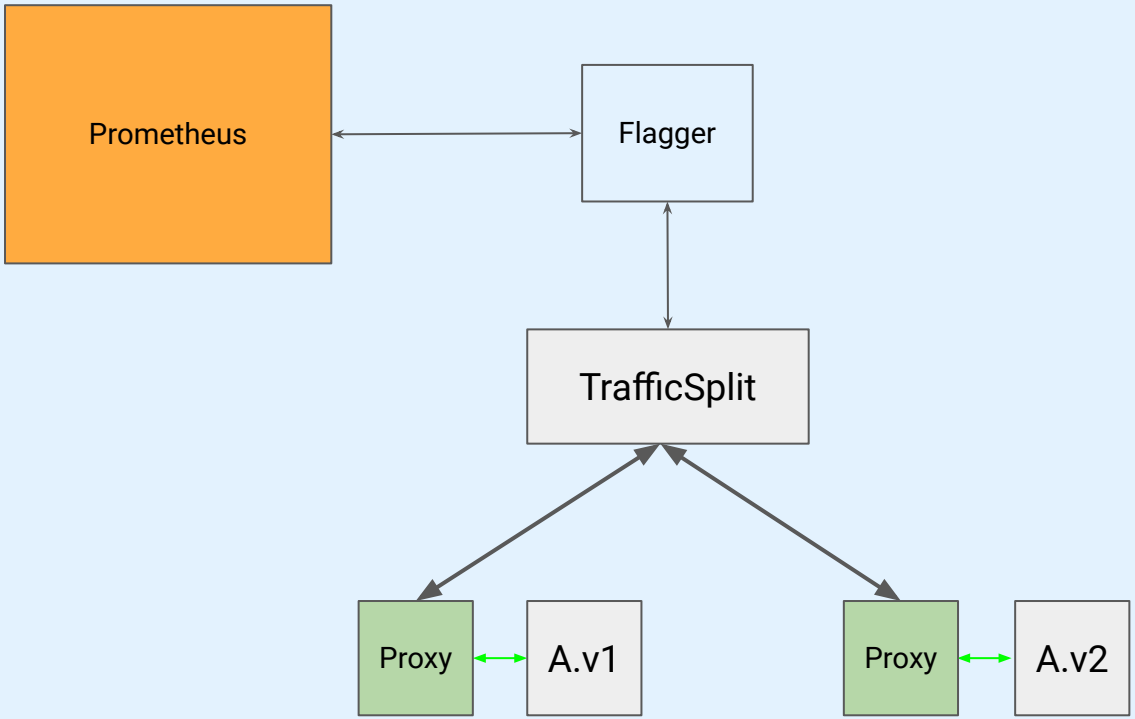

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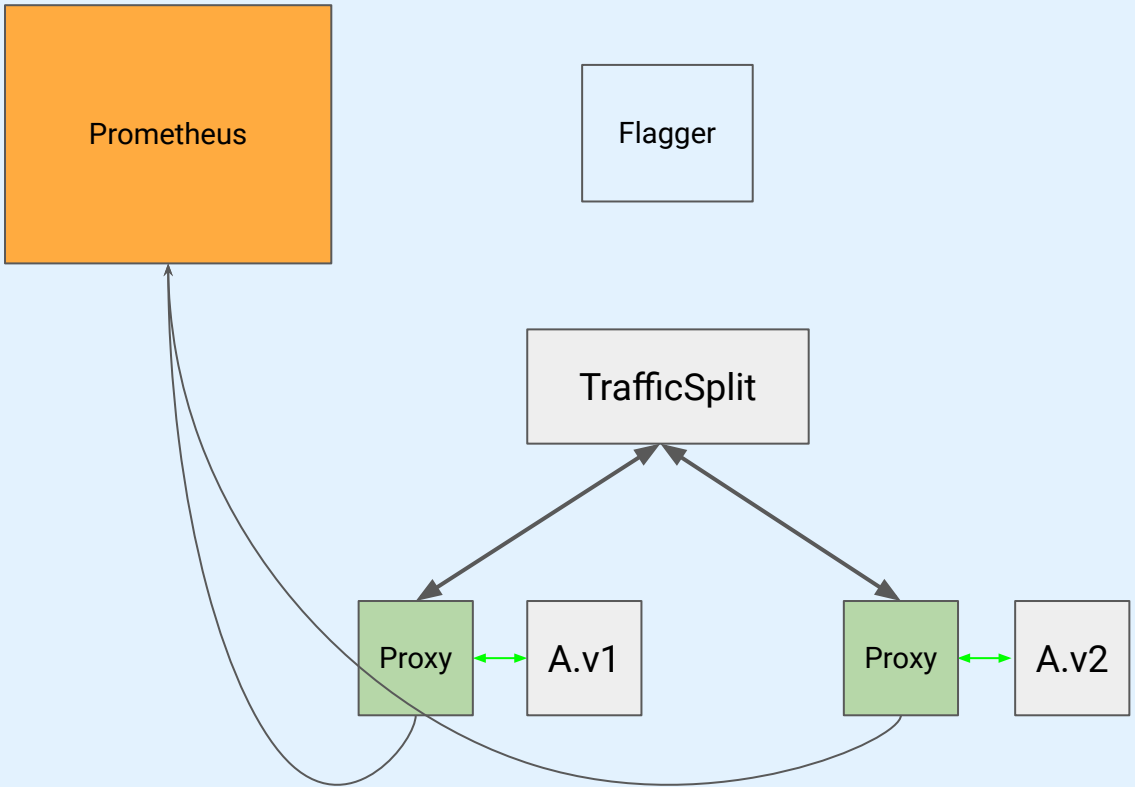

