

Service Mess to Service Mesh

by Rob Richardson

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About Me

Rob Richardson is a software craftsman building web properties in ASP.NET and Node, React and Vue. He's a frequent speaker at conferences, user groups, and community events, and a diligent teacher and student of high quality software development. You can find this and other talks on <https://robrich.org/presentations> and follow him on twitter at [@rob_rich](https://twitter.com/rob_rich).











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





Service Mesh



OBSERVE
monitor network

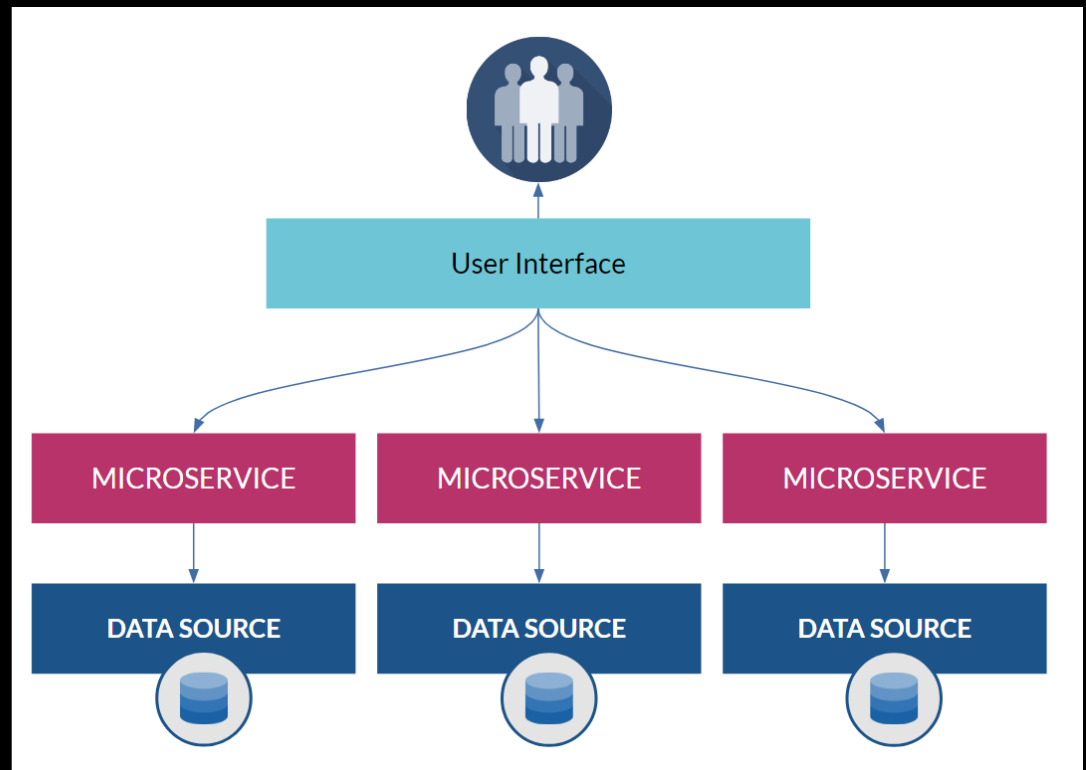
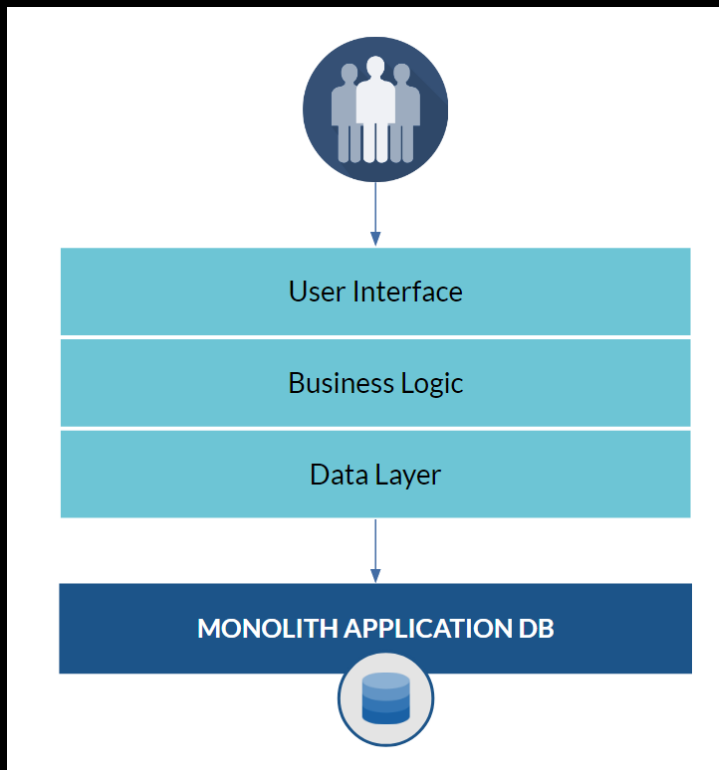


