

Istio Service Mesh with Kubernetes and Calico



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TIGERA
CLOUD NETWORKS, SECURED



Kubernetes Networking Concepts

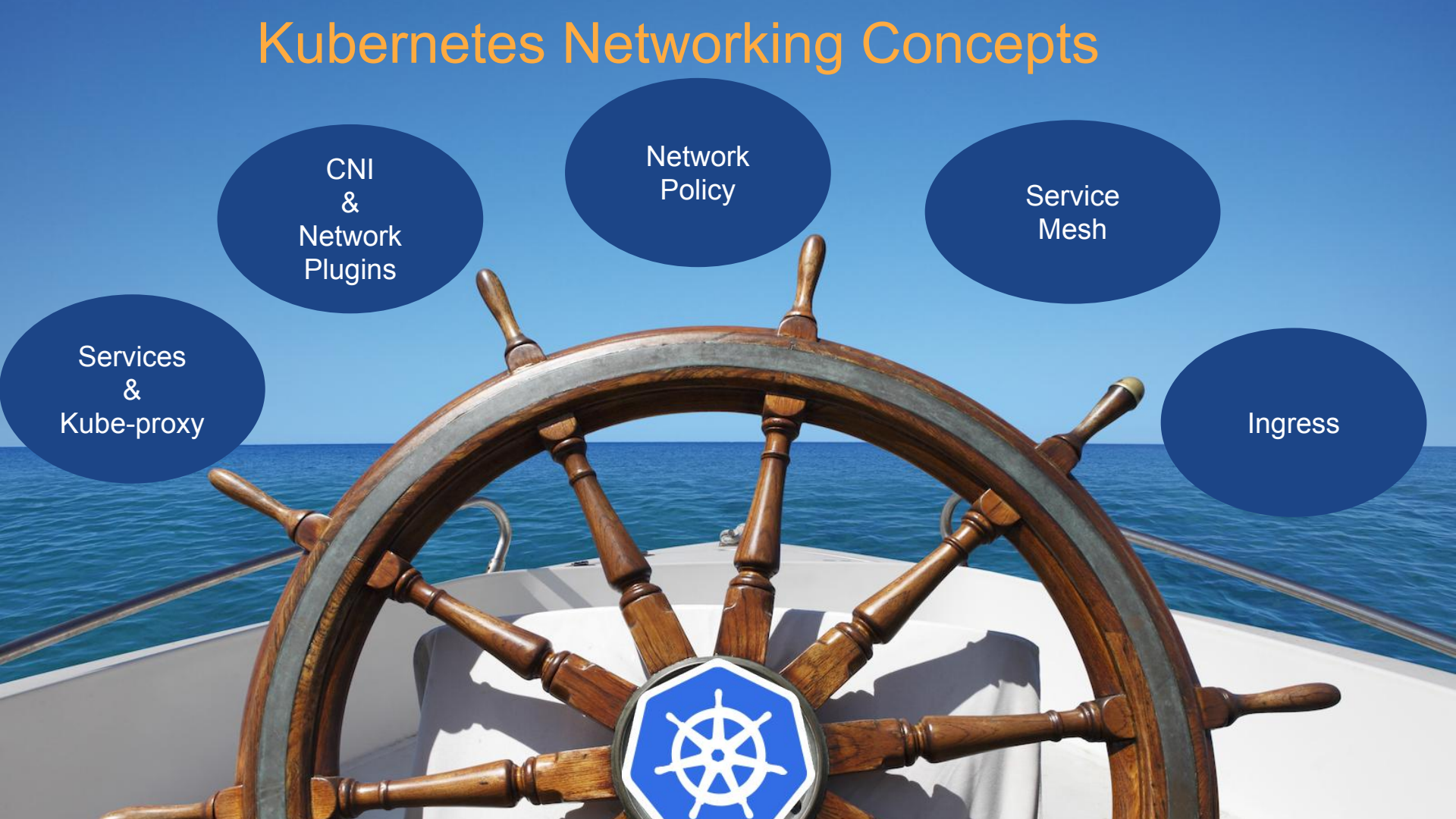
CNI
&
Network
Plugins

Network
Policy

Service
Mesh

Services
&
Kube-proxy

Ingress



Network

=>

Interconnect workloads

+

Network Policy

=>

Isolate workloads

Calico: Scalable, Secure, Cloud-native Networking and Policy

Dynamic security policy + simple networking

Intent-based policy spans

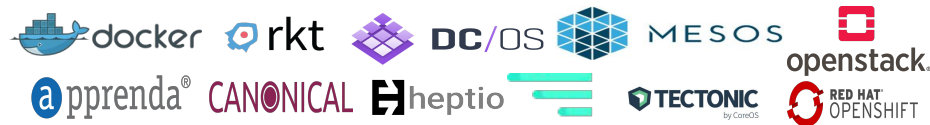
- ▶ Public, private & hybrid cloud
- ▶ Heterogeneous workloads and orchestration environments

