



KubeCon



CloudNativeCon

North America 2017

SIG Cluster Lifecycle Update

Lucas Käldström & Robert Bailey

6th December 2017 - KubeCon Austin

Who's on stage?



Lucas Kälström

SIG Cluster Lifecycle co-lead

CNCF Ambassador & CKA

Contractor for Weaveworks

Upper Secondary School Student



Robert Bailey

SIG Cluster Lifecycle co-lead

Founding member of GKE

Googler

Our Mission

SIG Cluster Lifecycle examines how we should change Kubernetes to make it easier to operate.



What we do

1. Control Plane Installation Management

- *"How do I run the Kubernetes control plane?"*
- Building [kubeadm](#), cleaning up outdated getting started guides and improving docs

2. Control Plane Configuration Management

- *"How do I configure the Kubernetes control plane?"*
- Published guidelines for [Component Configuration](#) and [building a Control Plane API](#)

What we do

3. Simplifying Infrastructure Management

- *“How do I set up my network / machines?”*
- Working on a [Machines API](#) as part of the [Cluster API](#)

4. Addon Management

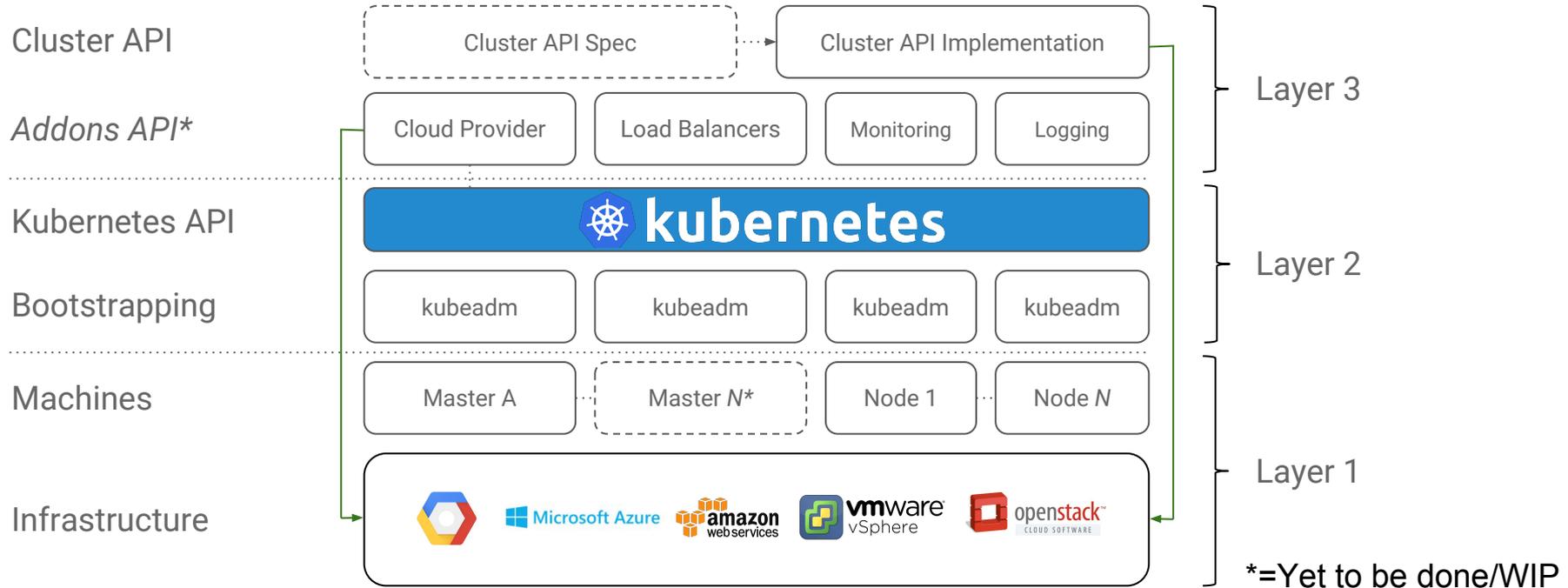
- *“How do I install things outside the core control plane?”*
- Many different approaches used today; still working on a plan for convergence

Cluster API

- A declarative way to create, configure, and manage a cluster
 - apiVersion: "cluster-api.k8s.io/v1alpha1"
 - kind: Cluster
- Controllers will reconcile desired vs. actual state
 - These could run inside or outside the cluster
- Cloud Providers will implement support for their IaaS
 - GCE, AWS, Azure, Digital Ocean, Terraform and Docker Machine, etc.
- Port existing tools to target Cluster API
 - Cluster upgrades, auto repair, cluster autoscaler

