

KubeCon



CloudNativeCon

Europe 2019



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SIG IBM Cloud

Sahdev Zala

Khalid Ahmed

Nimesh Bhatia

Brad Topol

Agenda



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- ❑ SIG Overview
- ❑ Overview of the IBM Cloud
 - Public, Private, Hybrid
- ❑ SIG Subprojects
 - Cluster API
 - IBM Cloud Provider Interface
- ❑ Summary
- ❑ Discussion

Overview



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- ❑ A SIG for building, deploying, maintaining, supporting, and using Kubernetes on IBM Public and Private Clouds
 - IKS and 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

Structure



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❑ Co-chairs

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

❑ Charter

- SIG Scope and Governance

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

❑ Mailing List

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

❑ More about the SIG

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

Activities



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Meet every other week

- Wednesday at 14:00 EST
- Meeting recordings

<https://bit.ly/sig-ibmcloud-videos>

- Presentations on various topics
- Presentation from various members from IBM, Sysdig etc

Slack #sig-ibmcloud

Quarterly updates to the Kubernetes community

Subprojects

- Cluster-api-provider-ibmcloud
- Support for out-of-tree IBM Cloud Provider (WIP)

Collaboration with the SIG Cloud-Provider



Public

- IBM Cloud Kubernetes Service (IKS)

Private

- IBM Cloud Private (ICP)

Hybrid

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>

Kubernetes Certified Service Provider
Kubernetes Technology Partner
Kubernetes Service Providers

1.14 +



IKS Workload flexibility



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- **6 IBM Cloud Regions, 25+ Datacenters**



Region04	Data Centers
AP North	<ul style="list-style-type: none">• Hong Kong• Seoul• Singapore• Tokyo
AP South	<ul style="list-style-type: none">• Melbourne• Sydney
EU Central	<ul style="list-style-type: none">• Amsterdam• Oslo• Milan• Paris• Frankfurt
United Kingdom	<ul style="list-style-type: none">• London
US East	<ul style="list-style-type: none">• Montreal• Toronto• Washington, DC
US South	<ul style="list-style-type: none">• Sao Paulo• Houston• San Jose• Dallas

https://console.bluemix.net/docs/containers/cs_regions.html#regions-and-locations

IKS Capabilities



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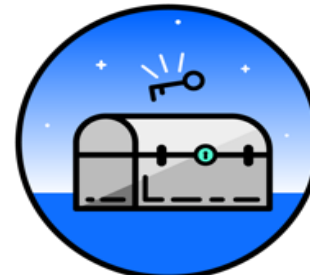
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Simplified cluster management



Design your own cluster



Security & isolation



Extend apps with IBM Cloud services



Native open-source experience



Integrated operational tools

IBM Cloud Private



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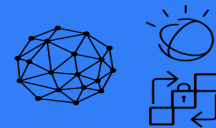
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Enterprise Content Catalog

Open Source and IBM Middleware, DevOps, Data, Analytics, and AI Software



Core Operational Services

Logging, Monitoring, Metering, Security, Alerting



kubernetes

Kubernetes Container Orchestration Platform



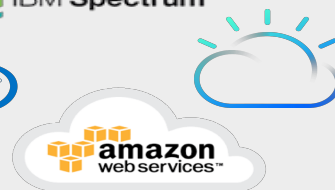
docker

Choice of infrastructure



IBM Z

vmware



Enterprise Kubernetes:

- Built on open-source (Upstream K8S, Calico, Helm, Elasticsearch, Grafana, Prometheus,...)
- Broad hardware support
- Self-service catalog
- Agility, scalability, and elasticity
- Self-healing
- Enterprise security
- No vendor lock-in