CONTROL
access policies



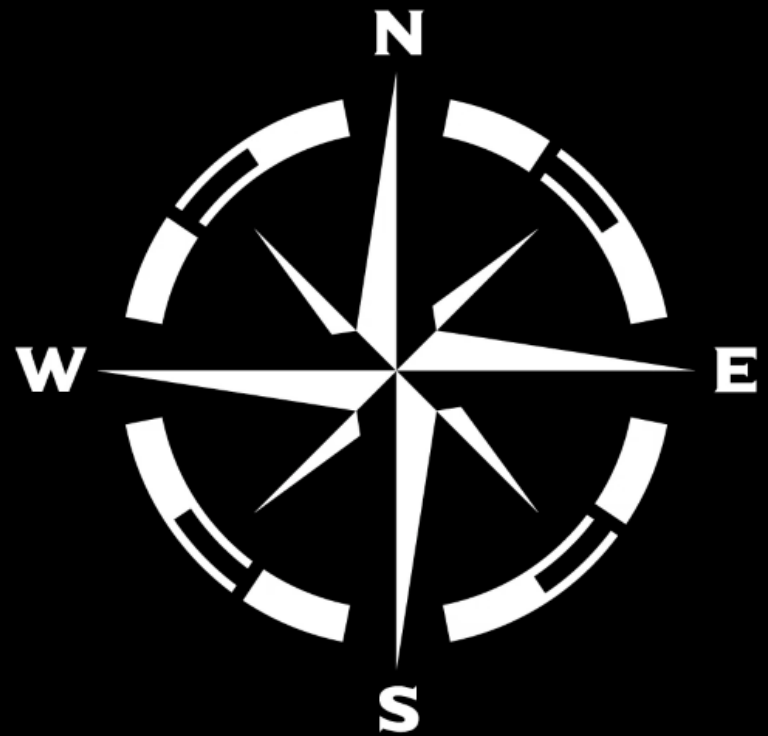
SECURE
mutual TLS

From Monolithic to Microservices

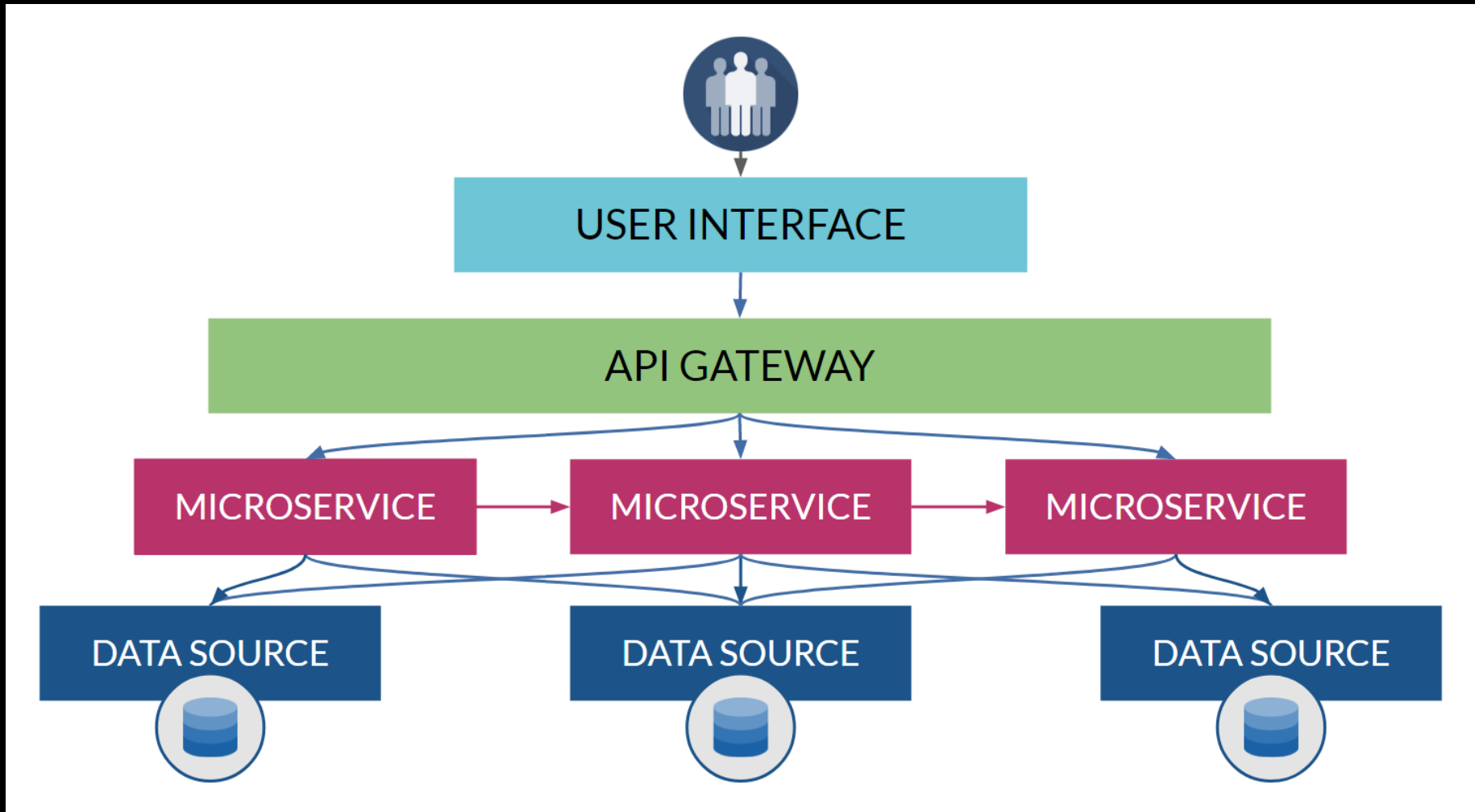