Simple, highly scalable IP networking model

Distributed, Dynamic Policy Enforcement

Open source

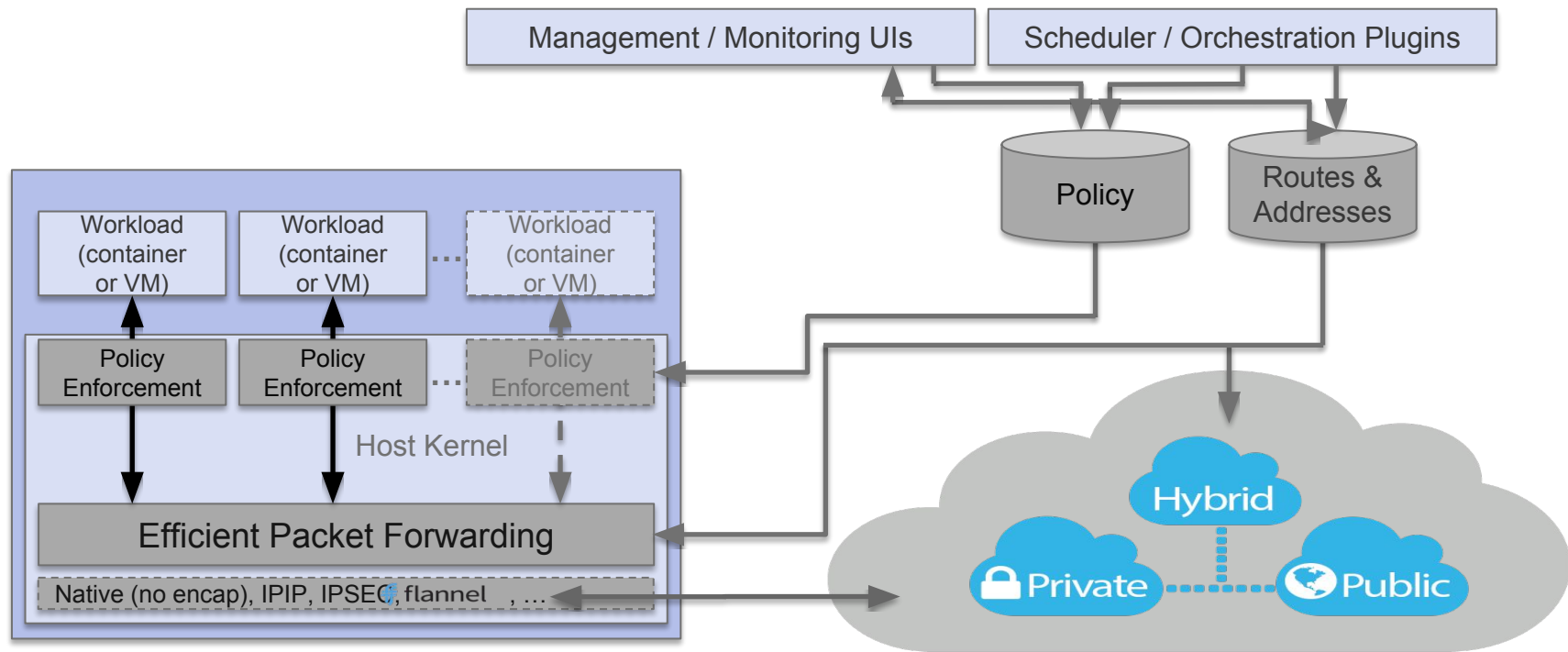
Apache license



kubernetes



Calico Networking and Network Policy: Functional Architecture





Simple

Deploy: *kubectl apply -f calico.yaml*

Troubleshoot: *ping, traceroute, ip route show, iptables -L*

Scalable

Widespread deployment, scales to very large clusters

Seamless

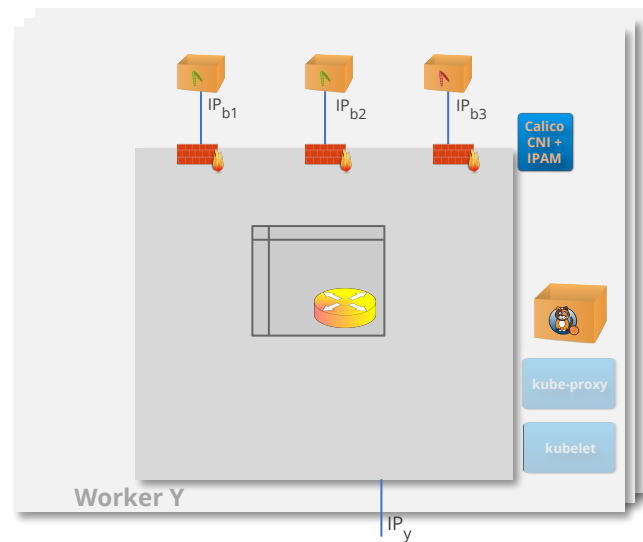
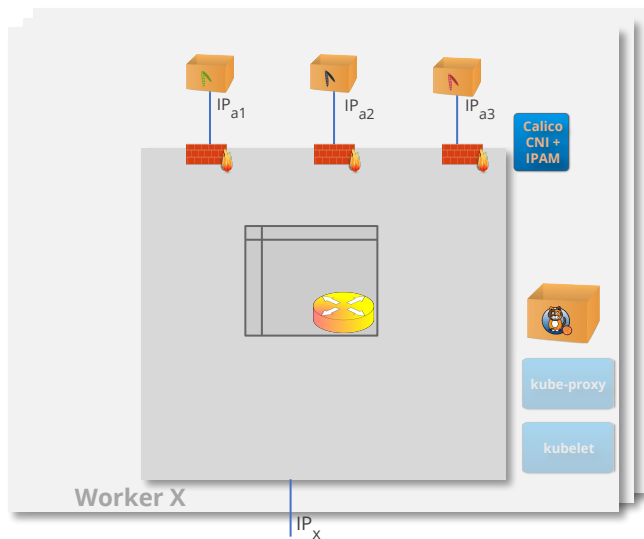
