Submariner: Connecting Workloads Across Kubernetes Clusters

Virtual Meetup - June 27, 2021

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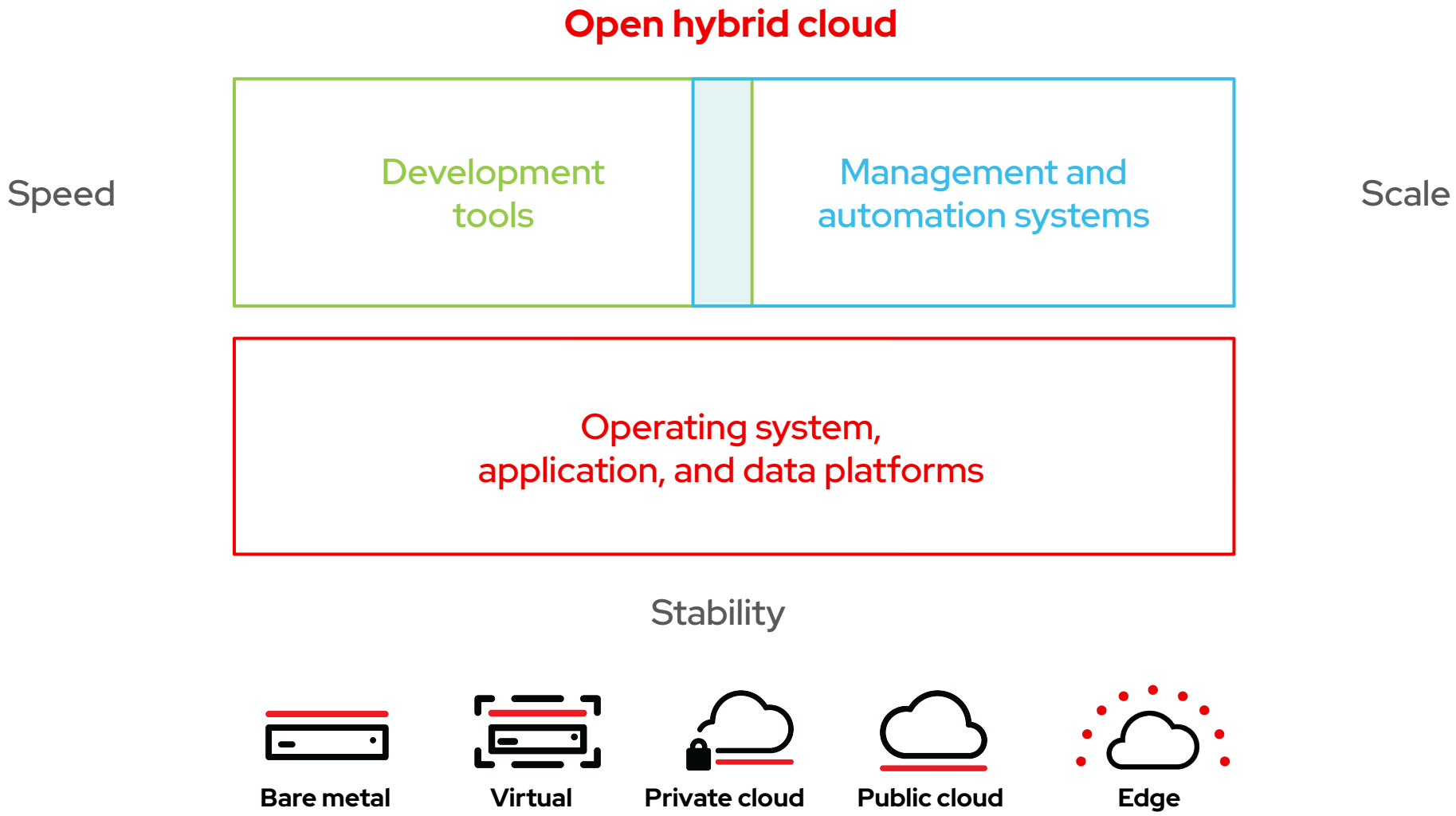
Open hybrid cloud powers development, architecture, and operations in a hybrid cloud world



