



KubeCon



CloudNativeCon

North America 2022

BUILDING FOR THE ROAD AHEAD

DETROIT 2022

Multi-Tenancy: Tips, Tricks, Tools And Tests

A Multi-Tenancy Working Group Update

Multi-Tenancy: Tips, Tricks, Tools And Tests



BUILDING FOR THE ROAD AHEAD

DETROIT 2022



Tasha Drew

Senior Director, xLabs, VMware



Ryan Bezdicek

Principal Software Engineer, Twilio



Jim Bugwadia

Co-founder and CEO, Nirmata



Fei Guo

Software Engineer, Microsoft



Adrian Ludwin

Software Engineer, Google

Kubernetes Multi-Tenancy WG

Define the models of multi-tenancy that Kubernetes will support. Discuss and execute upon any remaining work that needs to be done to support these models. Create conformance tests that will prove that these models can be built and used in production environments.

Projects

1. Virtual Cluster (CAPI-Nested)
2. Hierarchical Namespace Controller
3. Multi-tenancy Benchmarks

Slack:

<https://slack.k8s.io/#wg-multitenancy>

Meetings

Tue 11:00 AM Pacific. Every two weeks

GitHub:

[kubernetes-sigs/multi-tenancy](https://github.com/kubernetes-sigs/multi-tenancy)

<https://groups.google.com/forum/#!forum/kubernetes-wg-multitenancy>

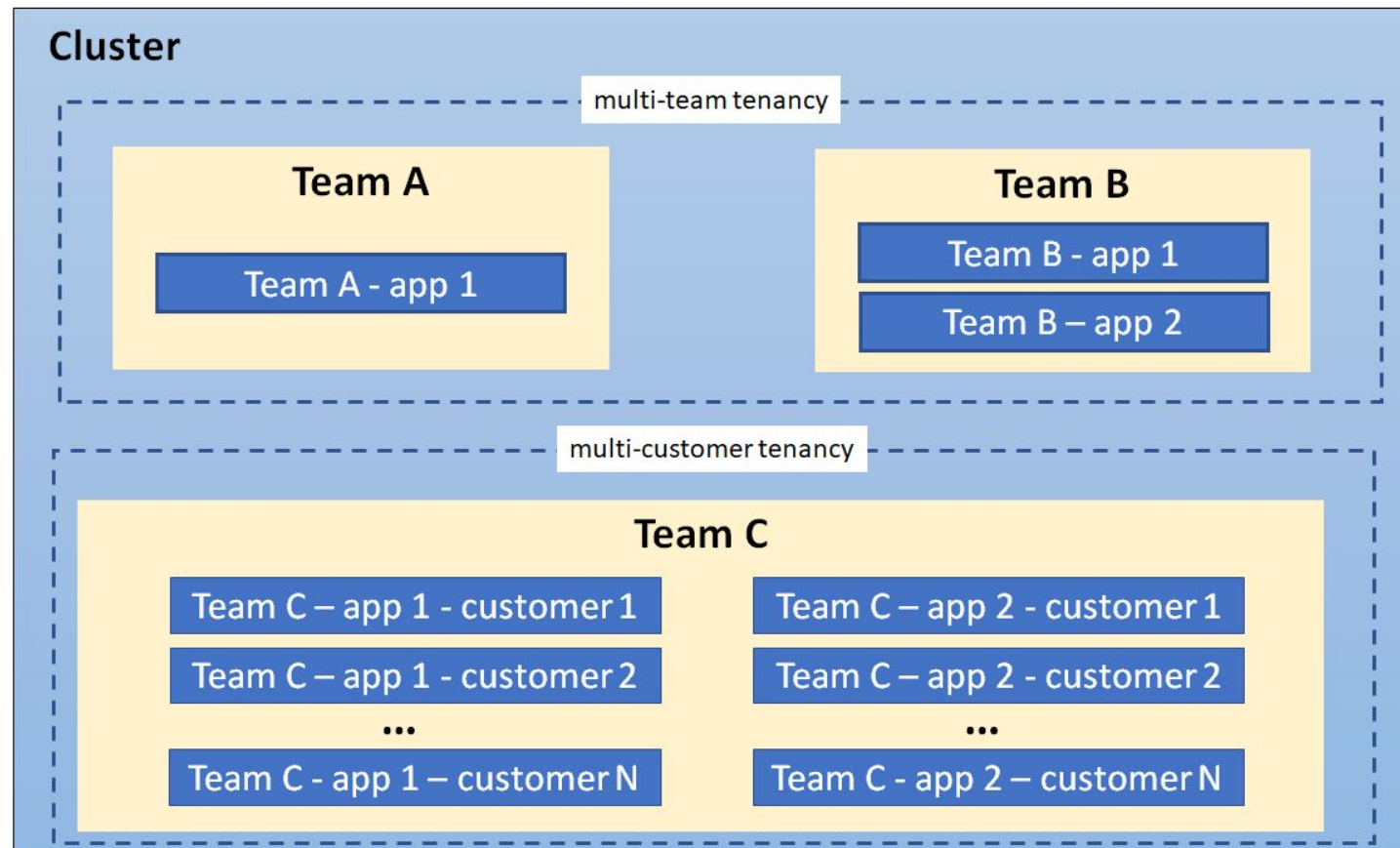
Kubernetes Docs Update - Multi-Tenancy

Use Cases

- Multiple teams
- Multiple customers

Isolation techniques

- Control Plane Isolation
- Data Plane Isolation
- Other Considerations



<https://kubernetes.io/docs/concepts/security/multi-tenancy/>

Kubernetes Multi-Tenancy Constructs

- **Control Plane Isolation**
- Data Plane Isolation
- Other Considerations

- **Namespaces**
- **Access Controls**
- **Quotas**

Kubernetes Multi-Tenancy Constructs

- Control Plane Isolation
- **Data Plane Isolation**
- Other Considerations

- **Network Policies**
- **Storage Classes and PVCs**
- **Sandboxing**
- **Node Isolation**

Kubernetes Multi-Tenancy Constructs

- Control Plane Isolation
- Data Plane Isolation
- **Other Considerations**

- **API Priority and Fairness**
- **Quality of Service**
- **DNS**
- **Operators / Shared Services**

Kubernetes Tenancy Models

1. Namespaces-as-a-Service
2. Clusters-as-a-Service
3. Control Planes-as-a-Service

<https://kubernetes.io/blog/2021/04/15/three-tenancy-models-for-kubernetes/>

Three Tenancy Models For Kubernetes

Thursday, April 15, 2021

Authors: Ryan Bezdicek (Medtronic), Jim Bugwadia (Nirmata), Tasha Drew (VMware), Fei Guo (Alibaba), Adrian Ludwin (Google)