VMware Tanzu Kubernetes Grid: Install, Configure, Manage [V2.0]

Course Introduction

- **Introductions and course logistics**
- **Course objectives**

2   Introducing Tanzu Kubernetes Grid

- **Describe Tanzu Kubernetes Grid**
- **Describe VMware vSphere® with VMware Tanzu®**
- **Describe VMware Tanzu® Mission ControlTM**
- **Describe VMware Tanzu® for Kubernetes Operations**
- **Describe the Tanzu Kubernetes Grid components**
- **Discuss bootstrapping multiple Tanzu Kubernetes Grid instances**
- **Describe vSphere Namespaces**
- **Describe the benefits of registering with VMware Tanzu Mission Control**

3   CLI Tools and Cluster API

- **Describe the Tanzu CLI and plug-ins**
- **Describe the Kubernetes CLI Tools for vSphere**
- **Describe the Carvel tool set**
- **Describe Cluster API**
- **List the infrastructure providers**
- **Detail the Cluster API controllers**
- **List the Cluster API custom resource definitions**

4   Authentication

- **Define Kubernetes roles and RBAC API objects**
- **Define Pinniped and OpenID Connect**
- **Define Dex and LDAP authentication**
- **Define VMware vCenter® Single Sign-On integration with Tanzu Kubernetes Grid**
- **Identify the management cluster authentication components**
- **Describe the Pinniped workflow in Tanzu Kubernetes Grid on a management cluster**
- **Describe vSphere Namespace permissions and roles**
- **Define authentication using vCenter Single Sign-On**
- **Define authentication using external identity providers**

- **Identify the authentication options for kubectl and the Tanzu CLI**

5   Load Balancers

- **Explain load balancing in Tanzu Kubernetes Grid**
- **Describe the different load balancers that integrate with Tanzu Kubernetes Grid**
- **Discuss public cloud load balancing**
- **Describe the components of VMware NSX® Advanced Load BalancerTM**
- **Explain how Tanzu Kubernetes Grid integrates with NSX Advanced Load Balancer**

6   VMware Tanzu Kubernetes Grid on vSphere

- **Outline the requirements for deploying a supervisor cluster in a vSphere environment**
- **Describe the different options for deploying the supervisor cluster**
- **Describe the licensing requirements for supervisor clusters**
- **List the steps to install a Tanzu Kubernetes Grid supervisor cluster and retrieve its status**
- **Describe how to apply a full license to the supervisor cluster**
- **List the requirements for deploying a management cluster in a vSphere environment**
- **List the requirements for a bootstrap machine**
- **List the requirements for Internet-restricted environments**
- **Explain how the Tanzu Kubernetes Grid version relates to specific OVA versions**
- **Describe the optional configuration for deploying a management cluster in a vSphere environment**
- **List the steps to install a Tanzu Kubernetes Grid management cluster**
- **Summarize the creation of a management cluster**
- **Define the commands available for working with management clusters**
- **List the steps to register Tanzu Kubernetes Grid management clusters with VMware Tanzu Mission Control**

7   VMware Tanzu Kubernetes Grid on Public Clouds

- **Describe the requirements for deploying a management cluster on AWS and Azure**
- **Summarize the process of creating a management cluster on a public cloud**

8   Tanzu Kubernetes Grid Workload Clusters

- **List the options for deploying Tanzu Kubernetes Grid workload clusters**

- Describe the different types of Tanzu Kubernetes Grid workload clusters
- Explain how Tanzu Kubernetes Grid clusters are created
- Describe the VMs that are included in a workload cluster
- Describe the components of a workload cluster
- Describe the difference between machine images and custom machine images
- List the available customizations
- Explain how to build custom images
- Describe how to use custom images
- Describe the commands available for working with workload clusters
- Explain how to scale workload clusters
- Describe machine health checks

9   Tanzu Kubernetes Grid Packages

- Explain how Tanzu Kubernetes Grid uses packages
- Identify the different package repositories
- Describe the different types of packages and their dependencies
- Define auto-managed packages
- Identify the auto-managed packages that are installed to every cluster and those that are installed based on configuration
- Explain how auto-managed packages are installed and configured
- Define CLI-managed packages
- Explain how CLI-managed packages are installed and configured
- Use the Tanzu CLI to configure and install optional packages and repositories

10   Configuring and Managing Tanzu Kubernetes Grid Networking Packages

- Describe cert-manager

- Explain how to install cert-manager

- Describe the Contour ingress controller

- Explain how to install Contour

- Describe service discovery

- Describe ExternalDNS

- Detail the configuration options for BIND servers

- Explain how to install ExternalDNS

- Describe Multus

- **Describe Multus pod configuration**

- **Describe Whereabouts**

- **Explain how to install Multus and Whereabouts**

11   Configuring and Managing Tanzu Kubernetes Grid Operation and Analytics Packages

- **Describe Fluent Bit**

- **Detail the logs that Fluent Bit collects**

- **Describe basic Fluent Bit configuration**

- **Explain how to install Fluent Bit**

- **Describe Prometheus**

- **Describe Grafana**

- **Describe the Harbor image registry**

- **Explain Harbor vulnerability scanning**

12   Tanzu Kubernetes Grid Day 2 Operations

- **Explain the process of authenticating Tanzu Kubernetes Grid workload clusters**
- **Identify the method of creating restricted role-based access to components inside a workload cluster**
- **Explain how Tanzu Kubernetes Grid integrates with NSX Advanced Load Balancer for ingress**
- **Describe VMware Tanzu® Application PlatformTM**
- **List the steps to install Tanzu Application Platform on Tanzu Kubernetes Grid workload clusters**
- **Describe the prerequisites and steps for upgrading Tanzu Kubernetes Grid instances**
- **Describe the prerequisites and steps for updating Tanzu Kubernetes Grid workload clusters**
- **Understand how VMware Tanzu Mission Control manages the life cycle of Tanzu Kubernetes Grid**
- **Define Velero Plugin for vSphere and standalone Velero**
- **Describe Velero Plugin for vSphere**
- **Identify the steps to install Velero on workload clusters**

- **Explain how to back up and restore workload clusters with the Velero CLI and VMware Tanzu Mission Control**

13   Troubleshooting Tanzu Kubernetes Grid

- **Describe the various Tanzu Kubernetes Grid logs**
- **Explain how to review the Cluster API controller logs**
- **Identify the location of the Tanzu Kubernetes Grid logs**
- **Explain the purpose of Crash Diagnostics**
- **Describe how to use SSH to connect to Tanzu Kubernetes Grid nodes**
- **Explain how to troubleshoot package installation errors**
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