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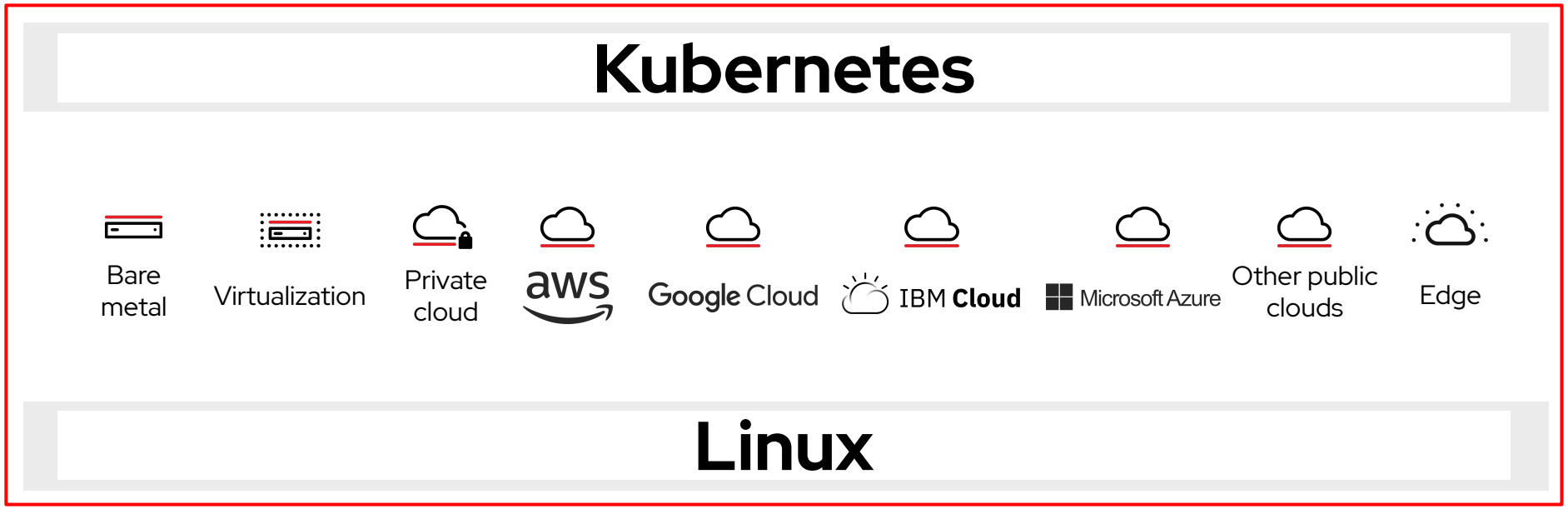
Kubernetes is at the center of the open hybrid cloud

Kubernetes is an open-source platform designed to easily deploy, scale and manage containerized applications in the cloud.

It allows developers to focus on the business logic and workflows without worrying about the underlying infrastructure.

