



Self-healing Kubernetes



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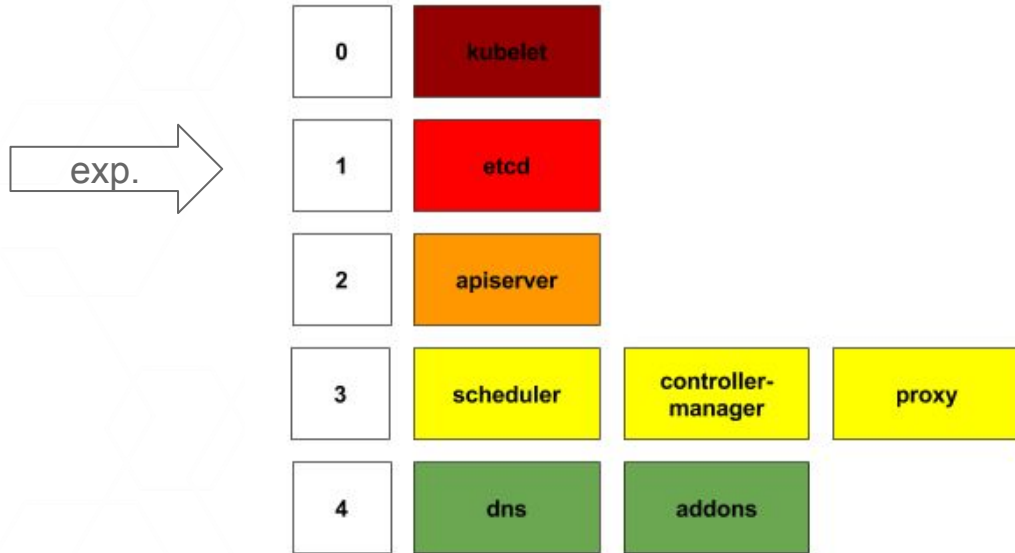
CoreOS

**Secure, simplify and
automate** container
infrastructure



Platform for running applications

Self-Hosted K8s



K8s managing its own core components

Bootkube

0

Assumes Kubelet

Kubelet

Bootkube

0

Assumes Kubelet

Kubelet

1

Make Kubelet start
bootstrap
components

etcd

api

scheduler

...

Bootkube

0

Assumes Kubelet

Kubelet

1

Make Kubelet start **bootstrap** components

etcd

api

scheduler

...

2

Start **self-hosted** components

etcd

api

scheduler

...

Bootkube

0

Assumes Kubelet

Kubelet

1

Make Kubelet start **bootstrap** components

etcd

api

scheduler

...

2

Start **self-hosted** components

etcd

api

scheduler

...

3

Transition data

Bootkube

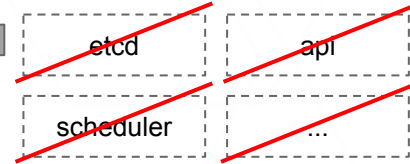
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Assumes Kubelet

Kubelet

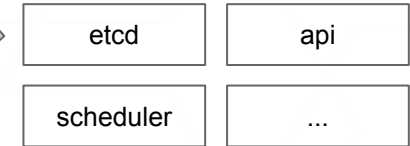
1

Make Kubelet start **bootstrap** components



2

Start **self-hosted** components



3

Transition data

4

Delete **bootstrapped** components

Why Self-Hosted?

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- Small Dependencies

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- Deployment consistency

Why Self-Hosted?

