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Learning Style: Virtual Classroom

Technology: NetApp

Difficulty: Intermediate

Course Duration: 5 Days

Bootcamp ONTAP9ADM+INTHCDF ONTAP Cluster Admin + Integrating Hybrid Cloud with AWS Bootcamp

About this Course:

This five-day boot camp instructor-led course, combines ONTAP9ADM with

Integrating Hybrid Clouds with Amazon Web Services (INTHCDF). You use the cluster shell and ONTAP System Manager to manage storage and network resources. ONTAP Cluster Administration is an intermediate course in a comprehensive learning path for NetApp customers, partners, and employees.

In the hybrid cloud solution, you learn how to connect hyperscalers and on-premises data centers. You also learn about various NetApp Cloud Data Services, including Cloud Volumes, Cloud Volumes ONTAP, Cloud Sync and Cloud Insights and how they operate in the Data Fabric. You get hands on experience with Cloud Volumes ONTAP, Cloud Sync and Cloud Volumes, as well as with the AWS and Azure clouds.

Course Objectives:

ONTAP9ADM Course Objectives:

- Manage ONTAP administrators
- Configure and manage storage resources
- Configure and manage networking resources
- Create and configure a storage virtual machine (SVM)
- Create and manage FlexVol volumes
- Implement storage efficiency features
- Create protocol servers within an SVM
- Configure basic data protection features
- Perform administrative and preventive maintenance tasks

INTHCDF Course Objectives:

- Describe how NetApp technologies can be used to build your data fabric
- Configure an AWS VPC and connect it to an on-premises data center with VPN Internet Protocol security (IPsec)
- Describe Cloud Volumes ONTAP architecture
- Install Cloud Manager Connector and deploy Cloud Volumes ONTAP
- Explain basic system administration tasks with Cloud Manager
- Copy data between NetApp ONTAP system and NetApp Cloud Volumes ONTAP for AWS for disaster recovery
- Use data tiering to Amazon S3 for Cloud Volumes ONTAP
- Use Cloud Volumes ONTAP as persistent storage for Kubernetes containers
- Identify performance and sizing options for Cloud Volumes ONTAP

Audience:

- Network Engineers
- Channel Partners
- System Engineers
- NetApp Customers

Prerequisites:

- ONTAP Cluster Fundamentals WBT
- ONTAP NAS Fundamentals WBT
- ONTAP SAN Fundamentals WBT
- Basic networking knowledge
- Cloud Volumes ONTAP Fundamentals

Course Outline:

ONTAP9ADM OUTLINE: Module 1: NetApp ONTAP 9 Clusters

- ONTAP deployment options
- The cluster
- SVMs
- ONTAP select learning resources
- NetApp cloud volumes learning resources

Module 2: Cluster Setup

- Supported FAS and AFF configurations
- Cluster setup
- Administration interfaces
- OnCommand System Manager: Guided cluster setup

Module 3: Cluster Management

- Manage access control
- Cluster node date and time
- ONTAP software licenses
- Manage jobs and schedules

Module 4: Network Management

- NetApp ONTAP Network Review
- Network ports
- Network traffic segregation
- LIFs
- Nondisruptive LIF configuration
- Routing management
- Failover group commands
- Routing management commands
- BGP and VIP LIFs

Module 5: Physical Storage Management

- Drives, RAID and aggregates
- Advanced drive portioning
- Flash cache and flash pool features
- FabricPool aggregates
- FabricPool in OnCommand System Manager

Module 6: Logical Storage Management

- Flexible volumes
- Provisioning storage resources
- Moving storage resources
- FlexGroup and FlexCache volumes
- Autobalance aggregate

Module 7: Data Access

- Use NAS protocols to access data
- Use SAN protocols to access data
- NVMe and NVMe/FC

Module 8: Data Protection

- Manage Snapshot copies
- Restore data from a Snapshot copy
- Backup and replicate data
- Compliance
- Storage encryption
- Secure purge and secure boot

Module 9: Storage Efficiency

- Thin provisioning
- Deduplication and compression
- Flash efficiency
- Volume and file clones
- Inline deduplication status
- Inline data compaction

Module 10: Cluster Maintenance

- Data collection, monitoring and automation tools
- Backing up and restoring your cluster configuration
- Upgrading your cluster
- Performance recommended practices
- Technical support
- Documentation
- ONTAP software upgrades