Kubernetes is at the center of the open hybrid cloud



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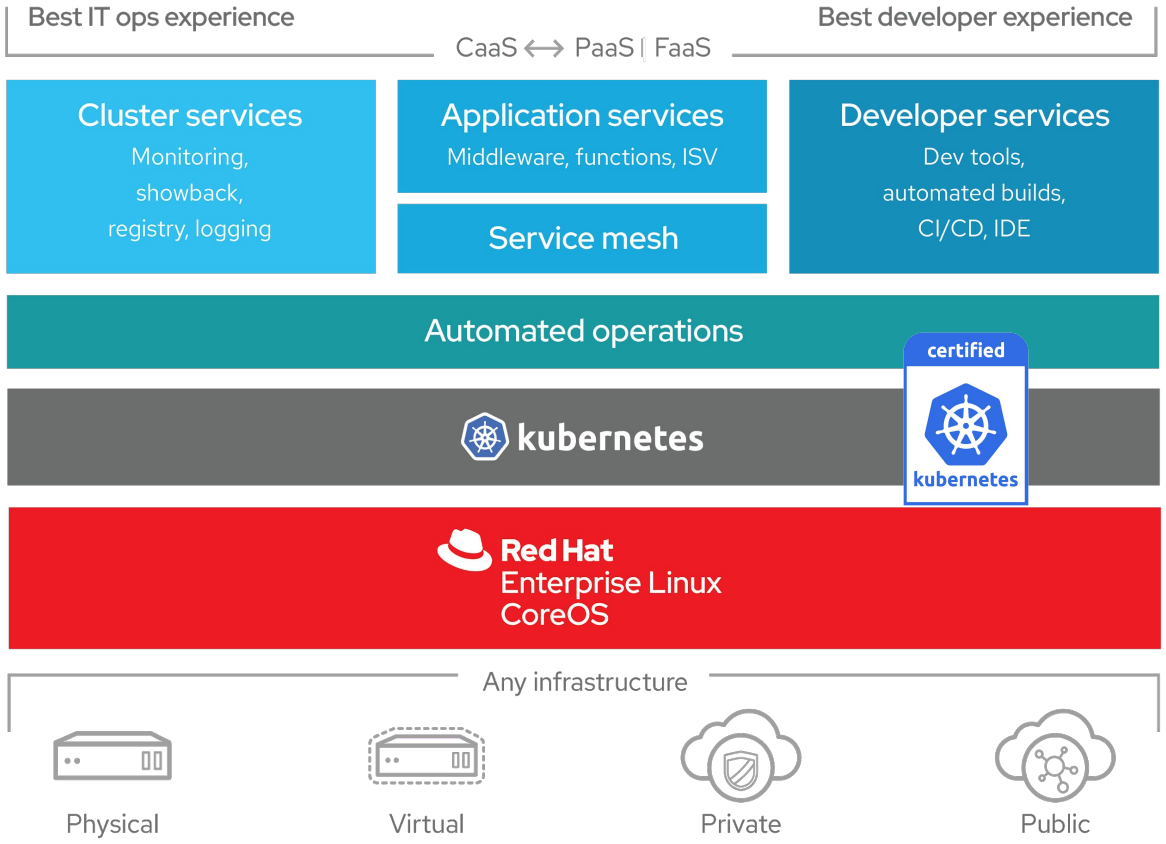
OpenShift: a Kubernetes platform from Red Hat



- Fully integrated and automated
- Seamless Kubernetes deployment
- Fully automated installation
- 1-click platform updates
- Autoscaling of cloud resources

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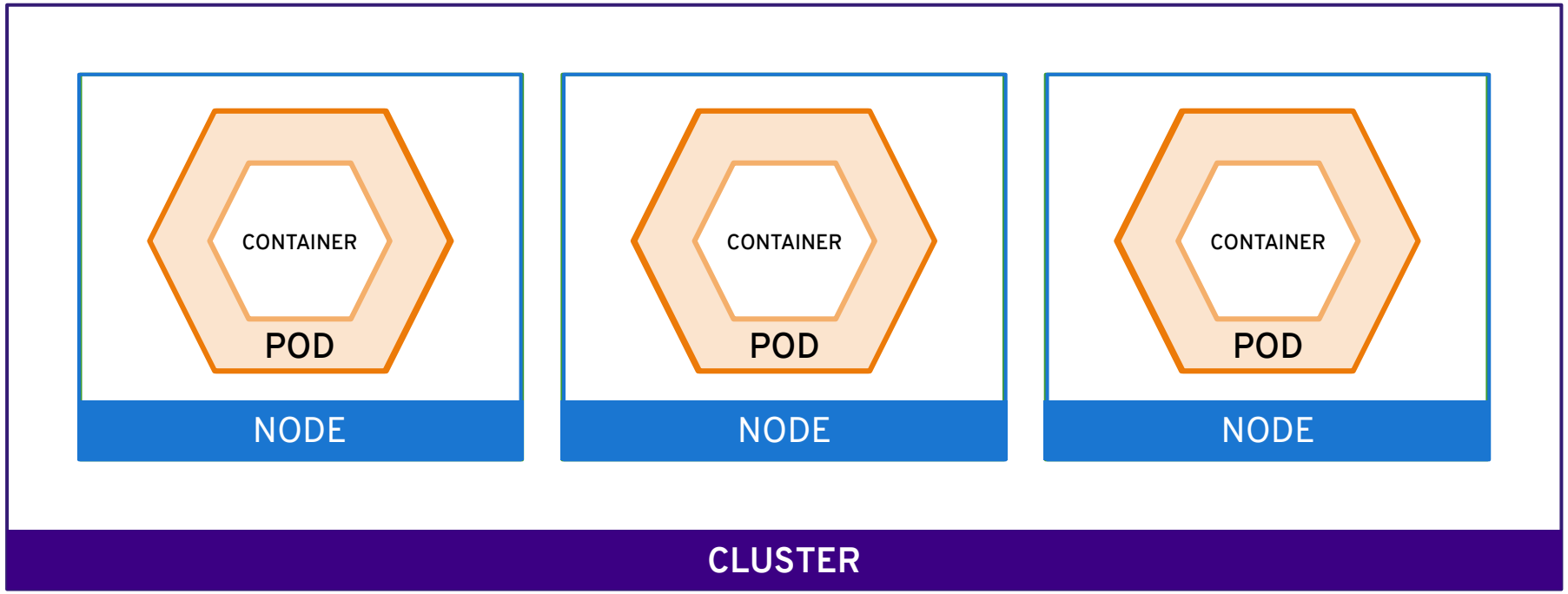
A **cluster** is a set of nodes (servers) that run containerized applications



