



KubeCon



CloudNativeCon

Europe 2018



SIG-OpenStack Update

Chris Hoge, OpenStack Foundation

David Lyle, Intel



Leadership Update



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- Chris Hoge, OpenStack Foundation
- David Lyle, Intel
- Robert Morse, Ticketmaster

Special thanks to outgoing SIG leads:

- Ihor Dvoretzkyi, CNCF
- Stephen Gordon, Red Hat

Mission



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Coordinates the cross-community efforts of the OpenStack and Kubernetes communities. This includes OpenStack-related contributions to Kubernetes projects with OpenStack as: a deployment platform for Kubernetes; a service provider for Kubernetes; a collection of applications to run on Kubernetes.

Major Efforts in 1.10 Release



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- Formation of OpenStack-SIG-K8s
 - Within the OpenStack community, we have formed OpenStack-SIG-K8s.
 - <https://review.openstack.org/#/c/541489/>
 - The SIG is an official recognition of the K8s-SIG-OpenStack leadership and organization within the OpenStack community.
 - Same leaders, meetings, and objectives.
 - Allows the SIG to take advantage of OpenStack resources.
 - Forum sessions at OpenStack Summits
 - Development rooms at Project Team Gatherings (PTG)
 - A unique governance structure to encourage cross community collaboration.

Previous Events



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- OpenStack PTG Denver, Sept. 2017
 - First meeting on SIG-K8s formation
- OpenStack Summit Australia, Nov. 2017
 - Second Meeting on SIG-K8s formation
 - 25 Presentations, workshops, and forum sessions devoted to OpenStack and Kubernetes integrations
- KubeCon/CloudNativeCon, Dec. 2017
 - Joint community leadership meetings through the week, organized and led by Thierry Carrez.
 - First K8s-SIG-OpenStack/OpenStack-SIG-K8s joint update and deep-dive
- Inaugural Helm Summit Portland, Feb. 2018
 - Participation by Kolla, OpenStack-Helm, and LOCI core contributors, as well as SIG leadership
- OpenStack Project Teams Gathering Dublin, Feb. 2018
 - Full day of meeting and work space
- Open Networking Summit Los Angeles, March 2018
 - Community meetings with OpenStack and K8s leaders

Upcoming Events



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- KubeCon/CloudNativeCon Europe, May 2-4
 - SIG Updates and working sessions, along with a Kata Containers talk and an OpenStack provider intro talk
- OpenStack Summit Vancouver, May 21-24
 - Numerous sessions around OpenStack/Kubernetes integration
- OpenDev Conf, May 22-23
 - Collaborative community event focused on CI/CD
- DockerCon, June 12-15
 - Community Meetings
- OpenInfra China Days, June 21-22

Major Efforts in 1.10 Release



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- External OpenStack Provider
 - OpenStack Cloud Controller Manager repository
 - <https://github.com/kubernetes/cloud-provider-openstack>
 - Tracks upstream K8s provider code
 - New features landing in new repository
 - In-tree OpenStack Provider to be deprecated in 1.11 and removed in 1.12

Major Efforts in 1.10 Release



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- External OpenStack Provider (continued)
 - Several integration points into OpenStack
 - External provider with Cloud Controller Manager
 - External and Internal LBaaS with Neutron LBaaS2
 - LVM/iSCSI with Cinder
 - Ceph/RBD with Cinder
 - Cinder Integrations
 - Standalone provider with LVM/iSCSI and Ceph/RDB scenarios
 - Flex volume driver.
 - CSI volume driver.
 - OpenStack Keystone authentication/authorization driver

Major Efforts in 1.10 Release



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- Routing and IPv6 Improvements
 - For nodes with more than one internal IP address, new algorithm chooses correct route
 - Works for both IPv4 and IPv6
 - Fixed IPv6 support by matching network types by forcing nexthop to be in same network space
- Removal of experimental Keystone Authentication Code
 - Experimental Keystone Authentication Code was removed from upstream
 - Replaced with external provider Keystone web hooks
 - Example usage documented by Saverio Proto (ziproto)
 - <https://cloudblog.switch.ch/2018/02/02/openstack-keystone-authentication-for-your-kubernetes-cluster/>

Major Efforts in 1.10 Release



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- OpenStack provider e2e Testing in CNCF/CICD
 - Merged OpenStack deployment code into CNCF/CICD cross-cloud repository
 - <https://github.com/crosscloudci/cross-cloud>
 - Future work to include migrating to external cloud provider.



- Testing Testing Testing
 - K8s third-party testing on OpenLab, with goal of adding as gate job.
 - <https://openlabtesting.org>
 - Resource for testing open source SDK and platform plugins
 - Continued work with CNCF/CICD to support external provider.
- Refactoring and improving documentation
- Cluster autoscaling support
- OpenStack Containers Whitepaper
 - <https://etherpad.openstack.org/p/2018-containers-whitepaper>

OpenStack Project Updates



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- OpenStack on K8s:
 - OpenStack-Helm
 - Switched to using LOCI base images, still have support for Kolla Images.
 - Ceph SDS integrations for Glance, object store, and database storage.
 - Ironic chart integration leveraging kubeadm enabling bare metal Kubernetes cluster deployments.
 - Companies working to put into production include SK Telecom, AT&T, and Workday.
 - Major progress on third party integrations including Ceph, OpenContrail, and Calico.

OpenStack Project Updates



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- K8s on OpenStack
 - Magnum
 - supports latest versions (including 1.10).
 - RBAC support by default.
 - Flannel and Calico support.
 - Upcoming features include host OS and K8s control plane updates.
 - Current and future users:
 - CERN with 115 K8s clusters ranging from 1.7.4 to 1.10.0 (alpha)
 - Vexxhost, City Network in two data centers, Easystack.
 - Catalyst and American Airlines working towards production.

OpenStack Project Updates



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- K8s on OpenStack (continued)
 - Zun
 - Ability to bind mount Cinder into Zun containers.
 - PCI passthrough GPUs and NICs with scheduler support.
 - Support for Clear Containers (feature in progress before Kata announcement)

OpenStack Project Updates



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- Container Networking

- Kuryr

- CNI daemon support to increase scalability and speed of network operations.
 - New SDN backend gate jobs including OVN and Dragonflow.
 - Mapping of Kubernetes network policies to Neutron Security Groups, enabling security by default for pod communication.
 - IPv6 support.
 - Octavia support.
 - Containerized and installable with kubeadm

Collaboration



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- Sig-OpenStack Deep Dive Session
 - Friday, May 4, 15:40 - 16:15, B4-M2/4
 - Planned as working/collaboration session
 - <https://etherpad.openstack.org/p/CPH-kubernetes-sig-openstack-deep-dive>
- Slack
 - #sig-openstack
- Google Group
 - k8s-sig-openstack
 - <https://groups.google.com/forum/#!forum/kubernetes-sig-openstack>
- Biweekly SIG Meetings
 - Wednesdays at 16 PDT / 23 UTC (formerly 00 UTC, adjusted for US Daylight Savings time)
 - <https://github.com/kubernetes/community/tree/master/sig-openstack>



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Thanks!

Questions?

