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Service Mess to Service Mesh

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TRANSFORM









Let's talk about Service Mesh!

- What Is A Service Mesh
- From Monolithic to Microservices
- The Challenge with API Gateways
- Deep Dive into Service Mesh
- Demo
 - Istio
 - Linkerd
- Service Mesh Best Practices

A Service Mesh
manages network traffic between services
in a graceful and scalable way.

Service Mesh is the answer to:

"How do I observe, control, or secure communication between microservices?"

Service Mesh



OBSERVE

monitor network



CONTROL

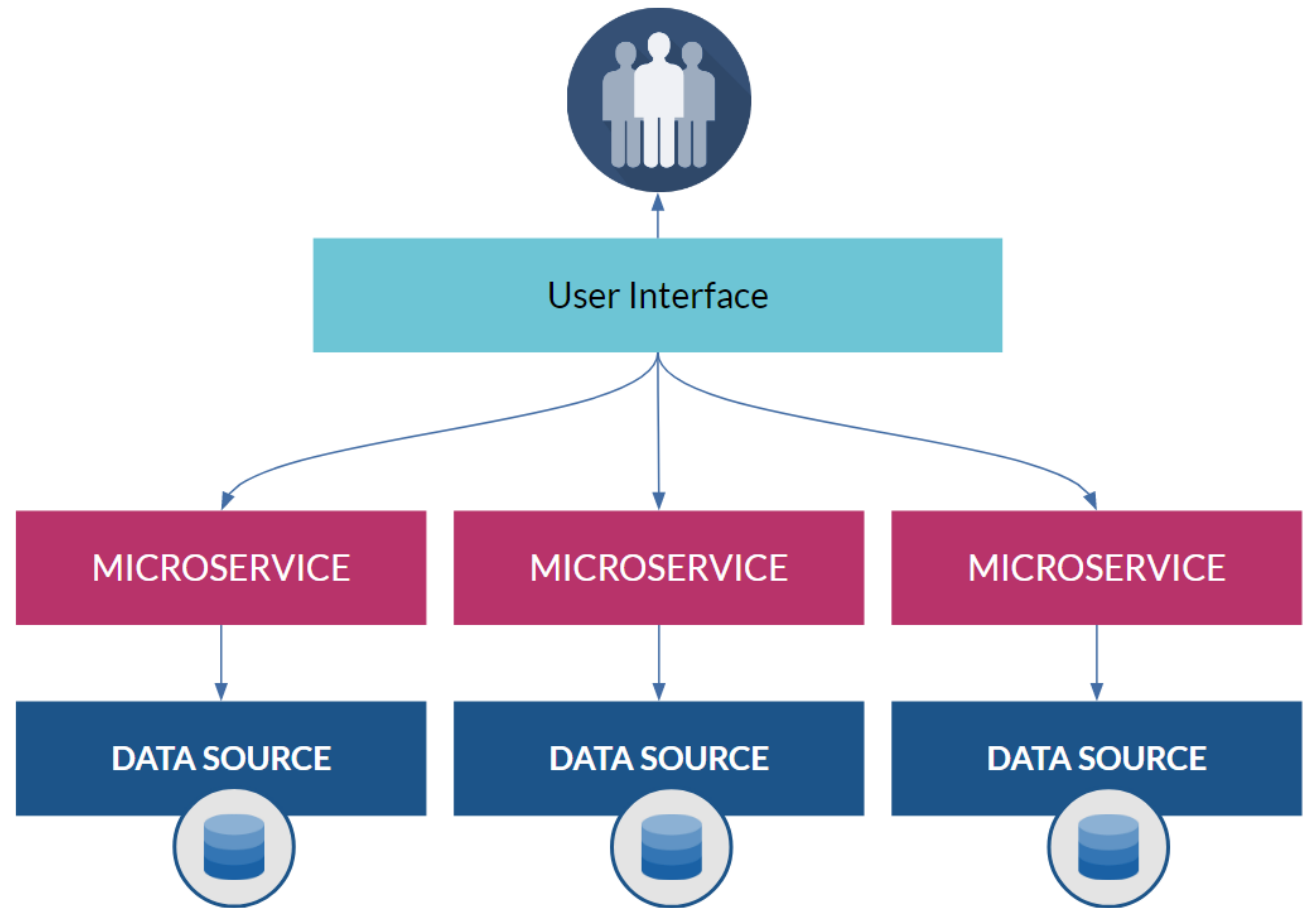
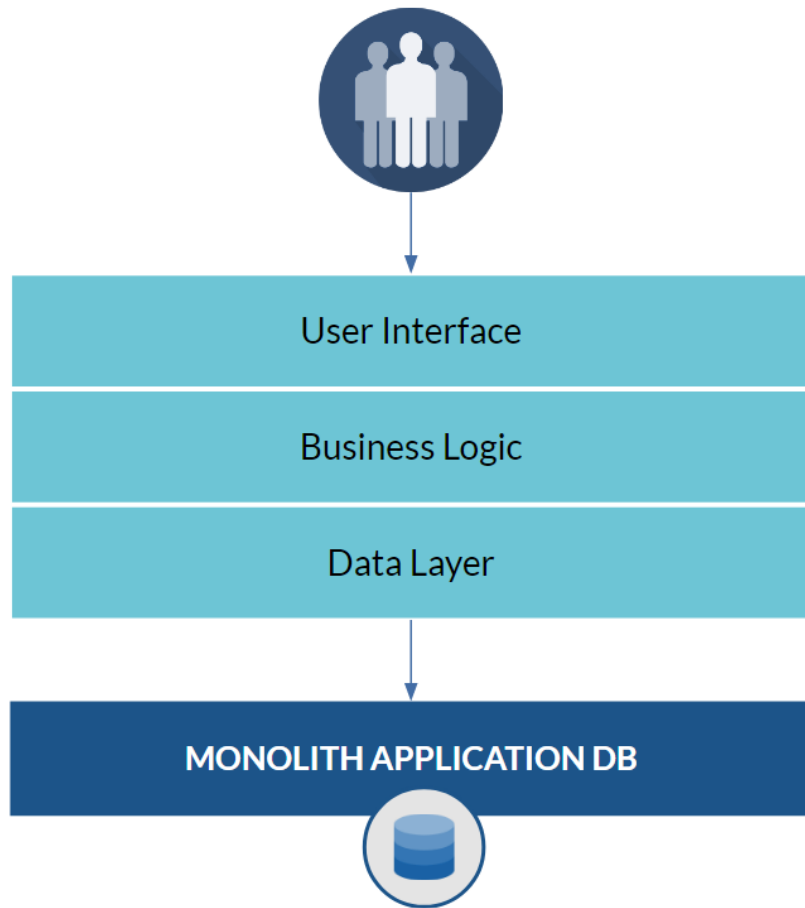
access policies