<http://ibm.biz/Try-IBMCloudPrivate>

IBM Cloud Private Architecture

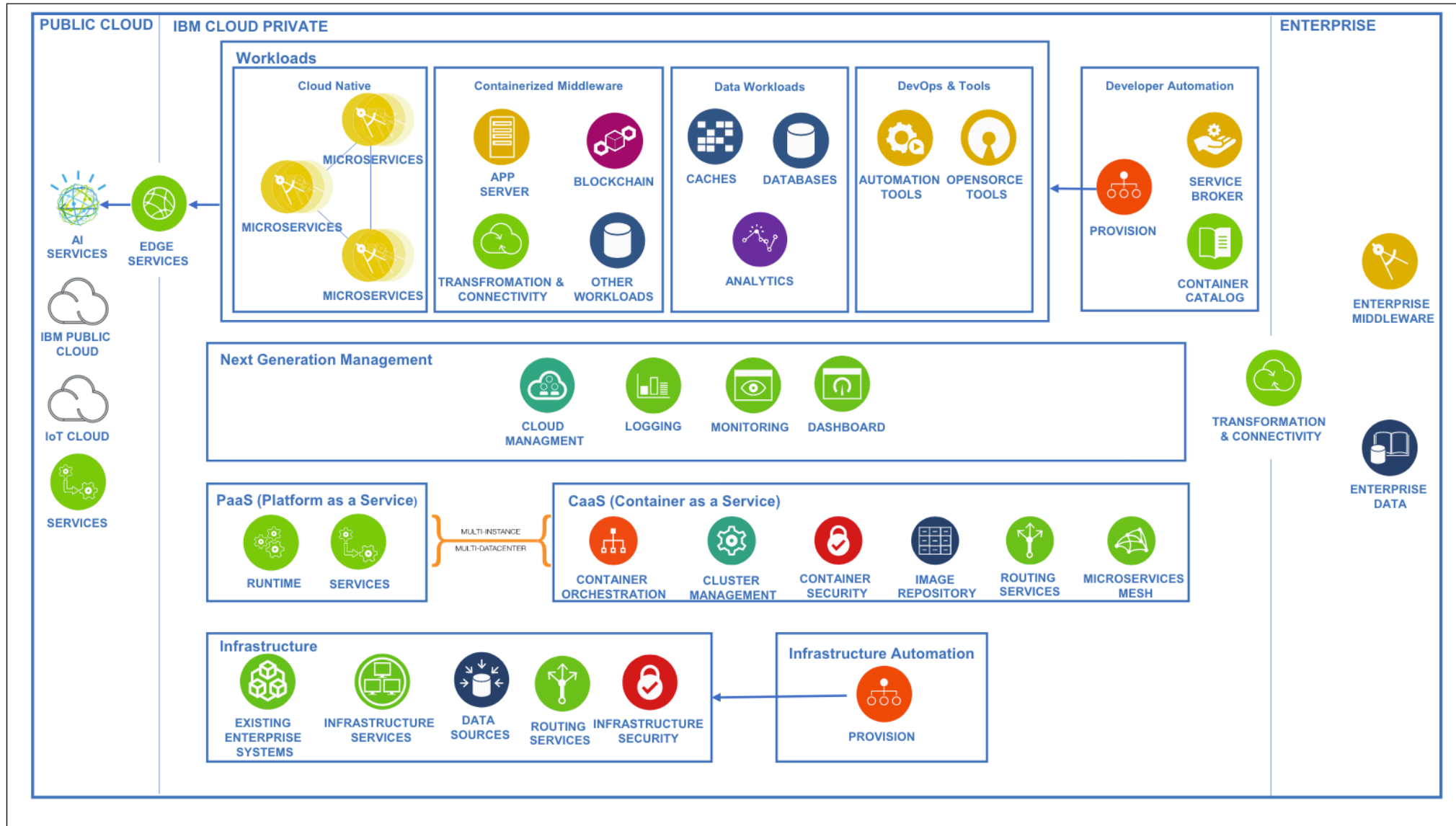


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IBM Multicloud Manager



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Multiple clusters to manage geographical data residency laws



