

KubeCon '19 Barcelona

Daniel-Andrei Minca

Site Reliability Engineer @ GfK SE

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Outline

1. D1 - Intro
2. D2 - Deep-dive
3. D3 - Wrap-up
4. Demo: 'kind' (Kubernetes in Docker)¹

¹pray to the demo gods

Beer?



Figure: Alhambra - mana potion

State of CNCF projects

2

1. Incubating:

- ▶ Linkerd
- ▶ Helm v3.0.0-alpha1 w/o Tiller
- ▶ Rook.io
- ▶ Harbor etc.

2. Graduated:

- ▶ fluentd

Top players at KubeCon '19

- ▶ Google Cloud Platform
- ▶ Amazon Web Services
- ▶ WeaveWorks



Figure: Huawei was also there

Loki (by Grafana)³

- ▶ logs: groups them into 'streams' & indexes them with labels
- ▶ LogQL allows filter chaining
- ▶ extract labels from logs
- ▶ live tailing (demo failed during KubeCon pres.)



³<https://youtu.be/CQiawXlgabQ>

Linkerd⁴

1. service mesh: sidecar, data-plane etc.
2. auto golden-metrics
3. transparent mTLS

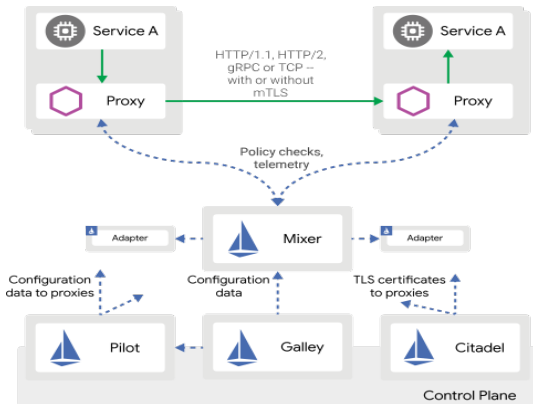


⁴<https://youtu.be/Z3nfLI3z0hc>

Kubernetes Dashboard (by Grafana)⁵

1. DMM (Dashboard Maturity Model)
2. template variables (use more)
3. Use scripting libraries to generate dashboards (mixins)
 - ▶ grafonnet (Jsonnet)
 - ▶ grafanalib (Python)

⁴<https://youtu.be/YE2aQFiMGfY>

Istio⁶

1. Grants: mTLS, ACL, traffic auditing, passthrough mTLS, auto LB
2. Conn's multiple net's through Gateways

⁵<https://youtu.be/-t2BfT59zJA>

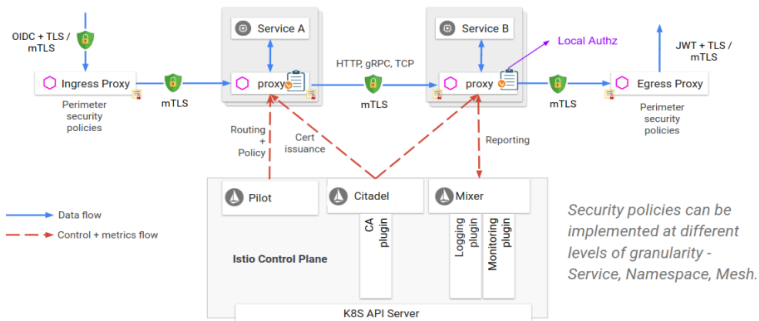


Figure: Istio mTLS (security)

CI/CD with 'kind'⁷

1. e2e tests:
 - ▶ start full k8s Cluster
 - ▶ black-box Testing
 - ▶ 'kind create cluster'
2. exposes full kubeadm config surface
3. enable Alpha features, Network Driver etc.

```
1 # this config file contains all config fields with comments
2 kind: Cluster
3 apiVersion: kind.sigs.k8s.io/v1alpha3
4 # patch the generated kubeadm config with some extra settings
5 kubeadmConfigPatches:
6 - |
7   apiVersion: kubeadm.k8s.io/v1beta1
8   kind: ClusterConfiguration
9   metadata:
10     name: config
11   networking:
12     serviceSubnet: 10.0.0.0/16
13 # patch it further using a JSON 6902 patch
14 kubeadmConfigPatchesJson6902:
15 - group: kubeadm.k8s.io
16   version: v1beta1
17   kind: ClusterConfiguration
18   patch: |
19     - op: add
20       path: /apiServer/certSANs/-
21       value: my-hostname
```

Figure: sample 'kind' config file

³<https://youtu.be/8KtmevMFfxA>

1. examples of kind running on XYZ CI
2. other ways to run kind:
 - ▶ as a library

```
// create a cluster context
ctx := cluster.NewContext("my-test-cluster")
// defer tearing down the cluster
defer ctx.Delete()

// create the cluster
if err := ctx.Create(&config.Config{}); err != nil {
    t.Errorf("Failed to create cluster: %v", err)
    t.FailNow()
}

// your tests here
```

DEMO: kind



Refs & links

- ▶ https://static.sched.com/hosted_files/kccnceu19/31/Grafana%20Loki.pdf
- ▶ https://static.sched.com/hosted_files/kccnceu19/e8/Intro%20to%20Linkerd%20KCCNCEU19.pdf
- ▶ https://static.sched.com/hosted_files/kccnceu19/27/Kubecon%202019_%20Kubernetes%20dashboards%20final.pdf
- ▶ <https://www.youtube.com/playlist?list=PLj6h78yzYM2PpmMAnvpvsnr4c27wJePh3>