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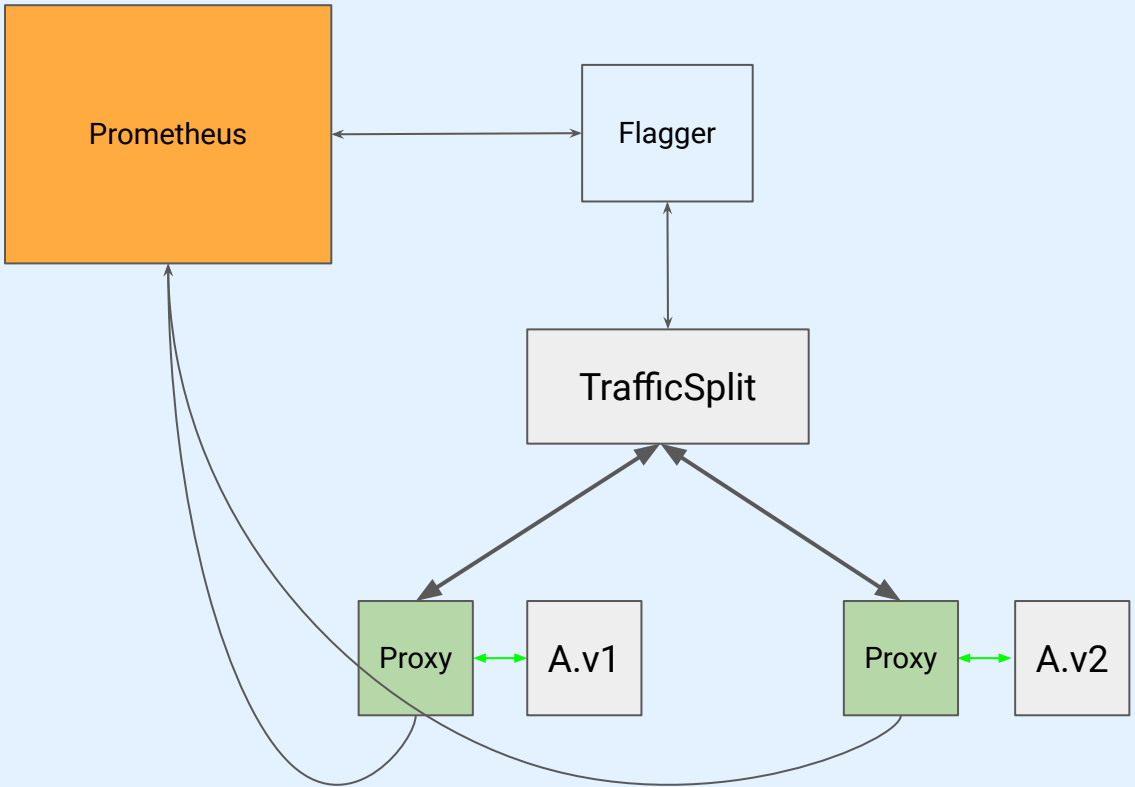

Canary Deployment Demo

Join our community!

github.com/linkerd

slack.linkerd.io

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FROM YOUR FRIENDS AT