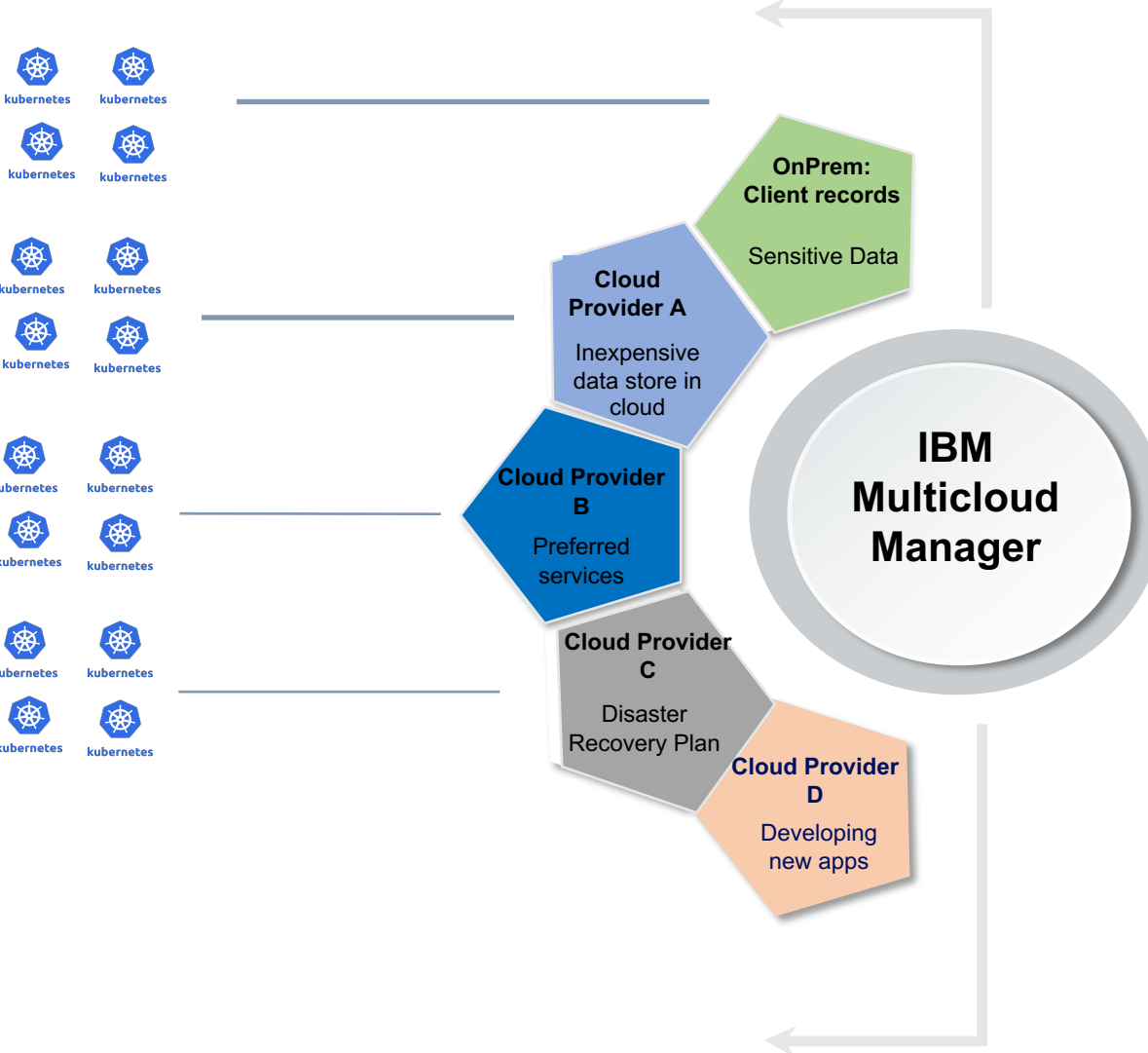
Reduce on prem storage costs by storing non sensitive data in public cloud



Leverage most desired services in preferred cloud (AI/Analytics/object storage)



Load all applications on another provider maintain operations if one provider goes down (disaster recovery)



From 1 cluster on 1 cloud ...

to many clusters on numerous clouds ...