From North-South to East-West

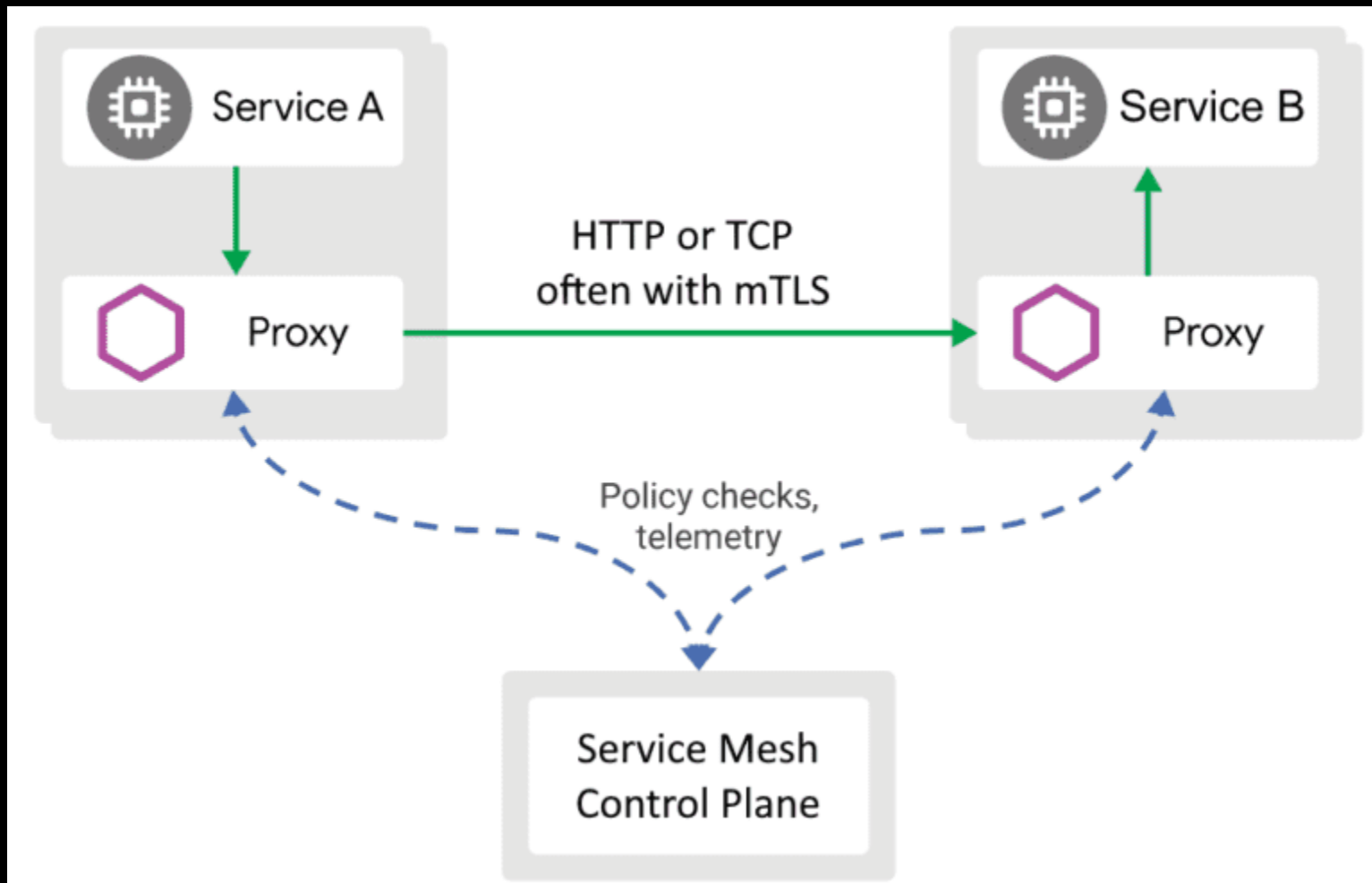
- North - South
 - Network to Container
 - Container to External Services
- East - West
 - Between Containers



