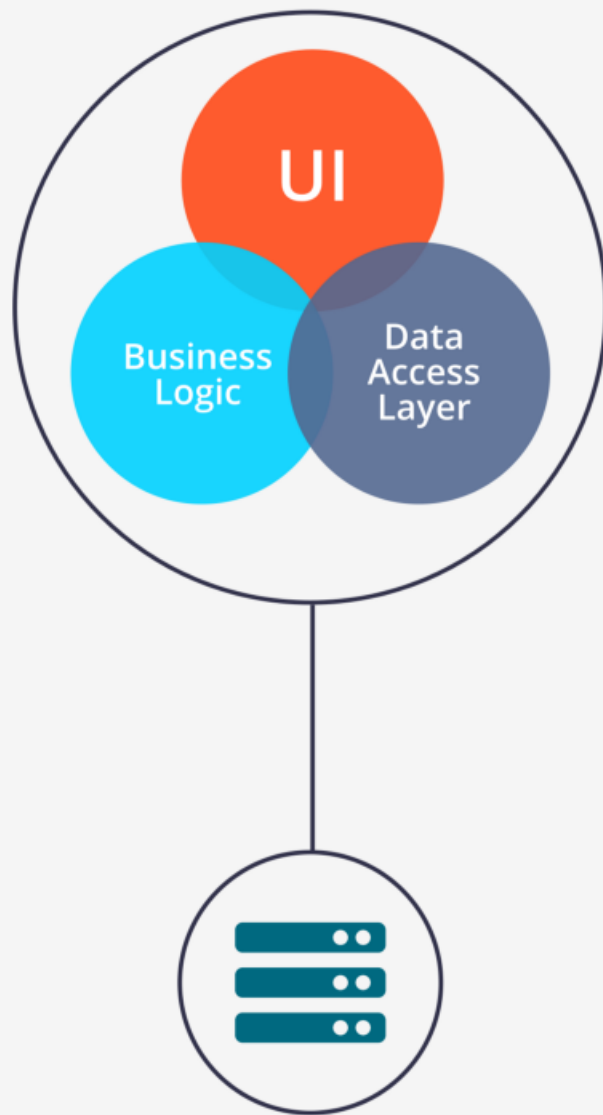# ISTIO

NILESH PATEL (SENIOR OFFERING MANAGER)
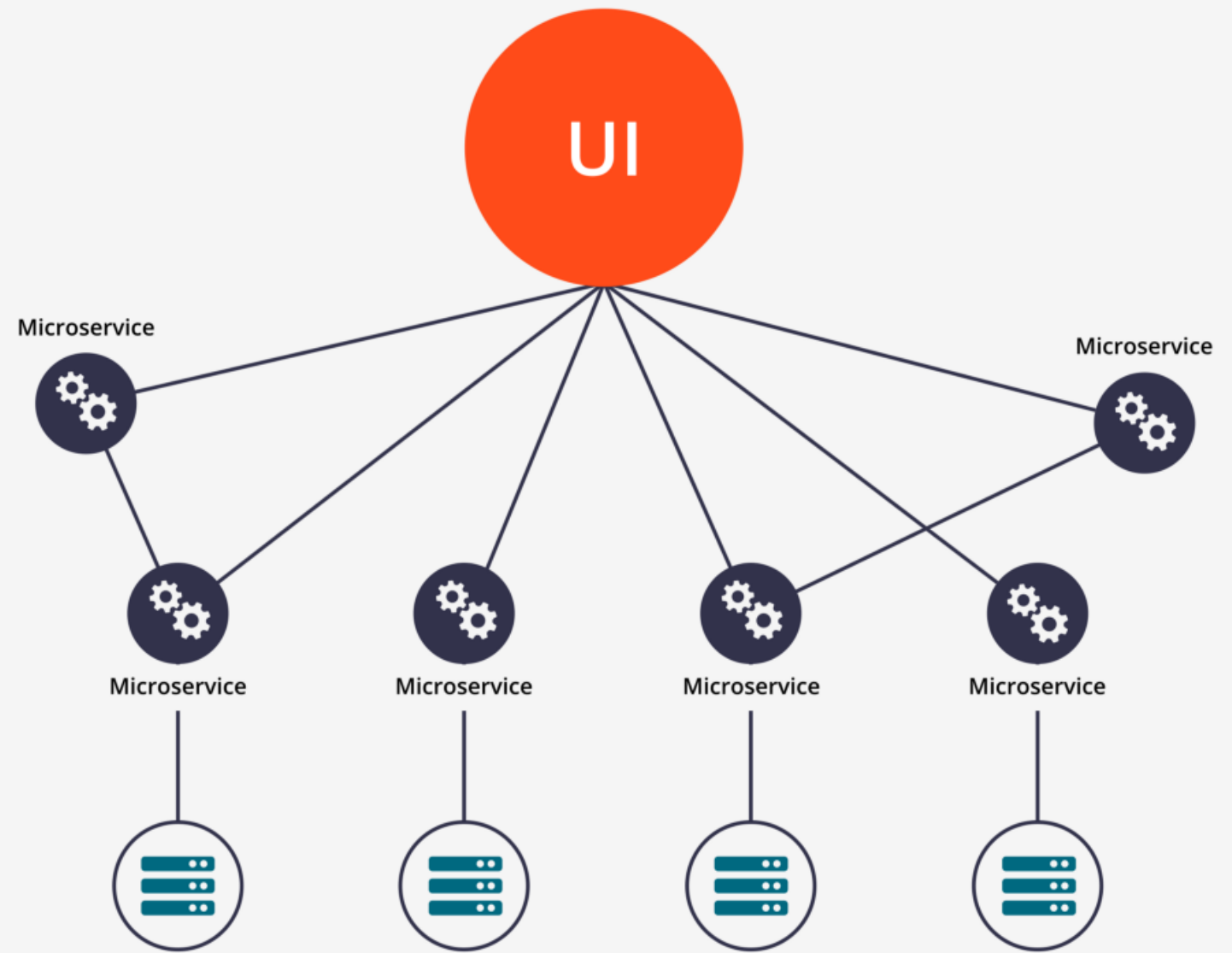
MICROSERVICES

▸ Decomposing an application into single function modules which are independently deployed and operated

▸ Accelerate delivery by minimizing communication and coordination between people

ARCHITECTURE

UI

Business Logic

Data Access Layer

Monolithic Architecture

UI

Microservice

Microservice

Microservice

Microservice

Microservice

Microservice

Microservice Architecture

THE TRADE OFF

Improved delivery velocity in exchange for increased operational complexity

Hailo microservices

MICROSERVICES ARE HARD

▸ Applications aren't running in green-field environments

▸ Network layer is hard to manage

▸ Tooling is nascent

THINGS TO CONSIDER

- Security

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- Canary deployments

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- A/B testing

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- Circuit breaking