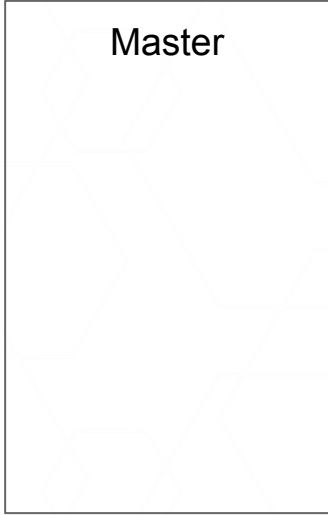
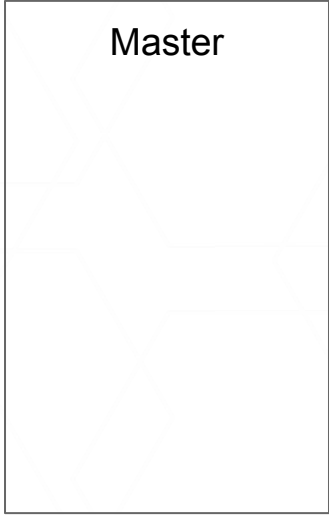
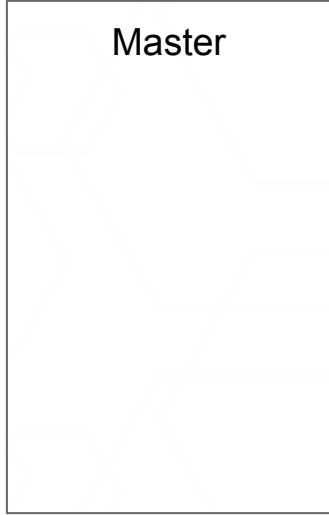
- Small Dependencies
- Deployment consistency
- Easy Introspection

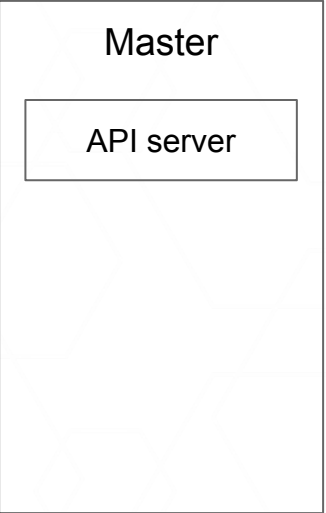
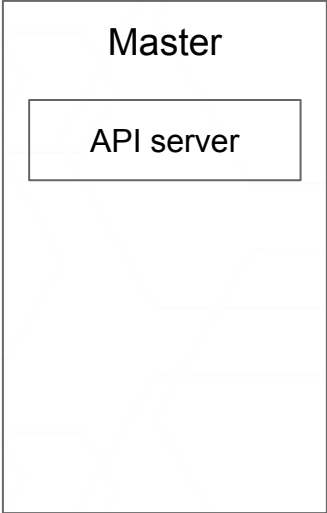
Why Self-Hosted?

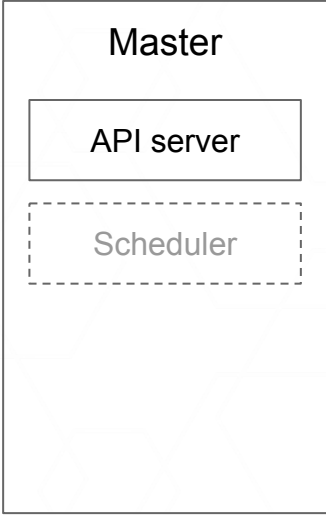
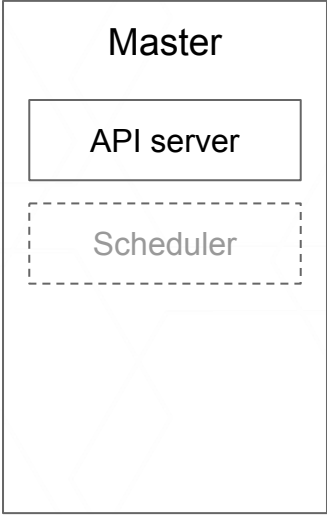
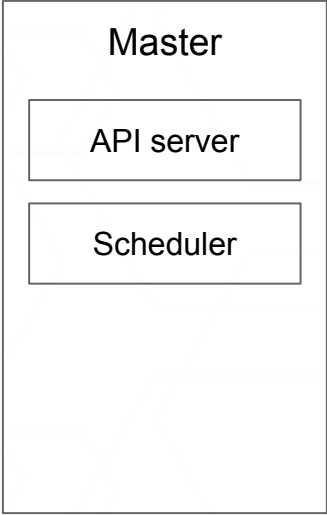
- Small Dependencies
- Deployment consistency
- Easy Introspection
- Cluster Upgrades