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

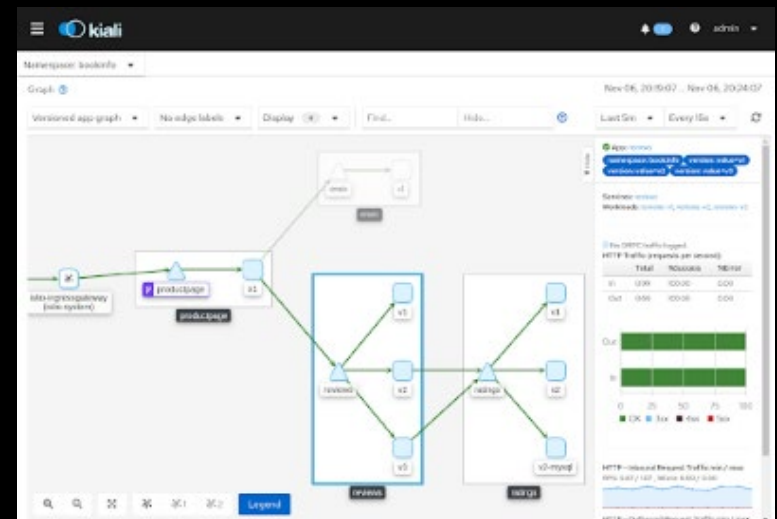
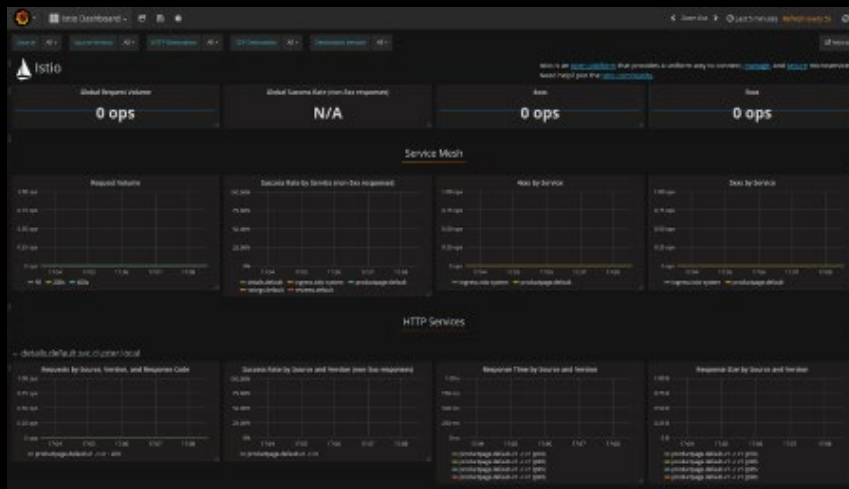