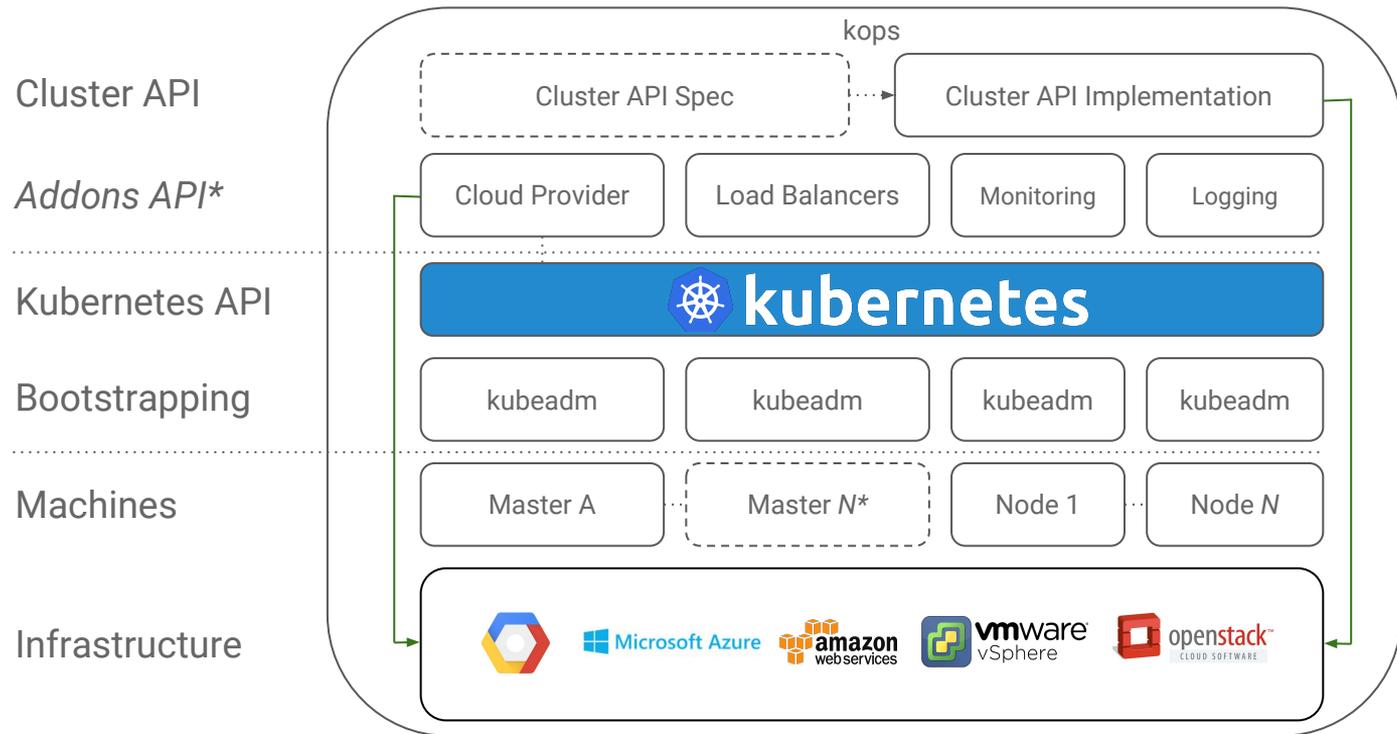
What is kubeadm and why should I care?

= A tool that sets up a minimum viable, best-practice Kubernetes cluster



kubeadm vs kops

Two different projects, two different scopes



*=Yet to be done/WIP

Key design takeaways

- kubeadm's task is to set up a **best-practice cluster** for each *minor version*
- The user experience should be *simple*, and the cluster reasonably *secure*
- kubeadm's scope is limited; intended to be a **building block**
 - Only ever deals with the local filesystem and the Kubernetes API
 - Agnostic to **how exactly** the kubelet is run
 - Setting up or favoring a specific CNI network is **out of scope**
- Composable architecture with everything divided into **phases**

Audience: build-your-first-own-cluster users & higher-level tools like *kops* & *kubicorn*

Recent accomplishments

- [kubeadm v1.8](#)
 - `kubeadm upgrade`
 - Alpha support for self-hosting
 - Extensibility work with phases and `kubeadm alpha phase`
 - kubeadm adoption work; e.g. [kubespray](#)
- kubeadm v1.9
 - Alpha support for CoreDNS and IPv6
 - Alpha ComponentConfig for the managing the kubelet and kube-proxy
- An alpha Cluster API and prototype implementation
 - Initial spec and GCE implementation

A sneak-peak into our plans for 2018

- Productionize tools currently under development
 - kubeadm to GA
 - Beta or higher Cluster API and implementations
 - Component Configuration for all critical system components
- Better documentation
 - Recommended cluster parameters
 - Highly Available cluster deployments
 - External dependencies
 - Create a tool-less starting from scratch installation guide
- Addons API

How can you contribute to our SIG?

[Relevant release cycle doc](#) → turn into a fully-featured contributing-to-the-SIG doc

We're working on growing the contributor/reviewers pool; scaling the SIG

Rebranding the kubeadm meetings on Weds as SIG Office Hours?

Attend our meetings / be around on Slack

Look at our [backlog of prioritized kubeadm issues](#)



Relevant KubeCon talks

- Robert and Kris are giving [a session on Thursday at 11:10am on the Cluster API](#)
- Lucas is giving [a kubeadm Deep Dive session on Thursday at 4:35pm](#)
- Diego is giving a [talk on self-hosting on Friday at 2:45pm](#)

We are hosting a SIG meetup on Thursday at 5:30pm at the Austin Taco Project (basement of the Hilton Hotel)



What now?

Follow the [SIG Cluster Lifecycle YouTube playlist](#)

Check out the [meeting notes](#) for our weekly SIG meetings in Zoom

Join [#sig-cluster-lifecycle](#) (for dev) and [#kubeadm](#) (for support)

Prep for and take the [Certified Kubernetes Administrator](#) exam

Read the two latest SIG updates on the Kubernetes blog in [January](#) and [August](#)

Check out the [kubeadm setup guide](#), [reference doc](#) and [design doc](#)

Read how you can [get involved](#) and improve kubeadm!



Thank you!

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