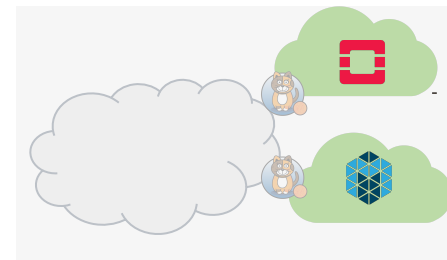
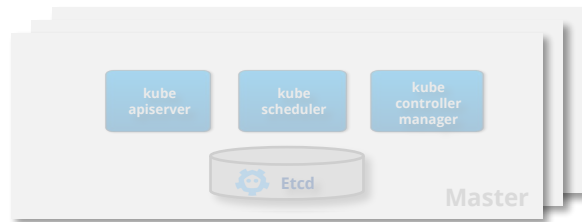
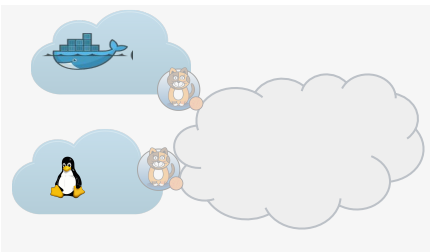
Integration across the Kubernetes ecosystem

Secure

Dynamic, Distributed Network Policy Enforcement

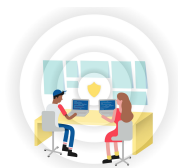
Demo:
Deploying Kubernetes with Calico

Kubernetes Networking with Calico

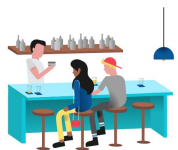




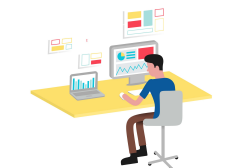
Traffic Management, Resilience and Load Balancing



