



CHINA
OpenStack Days



CHINA
OpenStack Days

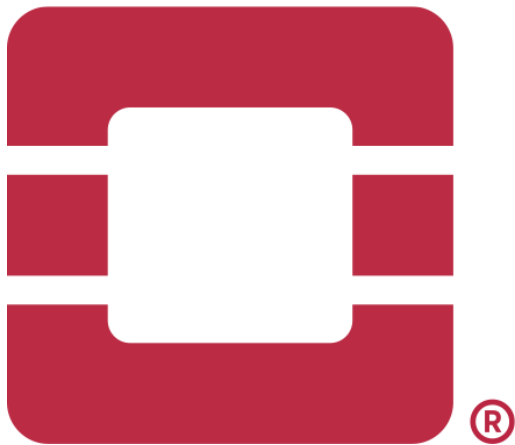
IT大咖说
知识分享平台

Integration Points for Kubernetes and OpenStack

Chris Hoge
Interop Engineer, OpenStack Foundation



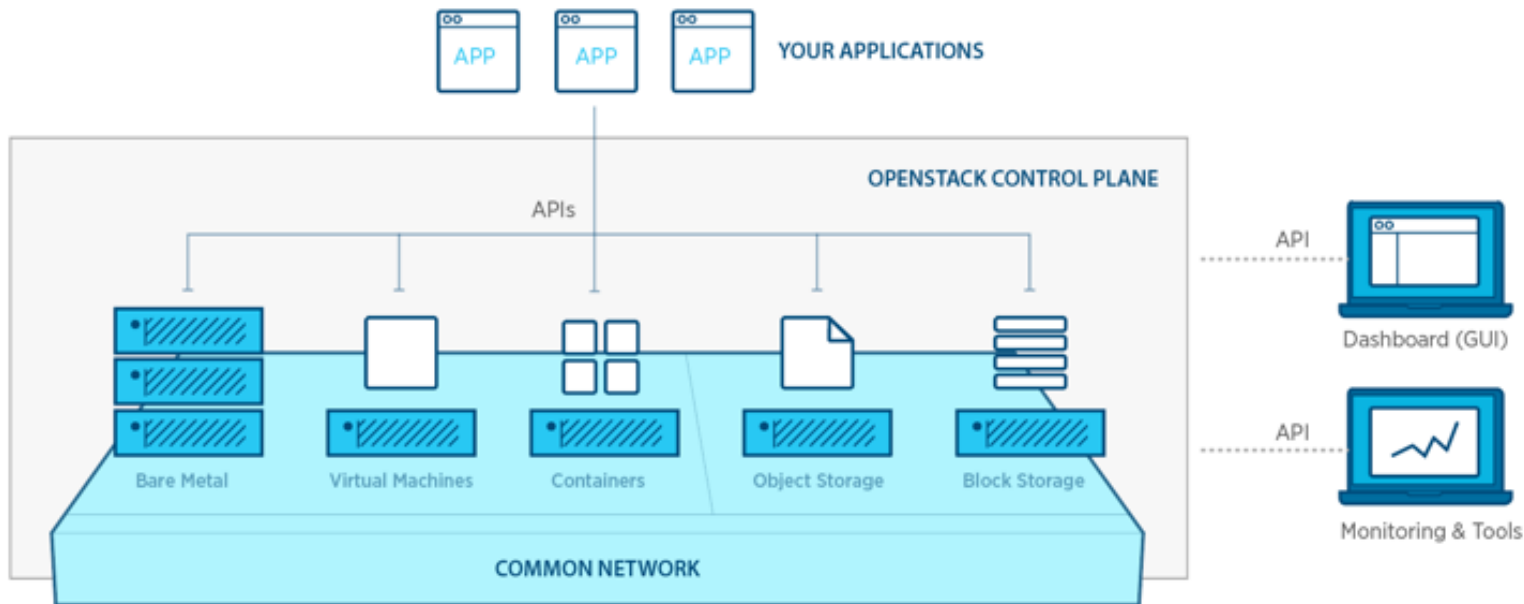
What is OpenStack?



What is Kubernetes?



