Deploying Kubernetes to Bare Metal using Cluster API

Introducing Sidero:

Secure, Automated Baremetal Lifecycle Management built on Cluster API.

Declarative Datacenter

```yaml
apiVersion: metal.sidero.dev/v1alpha1
kind: Server
metadata:
  name: 00000000-0000-0000-0000-d05099d333e0
spec:
  cpu:
    manufacturer: Intel(R) Corporation
    version: Intel(R) Atom(TM) CPU C3558 @ 2.20GHz
```

```yaml
apiVersion: metal.sidero.dev/v1alpha1
kind: ServerClass
metadata:
  name: default
spec:
  qualifiers:
    labelSelectors:
      - "my-server-label": "true"
```

All Sidero resources as standard Kubernetes Custom Resource Definitions (CRDs)

HELLO!

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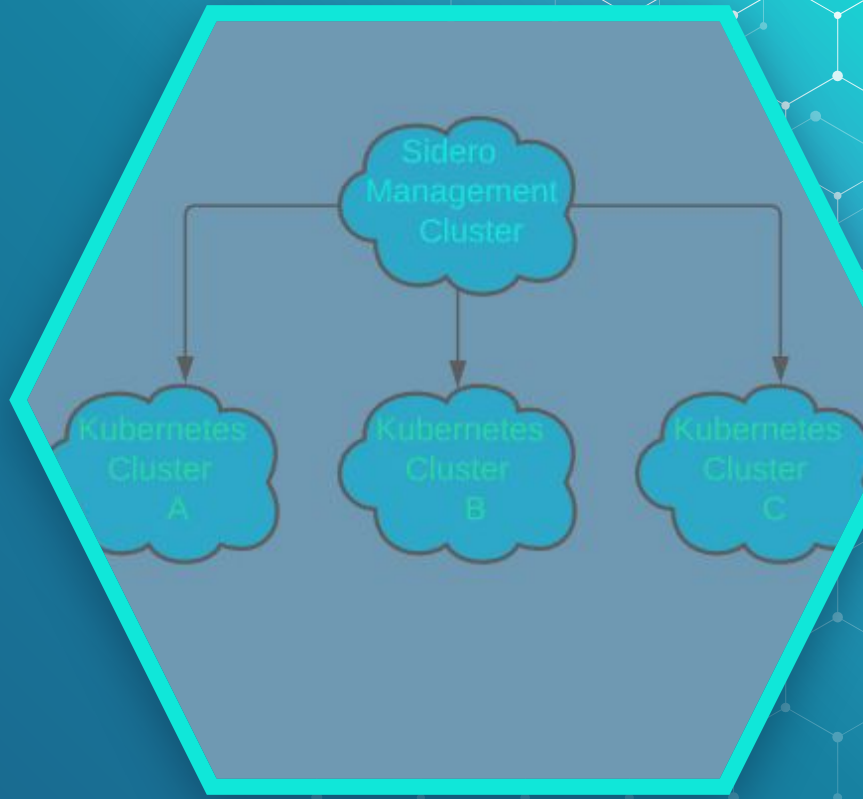
1 What is Sidero?

The anatomy

Sidero, the anatomy

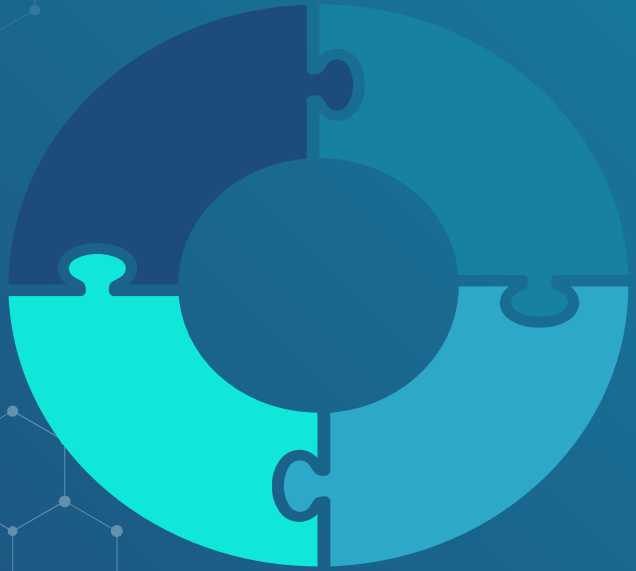
Sidero creates Kubernetes clusters from a common pool of compute resources.



Sidero, the anatomy

- Open Source
- Kubernetes-based
- Cluster API (CAPI)
- Built on Talos
- Manifest-oriented
  - Version Control All

Sidero, the anatomy



- CRDs
  - Environments
  - Servers
  - ServerClasses
  - Metadata

Talos

The Kubernetes OS

Talos, the Kubernetes OS

- Modern Linux OS
- Secure, Immutable, Minimal
- No frivolous daemons or binaries
- No SSH
- No Shell
- Container-first and Kubernetes-oriented
- APIs everywhere!

APIs *Everywhere*

Talos is controlled

- Completely by API
- Only by API

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Sidero

The Features

Sidero, the Features

Automation

- PXE server
- TFTP server
- HTTP metadata
- IPMI client
- K8S controller

Dynamics

- Scale-up
- Scale-down
- Lifecycle
  - Disk wipe
  - Spec scape
  - Add/Del

Federation

- Hybrid cloud
- Other CAPI providers

DEMO

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Sidero

The Demo

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Sidero

The Future

Sidero, the Future

Autoscaling

- By Schedule
- By Load

API-driven DC

- High-level APIs
- Single-call clusters

Coordinated Crypto

- Key management
- Organization PKI

Edge Computing

- Distributed nodes
- Single-node clusters

6 End

The End

JOIN IN

Slack

https://slack.dev.talos-systems.io/

Source

github.com/talos-systems/sidero

Docs

https://sidero.dev

THANKS!

ANY QUESTIONS?

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