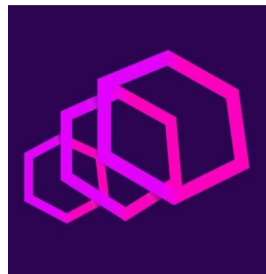
Security, encryption and SPIFFE



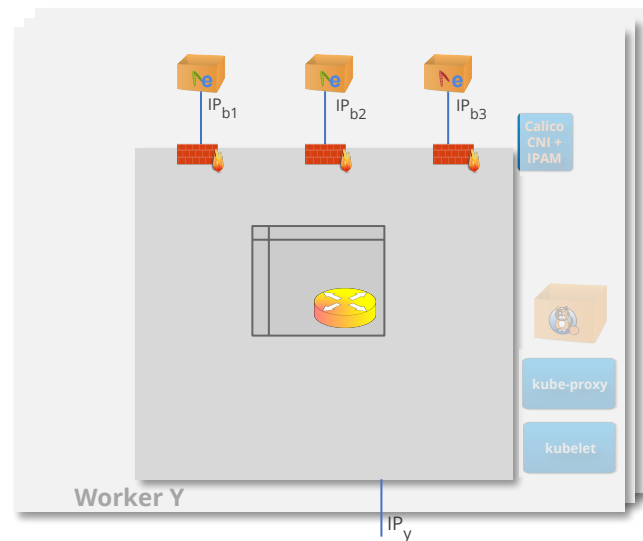
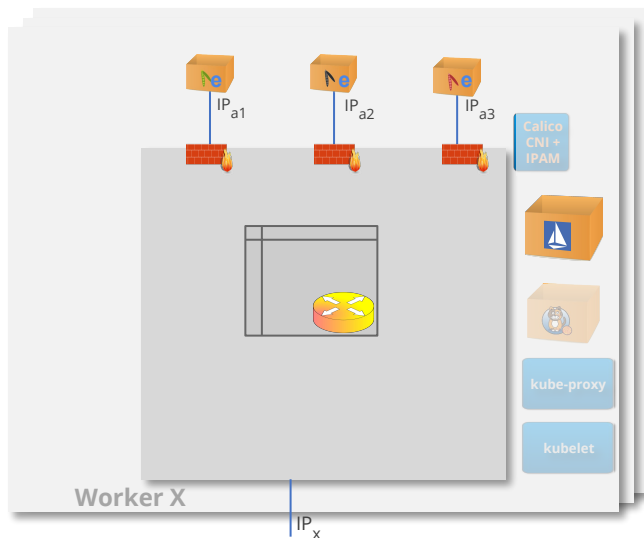
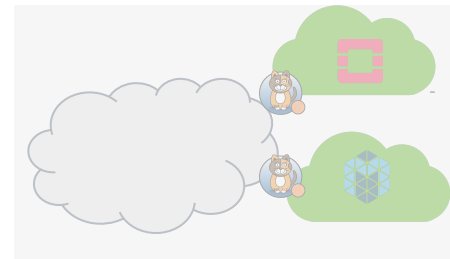
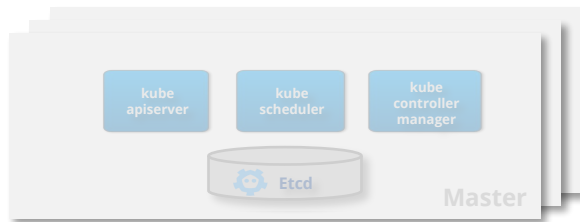
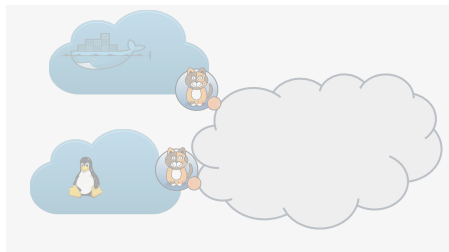
Fleet-wide Policy enforcement



