



KubeCon



CloudNativeCon

North America 2018

KubeVirt Intro BoF



Agenda



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- Introduction
- Overview of KubeVirt
- Demo
- KubeVirt Use Cases
- Q & A



The Story so Far...



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...for Virtualization in a cloud-native world:

- I need a place to install, run, and manage my Kubernetes clusters.

The Story so Far...



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...for Virtualization in a cloud-native world:

- I need a place to install, run, and manage my Kubernetes clusters.

=> OpenStack, oVirt, VMware, AWS, GCE, Azure, etc.

The Story so Far...



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...for Virtualization in a cloud-native world:

- I need a place to install, run, and manage my Kubernetes clusters.
=> OpenStack, RHV / oVirt, VMware, AWS, GCE, Azure, etc.
- I need a way to provide strict(er) isolation of my application containers.
=> Katacontainers, gVisor, Isolates, Firecracker

What about Existing Workloads?

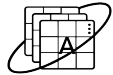


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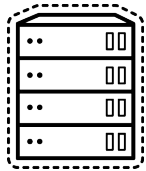
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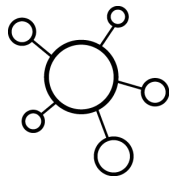
CONTAINER INFRASTRUCTURE AND ORCHESTRATION

Linux Containers with Kubernetes orchestration are becoming **the** standard platform for new applications.



VIRTUALIZED WORKLOADS

Virtualized Workloads are not going anywhere fast! Business reasons and technical reasons (older/different operating system)



BARE-METAL RESURGENCE

Increasingly customers are pursuing bare-metal clusters for net new business functionality being built in containers.

What is KubeVirt?



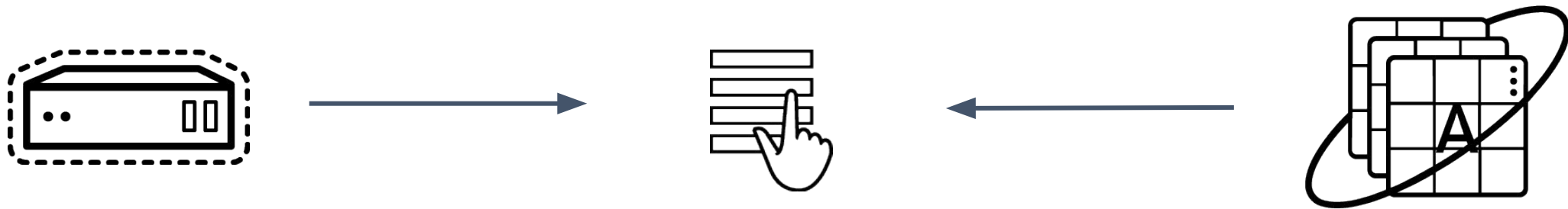
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Technology enabling developer use of Kubernetes as a unified platform for building, modifying, and deploying applications residing in both containers and virtual machines in a common, shared environment.



Add virtual machines to your Kubernetes/OpenShift projects just as easily as application containers!

What is KubeVirt?



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<http://kubevirt.io>

- Drops directly into existing Kubernetes Clusters.
 - a. Implemented as CRD
 - b. Extends Kubernetes so VMs can be scheduled alongside Containers
- Takes a K8S-native an approach as possible.
- Leverage Container Networking Interface (CNI), Container Storage Interface (CSI). and other K8S-native integrations.

Components



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KubeVirt

The virtual machine operator

Containerized Data Importer (CDI)

Importing disks

CSI / Ember

Leverage 80+ existing storage drivers

Virt-v2v (APB)

Importing a whole virtual machine

OpenShift Web Console (Optional)

