VMware SIG
Intro to the vSphere Cloud Provider

what it does and how to use it

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Presenter

Bios

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Abstract

Join the SIG VMware introduction session to learn our mission, recent accomplishments and discuss future work.

We will also focus on how new contributors can get involved in the SIG. Kubernetes has the concept of a Cloud Provider, which is a standardized module which allows Kubernetes to run on various platforms which might have different implementations of networking, storage, and node management.

Kubernetes is in the process of moving to a new “out of tree” cloud manager architecture to allow cloud providers to have independent feature and patch release cycles. Learn how the vSphere cloud provider is evolving to meet this new model. This session will outline how to get started when you deploy Kubernetes on vSphere infrastructure, on-prem or in a public cloud. Material covered is applicable to kubeadm deployments, and when using Kubernetes distributions on vSphere infrastructure.

Agenda

Cloud Provider Intro

The role of a Cloud Provider in Kubernetes

The vSphere Cloud Provider

Deploying and configuring

The Cloud Provider Roadmap

Moving “Out of Tree” and to CSI

How to Get Information on an ongoing basis

The VMware SIG

How to Contribute

Working Groups, GitHub, and more

The Kubernetes Cloud Provider

Why it exists

A plug-in mechanism

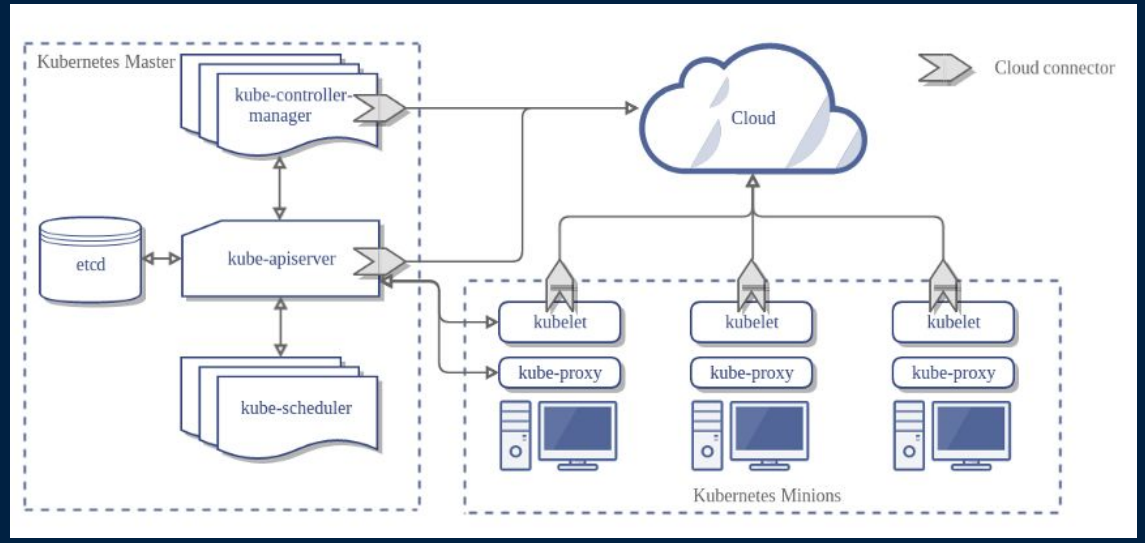
- allows Kubernetes to operate across platforms
- hosts portable apps in a standard way

What it does

Handles identification of nodes

Labels nodes with zone information (optional)

Handles persistent volume provisioning



Other Cloud Provider features

These are optional and not performed by vSphere cloud provider to enable support for a wide variety of possible implementations

- TCP load balancing for services
- Inter-node routing

Deploying and configuring the vSphere Cloud Provider

Pre-reqs

VM pre-conditions

- Supported OS (popular Linux distros supported)
- VM names use rules for a valid DNS name
- VM advanced option disk.EnableUUID = true
- VMware Tools installed
- pvscsi preferred

vCenter

- Service account available for use by Kubernetes control plane

Optional

Installing govc CLI is useful

- Alternative: configuration steps can be performed in the vCenter web UI

vSphere Cloud Provider config file

vsphere.conf

kubelet, controller manager and api server flags:

- --cloud-provider=vsphere
- --cloud-config=<vspher.conf full filename path>
- Apply flags to all instances
- .conf file can be maintained in a shared location

Example:

```
[Global]
# properties in this section used for all vCenters unless overridden in VirtualCenter section.
user = Administrator1@vsphere.local
password = "password"
port = "443" #optional if default port is used
insecure-flag = "1" #set if using self signed certificate
datacenters = "us-east" # comma separated list of vCenter datacenters where Kubernetes nodes are present

[VirtualCenter "1.1.1.1"]
[Workspace]
server = "1.1.1.1" # IP or FQDN
datacenter = "us-east"
default-datastore="sharedVmfs-0" #default datastore used for storage class dynamic provisioning
resourcepool-path="cluster-folder/cluster-name/Resources"
folder = "kubernetes"
[Disk]
scsicontrollertype = pvscsi
[Network]
public-network = "VM Network"
```

Kubernetes Cloud Provider Roadmap

Moving “out of tree”

Goal decouple cloud provider dependencies and release cycles
Kubernetes Enhancement Proposal (KEP) here

Also interfacing to “out of tree” CSI storage plugins

Container Storage Interface (CSI) is a cross orchestrator initiative to standard storage plugins

The “out of tree” vSphere cloud provider requires use of CSI for storage

See https://github.com/kubernetes-csi/docs

The VMware SIG

Charter

The VMware SIG maintains and evolves the ability to run Kubernetes on VMware infrastructure.

vSphere cloud provider

Architectural planning and discussion related to new CRDs, plug-ins and KEPs that allow the vSphere platform to supplement and support Kubernetes

How to Join

Link to join group: https://groups.google.com/forum/#!forum/kubernetes-sig-vmware

Link to join Slack: https://kubernetes.slack.com/messages/sig-vmware

How to contribute

Working Groups

Regular SIG Meeting: Thursdays at 18:00 UTC (bi-weekly).

- Meeting notes and agenda.
- Meeting recordings.

vSphere Cloud Provider vSphere syncup: Wednesdays at 16:00 UTC (monthly)

- Meeting notes and agenda.
- Meeting recordings.

Cluster API Provider vSphere syncup: Wednesdays at 18:00 UTC (bi-weekly)

- Meeting notes and agenda.
- Meeting recordings.

Github

in-tree cloud provider
https://github.com/kubernetes/kubernetes/tree/master/pkg/cloudprovider/providers/vsphere

out-of-tree cloud provider
https://github.com/kubernetes/cloud-provider-vsphere

Cluster API
https://github.com/kubernetes-sigs/cluster-api-provider-vsphere

Thank You / Closing