A / B Testing

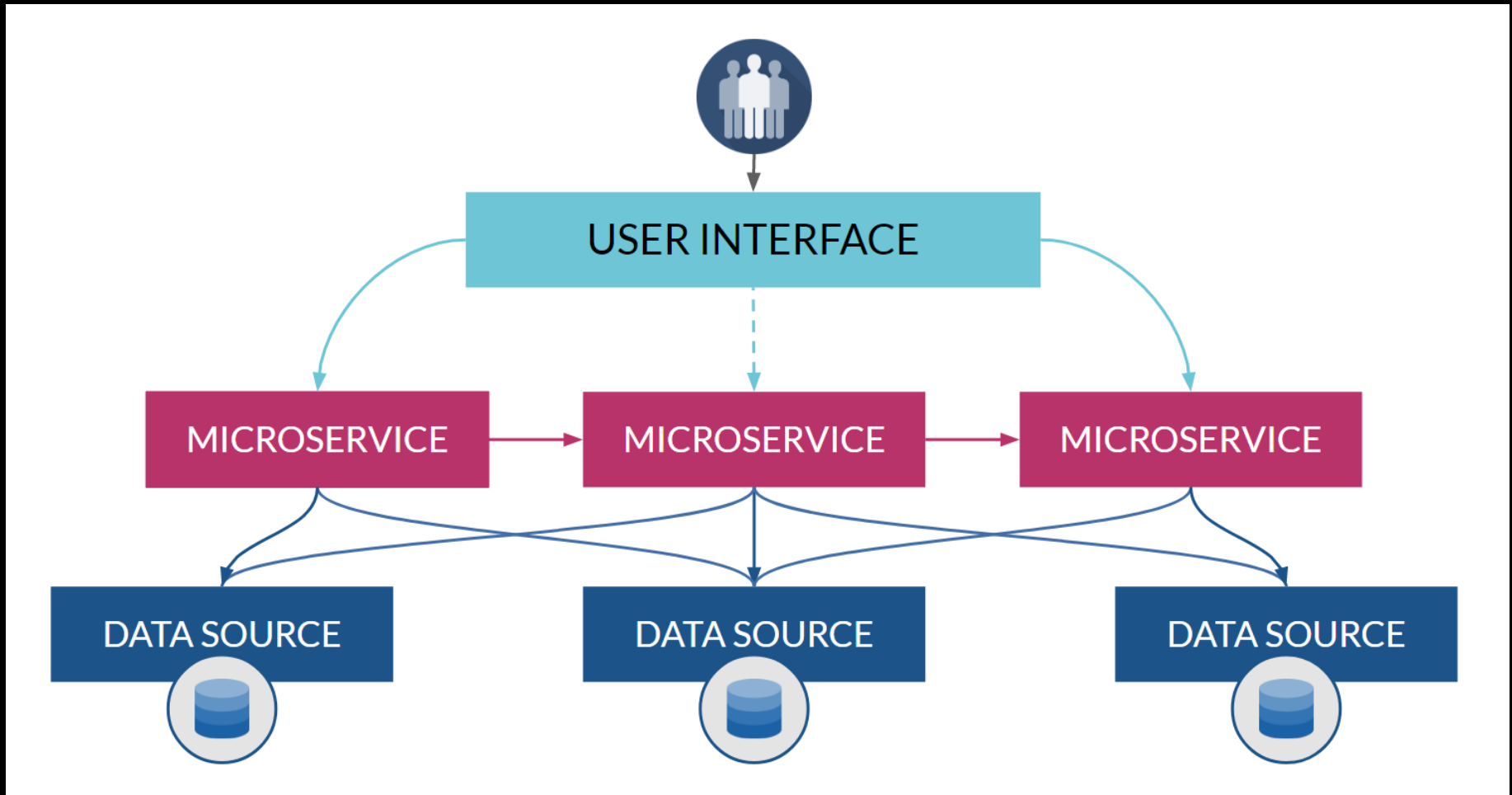


Beta Channel

Dashboards



Prevent Unexpected Traffic Patterns



Service Meshes

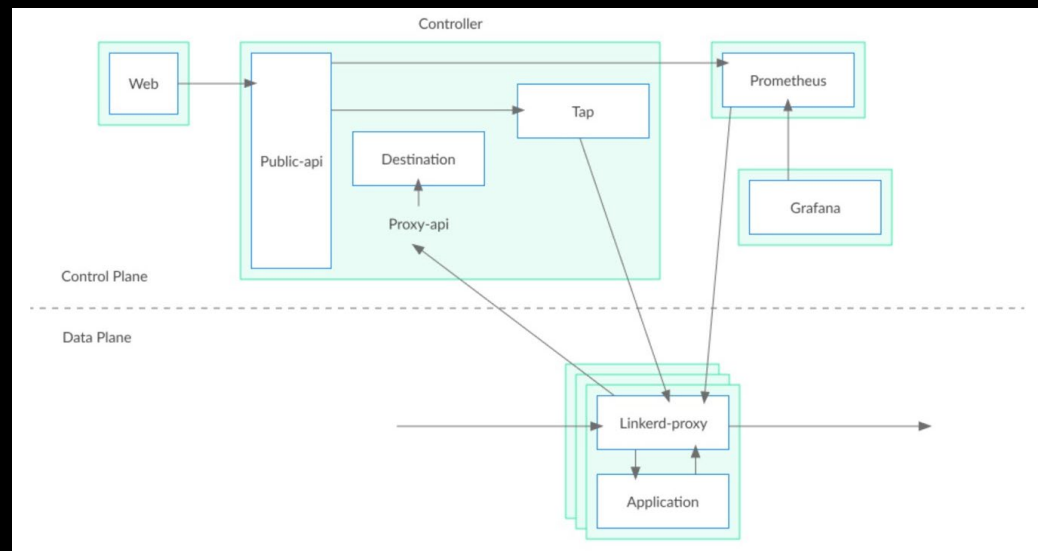
- Istio
- Linkerd
- Consul
- Open Service Mesh

Linkerd

Methodology:

Linkerd focuses on simple setup and critical features

Add 3rd party components to get additional features



Istio

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



In a Nutshell



Monitoring,