SECURE

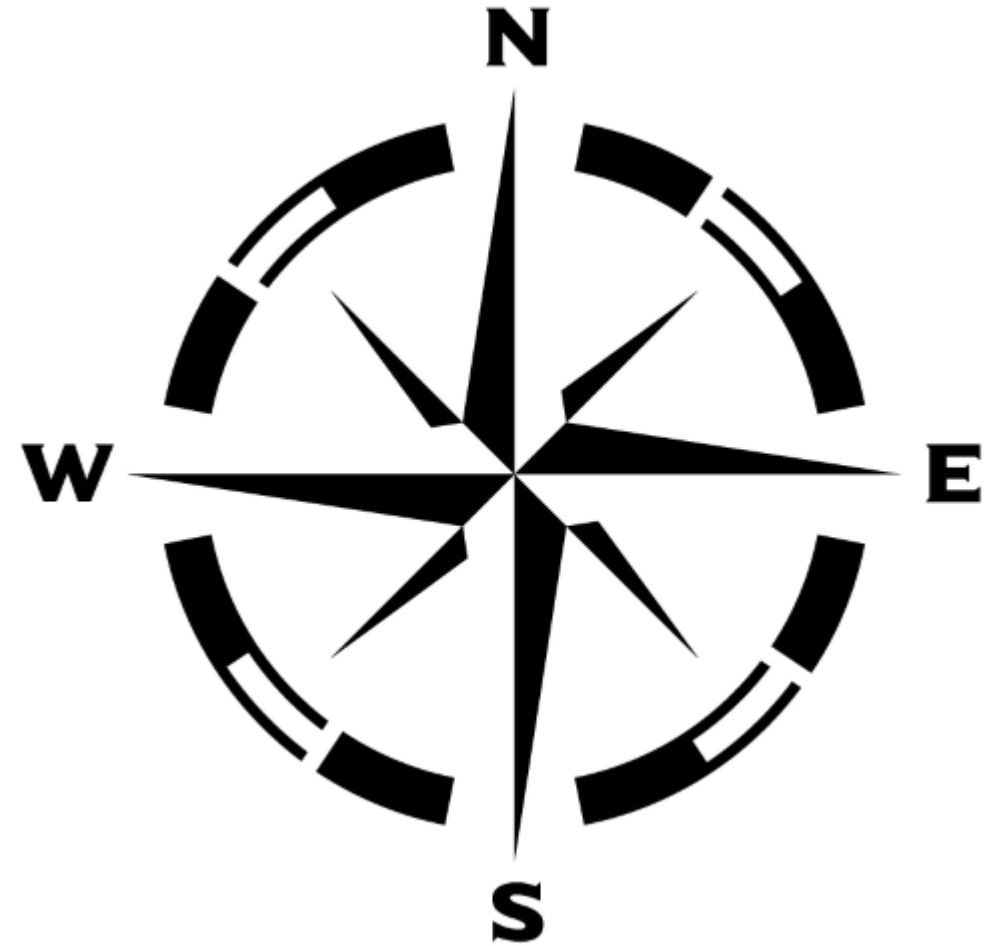
mutual TLS

From Monolithic to Microservices

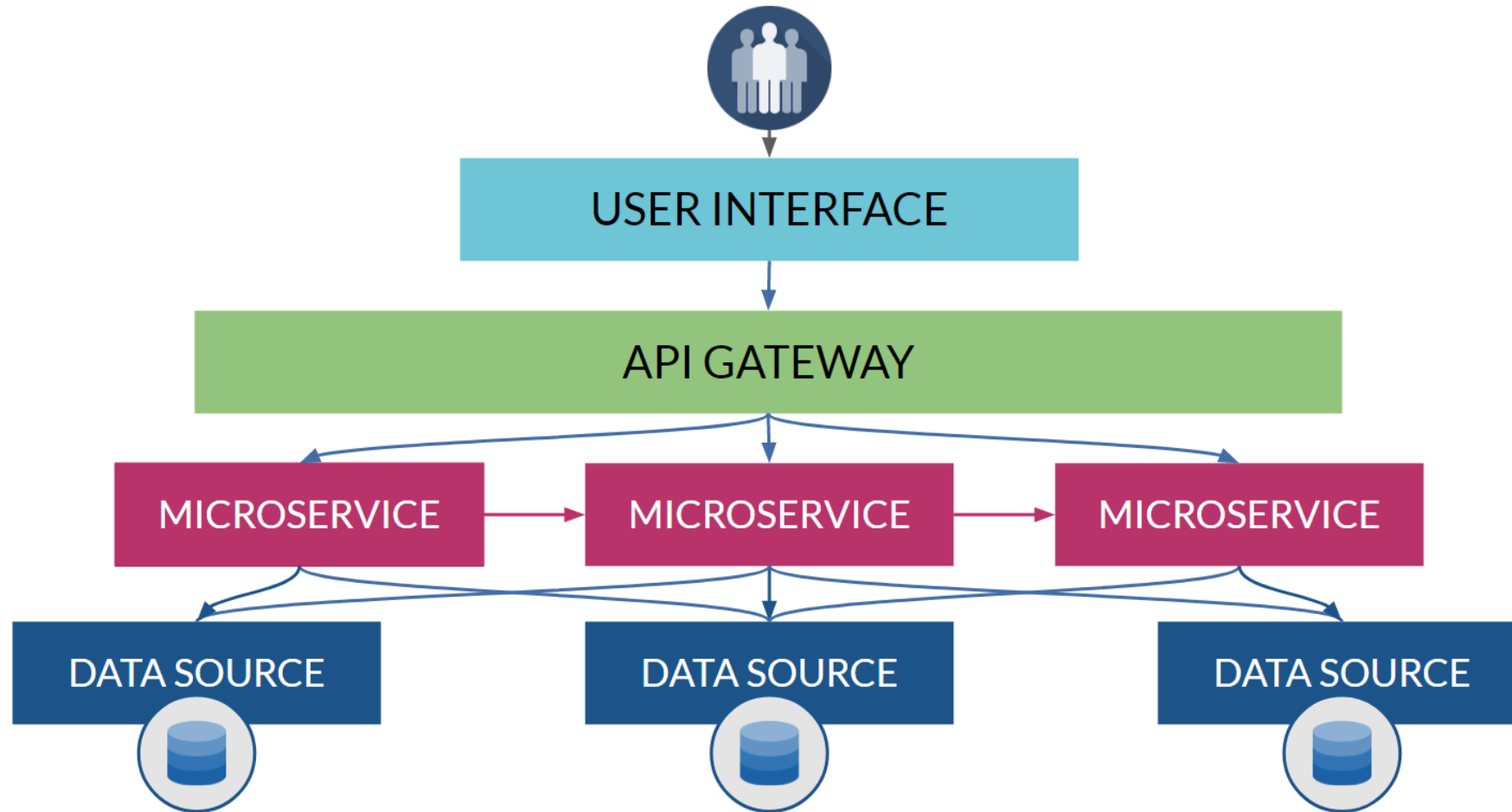


From North-South to East-West

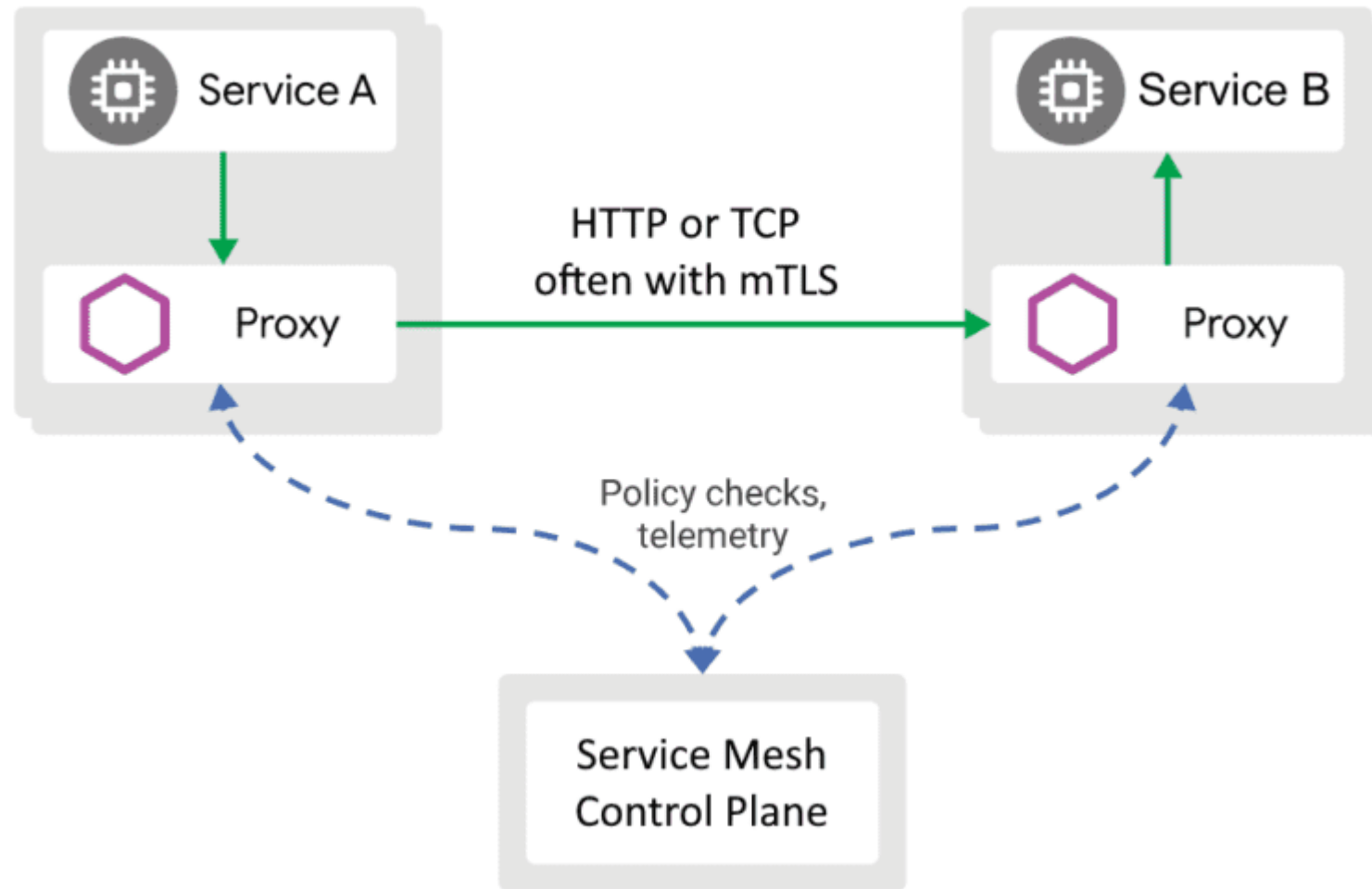
- North - South
 - Network to Container
 - Container to External Services
- East - West
 - Between Containers



The Challenge with API Gateways



Service Mesh: How Does it Work?