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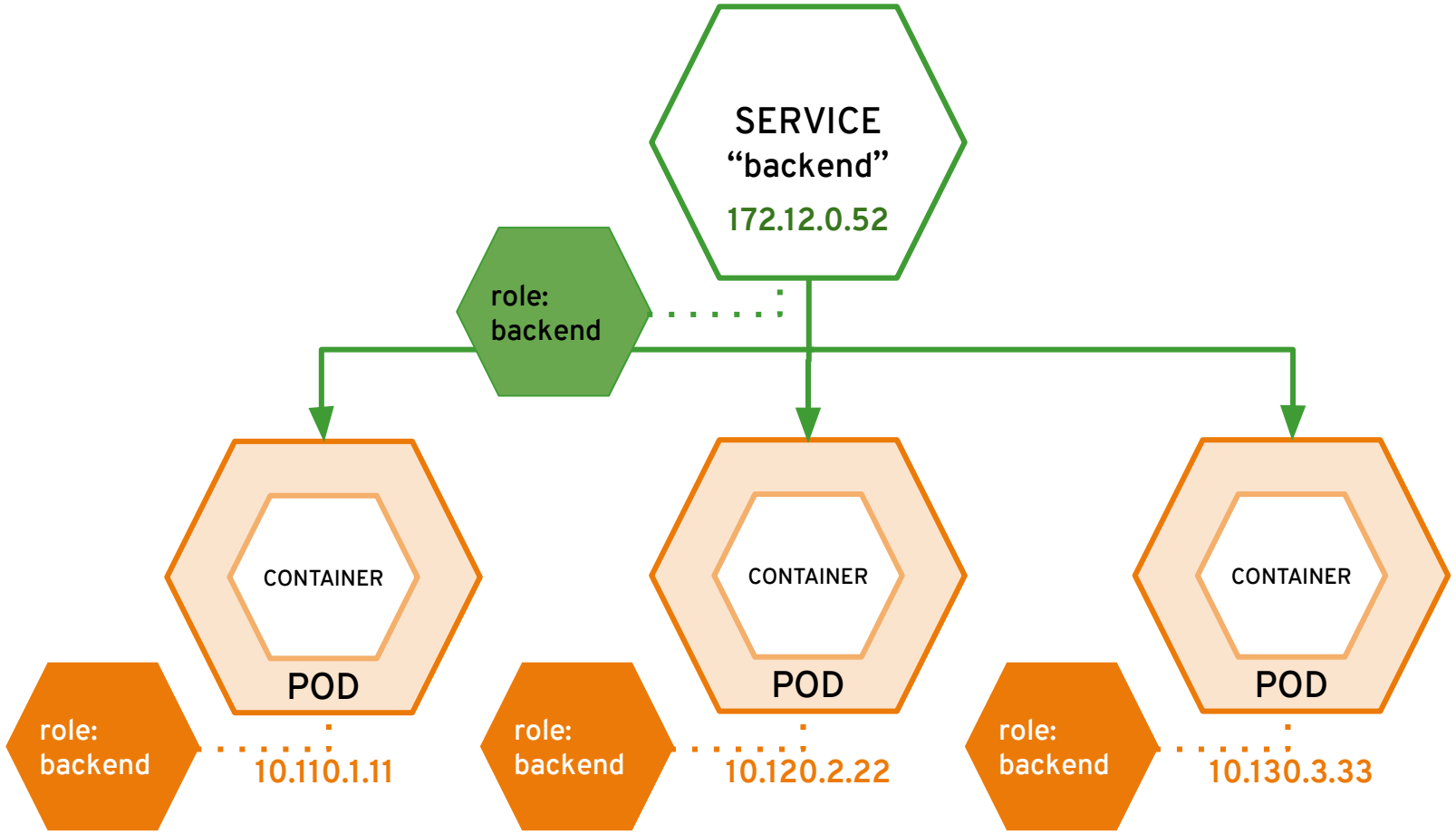
Services provide internal load-balancing and service discovery across pods



