

Kubernetes

IBMCloud SIG – Intro

KubeCon Seattle 2018

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SIG Co-Chair, IKS Networking Engineer

Agenda

- ❑ SIG overview
- ❑ SIG structure and activities
- ❑ Overview of IBM Clouds
 - ❑ IBM Cloud Kubernetes Service (IKS)
 - ❑ IBM Cloud Private (ICP)
- ❑ SIG contributions to the Kubernetes upstream
- ❑ Summary

Overview

- ❑ A SIG for building, deploying, maintaining, supporting, and using Kubernetes on IBM Public and Private Clouds
 - IBM Cloud Kubernetes Service (IKS) and IBM Cloud Private (ICP)
 - Both participate in the CNCF Certified Kubernetes Conformance Program and are certified
- ❑ Many developers and leaders from IBM Cloud work openly in this group to determine the future of IBM Cloud team's involvement in the Kubernetes community
- ❑ You can follow the evolution of the IKS and ICP platforms with respect to Kubernetes and related CNCF projects
- ❑ You interact directly with the team that builds and operates IBM Cloud
- ❑ Created - April, 2018

Structure

❑ Meet every other week

- Wednesdays at 14:00 EST. About 7-10 regular attendees
- Meeting recordings - <https://bit.ly/sig-ibmcloud-videos>

❑ SIG Leads

- Richard Theis (IKS)
- Khalid Ahmed (ICP)
- Sahdev Zala (OSS)

❑ Charter

<https://github.com/kubernetes/community/blob/master/sig-ibmcloud/charter.md>

❑ Join the SIG ML

<https://groups.google.com/forum/#!forum/kubernetes-sig-ibmcloud>

❑ Slack #sig-ibmcloud

❑ Read more about the SIG

<https://github.com/kubernetes/community/tree/master/sig-ibmcloud>

Key Discussions in the SIG Meetings

□ Brief presentations

- IBM Cloud Kubernetes Service (IKS) updates
 - Overview and demo of IKS
 - Kubernetes update strategy - supports 3 concurrent releases at any time (1.10->1.12 today)
 - Multi-Zone cluster support
- IBM Cloud Private (ICP) updates
 - Overview and demo of ICP
 - Scalability testing - certified to 1000 nodes. Incremental work - WIP.

□ Discussion around community work

- SIG-Cloud-Provider integration
 - We are working on moving as a sub-project
- IBM Cloud Provider code public repo – investigating ...
- SIG maintenance work
 - For example, creating charter
- Contributions from IBM Cloud developers (PR, Issues, Discussions..)

IBM Cloud Kubernetes Service (IKS)

A **managed Kubernetes service** providing an intuitive user experience with simplified cluster lifecycle management. Built-in **security and isolation** to enable rapid delivery of apps, while leveraging IBM Cloud Services including Weather data, IoT, Analytics, or **AI capabilities with Watson**. Available in six IBM regions WW, including **25+ datacenters**.

<https://www.ibm.com/cloud/container-service>



IKS: Kubernetes Releases

Kubernetes had **4** releases in **2018**. Are you staying current? Are users of IKS (or other cloud providers) staying current? Does **Kubernetes** need an **LTS**? Should Kubernetes **release speed** up or slow down? There are many question and concerns around this pace. Please contribute to the community discussions.

Release	Kubernetes GA	IKS GA	GA Delta	IKS Unsupported
1.7	June 28, 2017	September 19, 2017	83 days	June 21, 2018
1.8	September 27, 2017	November 8, 2017	41 days	September 22, 2018
1.9	December 13, 2017	February 8, 2018	57 days	December 27, 2018
1.10	March 26, 2018	May 1, 2018	36 days	TBD
1.11	June 26, 2018	August 14, 2018	49 days	TBD
1.12	September 27, 2018	November 7, 2018	41 days	TBD
1.13	December 3, 2018	TBD	TBD	TBD