Service Mesh



OBSERVE

monitor network



CONTROL

access policies



SECURE

mutual TLS

More Than Just a Proxy



Network Topology



Service Health



Logging

More Than Just a Proxy



Circuit Breaker

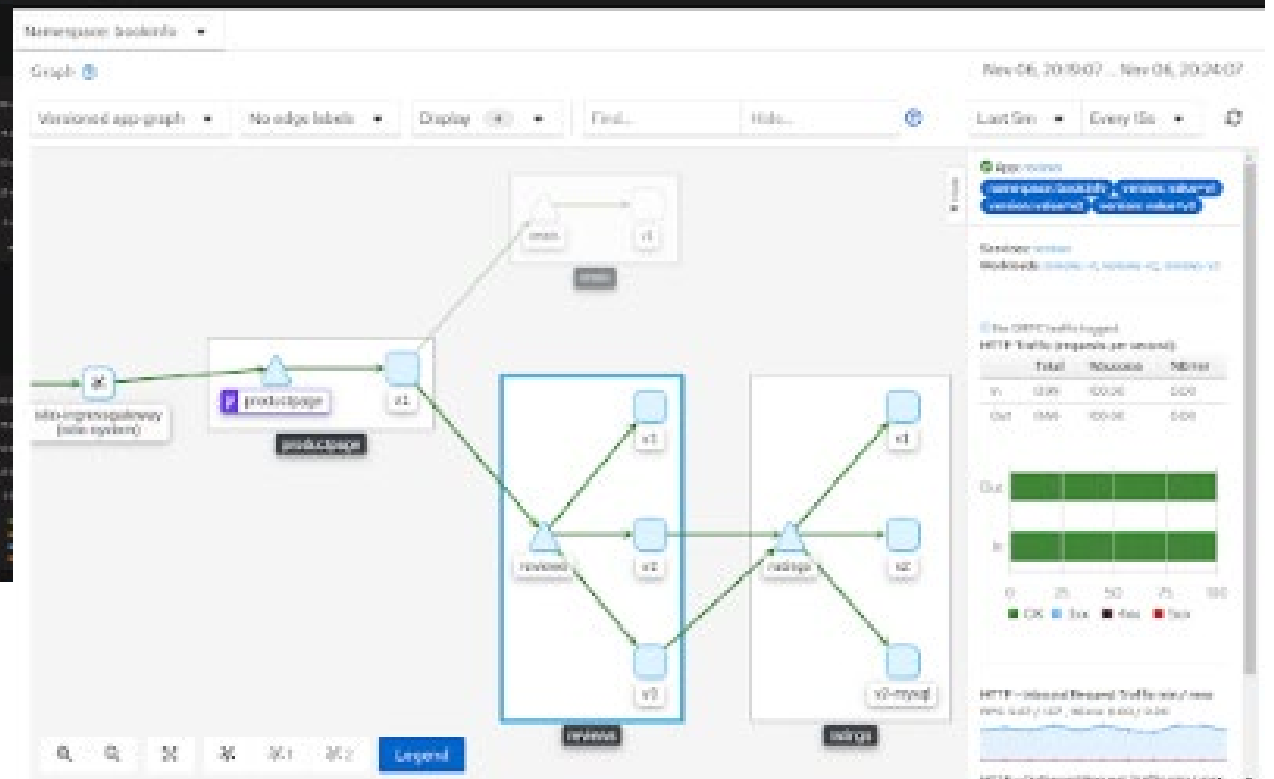
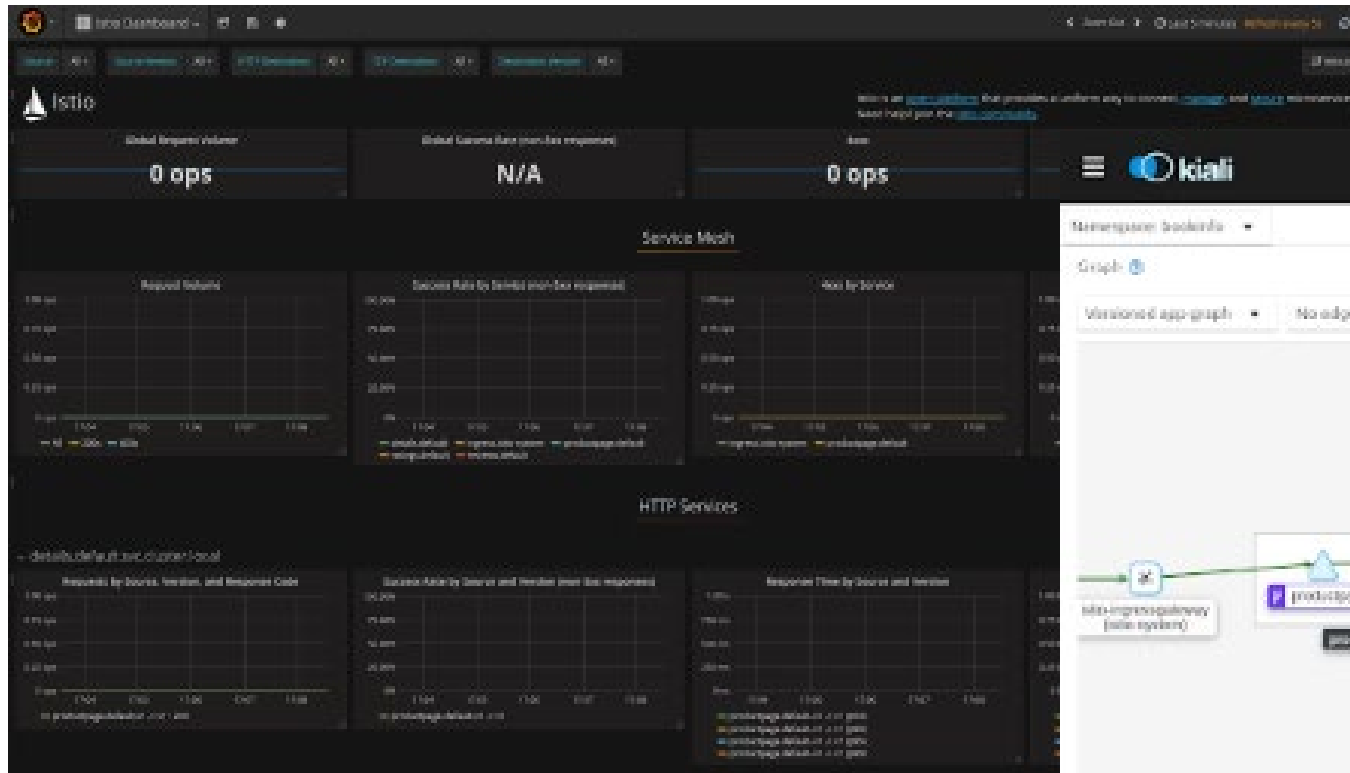