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Reasons for deploying multiple OpenShift clusters

Application availability

Reduced latency

Address industry standards

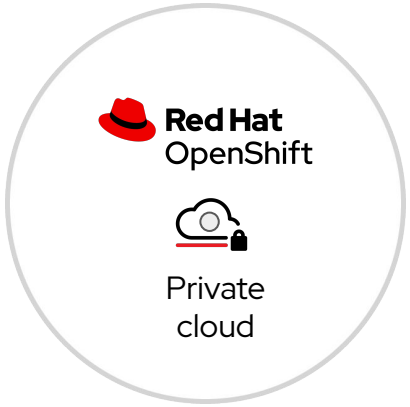
Geopolitical data residency guidelines

Disaster recovery

Edge deployments

CapEx cost reduction

Avoid vendor lock-in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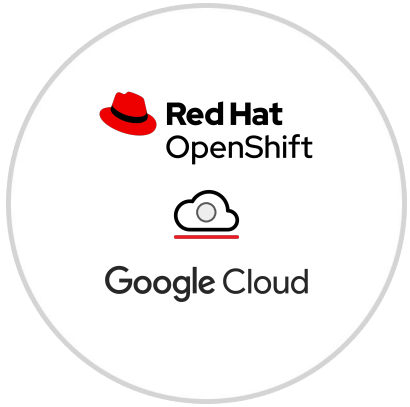
OpenShift
Private
cloud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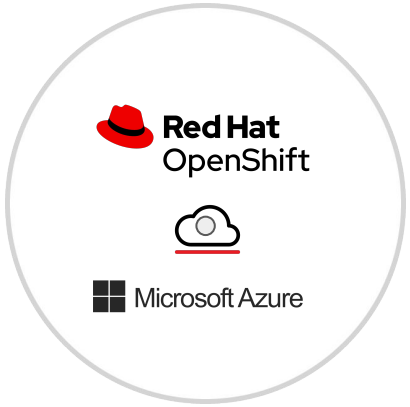
OpenShift
Google Cloud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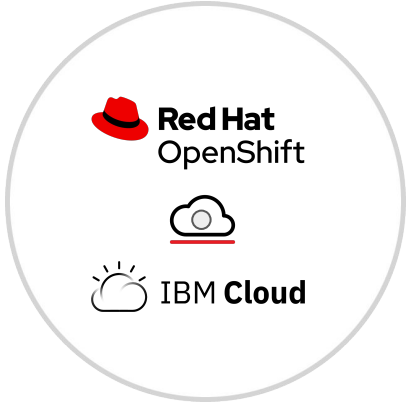
OpenShift
aws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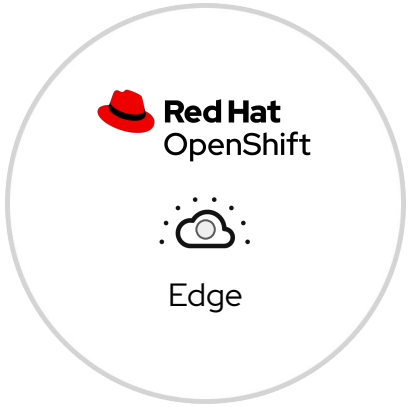
OpenShift
IBM Cloud