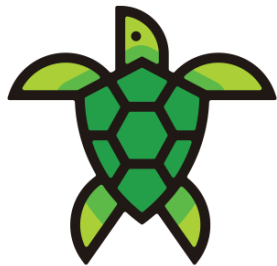
OpenStack: One Platform for Infrastructure





CHINA
OpenStack Days

IT大咖说
知识分享平台



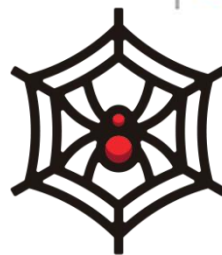
KEYSTONE

an OpenStack Community Project



NOVA

an OpenStack Community Project



NEUTRON

an OpenStack Community Project



GLANCE

an OpenStack Community Project



SWIFT

an OpenStack Community Project



CINDER

an OpenStack Community Project





CHINA
OpenStack Days

IT大咖说
知识分享平台



DESIGNATE

an OpenStack Community Project



IRONIC

an OpenStack Community Project



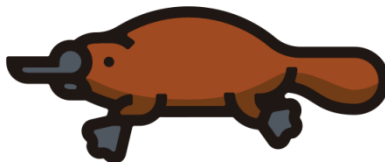
BARBICAN

an OpenStack Community Project



MAGNUM

an OpenStack Community Project



KURYR

an OpenStack Community Project

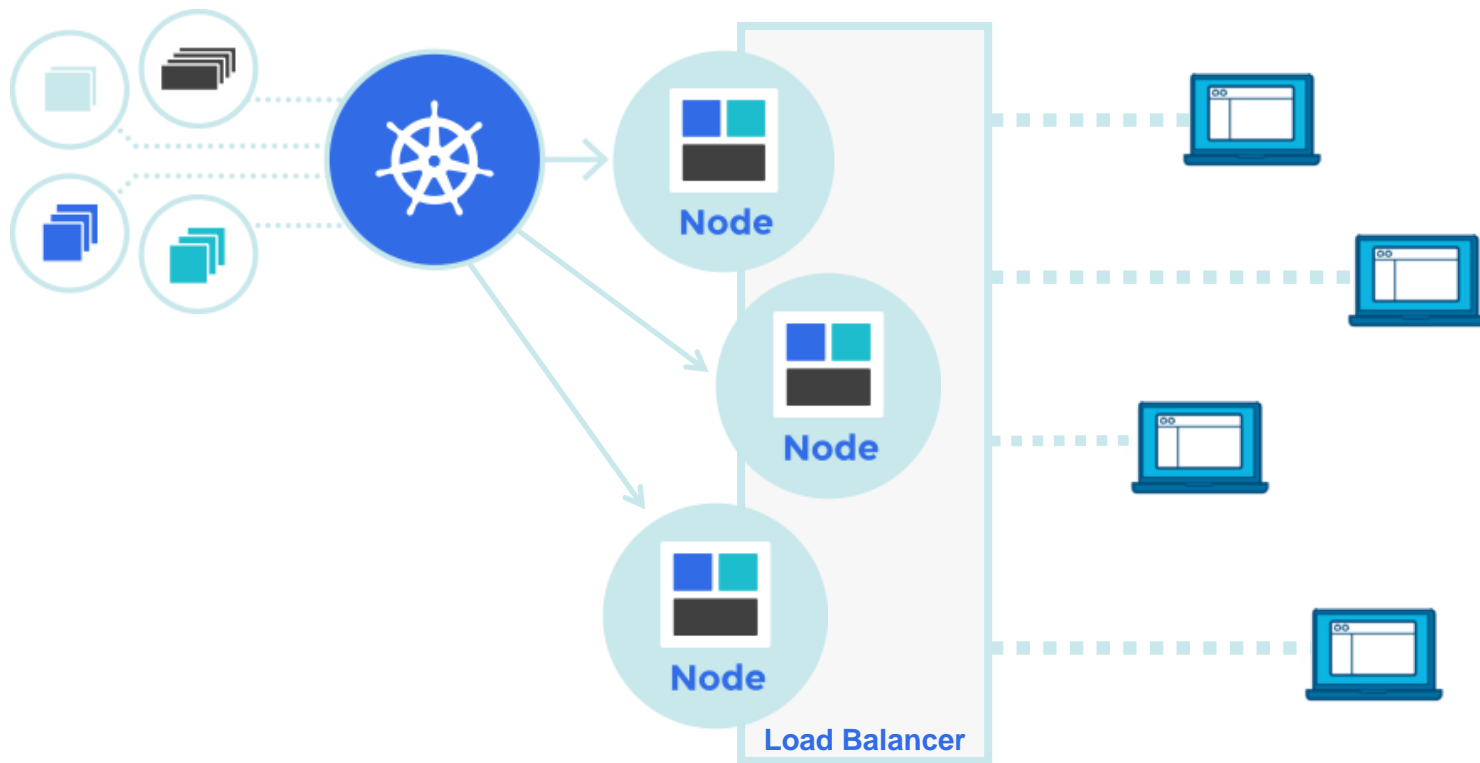


ZUN

an OpenStack Community Project



Kubernetes: Application Orchestration



Kubernetes: Application Orchestration

- ➔ K8s is built with cloud provider infrastructure in mind.
- ➔ K8s doesn't allocate nodes on its own, but can be cloud aware.
- ➔ K8s uses an existing load balancers.
- ➔ K8s requires an externally provided network.
- ➔ K8s relies on external block storage providers.
- ➔ K8s can run on bare metal, but is at home on a cloud.

Kubernetes on OpenStack



Cloud Providers



- ➔ **Upstream cloud provider:**
<https://github.com/kubernetes/kubernetes/pkg/cloud/provider/providers/openstack>
- ➔ **OpenStack hosted provider**
<http://git.openstack.org/cgit/openstack/k8s-cloud-provider/>
- ➔ **Integration with:**
 - Keystone
 - Swift
 - Cinder
 - Neutron Load Balancer
 - Nova



MAGNUM

an OpenStack Community Project

➔ API endpoint for provisioning container orchestration engines.

➔ Supports:

Kubernetes
Docker Swarm

➔ In addition to using core services, it leverages:

Heat Orchestration
Barbican Key Store

OpenStack on Kubernetes



- ➔ **Helm is the official "package manager" for Kubernetes**
- ➔ **Charts define how applications are deployed and configured.**