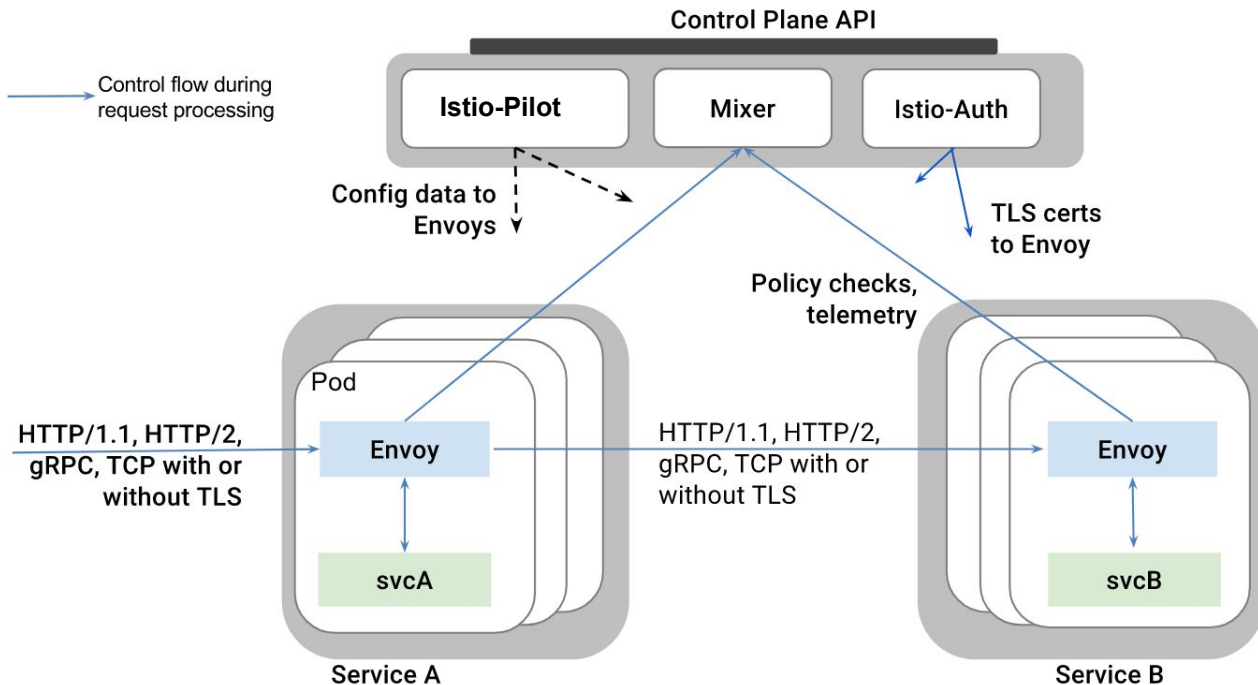
Telemetry and Reporting

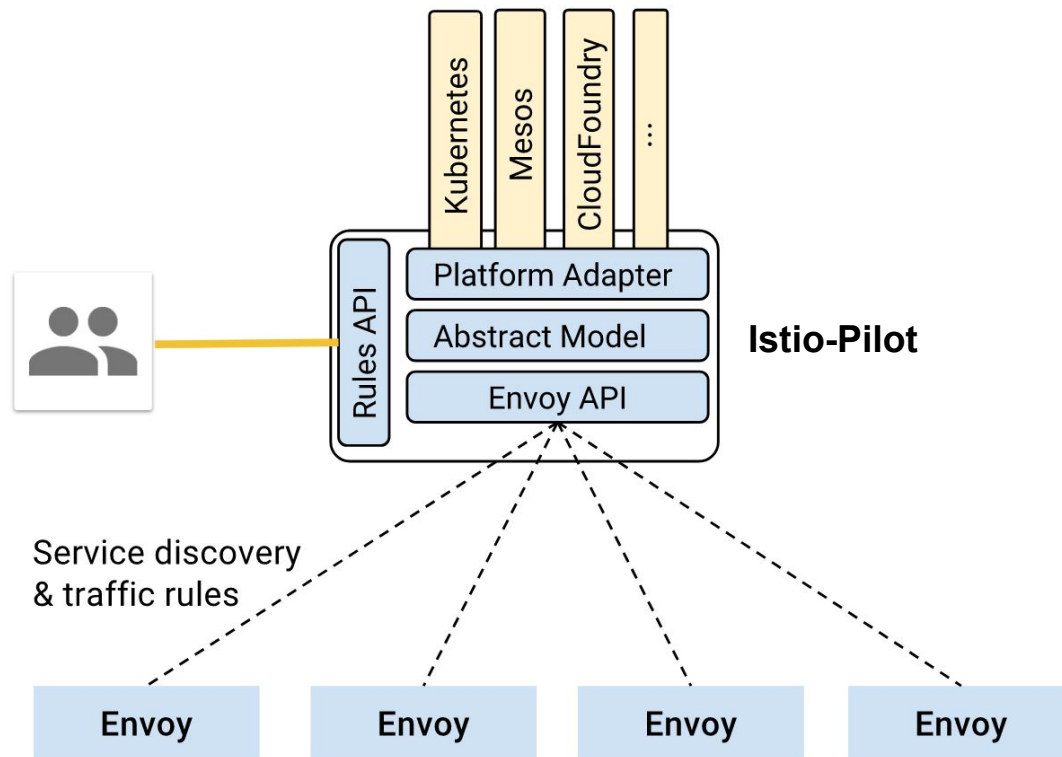