With UI extensions

Virtctl

Used to perform actions on vms



Use Cases - SAP



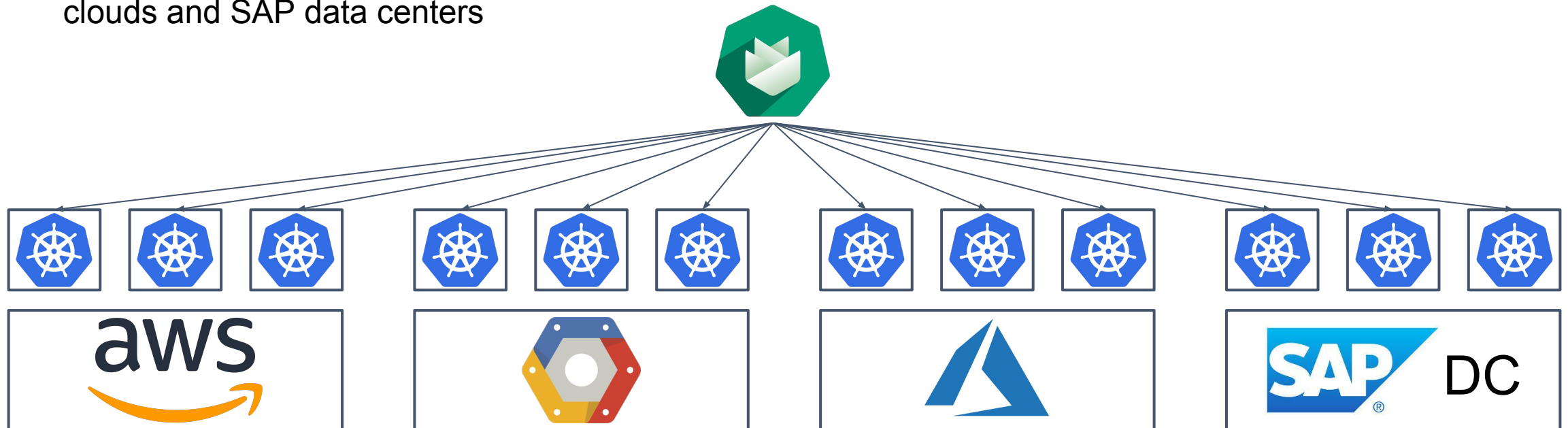
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- SAP is a large scale software company that is focused on the enterprise market
- Dev Community at SAP is very large and demands isolated Kubernetes clusters
- Production use cases are moving to Kubernetes
- Project Gardener is used to facilitate dynamic management and provisioning of clusters across public clouds and SAP data centers



Use Cases - SAP



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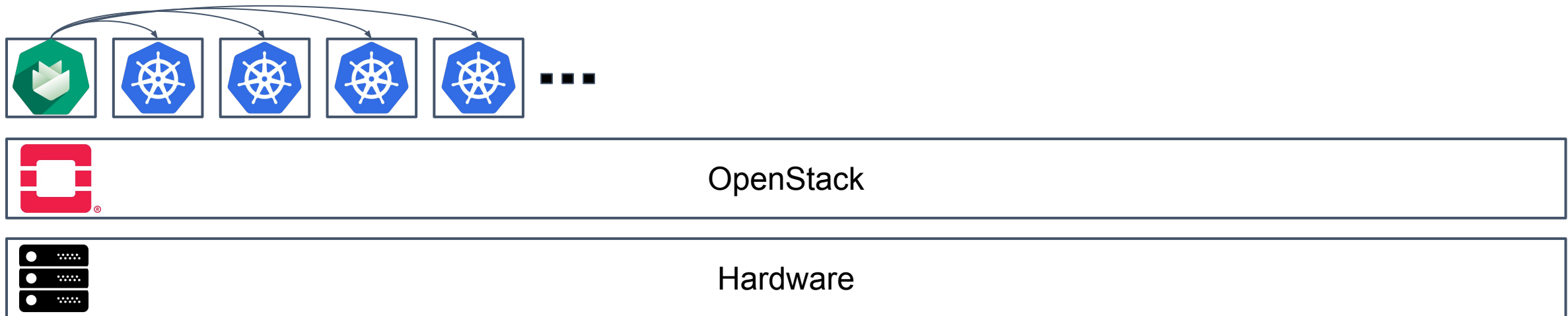


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- OpenStack as infrastructure cloud-provider for Kubernetes
 - Large and complex stack
 - Requirements on operational knowledge very high
- Not feasible for edge case deployments