IKS: Community Collaboration

❑ Networking

- Collaborating with RedHat/Tigera to push Egress/IPBlock Network Policy support to GA in 1.12:

<https://github.com/kubernetes/features/issues/366>

<https://github.com/kubernetes/features/issues/367>

❑ Scalability

- Allow changes in etcd settings to improve cluster creation and reduce monitoring overload

<https://github.com/coreos/etcd-operator/pull/1945>

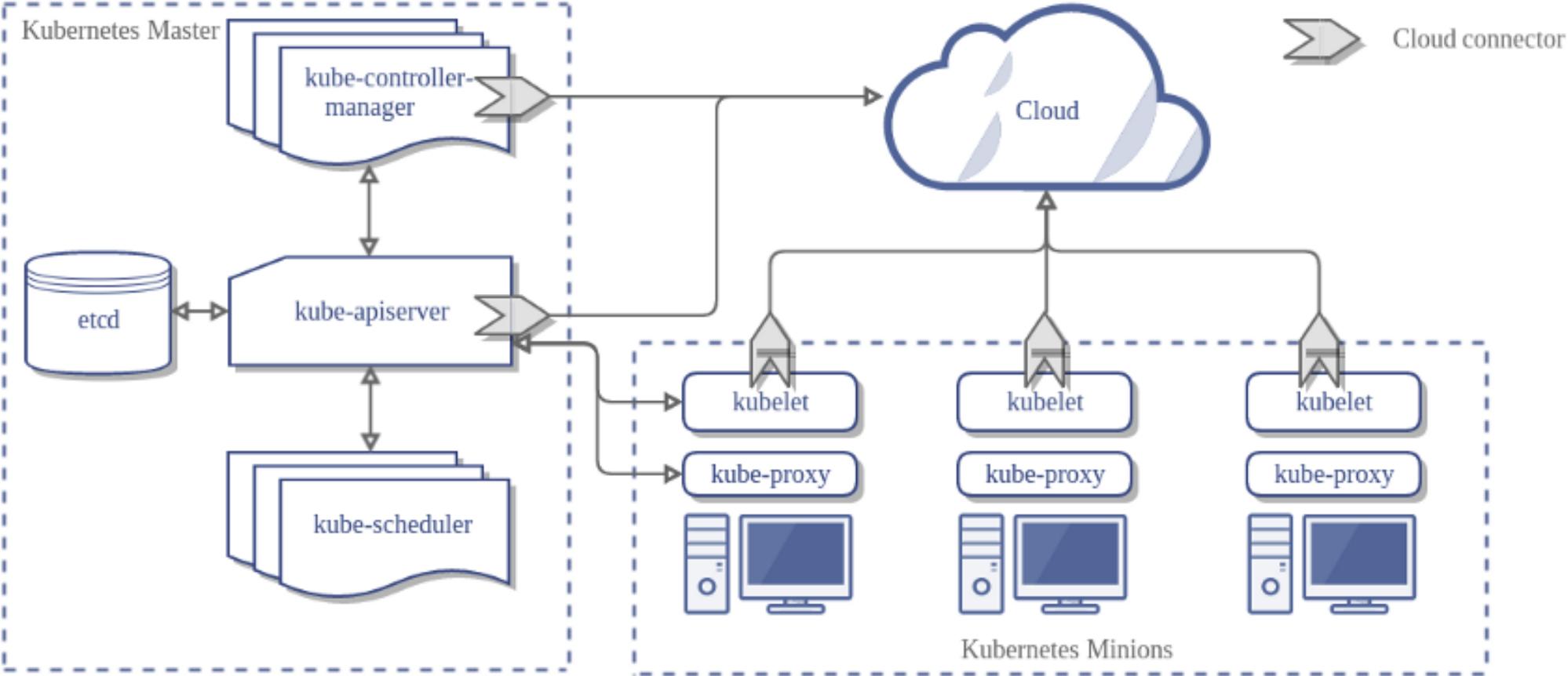
❑ Storage

- Flex volume resize and flex volume metric support
- IBM Cloud Object Storage plugin