Red Hat
OpenShift
Edge

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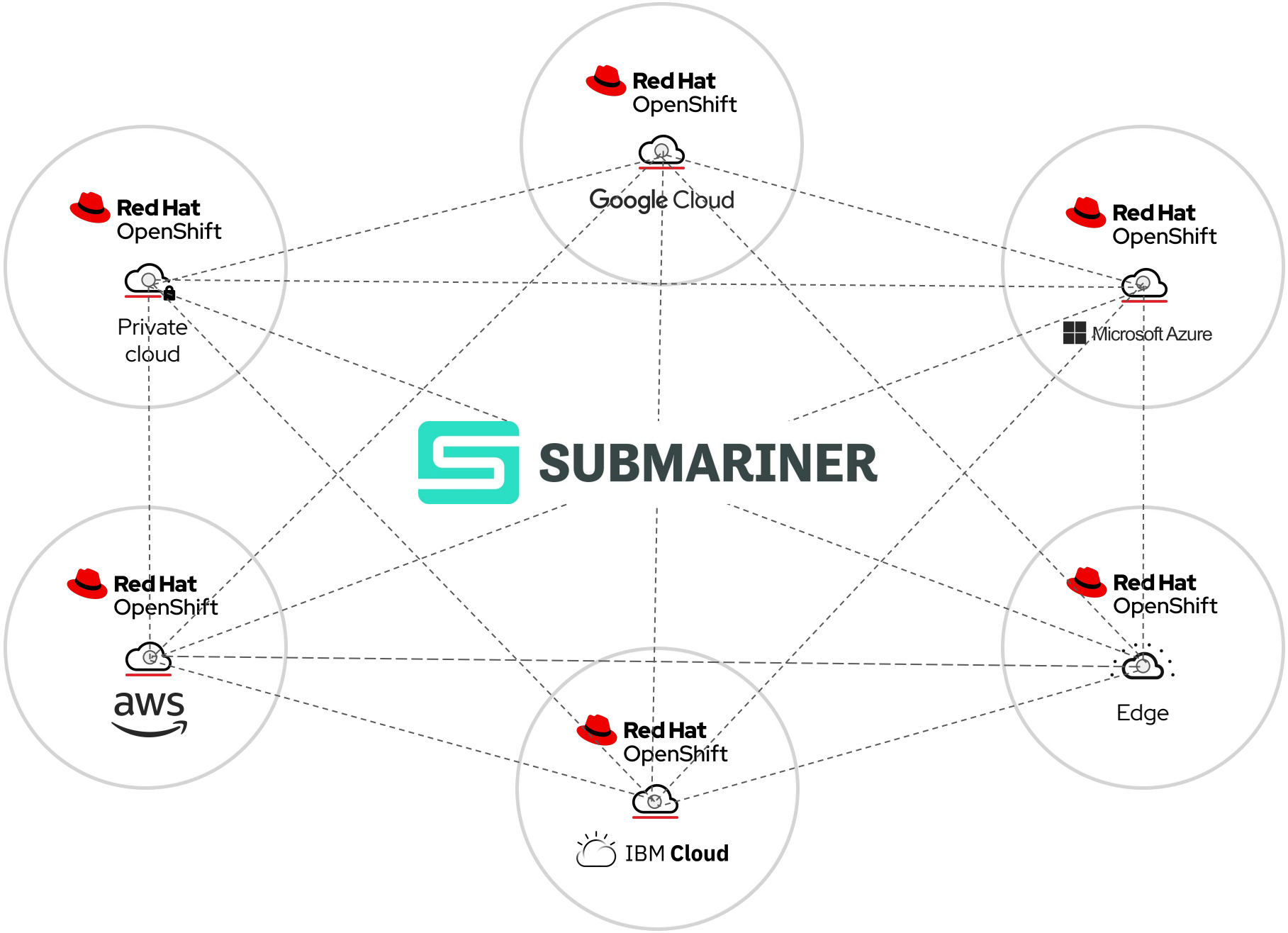