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- Rate limiting

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- A/B testing

- Circuit breaking

- Rate limiting

- Fault injection

THINGS TO CONSIDER

- Security

- Canary deployments

- A/B testing

- Circuit breaking

- Rate limiting

- Fault injection

- Policy management

THINGS TO CONSIDER

- Security
- Canary deployments
- A/B testing
- Circuit breaking
- Rate limiting
- Fault injection
- Policy management
- Many more....

It's doable, but...

It's doable, but…

Requires a lot of coding

Service Mesh

A dedicated infrastructure layer to make service-to-service communication fast, safe and reliable

ISTIO

A service mesh designed to connect, manage and secure micro services

ISTIO

A service mesh designed to connect, manage and secure micro services

Open Source

ISTIO

A service mesh designed to connect, manage and secure micro services
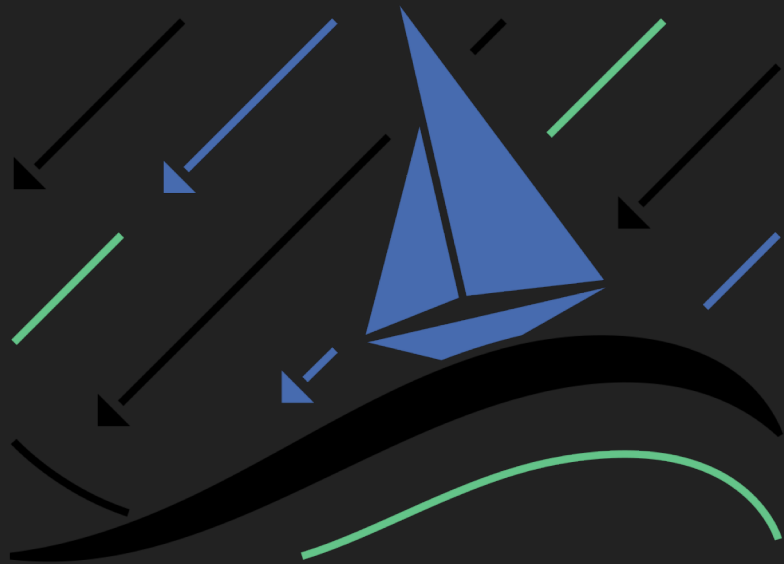
Open Source