Use Cases - SAP

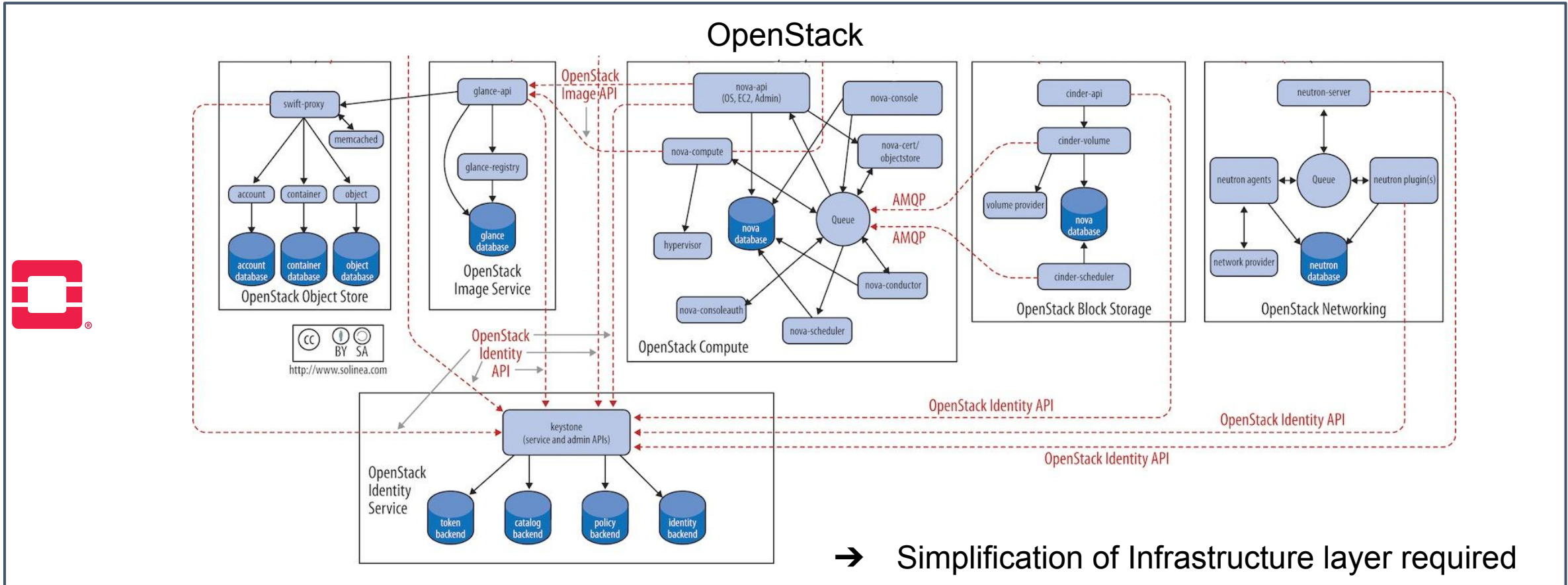


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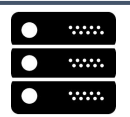


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Hardware

Use Cases - SAP



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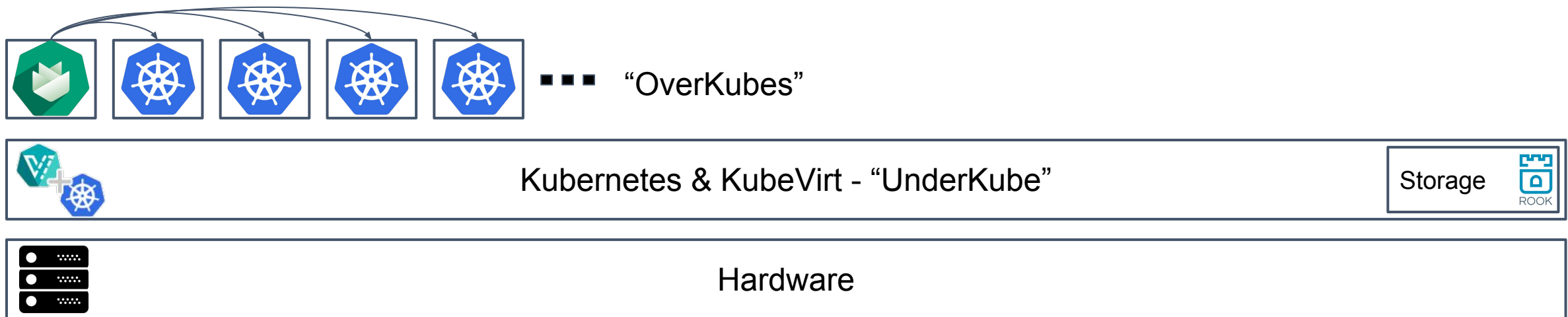


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- Use Kubernetes with KubeVirt as infrastructure cloud-provider
 - Let Gardener deploy Kubernetes Clusters in KubeVirt VMs
- Stack simplified, everything is based on Kubernetes
- Less operational knowledge required
- Fit to run in small on-prem deployments



Use Case: Red Hat



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- CNV
- OpenShift
- Web Console
- Storage Integration



Demo Time



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Pre-requisites:

- kubectl
- minikube

http://kubevirt.io/get_kubevirt/

NB: Yes, we're running nested virt here - fine for getting started!



Kubecon Events



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- Deep Dive BoF @ 1:45 PM Tuesday
- Demo at Red Hat Booth Wed @ 8:30AM
- KubeVirt Gathering Tues evening

<https://bit.ly/2SFD3ls>

Get Started



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- Website:
 - <https://kubevirt.io>
 - i. AWS
 - ii. GCP
 - iii. Bare Metal
 - iv. MiniKube
- katacoda demo
 - <https://www.katacoda.com/fabiand/scenarios/kubevirt-demo>
- KubeVirt Demo
 - <https://github.com/kubevirt/demo>

Collaborating



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- Website:
 - <https://kubevirt.io>
- GitHub:
 - <https://github.com/kubevirt/>
- Mailing List:
 - <https://groups.google.com/forum/#!forum/kubevirt-dev>
- IRC:
 - #kubevirt on irc.freenode.net
- Slack (K8S virtualization working group):
 - #virtualization on kubernetes.slack.com

Q & A



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