<https://github.com/IBM/ibmcloud-object-storage-plugin>

IKS: Kubernetes Controller Manager

Kubernetes cluster architecture **without** cloud controller manager



IBM Cloud Private

Application Development,
Integration, Operations &
Management



Next Generation
Middleware, Data,
Integration & Analytics



IBM Cloud private Platform

Kubernetes-based Platform

Multiple open compute models
IaaS Automation, Containers, PaaS & Functions

Software & Policy driven Network & Storage

Autoscaling & Automatic Application Recovery

Multi-site HA/DR features



Stateful & Stateless Application Support

Built-in Monitoring & Logging

Integrated Enterprise-grade Security

Vulnerability Advisor to prevent risk

Enterprise
Infrastructure



Solution Architectures & Best Practices

Integration Content

Middleware, Data, management & Analytics Content

Continuous Delivery Image Registry Continuous Integration App Catalog App Health App Log Analysis API Mgmt

Continuous Availability Monitoring Log Analysis Auditing Alerting Metering

Continuous Security Authentication RBAC Certificate Store Key Store Image Vulnerability

Cluster kubernetes apiserver kubernetes scheduler kubernetes proxy kubelet etcd

Highly Available



Network Mesh with Support for Tenant Isolation

Why Multicloud

As our businesses become ecosystems for delivering greater value in a digital world , a multi-cloud strategy is not only the new reality, but the fastest path to new value - connecting multiple cloud environments or connecting cloud and on-premises environments.

☐ Unique Needs

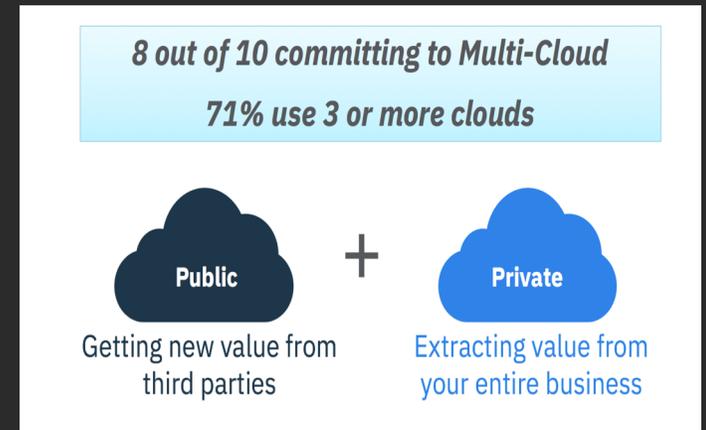
You can run each workload where it performs best, for the lowest cost.

☐ Legacy Apps

You can avoid the pain of migrating legacy apps to a new platform.

☐ Desire to Diversify

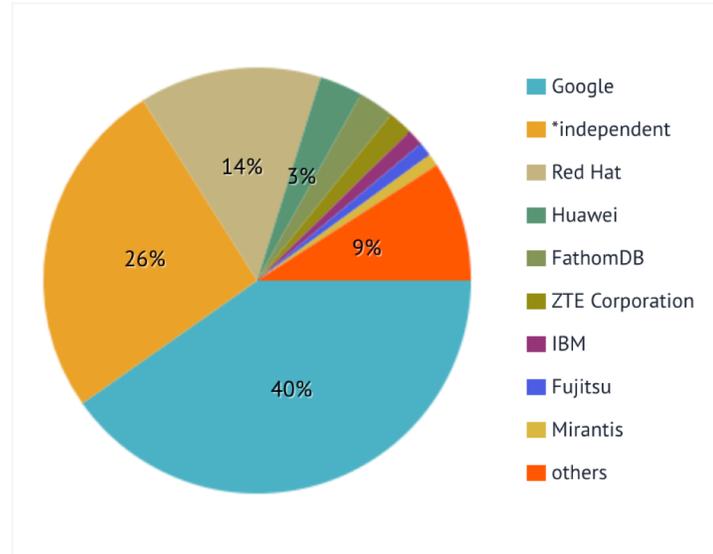
You can avoid vendor lock-in and latency while creating redundancy.