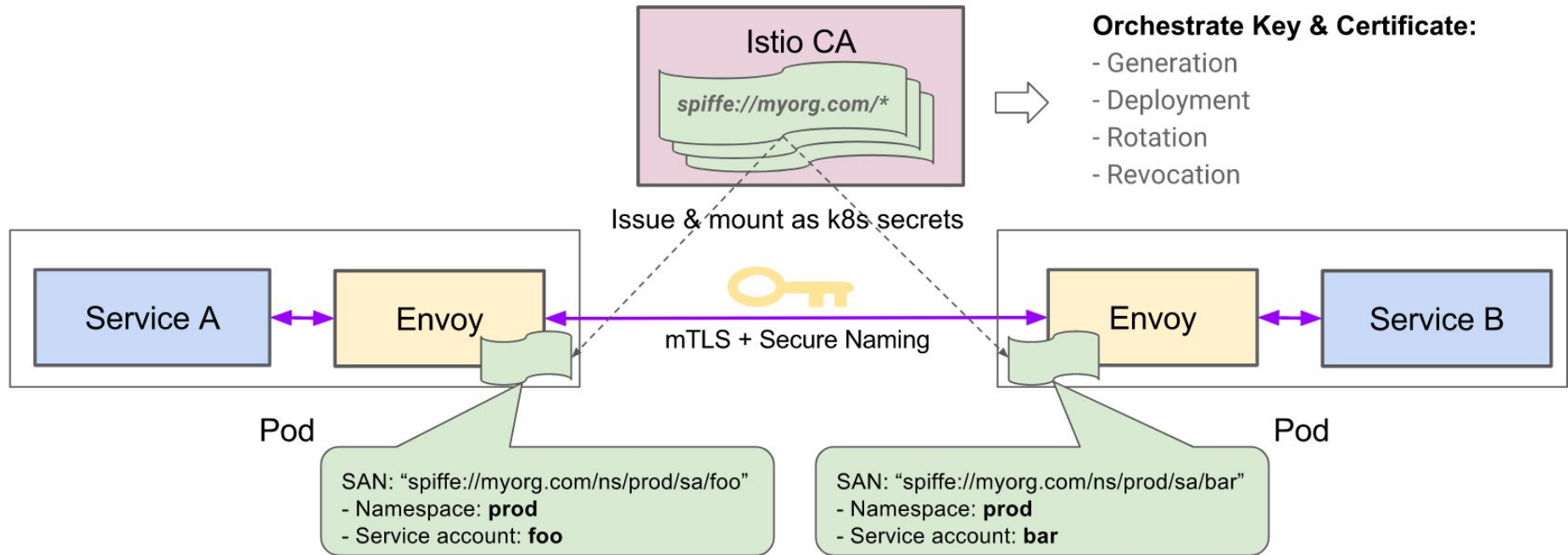
Kubernetes Networking: Service Mesh with Istio and Envoy

