ISOVALENT

Unlocking Next-Gen Networking and Security with Cilium Service Mesh

Speaker: **Stephane Karagulmez**

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Stephane's one single mistake story

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Stephane is a Platform Engineer tasked to meet the requirements from internal teams

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- Secure service to service communication
- Allow complex traffic redirection
- Blue/Green deployment
- Network Observability

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Stephane goes online and discovers the world of service mesh!

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First POC is implemented!
Great Success!

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Now Stephane needs to sell it to the other teams...

"New CRD !!??". angry developper

"What is a sidecar??". Engineering manager

"What did you say the footprint was??". Head of SRE operations

"Another control plane!!??". Angry but nice co-worker

"This book is the new upgrade procedure???". Doesn't work here anymore

"How do you debug this? Who is in charge? This is networking right???". Head of devops

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Stephane's one single mistake was...

He didn't come to our booth...

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Otherwise Stephane would have known how to:

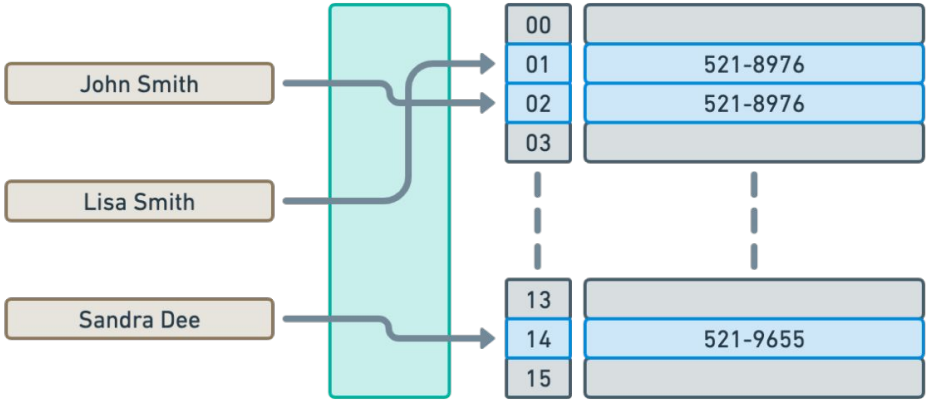
- Reduce operational complexity
- Reduce resource usage
- Have better performance
- Avoid sidecar startup/shutdown race condition

And most importantly... that he didn't need a service mesh. Just the right CNI.