IBM Multicloud Manager

seamlessly moves you through the journey

IBM Multicloud Manager



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Simplified Multi-Cluster Management



Policy Based Role & Compliance Management



Multi-Cluster Application Management



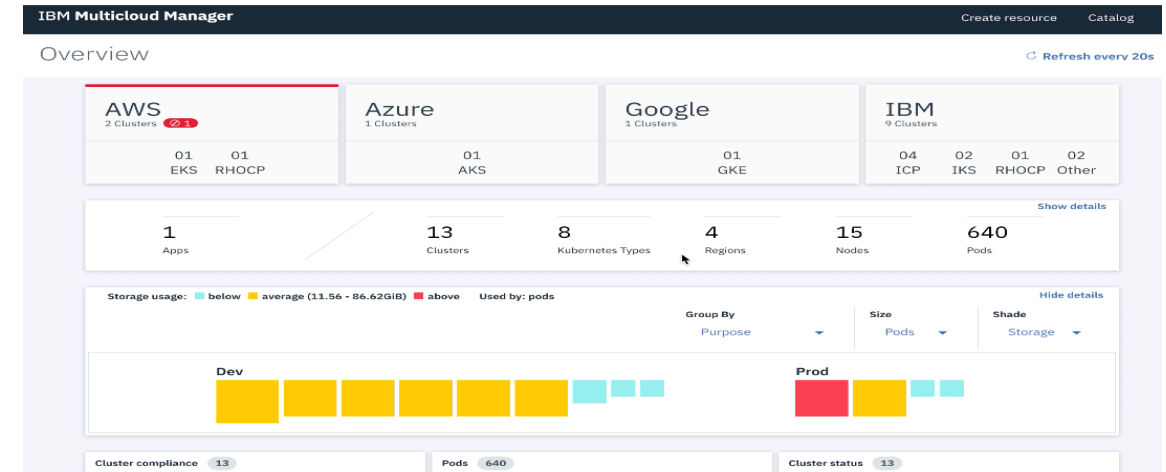
Works across Public & Private Environments



Event & Service Management Integration



Integrated Operational Tools



Create Compliance

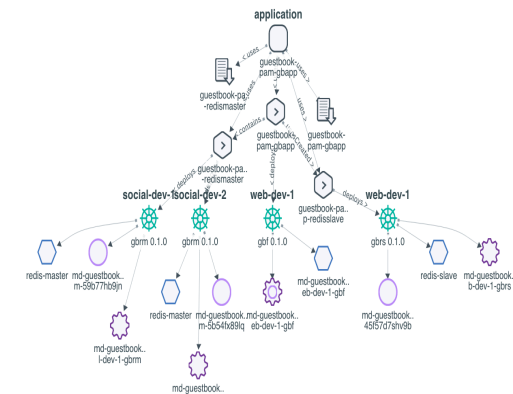
Paste content from your compliance YAML file in the editor.

```
51 - from:
52   - podSelector: {}
53   podSelector:
54     matchLabels: null
55 - complianceType: musthave
56 objectDefinition:
57   apiVersion: v1
58   kind: LimitRange
59   metadata:
60     name: mem-limit-range
61   spec:
62     limits:
63     - default:
64       memory: 512Mi
65       defaultRequest:
66         memory: 256Mi
67     type: Container
68   remediationAction: enforce
```

