

I-SCSI SANS

Course Features

- Being cost effective and based on IP network infrastructure, iSCSI Technology is quickly becoming the preferred Storage Area Networking Technology
- This training program provides the basic technical knowhow to effectively work with iSCSI products and configurations
- The training program features live demonstrations of storage systems, and SAN configurations based on custom built software tools running in virtual server environment

Target Audience

- IT Professionals
- Administrators
- Professional Services Staff
- Technical Support Engineers
- Solution Architects
- Software Product Engineers
- Product Test and QA Engineers
- Product Development Engineers

Course Contents

Module 1: Storage Technology Overview

- Basics of disk storage, block storage, RAID
- Hardware and software components from the storage stack
- No single point of failure configurations
- Quick overview of LVM, file-system, simple cluster
- Introduction to SAN (Storage Area Network) and NAS (Network Attached Storage)

Module 2: SCSI Architecture Model

- SCSI evolution - SCSI-1, SCSI-2, SCSI-3
- overview of SCSI-3 layered architecture model
- SCSI basic concepts
- SCSI Remote Procedure Call Model (requirements from a transport layer protocol)

Module 3: SCSI Protocol

- SCSI command sets (all devices - mandatory commands, commands for block devices)
- Brief introduction to SCSI reservations
- Control / data flow of a typical read and write operation

Module 4: iSCSI Protocol

- iSCSI architecture and basic concepts SCSI Mapping
- iSCSI Phase of operation, PDU formats, Control flow
- Error Handling and Recovery
- iSCSI Security Considerations
- CHAP authentication
- iSNS

Module 5: iSCSI SANs Overview

- Practical Considerations while implementing iSCSI SANs
- Comparison with Fibre Channel SANs

Module 6: Live Demonstration of iSCSI Configurations

- Tools: VMware Server Based Virtual Machines, Ubuntu Linux, iSCSI Enterprise Target, open-iscsi initiator for Linux, Wireshark protocol analyzer, sg_utils, scu (scsi utility), Windows iSCSI initiator
- Configuration of RAID/LVM based storage and exporting it as iSCSI LUNs
- Accessing iSCSI LUNs from Linux and Windows iSCSI initiators
- Wireshark based protocol analysis
- Use of tools such as sg_utils and scu (Linux)

HANDS ON

- Configuring storage using RAID and LVM technologies, presenting iSCSI Logical Units
- Creating and presenting snapshots
- Performing Device Discovery from Windows, capturing protocol trace using Wireshark, protocol trace analysis for commands sent by the initiator (CDB level) and corresponding responses from the target
- Accessing the target from Linux initiator
- Use of sg_utils and scu from Linux to perform various CDB level operations
- Using iometer for performance baseline and load testing

Tools Used: Server Based Virtual Machines running on PCs networked on a LAN, Linux Operating System, iSCSI Enterprise Target, open-iscsi initiator for Linux, Wireshark protocol analyzer, sg_utils, scu(scsi utility), iometer, Windows iSCSI initiator