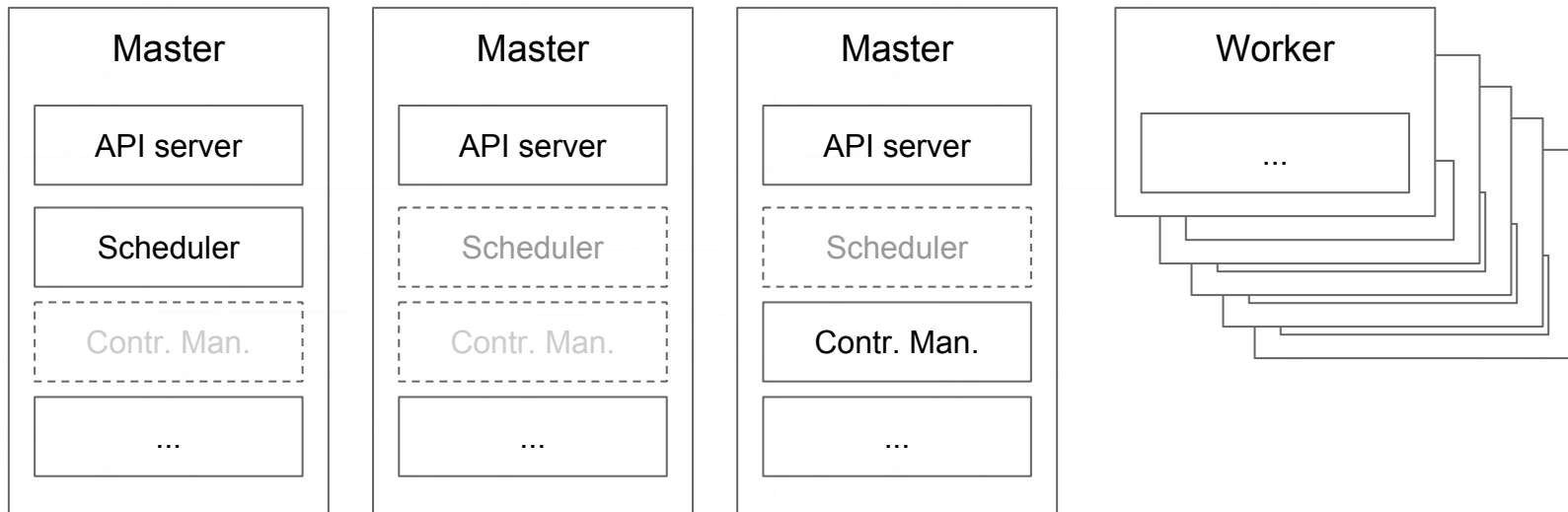
Why Self-Hosted?

- Small Dependencies
- Deployment consistency
- Easy Introspection
- Cluster Upgrades
- Easier Highly-Available Configurations









