

Data ONTAP SAN Implementation

Learn via: **Classroom / Virtual Classroom / Online**

Duration: **3 Gün**

Overview

In this workshop course, you learn how to connect Windows® and Linux® hosts via Fibre Channel (FC) and iSCSI protocols to NetApp® SANs.

Prerequisites

- Certification as a NetApp Data Management Administrator
- Completion of the following courses:
 - SAN Fundamentals on Data ONTAP WBT
 - 'NetApp Portfolio: Exploring SAN Architectures and Configurations (SANARCH)'
 - Either !NA-D7ADM or Clustered Data ONTAP 8.2 Administration or !NA-CDOTDP

What You Will Learn

By the end of this course you should be able to:

- Define and describe SANs that use FC, FCoE, and iSCSI protocols
- Configure Windows Server 2012, Red Hat® 6.4, and Data ONTAP® systems for iSCSI connectivity
- Configure Windows Server 2012, Red Hat 6.4, and Data ONTAP systems for FC and FCoE connectivity
- Use FC and iSCSI protocols to create and access LUNs from Windows Server 2012 and Red Hat 6.4 systems
- Install and use SnapDrive® for Windows and SnapDrive for Linux software to create LUNs and Snapshot™ LUNs, to restore LUNs from Snapshot copies, and to remove LUNs
- Size, clone, back up, and recover LUNs on Windows Server 2012 and Red Hat 6.4 systems
- Troubleshoot SAN connectivity and performance issues

Outline

Module 1 SAN Concepts

- Describe the difference between SAN and NAS
- Explain the SCSI architecture model
- List the NetApp SAN technologies
- Define basic SAN terminology
- List the basic steps for implement a Data ONTAP SAN
- Describe the educational lab environment for this Course

Module 2 Windows IP Connectivity

- Describe multiple path implementation with iSCSI connectivity
- Configure network ports on Windows and NetApp systems
- Identify the node name on Windows and NetApp systems
- Implement and verify multiple path iSCSI connectivity between Windows and NetApp systems

Module 3 Windows LUN

- Discuss LUN access for Windows Server 2012
- Create a LUN by using wizards
- Explore techniques to configure a LUN for Windows Server 2012
- Explain how SnapDrive for Windows simplifies LUN management

Module 4 Linux IP

- Describe multiple path implementation with iSCSI connectivity for Red Hat and NetApp systems
- Configure network ports on Red Hat systems

- Identify the node name on Red Hat systems
- Set up and verify multiple path IP connectivity between Red Hat and NetApp systems

Module 5 Linux LUN Access

- Describe the steps that you take to allow a Red Hat initiator to access a LUN on a storage system
- Review the Data ONTAP LUN configuration steps
- Find and prepare a LUN on a Linux operating system
- Configure multipath I/O on Linux
- Create and protect LUNs by using SnapDrive for UNIX

Module 6 FC Architecture

- Describe the architecture of the FC topology
- Explain the FC initialization process
- Identify the layers in the FC protocol

Module 7 FC Fabrics

- Discuss fabric layouts
- Describe FC switch concepts
- Explain fabric services
- Describe routing in FC switches
- Examine zoning in FC switches

Module 8 Windows FC Connectivity

- Describe multiple path implementation with FC connectivity
- Configure FC ports on Windows and Data ONTAP storage systems
- Use commands and utilities to identify the worldwide node name (WWNN) and worldwide port name (WWPN) on Windows and Data ONTAP storage systems
- Use commands and utilities to examine FC switch Activity

Module 9 Unified Connect

- Describe NetApp Unified Connect
- Examine the FC over Ethernet (FCoE) enabling technologies
- Configure FCoE on a host, a switch, and a NetApp storage system
- Explain how to leverage older FC technologies with FCoE

Module 10 Linux FC

- Describe multiple path implementation with FC connectivity for Red Hat and NetApp systems
- Configure FC ports on Red Hat systems
- Identify the worldwide node name (WWNN) and worldwide port name (WWPN) on Red Hat systems
- Set up and verify multiple path FC connectivity between Red Hat and NetApp systems

Module 11 LUN Provisioning

- Describe how and when a LUN consumes space from its containing volume
- Discuss backup guarantees through NetApp Snapshot reserve
- Discuss the overwrite guarantee for space-reserved LUNs
- Analyze the default LUN configuration and two thinprovisioning Configurations

Module 12 Host Considerations

- Explore the disk structure of popular file systems
- Describe flow-control issues on a host
- Identify techniques for growing and shrinking a LUN
- Discuss copy offload capacities

Module 13 SAN Management

- Perform administrative tasks on FC target ports
- Perform administrative tasks on LUNs
- Discuss LUN protection schemes

Module 14 SAN Troubleshooting

- Explain how to diagnose a problem within a SAN environment
- Review diagnostic tools and techniques for NetApp Data ONTAP software