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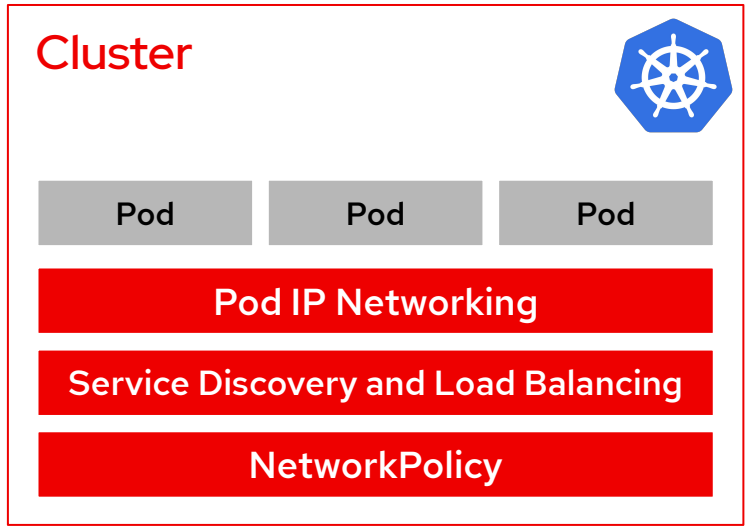
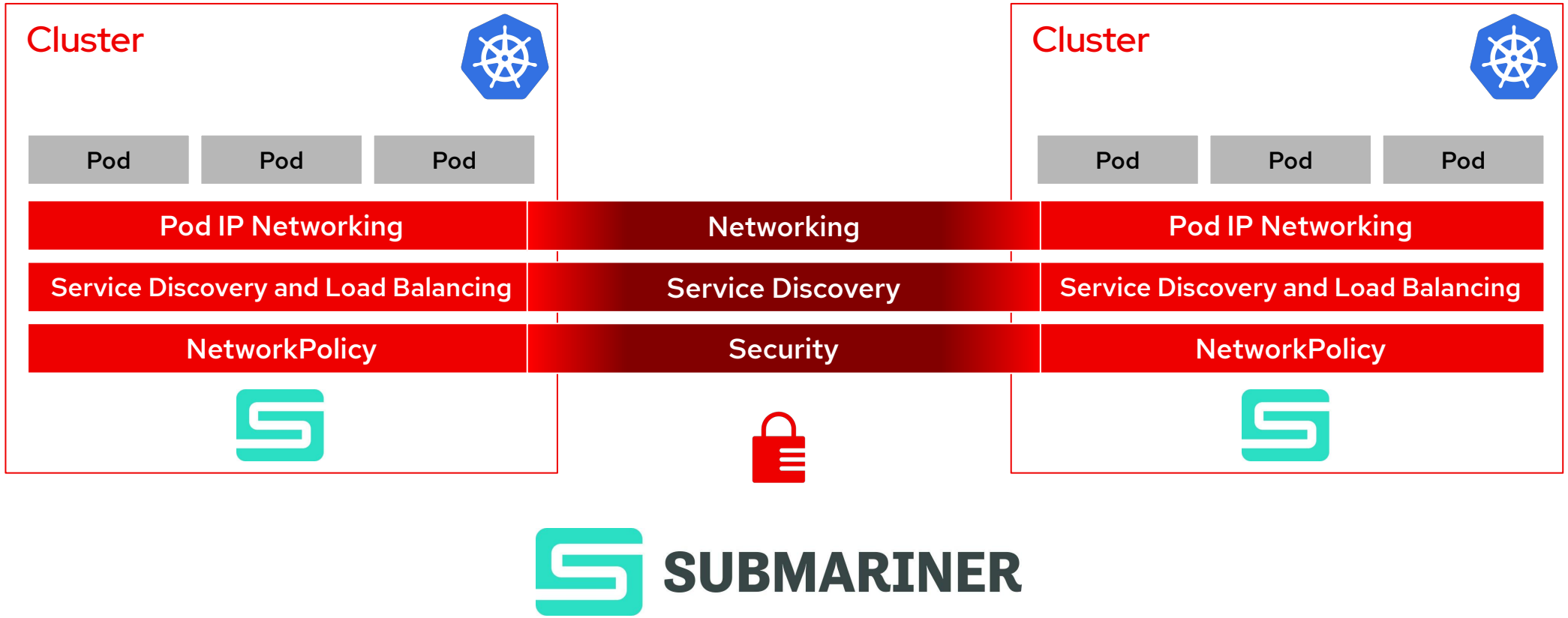
Kubernetes Cluster Networking