Zero Code Changes

FEATURES

INTELLIGENT ROUTING AND LOAD BALANCING
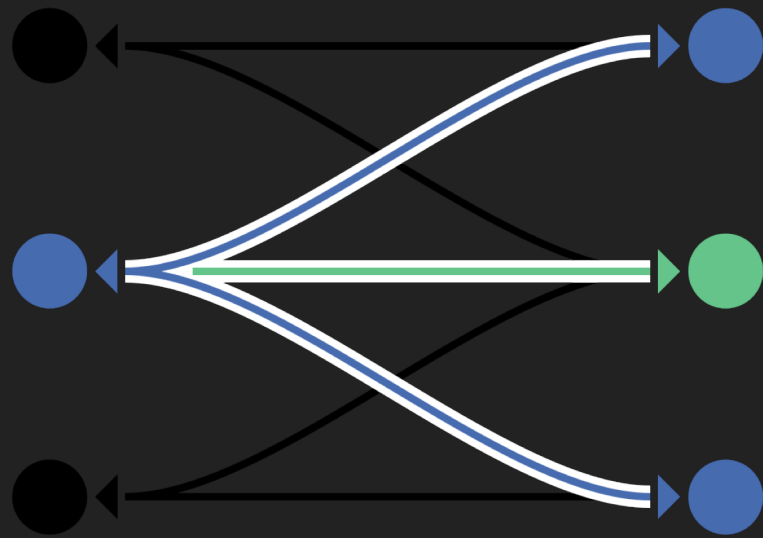
‣ Conduct traffic between services with dynamic route configuration

‣ A/B tests

‣ Canary releases

‣ Red/Black deployments

RESILIENCE ACROSS LANGUAGES AND PLATFORMS

▸ Increase reliability by shielding applications from flaky networks and cascading failures in adverse conditions

FLEET–WIDE POLICY ENFORCEMENT

▸ Apply organizational policy to the interaction between services

▸ Ensure access policies are enforced

▸ Make sure resources are fairly distributed among consumers.

IN-DEPTH TELEMETRY AND REPORTING
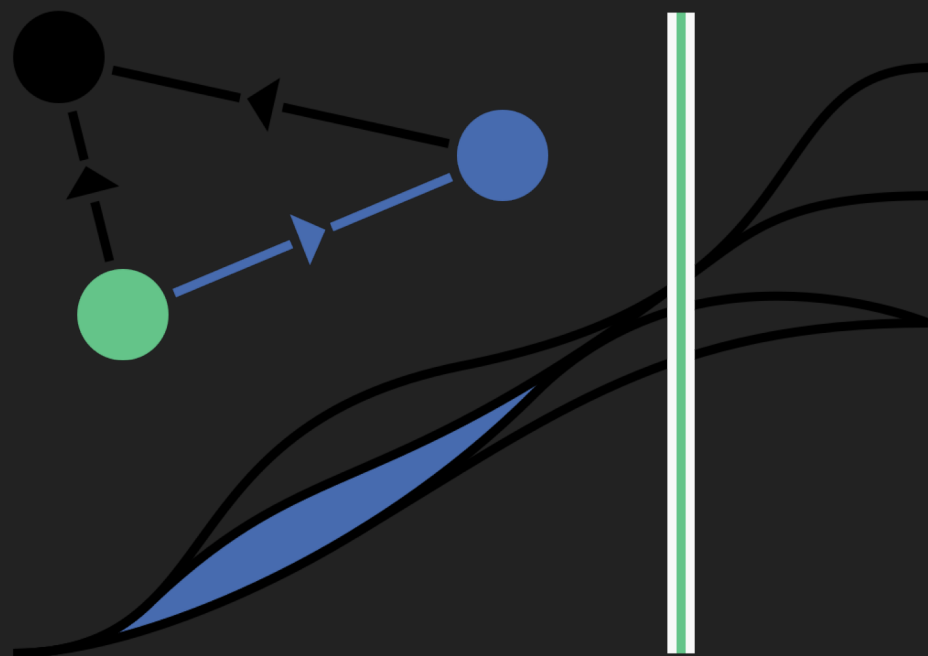
▸ Understand the dependencies between services, the nature and flow of traffic between them, and quickly identify issues with distributed tracing.

