KubeCon '19 Barcelona

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Outline

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

[1] pray 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

[2] https://youtu.be/vdxcaR3I2ic?t=728

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

Linkerd[4]

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

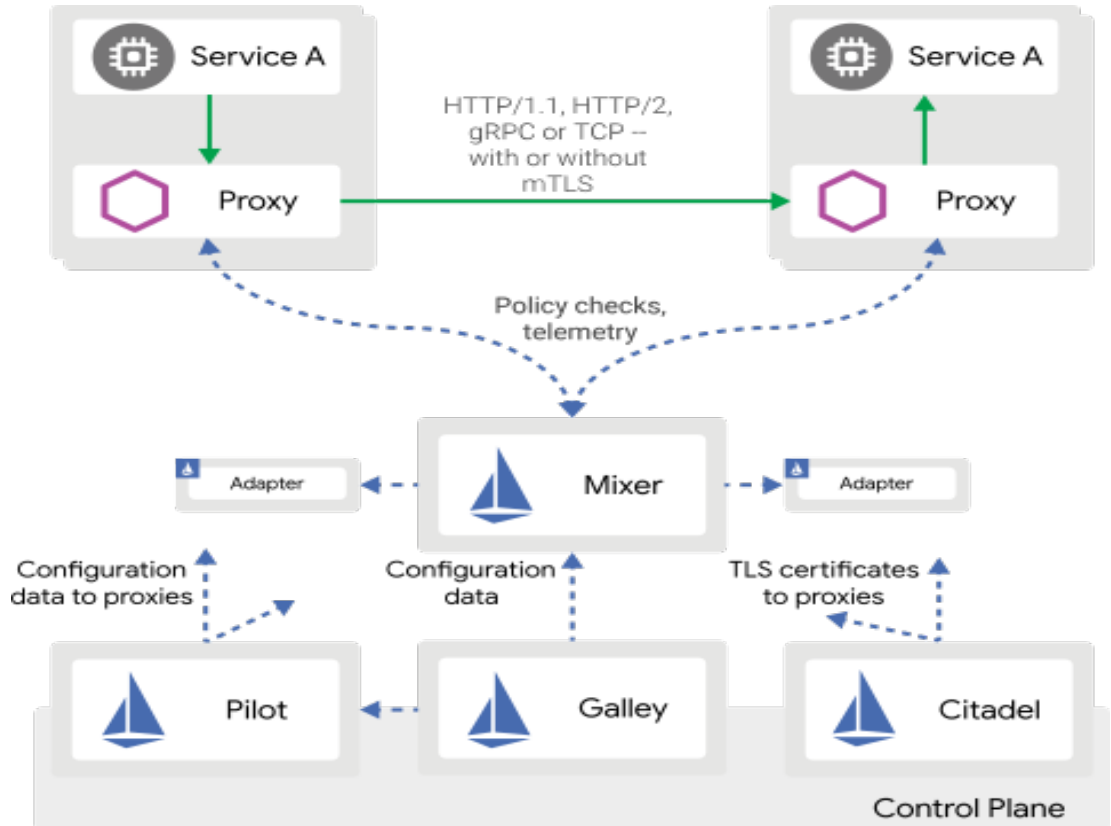
[4] https://youtu.be/Z3nfLI3z0hc

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

Istio[6]



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

[5] https://youtu.be/-t2BfT59zJA

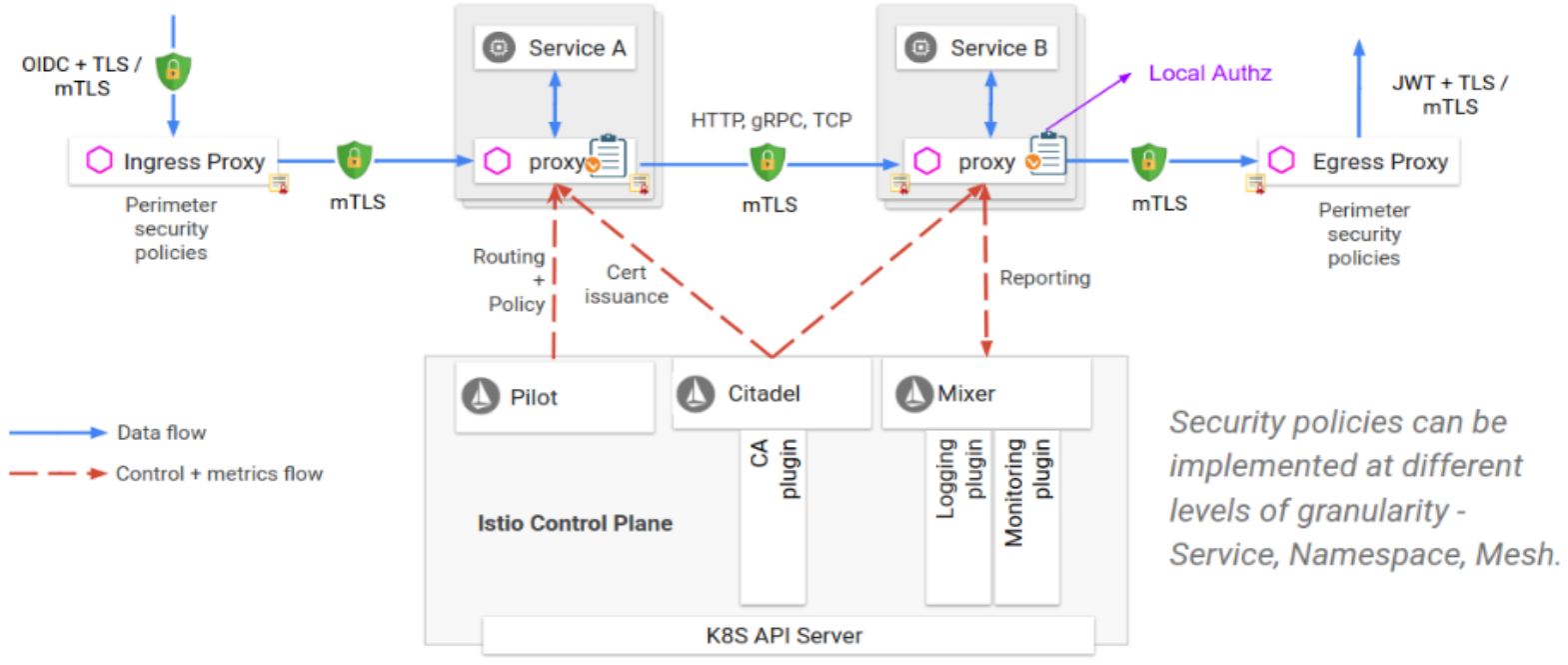


Figure: Istio mTLS (security)

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.

```yaml
# this config file contains all config fields with comments
kind: Cluster
apiVersion: kind.sigs.k8s.io/v1alpha3
# patch the generated kubeadm config with some extra settings
kubeadmConfigPatches:
- |
  apiVersion: kubeadm.k8s.io/v1beta1
  kind: ClusterConfiguration
  metadata:
    name: config
  networking:
    serviceSubnet: 10.0.0.0/16
# patch it further using a JSON 6902 patch
kubeadmConfigPatchesJson6902:
- group: kubeadm.k8s.io
  version: v1beta1
  kind: ClusterConfiguration
  patch: |
    - op: add
      path: /apiServer/certSANs/-
      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 != n
    t.Errorf("Failed to create cluster: %v", err
    t.FailNow()
}
// your tests here
```

DEMO: kind


DEMO TIME
LET'S HOPE THE DEMO-GODS ARE SMILING!
memegenerator.net

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