

Day - 1

- **Intro to Rancher and RKE**

- 1.1 - Learning the Rancher Architecture
- 1.1 - Introduction
 - 1.1.1 - Rancher Server Components
 - 1.1.2 - Communication With Downstream Clusters
 - 1.1.3 - Architectural Best Practices
- 1.2 - Discovering RKE
- 1.2 - Introduction
 - 1.2.1 - Installing RKE
 - 1.2.2 - Preparing Nodes For Kubernetes
 - 1.2.3 - Creating the Cluster Configuration File
 - 1.2.4 - Certificate Options
 - 1.2.5 - Deploying Kubernetes
- 1.3 - Day Two Operations For RKE
 - 1.3.1 - Secure the Installation Files
 - 1.3.2 - Backups and DR
 - 1.3.3 - Upgrading Kubernetes
 - 1.3.4 - Certificate Management
 - 1.3.5 - Adding and Removing Nodes

- **Installing and Managing Rancher**

- 2.1 - Installing Rancher With Docker
 - 2.1.1 - Installing Rancher
 - 2.1.2 - Making Backups
 - 2.1.3 - Restoring From a Backup
 - 2.1.4 - Upgrading Rancher
- 2.2 - Installing Rancher With Kubernetes
 - 2.2 - Introduction
 - 2.2.1 - Deploying Into RKE
 - 2.2.2 - Making Backups
 - 2.2.3 - Restoring From A Backup
 - 2.2.4 - Upgrading Rancher

- **Deploying Kubernetes With Rancher**

- 3.1 - Designing and Provisioning Clusters
 - 3.1.1 - Where Will My Cluster Live?
 - 3.1.2 - Limitations Within Certain Cluster Types
 - 3.1.3 - Node Resource Requirements
 - 3.1.4 - Networking and Port Requirements
 - 3.1.5 - Cluster Roles
- 3.2 - Deploying a Kubernetes Cluster
 - 3.2.1 - RKE Configuration Options
 - 3.2.2 - RKE Templates
 - 3.2.3 - Node Templates and Cloud Credentials
 - 3.2.4 - Cloud Providers

- 3.2.5 - Deploying a Cluster
- 3.3 - Performing Basic Troubleshooting
 - 3.3.1 - What Could Possibly Go Wrong?
 - 3.3.2 - Rancher's API Server
 - 3.3.3 - Docker / Container Runtime
 - 3.3.4 - Node Conditions
 - 3.3.5 - Kubelet / Worker Node
- 3.4 - Performing Advanced Troubleshooting
 - 3.4.1 - etcd
 - 3.4.2 - Control Plane
 - 3.4.3 - nginx-proxy
 - 3.4.4 - Container Network / CNI

Day - 2

- **Managing Kubernetes With Rancher**

- 4.1 - Editing Clusters
 - 4.1.1 - Editing Cluster Options
 - 4.1.2 - Upgrading Kubernetes
- 4.2 - Using the CLI Tools
 - 4.2 - Introduction
 - 4.2.1 - Kubectl
 - 4.2.2 - Rancher CLI
- 4.3 - Interacting With Monitoring and Logging
 - 4.3.1 - Enable Advanced Monitoring
 - 4.3.2 - Use the Grafana Dashboards
 - 4.3.3 - Configure Notifiers
 - 4.3.4 - Configure Alerts

- 4.3.5 - Configure Logging
- 4.4 - Configuring Namespaces and Namespace Groups (Projects)
 - 4.4.1 - Namespace Overview
 - 4.4.2 - Projects as Namespace Groups
 - 4.4.3 - Project Security
 - 4.4.4 - Resource Quotas
 - 4.4.5 - Resource Limits
- 4.5 - Working Inside of a Project
 - 4.5.1 - Namespace Management
 - 4.5.2 - Project Monitoring
 - 4.5.3 - Project Alerts
 - 4.5.4 - Logging

- **Running Kubernetes Workloads**

- 5.1 - Deploying and Managing Workloads
 - 5.1 - Introduction
 - 5.1.1 - Deploy Workloads
 - 5.1.2 - Upgrading Workloads
 - 5.1.3 - Rolling Back Workloads
 - 5.2 - Using Persistent Storage
 - 5.2.1 - Provisioning Storage
 - 5.2.2 - Using Storage
 - 5.3 - Dynamic Data with ConfigMaps, Secrets, and Certificates
 - 5.3 - Introduction
 - 5.3.1 - ConfigMaps
 - 5.3.2 - Secrets
 - 5.3.3 - Certificates
 - 5.3.4 - Registry Credentials
 - 5.3.5 - Resource Naming
 - 5.4 - Understanding Service Discovery and Load Balancing

- 5.4.1 - Services in Rancher
- 5.4.2 - Layer 4 Versus Layer 7
- 5.4.3 - LoadBalancer Service
- 5.4.4 - Ingress
- 5.5 - Discovering the Rancher Application Catalog
 - 5.5.1 - How It Works
 - 5.5.2 - Catalog Scope
 - 5.5.3 - Included Global Catalogs
 - 5.5.4 - Adding Custom Catalogs
 - 5.5.5 - Using Catalog Apps
- Final Assessment
- Intro to Rancher and RKE
- Installing and Managing Rancher
- Deploying Kubernetes With Rancher
- Managing Kubernetes With Rancher
- Running Kubernetes Workloads
- Conclusion and Next Steps