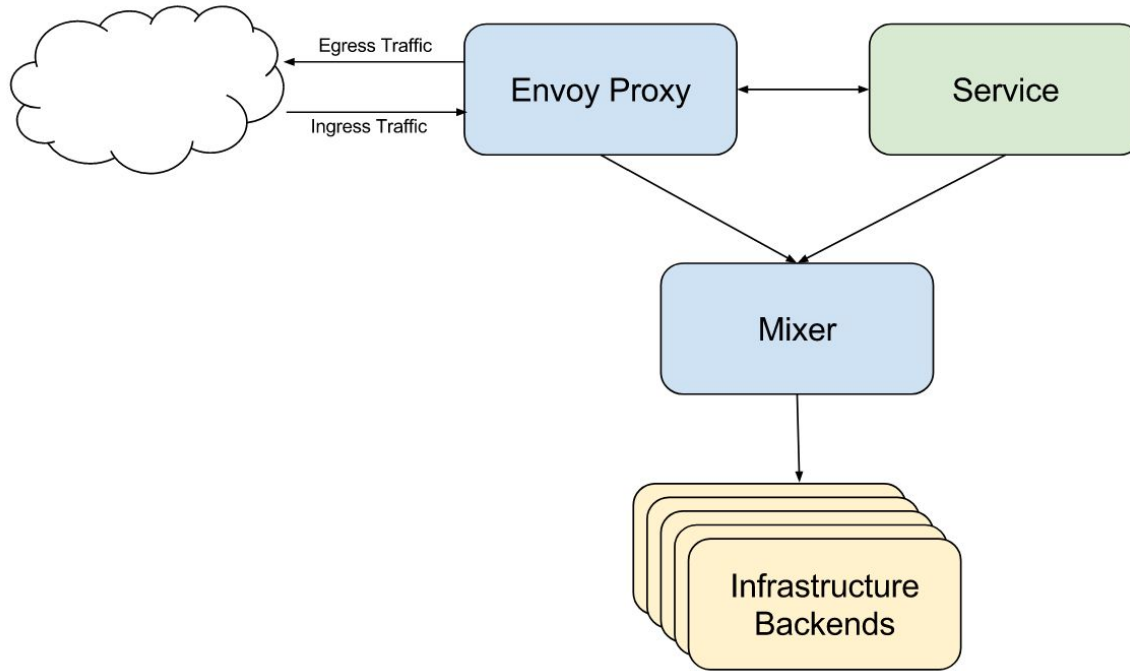


Istio Architecture

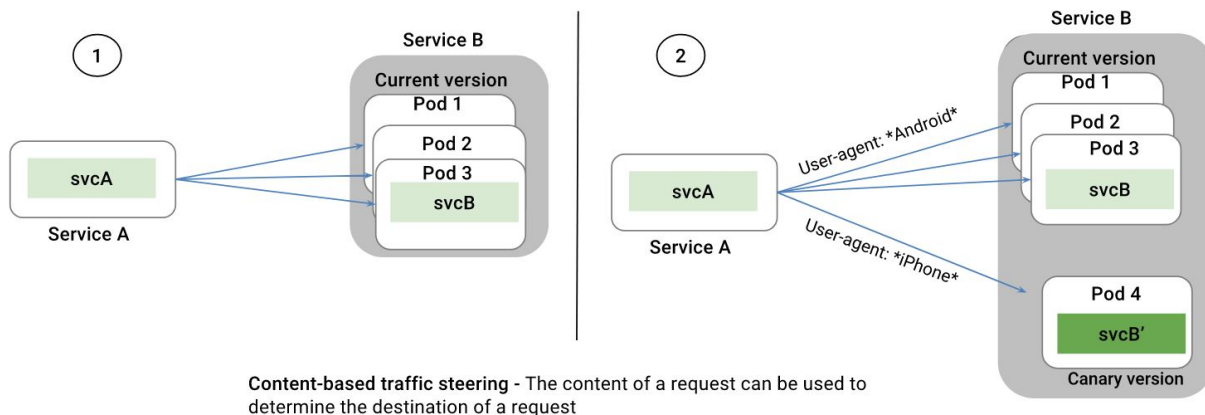
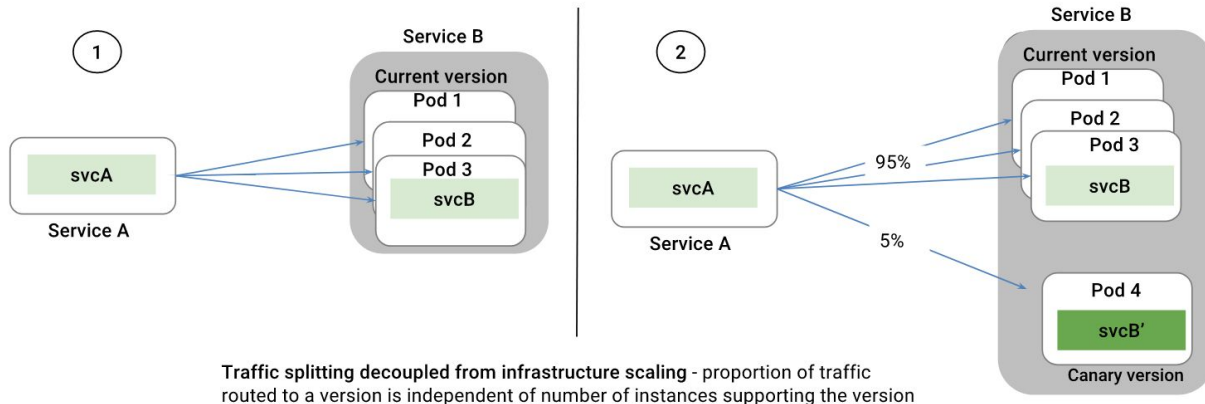




