

Using NetApp Trident with Kubernetes (NA-UATWK)

Course Description

Learn how to install, configure, and use NetApp® Trident to manage Kubernetes with NetApp ONTAP® based storage systems. Deploy Trident by using the Trident operator and then use the tridentctl and kubectl methods to manage configurations. Configure NFS-backed, iSCSI-backed, NAS economy-backed, and NVMe over TCP (NVMe/TCP) backed storage. Manage Volume and VolumeGroup Snapshot copies, expand volumes, and import non-NetApp Trident volumes to become managed volumes. Install and configure Trident protect to protect Kubernetes applications by using snapshots and backups. Restore snapshots and backups in place and to new namespaces.

Protect applications across clusters by using cloning and SnapMirror asynchronous technology. Finally, manage and protect KubeVirt virtual machines (VMs) using Trident and Trident Protect.

Written for Kubernetes v1.35, NetApp Trident, and NetApp Trident protect 26.02, this course includes appendixes on Kubernetes certifications, operator design patterns to extend Kubernetes, and a GitOps introduction.

Course Duration

3 days.

Prerequisites

- Basic Linux administration skills.

Objectives

This course focuses on enabling you to do the following:

- Describe Kubernetes storage concepts
- Explain how Trident makes managing persistent storage easier, and install Trident in a Kubernetes cluster
- Configure back ends, storage classes, and persistent volumes to use storage that Trident manages
- Use Trident to manage common scenarios
- Install and use Trident Protect to protect Kubernetes applications
- Protect across clusters by cloning and mirroring applications
- Monitor Trident by using Prometheus and Grafana
- Investigate security options to ensure a secure Kubernetes environment
- Explore how to run virtual machines in Kubernetes

Who Should Attend

Systems administrator, architect, and integration engineer

Course Outlines

- **Module 1: Kubernetes storage**
 - Persistent storage in Kubernetes
 - Container storage
 - Kubernetes storage concepts
 - Static provisioning
 - Dynamic provisioning
- **Module 2: Trident Installation**
 - NetApp Trident details
 - NetApp Trident installation
- **Module 3: Configuration**
 - Configure back ends
 - Manage storage classes
 - Create persistent volumes by using NetApp Trident
 - Custom naming conventions
- **Module 4: Usage scenarios**
 - Manage Snapshot copies
 - Expand volumes
 - Import volumes
 - Manage multiple-zone storage
 - Consumption and performance control
 - Cross-namespace volume access
- **Module 5: Protection**
 - Trident Protect installation
 - Application protection
 - Application restoration
 - Tridentctl-protect
- **Module 6: Business continuity**
 - Use cases
 - Restoring an app to a new cluster
 - Application mirroring
 - MetroCluster support
- **Module 7: Monitoring**
 - Available options for monitoring NetApp Trident
 - Monitor with Prometheus and Grafana
- **Module 8: Security**
 - SVM hardening
 - NFS hardening
 - iSCSI hardening
- **Module 8: Virtualization in Kubernetes**
 - Installation
 - Using VMs in Kubernetes
 - Storage considerations
 - Data protection