A / B Testing

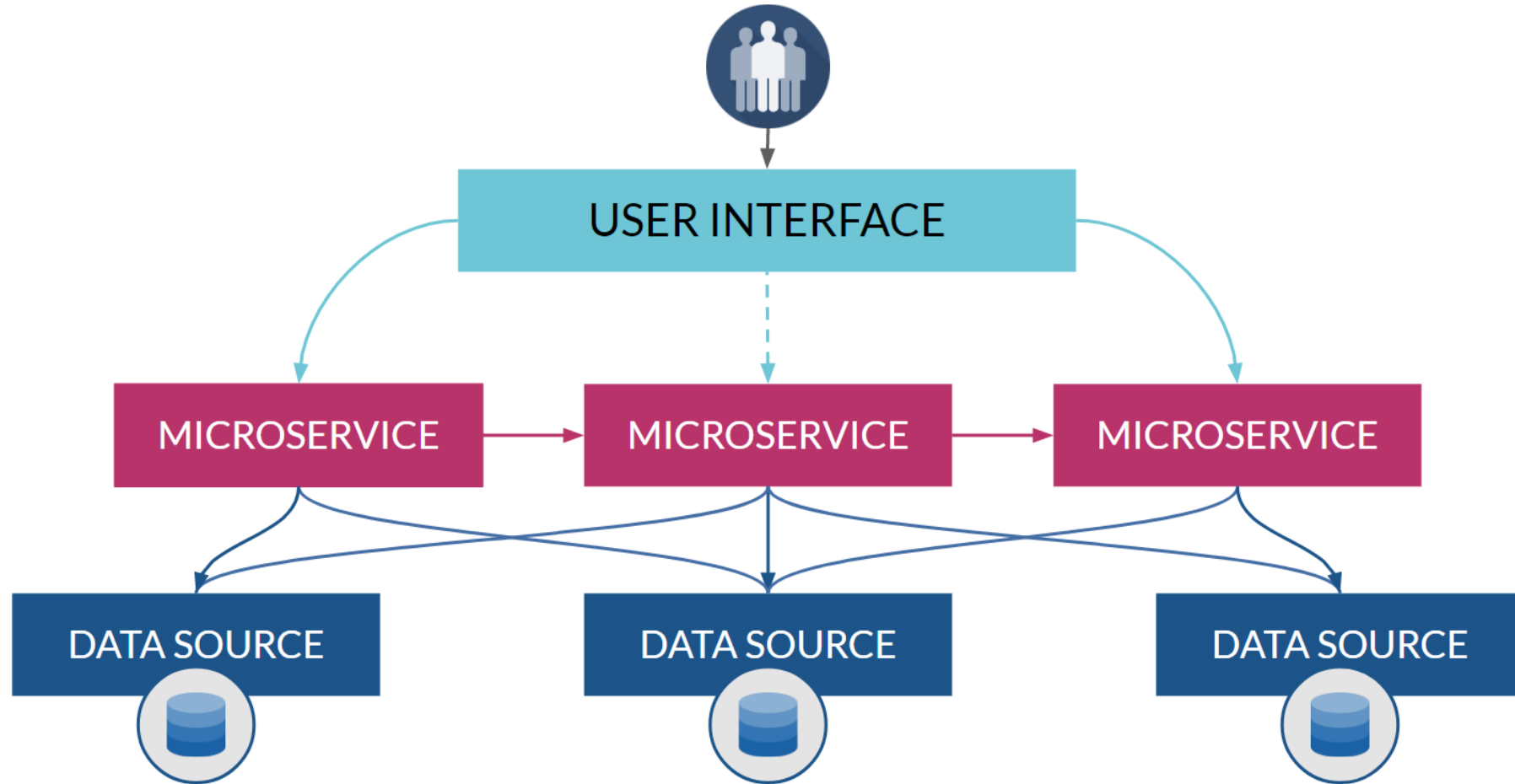


Beta Channel

Dashboards



Prevent Unexpected Traffic Patterns



Service Meshes

- Istio
- Linkerd
- Consul
- Open Service Mesh

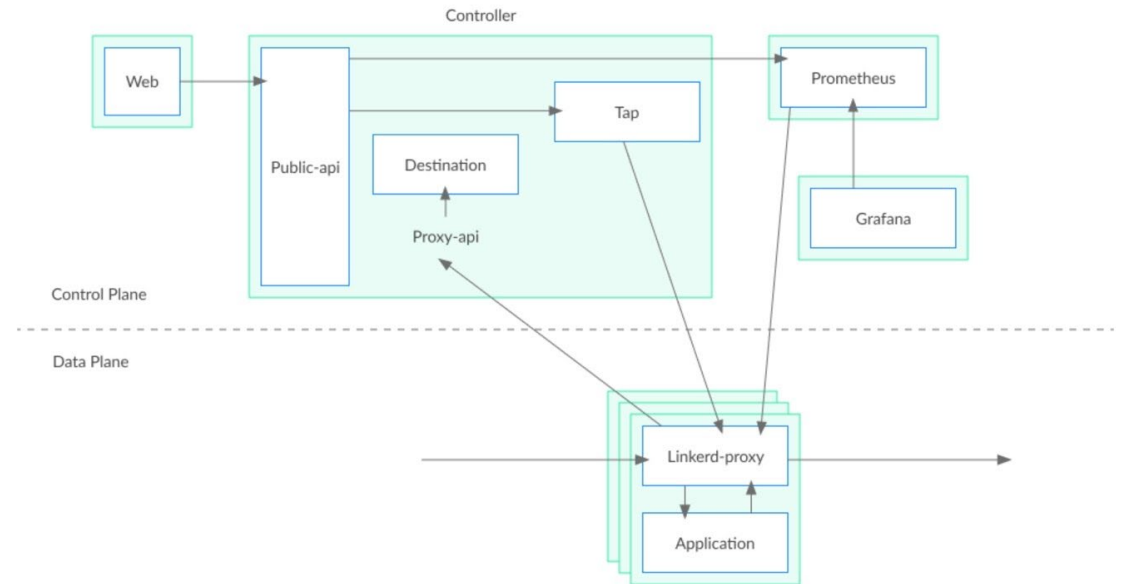


Linkerd

Methodology

Linkerd focuses on simple setup and critical features

Add 3rd party components to get additional features



Methodology

A kitchen sink of features to enable / disable

Istio combines third-party components:

- Envoy Proxy
- Prometheus events sink
- Grafana dashboard
- Jaeger tracing dashboard

```
apiVersion: networking.istio.io/v1alpha3
kind: VirtualService
metadata:
  name: bookinfo
spec:
  hosts:
  - reviews
  http:
  - route:
    - destination:
        host: reviews
        subset: v1
        weight: 75
    - destination:
        host: reviews
        subset: v2
        weight: 25
```