Cancel

Create Compliance

Create Application



SIG Subproject – cluster-api-provider-ibmcloud



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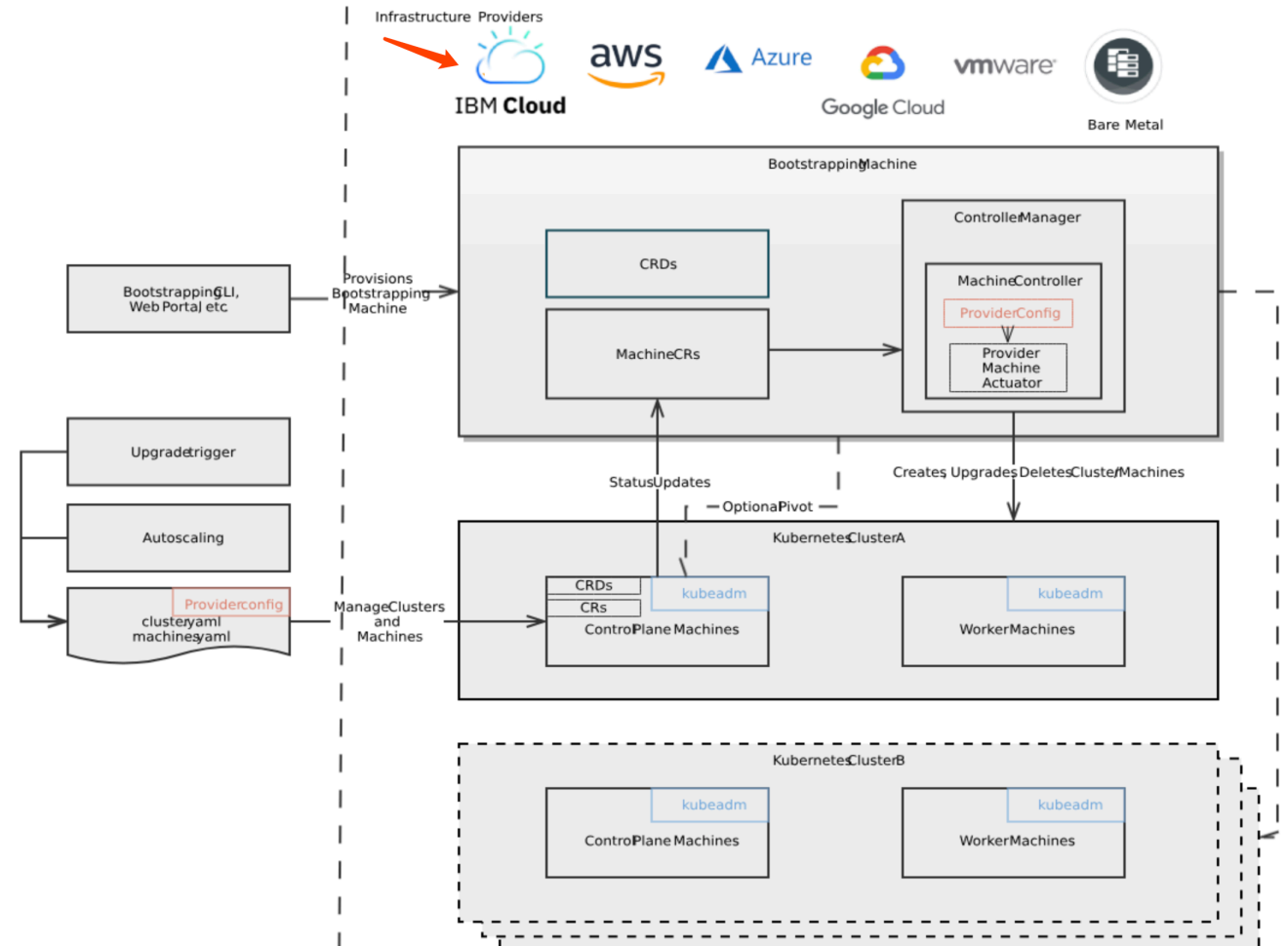


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Cluster API Overview

- Target cluster
 - The declared cluster we intend to create and manage
- Bootstrap/Management cluster
 - The cluster that manages the target cluster
 - Possibly the same cluster
- clusterctl
 - Community CLI tool that favors a provider implementation for creating and managing a cluster
- Provider implementation
 - An implementation of the API specific to a cloud (IBM Cloud, Google, OpenStack, etc)