Logging,
Service
Health

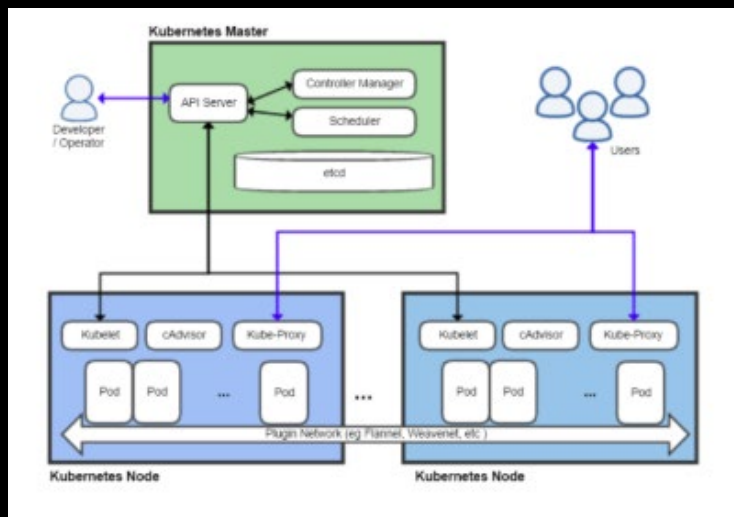


Intelligent
Routing

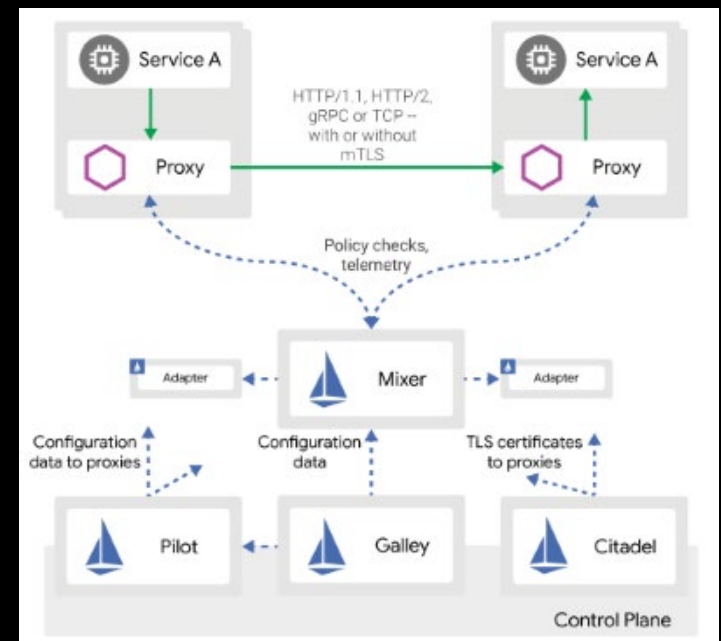


Network Topology
Diagram

Service Mesh Implementation Cost



+



Benefits of Service Mesh



OBSERVE
transparency of
communication



CONTROL
enhanced
resilience to
network
disruption



SECURE
abstraction
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

Questions?

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