Demo

Service Mesh

- Linkerd
- Istio

In a Nutshell



**Monitoring,
Logging,
Service Health**

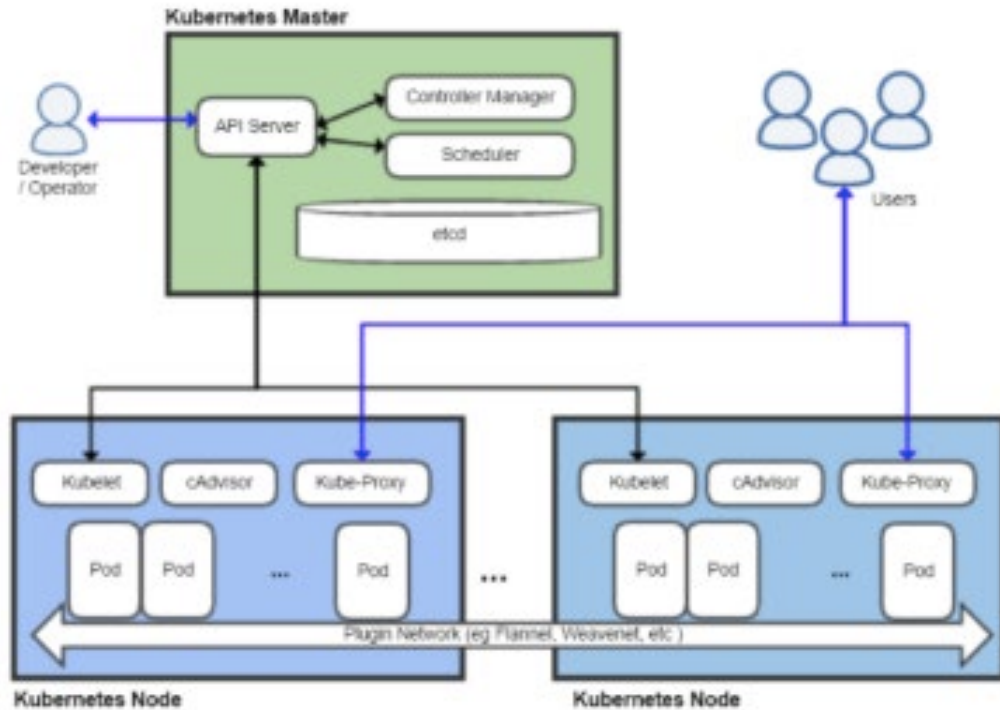


Intelligent Routing

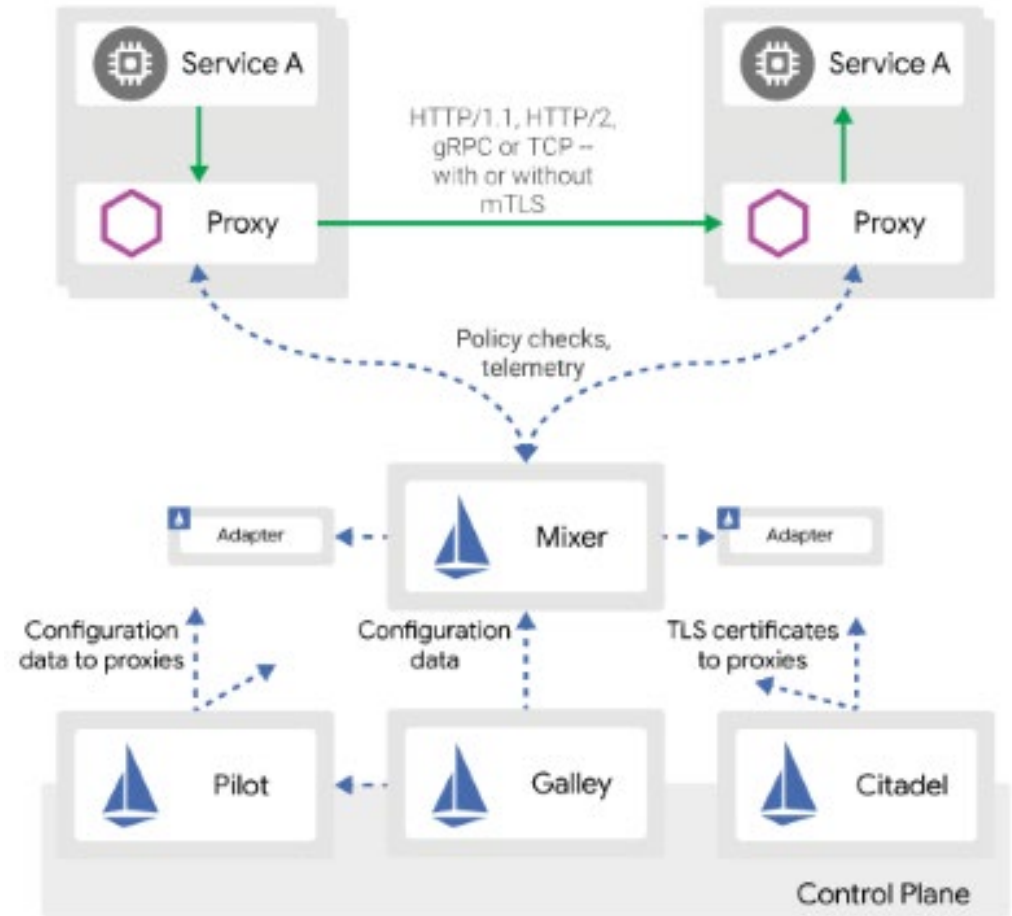


**Network Topology
Diagram**

Service Mesh Implementation Cost



+



Benefits of Service Mesh



OBSERVE

**Transparency of
communication**



CONTROL

**Enhanced resilience to
network disruption**



SECURE

**Secure communication
without code changes**

Use a Service Mesh if:

- Running highly sensitive workloads (PKI, PCI)
- Running untrusted workloads
- Running multi-tenant workloads
- Need security in depth
- Need A/B routing or a beta channel

#RSAC

Questions?

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“Apply” Slide

- Try it out:
 - Time-box your experiments
 - Try out many service meshes
 - Identify the one that best matches your needs
- Does it make sense?
 - Do you need to observe, control, or secure your network?
 - Can you handle the additional compute costs?
 - Are you running multi-tenant, highly secure, or untrusted workloads?
 - If not, you don’t need a service mesh.