Cluster API IBM Cloud Provider Detail

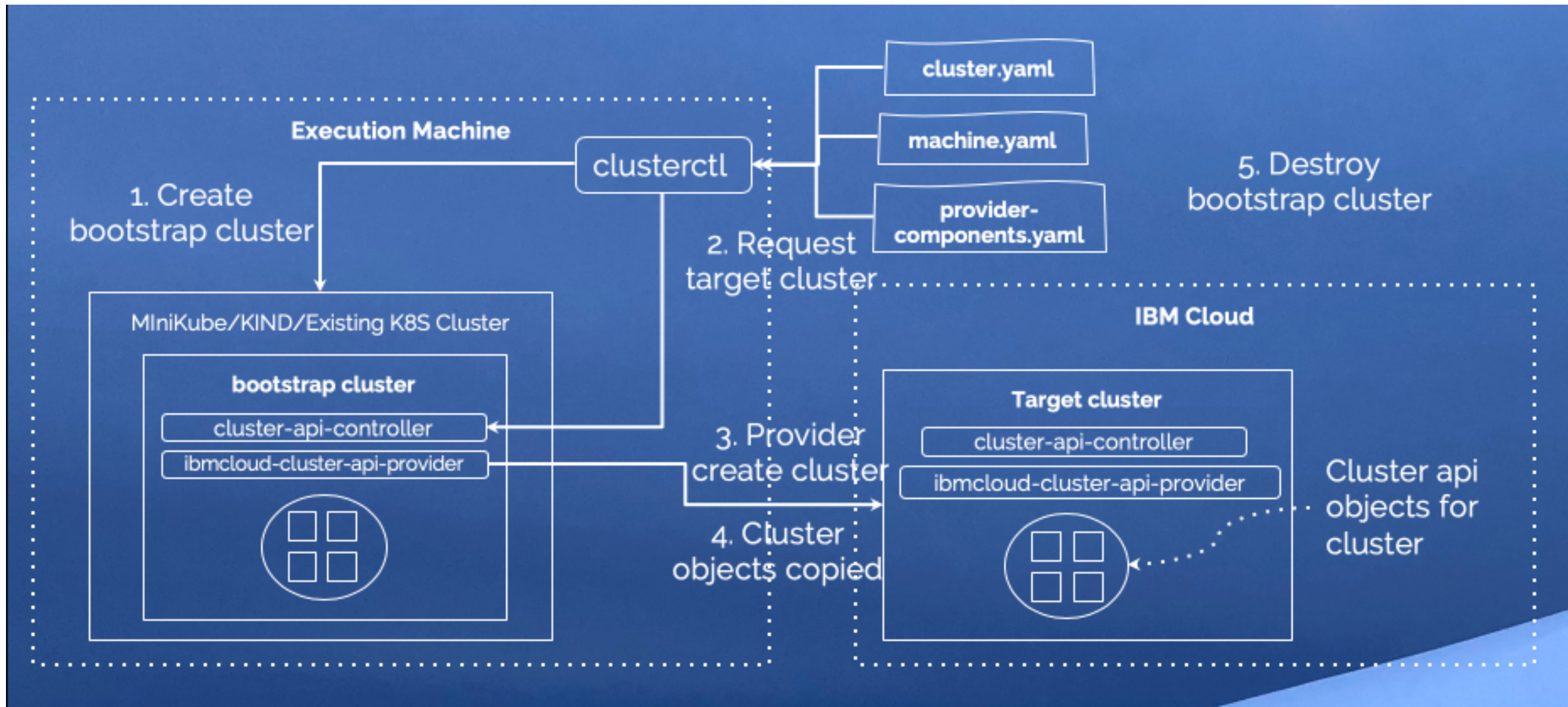


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SIG Subproject (WIP) – IBM Cloud Provider Interface