1. API server dies

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We don't care

2. Sched. / Contr. Manager

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```
--leader-elect=true
```


3. All Sched. / Contr. Manager

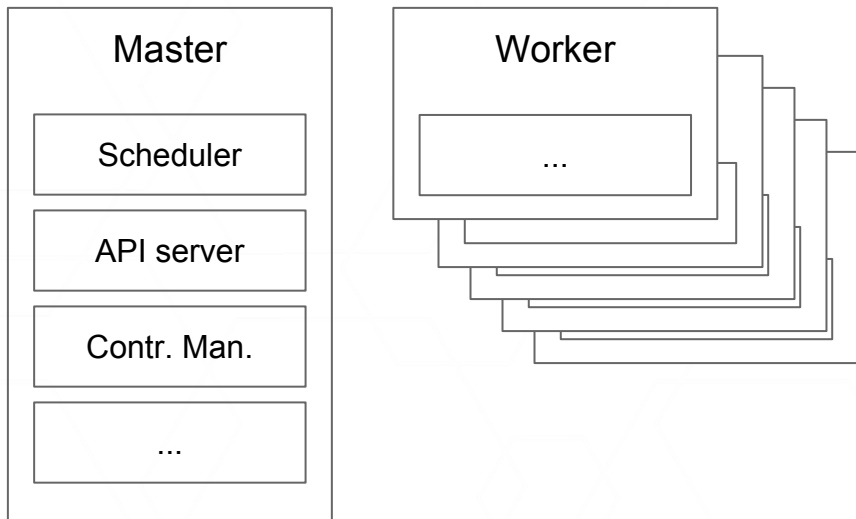
3. All Sched. / Contr. Manager

bootkube recover

4. All masters die

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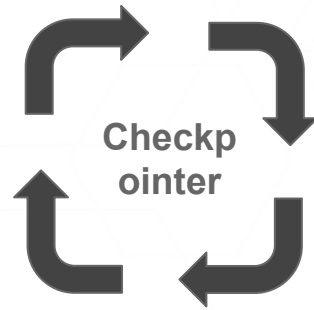
Bootkube recover

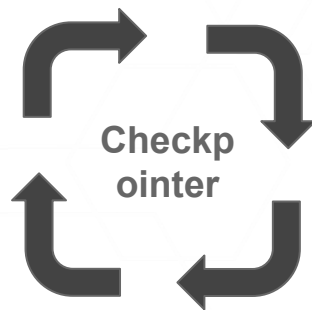