- ➔ **Helm is currently the standard tool to build charts to install OpenStack on top of Kubernetes**



KOLLA

an OpenStack Community Project

- ➔ **Kolla: Docker container images for OpenStack**
<https://git.openstack.org/cgit/openstack/kolla/>
- ➔ **Kolla-Kubernetes: Helm-based deployments of OpenStack**
<https://git.openstack.org/cgit/openstack/kolla-kubernetes/>

Community alternatives to Kolla

- ➔ **openstack-helm:**
OpenStack hosted project, founded at AT&T.
<https://git.openstack.org/cgit/openstack/openstack-helm/>
- ➔ **Many companies have rolled their own Helm charts to install OpenStack.**
- ➔ **openstack-loci images are an alternative to the kolla container images**

OpenStack and Kubernetes as Independent Service Providers



CINDER

an OpenStack Community Project

- ➔ **Cinder Block Storage**
One provider interface for block storage.
Can be installed independently.
Support over 80 storage solutions.
- ➔ **With Cinder You Can Manage All Of Your Cloud Storage With One API.**
- ➔ **Supported in upstream Kubernetes**

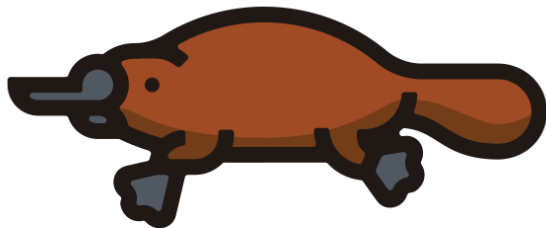


IRONIC

an OpenStack Community Project

- ➔ **Ironic Bare Metal Driver**
Can be installed independently. -or-
Can be installed as a Nova driver.
- ➔ **Manage your entire server infrastructure**
Build Kubernetes golden images with DIB
Deploy images with standalone Ironic.
- ➔ **With Nova, the power of cloud and bare metal**
Nova cloud provisioning.
Bare metal performance.

OpenStack Network for Kubernetes



KURYR

an OpenStack Community Project

Kubernetes Network for OpenStack



Calico

How to Get Involved

- ➔ Join the mailing lists.
 - ➔ <http://lists.openstack.org/cgi-bin/mailman/listinfo/openstack-dev>

- ➔ Find us on IRC
 - ➔ #openstack-containers
 - ➔ #openstack-kolla

- ➔ Join the Kubernetes Special Interest Group
 - ➔ sig-openstack

Thank you!

Have a Good Time With OpenStack!

THANK YOU