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❑ Load Balancer

- Implements in-cluster load balancers leveraging Kubernetes resources
- Manages VIP using keepalived
- In-cluster routing via kube-proxy
- Version 1.0 is iptables based LB
- Version 2.0 is IPVS based LB

❑ Instances (i.e. Nodes)

- IKS node bootstrapping manages instances
- IKS node bootstrapping manages zones

IBM Cloud Provider Interface: Kubernetes Controller Manager (KCM)



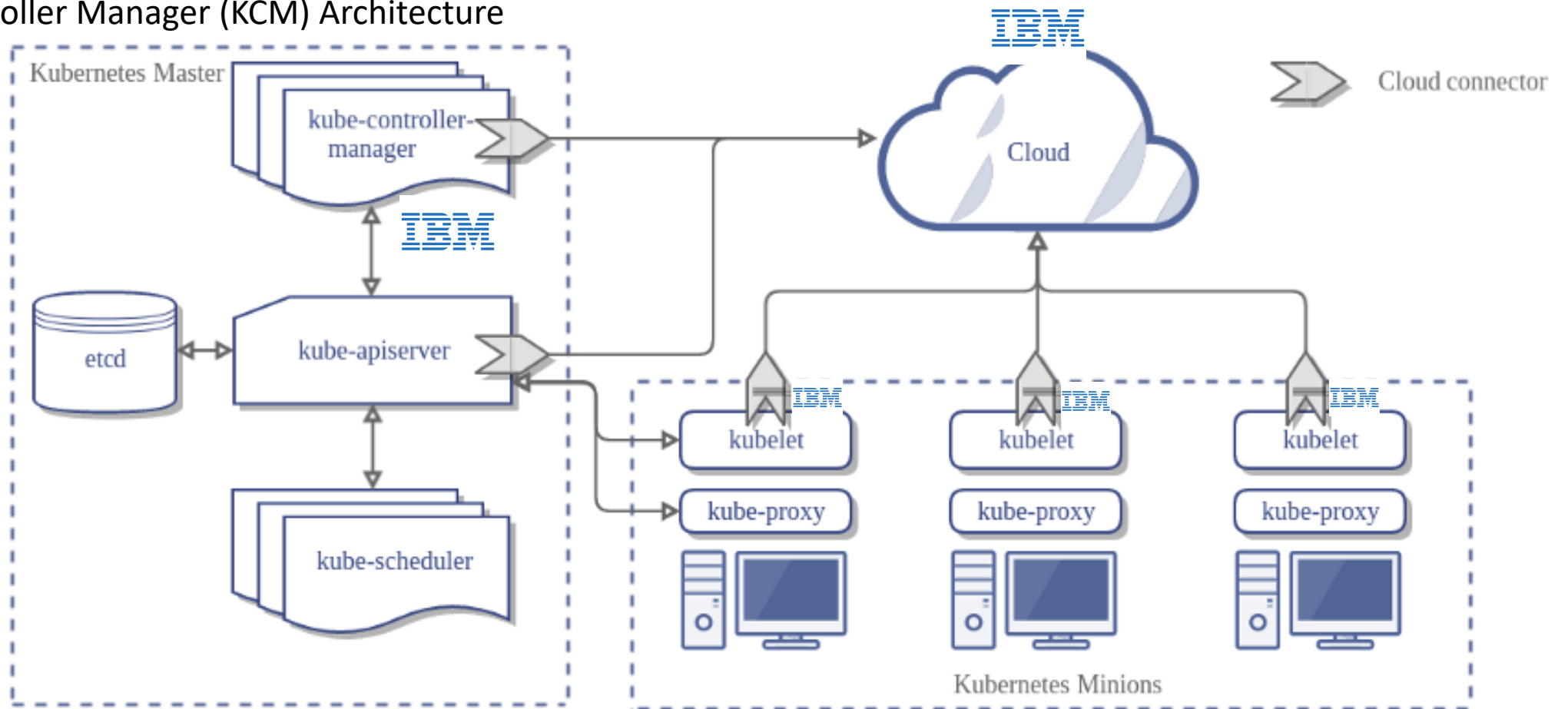
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Kubernetes Controller Manager (KCM) Architecture