ENVOY

- ▸ C++ based L4/L7 proxy
- ▸ Low memory footprint
- ▸ Battle tested at Lyft
  - ▸ Runs with 100+ services
  - ▸ 10K VMs
  - ▸ 2M requests/sec

ARCHITECTURE
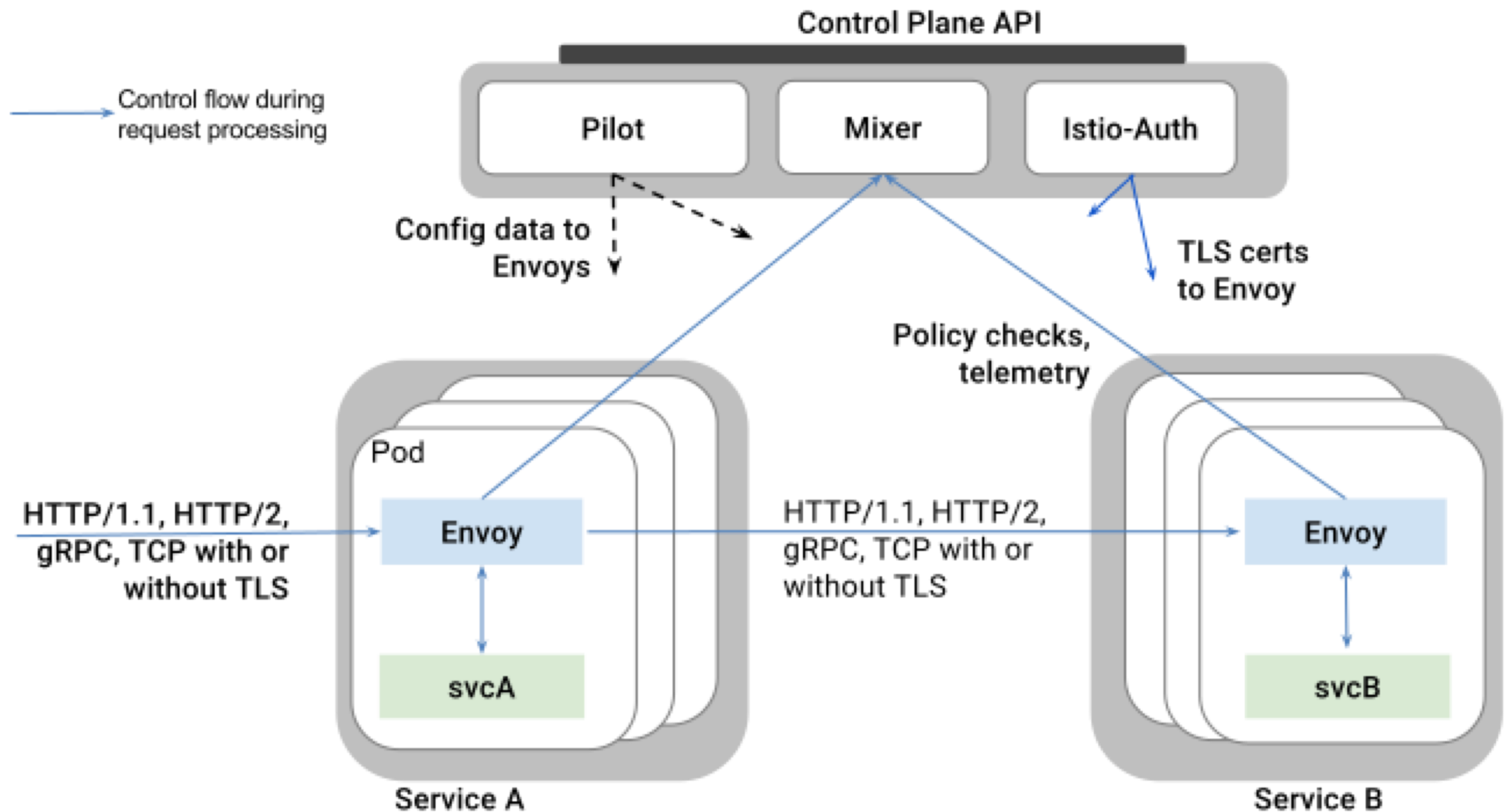
COMMUNITY PARTNERS

▸ Tigera

▸ RedHat

▸ Pivotal

▸ Cisco

▸ Weave works

▸ Datawire

▸ Scytale (SPIFEE)

▸ Microsoft

▸ And more…

CONTACT ME

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Nilesh Patel: pateln@us.ibm.com

USEFUL LINKS

‣ Web istio.io

‣ Twitter: @Istiomesh

‣ Traffic management using Istio: https://ibm.co/2F7xSnf

‣ Resiliency and fault-tolerance using Istio: https://bit.ly/2qStF2B

‣ Reliable application roll out and operations using Istio:
https://bit.ly/2K9IRQX

THANK YOU!

BACK UP

ISTIO ANALYTICS