Module 11: Course Review

ONTAP9ADM Labs:

- Exploring ONTAP Management UIs
- Managing ONTAP clusters and administrators
- Managing physical and logical network resources
- Managing virtual network resources

- Managing physical storage
- Exploring RAID-TEC and creating a flash pool
- Managing data volumes
- Configuring NAS protocols in an SVM
- Configuring iSCSI in an SVM
- Managing Snapshot copies
- Encrypting a volume
- Managing storage efficiency
- Managing FlexClone volumes
- Bonus Exercise: creating a FlexGroup volume
- Installing and configuring Config Advisor

INTHCDF Outline: Module 1: Data Fabric Overview

- Data fabric
- Solutions for the hybrid cloud
- NetApp cloud data services
- NetApp Public Cloud Products
- Cloud Storage
- Cloud Services and Analytics
- Cloud Controls

Module 2: Public Cloud Essential Concepts

- AWS Networking and Other Concepts
- AWS Cloud Formation

Module 3: Connectivity from the Public Cloud to Other Networks

- Amazon Web Services Virtual Public Cloud Connectivity to an On-Premises Network

Module 4: NetApp Cloud Manager

- NetApp Cloud Manager Overview

Module 5: NetApp Cloud Volumes ONTAP: Single-Node Architecture

- Cloud Volumes ONTAP
- Cloud Volumes ONTAP Use Cases
- Cloud Volumes ONTAP Architecture
- Deploying Cloud Volumes ONTAP
- Cloud Volumes ONTAP Supported Features

Module 6: NetApp Cloud Volumes ONTAP: High-Availability Architecture

- Highly Available Cloud Volumes ONTAP in AWS

Module 7: Administration of NetApp Cloud Volumes ONTAP and NetApp Cloud Manager

- Administering Cloud Volumes ONTAP
- Administering Cloud Manager

Module 8: Implementing Disaster Recovery with NetApp Cloud Volumes ONTAP

- Disaster Recovery with NetApp Cloud Volumes ONTAP Overview

Module 9: Data Tiering for NetApp Cloud Volumes ONTAP

- Data Tiering for NetApp Cloud Volumes ONTAP Overview

Module 10: Using NetApp Cloud Manager to Provision Persistent Storage for Kubernetes Clusters

- Using NetApp Cloud Manager to Provision persistent Storage for Kubernetes Clusters Overview

Module 11: Using Integrated Services from NetApp Cloud Manager

- Using Cloud Backup Service from Cloud Manager
- Using Cloud Sync from Cloud Manager
- Using Cloud Compliance from Cloud Manager
- Using Cloud Tiering Service from Cloud Manager

Module 12: Sizing NetApp Cloud Volumes ONTAP

- An Introduction to Sizing
- Capacity Sizing
- Performance Sizing
- Single Node versus High Availability
- Key Differences between Cloud Volumes ONTAP and On-Premises ONTAP software
- Performance Tuning
- Frequently Seen Sizing Mistakes

INTHCDF Labs:

- Controlling cloud resources with CLI
- Controlling cloud resources with Powershell Toolkit
- Controlling NetApp ONTAP (On-Premises) Resources with NetApp Powershell Toolkit
- Configuring Resources in AWS with AWS CloudFormation
- Reviewing Resources in the AWS Console
- Verifying Connectivity to the EC2 instances in Public and Private Subnets
- Connecting AWS VPC to Your On-Premises Network
- Configuring your On-Premises DNS and Domain Controller for your Amazon EC2 Instances
- Deploying a connector
- Deploying a Single-Node Cloud Volumes ONTAP Instance

- Accessing the SMB Share from an SMB Client
- Creating an NFS Volume and Accessing It from an NFS Client
- Deploying a Cloud Volumes ONTAP High-Availability Pair
- Connecting an SMB Client from Within the Same VPC
- Performing Failover and Failback of the High-Availability Pair of Nodes
- (Optional) Connecting an SMB Client from Outside the VPC Using a Transit Gateway
- Using Cloud Manager for Basic Administration of Cloud Volumes ONTAP
- Doing Basic Administration of Cloud Manager
- Configuring and Managing Disaster Recovery in the Data Fabric
- Tiering Backup Data to Amazon Simple Storage Service
- Exploring the TCO Calculator and Sizer Tools