

## Using Astra Trident with Kubernetes

Duration: 3 Days    Course Code: NEP\_UATWK

### Overview:

Learn how to install, configure, and use NetApp® Trident to manage Kubernetes with NetApp ONTAP® based storage systems. Deploy NetApp Trident by using the Trident operator and then use the tridentctl and kubectrl methods to manage configurations. Configure NFS-backed, iSCSI-backed, NAS economy-backed, and NVMe-over-TCP (NVMe/TCP) backed storage. Manage 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. Finally, protect applications across clusters by using cloning and asynchronous SnapMirror.

Written for Kubernetes v1.29, NetApp Trident 24.10, and NetApp Trident Protect 24.10.1, this course includes appendixes on Kubernetes certifications, operator design patterns to extend Kubernetes, and a GitOps introduction.

### Target Audience:

Systems Administrator Architect Integration Engineer

### 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

### Prerequisites:

Basic Linux Administration Skills

## Content:

### 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 9: Next steps

### Appendix 1: Kubernetes Certifications

- Cloud Native Computing Foundation exams
- NetApp Kubernetes-related exams

### Appendix 2: Introduction to operators

- Design patterns for extending Kubernetes
- Operators
- Example operator implementation

### Appendix 3: GitOps introduction

- GitOps definition
- Benefits of GitOps
- Set up Argo CD

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## Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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