Kubernetes Services

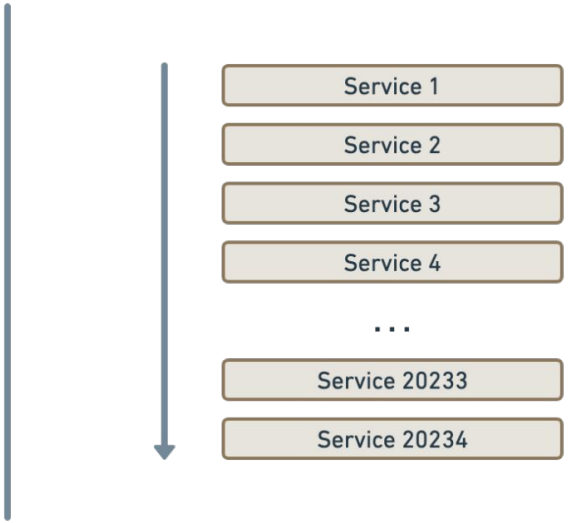
eBPF based

- Per-CPU hash table



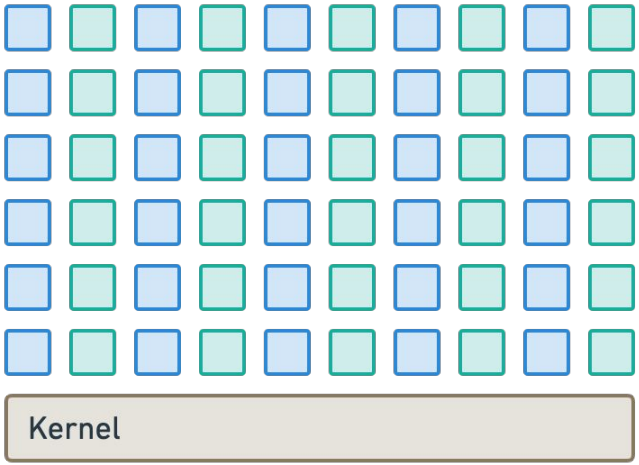
kube-proxy

- Linear list
- All rules have to be replaced as a whole

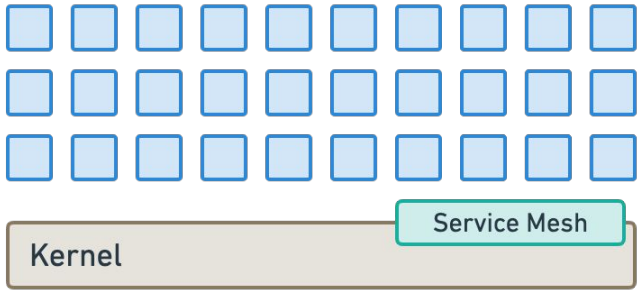


Reduce resource usage - sidecar vs proxy per node

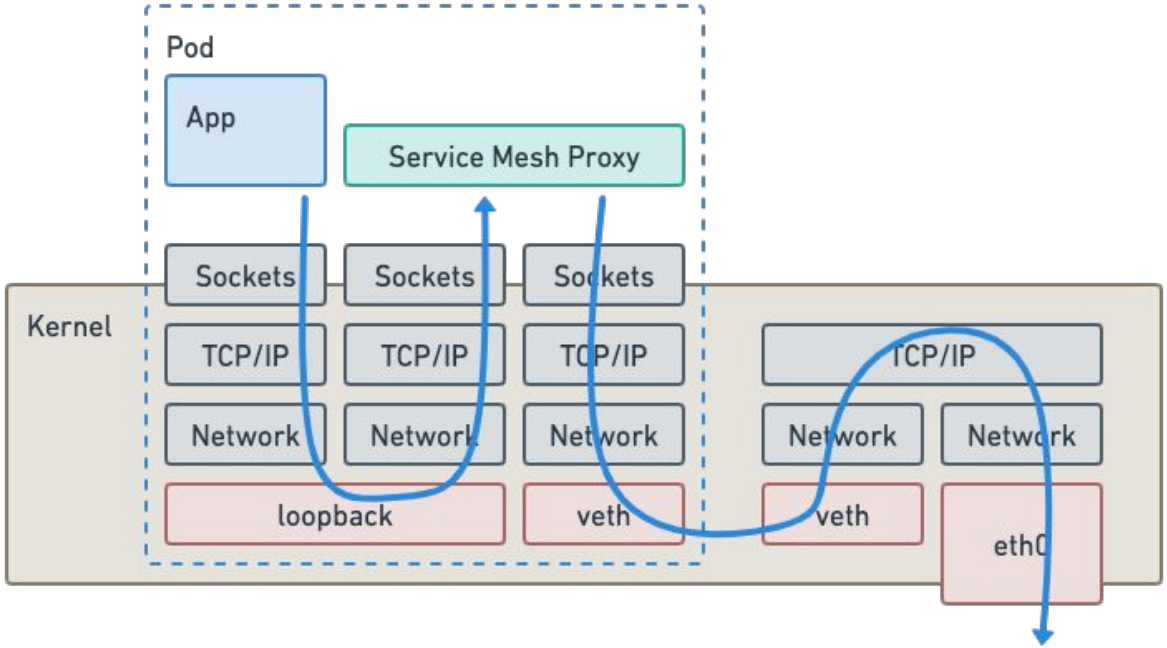
Total number of proxies required



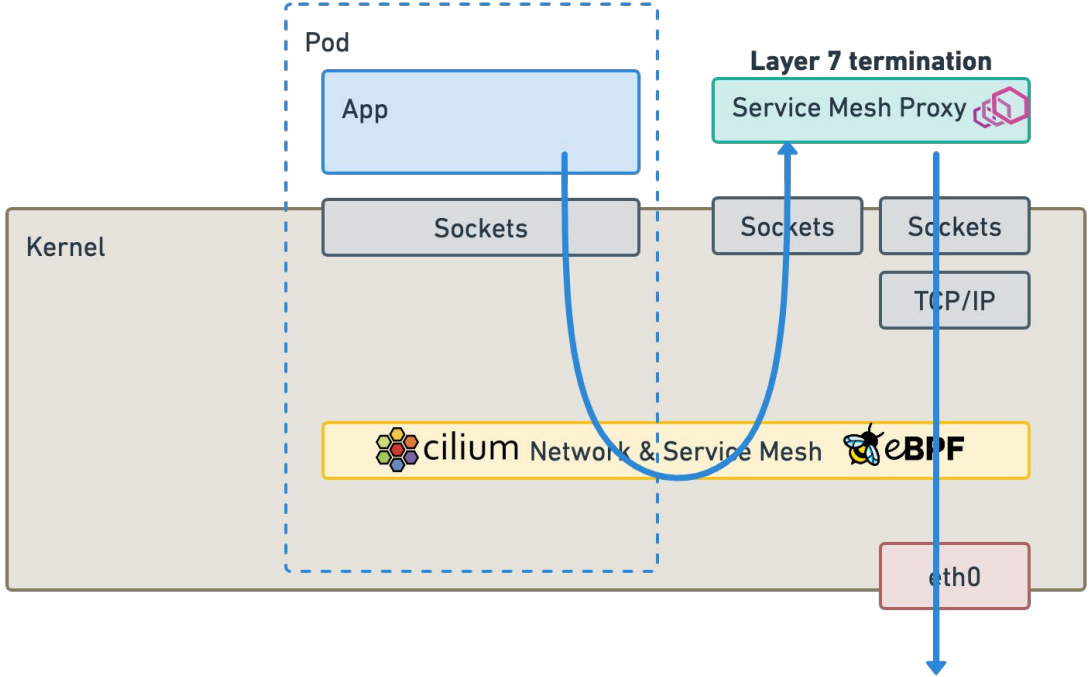
30 pods/node ⇒ 30 proxies/node



Cost of sidecar injection



Envoy for Layer 7 termination when needed



Layer 7 Traffic Management Options

Ingress

Original L7 load-balancing standard in K8s

Simple

Supported since Cilium 1.12

Services

Use of K8s services with annotations

Simple

Supported since Cilium 1.13

Gateway API

Originally labelled Ingress v2. Richer in features.

Simple

Supported for v0.5.1 since Cilium 1.13

EnvoyConfig

Raw Envoy Config via CustomResource

Advanced Users & Integrations

Supported since Cilium 1.12