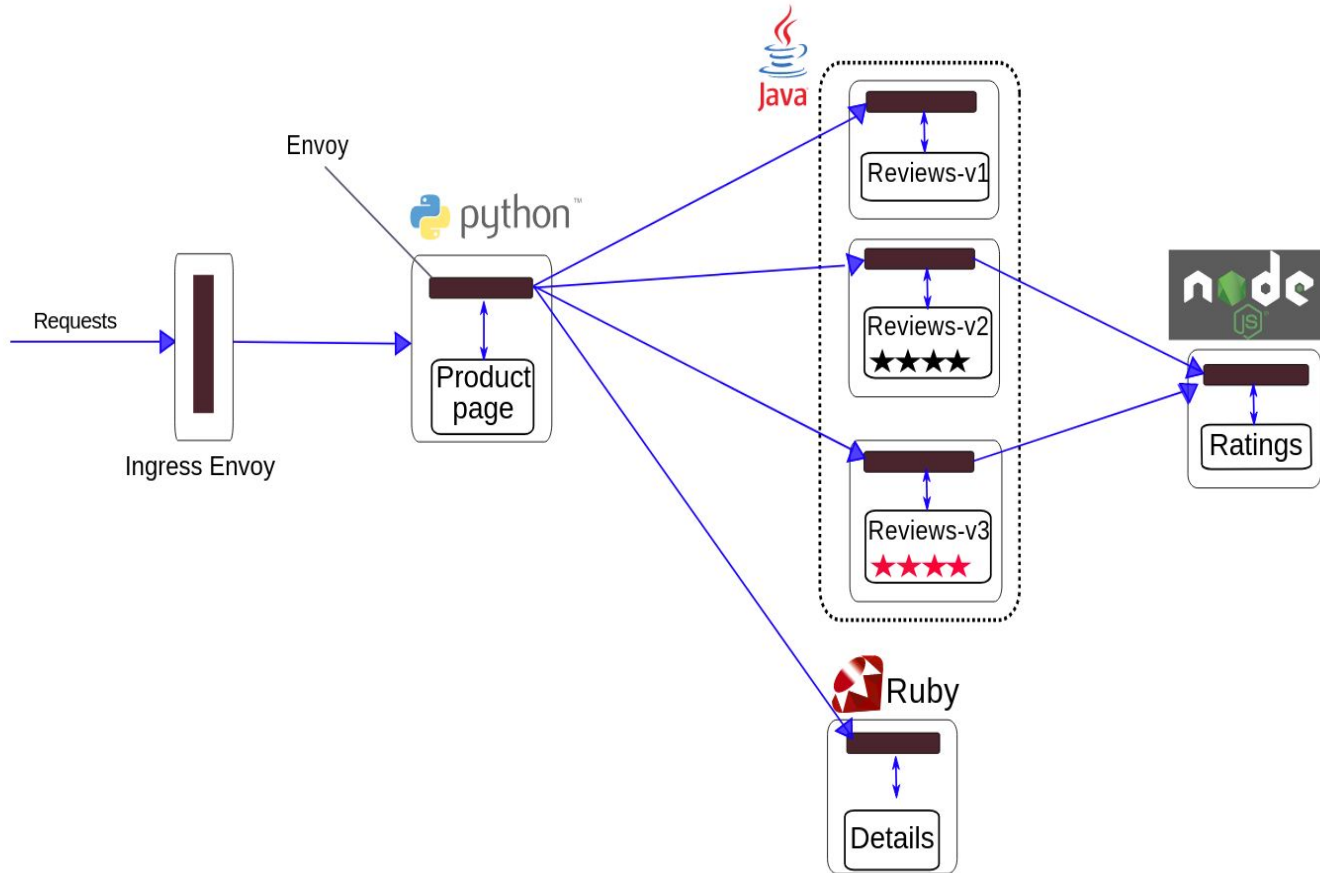




Traffic Management Examples with a Service Mesh



Istio: Microservices Example - Bookinfo application



Demo:

Deploying Istio+Envoy Service Mesh

Deploying & Managing a Microservices App



KEEP
CALM
and
kubectl
ON



KEEP
CALM
and
calicoctl
ON



**KEEP
CALM
and
istioctl
ON**



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slack.projectcalico.org



istio.io