IBM Cloud Provider Interface: Kubernetes Cloud Controller Manager (CCM)

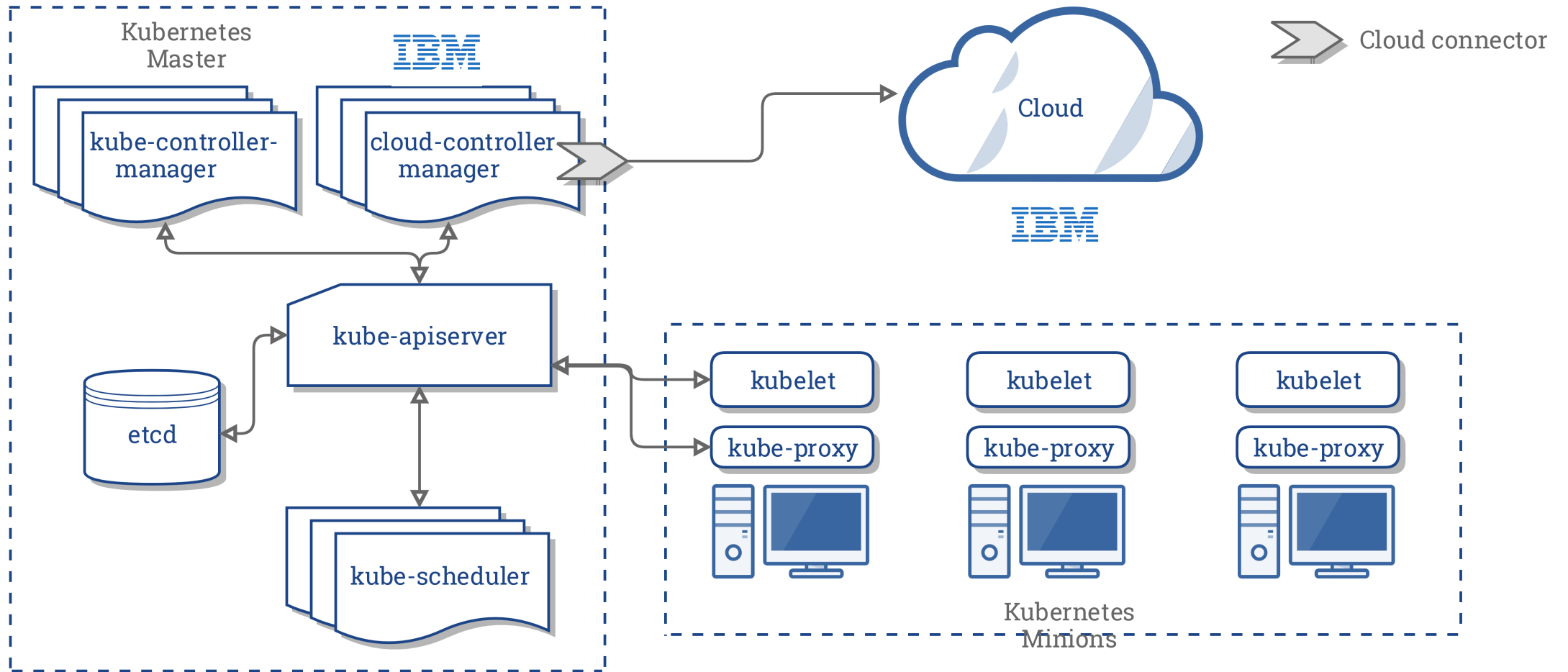


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Summary



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- ❑ 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 and ICP with respect to Kubernetes and related CNCF projects
- ❑ Subprojects
 - ❑ Cluster-api-provider-ibmcloud
 - ❑ IBM Cloud Provider (WIP)
- ❑ The IBM Cloud team significantly contributes to the community

THANK YOU !



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Backup



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