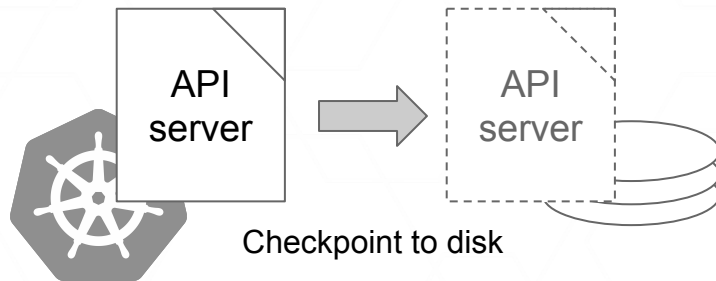


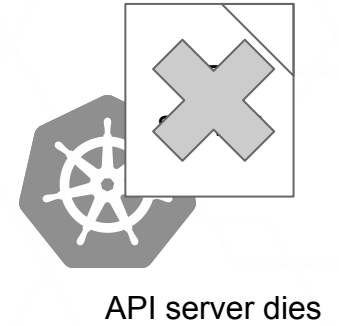
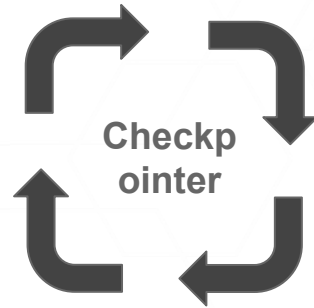
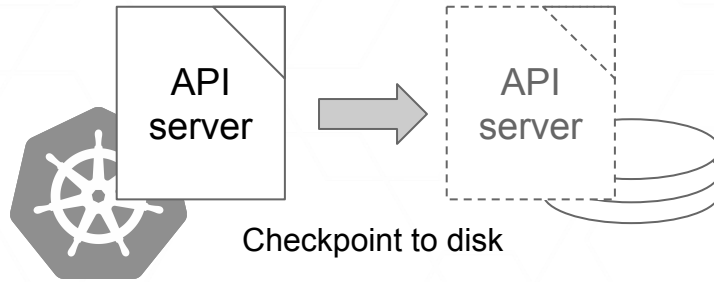
5. Only API server dies

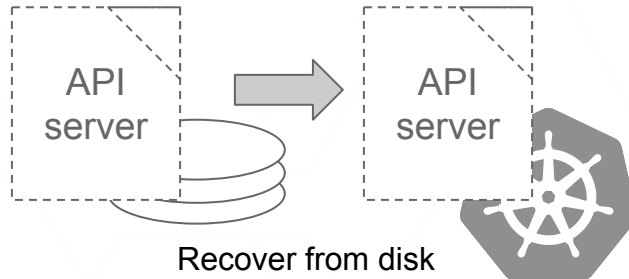
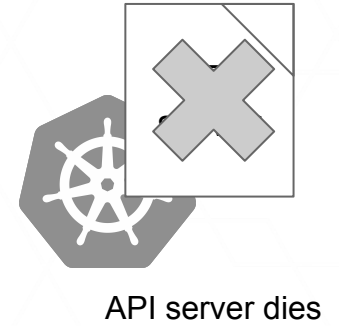
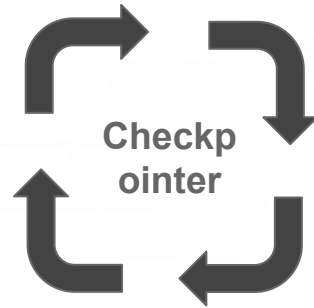
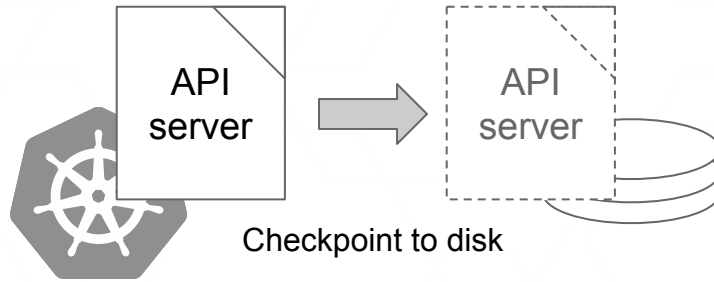
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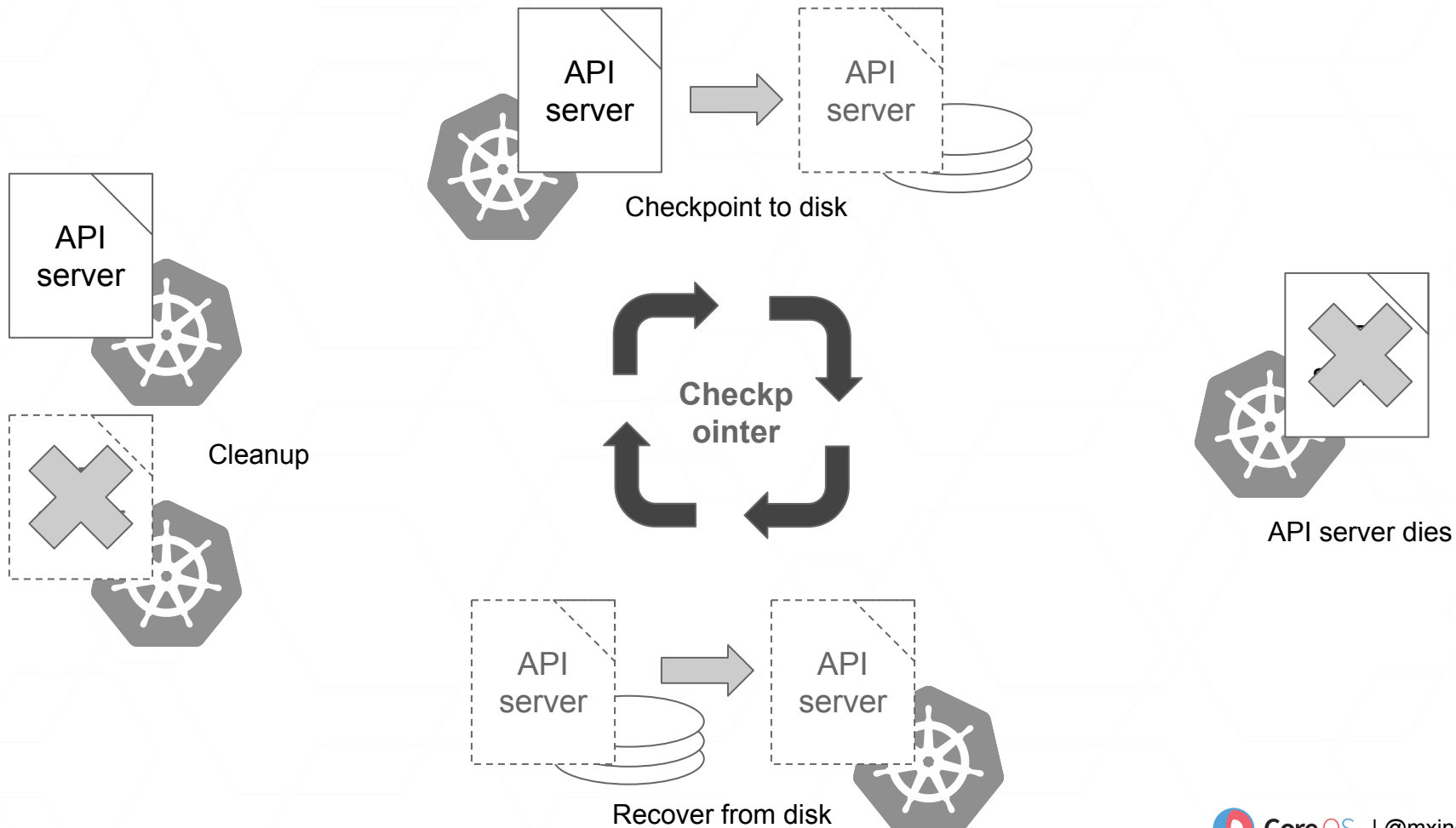
Checkpoint











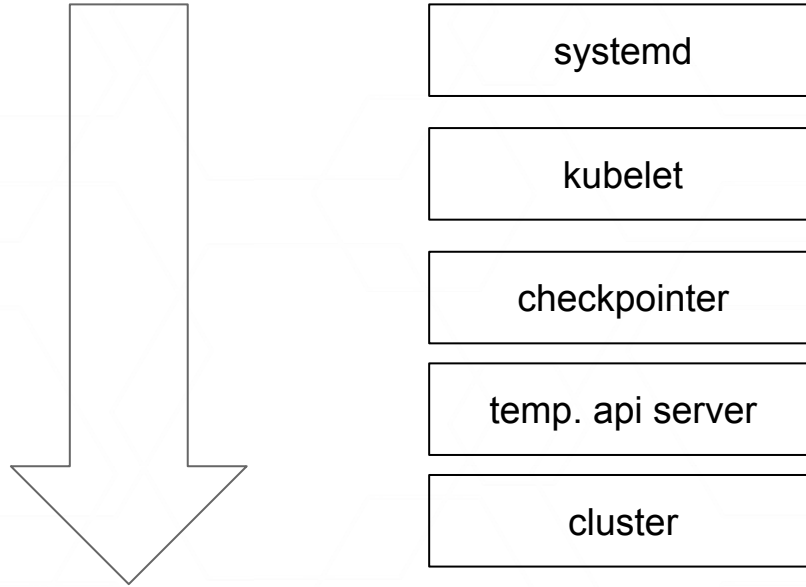


6. Single Master reboots

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Checkpoint

Single Master reboots





Scenarios for future talks

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Self-hosted etcd

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Self-hosted etcd

AWS dies - Kubernetes Federation

Scenarios for future talks

Self-hosted etcd

AWS dies - Kubernetes Federation

The Internet dies

We are hiring!

San Francisco, New York & Berlin



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