- Networking is fundamental to cluster operation
- Made up of several components:
  - Pod network
  - Services and endpoints
  - NetworkPolicy

Kubernetes cluster networking with Submariner



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Multicluster networking

Use case for connecting multiple clusters: secure inter-service communication

- OpenShift clusters deployed on different infrastructure providers
- Some components of an app deployed in one cluster, others in another cluster
- Goal: secure service-to-service communication across clusters

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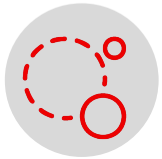
Submariner Explained



Open Source

We work on GitHub, all our code, tools and documentation are open:
https://submariner.io/

Multi-Cluster Networking

Submariner provides multi-cluster network connectivity, discovery and security, allowing applications from different clusters to communicate with each other

Cloud Native

Integrates natively with Kubernetes via CRDs (Custom Resource Definitions); deployed using an Operator

Multi-Cloud

Works on AWS, Google, Azure, OpenStack, and many other cloud providers

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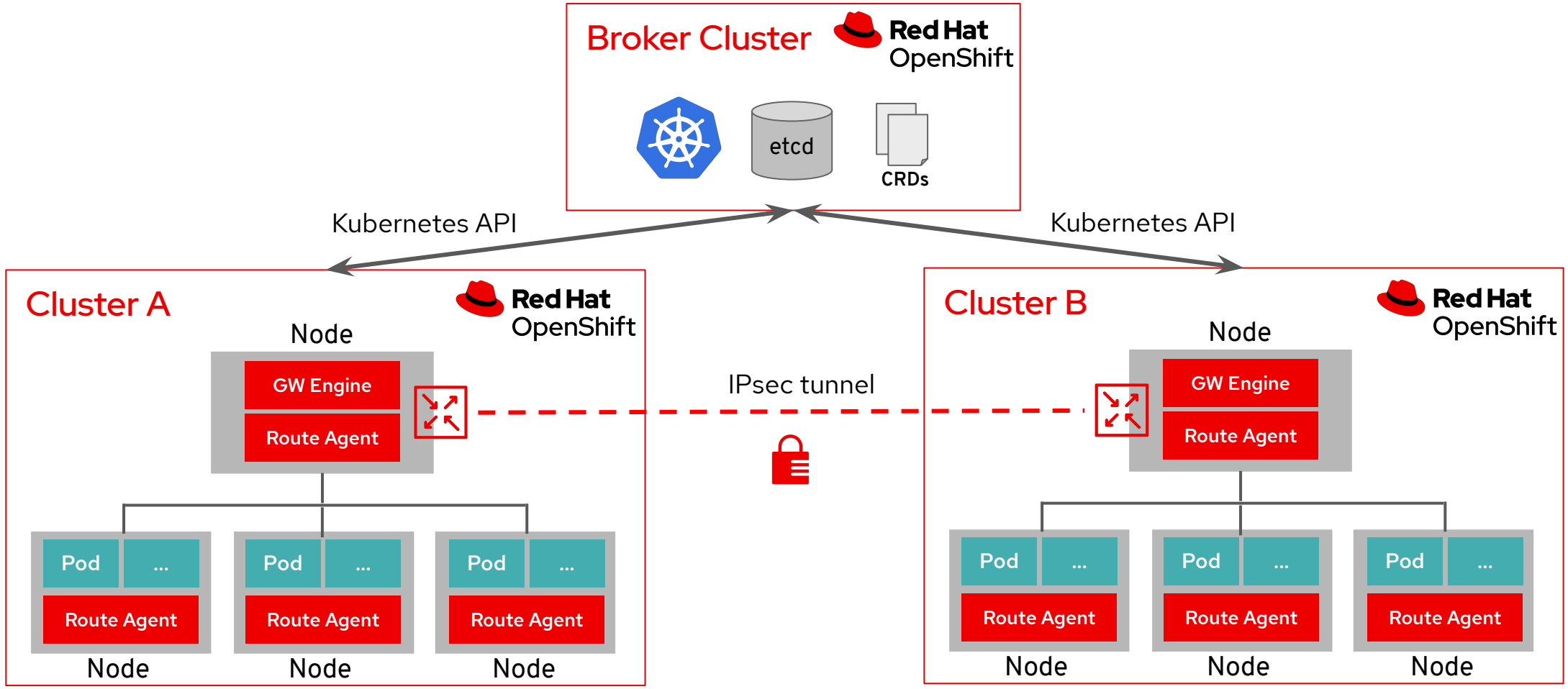
Architecture Overview



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Give it a try

- Website: https://submariner.io
  - Local sandbox environment for dev/test
  - Development guide
- GitHub: https://github.com/submariner-io
- YouTube: https://tinyurl.com/submariner-youtube
- Slack channel: #submariner

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