Contribution to Open Source

Kubernetes

Contribution by companies



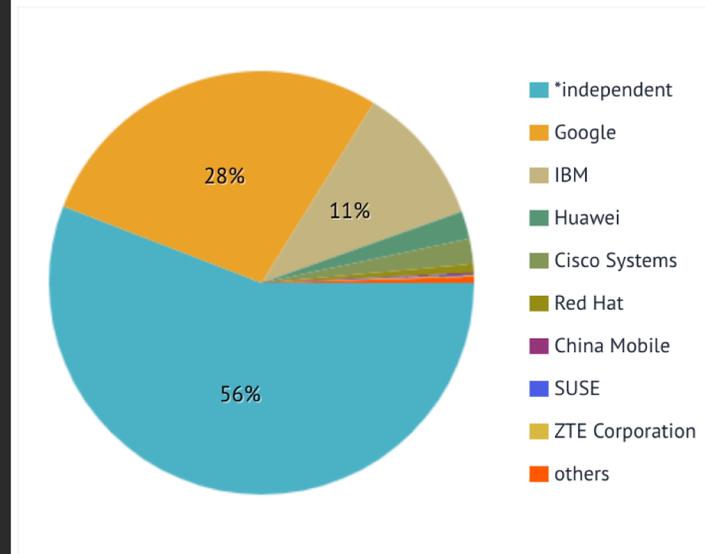
Show 25 entries

Search:

#	Company	Commits
1	Google	44706
	*independent	28704
2	Red Hat	15314
3	Huawei	3618
4	FathomDB	3014
5	ZTE Corporation	2078
6	IBM	1373
7	Fujitsu	1180
8	Mirantis	1044

Istio

Contribution by companies



Show 10 entries

Search:

#	Company	Commits
	*independent	5883
1	Google	2943
2	IBM	1125
3	Huawei	223
4	Cisco Systems	202
5	Red Hat	70
6	China Mobile	11
7	SUSE	10
8	ZTE Corporation	10

Kubernetes Federation V2

Attendees:

- Huawei
 - Irfan Ur Rehman (irfan.rehman@huawei.com, [irfanurrehman@github](https://github.com/irfanurrehman))
 - Shashidhara TD (shashidhara.td@huawei.com, [shashidharatd@github](https://github.com/shashidharatd))
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- Diamanti
 - Sambasiva Bandrupalli (samba@diamanti.com, [bandrupalli@github](https://github.com/bandrupalli))
- Cisco
 - Daneyon Hansen (daneyonhansen@gmail.com, [danehans@github](https://github.com/danehans))

1. Redhat
2. Huawei
3. IBM

Contribution to Open Source

❑ Cluster-Registry

- ✓ Keep track of and perform operations on your clusters.
- ✓ Cluster Registry API (code, design) as a Kubernetes CRD
- ✓ Used by IBM Multicloud Manager

❑ Application

- ✓ Simplify application deployment.
- ✓ [Difference with Helm Chart](#)
- ✓ Used by IBM Multicloud Manager

❑ Ingress Controller

- ✓ Access Kubernetes service via Ingress
- ✓ Used by IBM Cloud Private and IBM Multicloud Manager

Summary

- ❑ A SIG for building, deploying, maintaining, supporting, and using Kubernetes on IBM Public and Private Clouds
- ❑ Join the SIG Discussions
 - ❑ Follow the evolution of the IKS, ICP and Multicloud Manager platforms with respect to Kubernetes and related CNCF projects
- ❑ The IBM Cloud team significantly contributes to the community
- ❑ The near term goal of the SIG is to investigate open source of the IBM cloud provider code used by IKS

Thank you



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