



HP Education Services

HP Accelerated SAN Essentials (UC434S)

This course provides a comprehensive and accelerated understanding of SAN technologies and concepts. Students gain experience needed to tackle challenges of working in enterprise class SAN environments. The course is 60 percent lecture and 40 percent hands-on labs using HP servers.

Audience

- Technical professionals seeking an accelerated learning path that includes both conceptual knowledge of fibre channel SAN technologies and experience in heterogeneous SAN environments

Prerequisites

- Basic technical understanding of networking and storage concepts and terminology and
- Experience managing Windows or UNIX systems
- Recommended free web-based training at <http://education.itrc.hp.com>: SAN Fundamentals (U5527AAE)

Course objectives

At the conclusion of this course you should be able to:

- Identify the differences between DAS, NAS, and SAN
- Explain fibre channel layers and switch configuration parameters
- Boot from SAN and verify device connectivity
- Install and use SANsurfer utility
- Implement zoning and troubleshoot fabric segmentation
- Configure an HP storage SAN and RBAC B-series
- Secure SAN data and mitigate risk
- Plan a disk system that accounts for effects of RAID, cache, and chunk size on performance

Benefits to you

- Gain a comprehensive understanding of the leading SAN technologies and the experience needed to tackle the challenges of working with SAN solutions

Why education services from HP?

- Training Industry Top 20 training provider and content development
- Recognized as an IDC MarketScape leader for IT education (IDC MarketScape: Worldwide IT Education and Training 2012 Vendor Analysis, doc #232870, February 2012)

Course title:	HP Accelerated SAN Essentials
HP product number:	UC434S
Category/Subcategory:	Storage
Course length:	5 days
Level:	Intermediate
Delivery language:	English
To order:	To review course schedules and to register for a course, visit www.hp.com/learn/storage and select your country from the drop down menu, or, contact your HP sales representative or HP authorized channel partner.

- Unmatched technical expertise and support for HP products and technologies
- Training you need, when and where you need it with our Remotely Assisted Instructional Learning (RAIL)
- More than 30 years of Education Consulting
- Global training with more than 90 training locations worldwide

Next steps

- Managing HP Storage Enterprise Virtual Array (U4879S)
- HP Storage XP1: Configuration and Management (H6773S)

Detailed course outline

Introduction

- SAN definition, benefits, and goals
- High-speed backup and availability
- Server and storage consolidation

- DAS, NAS, and SAN concepts and comparisons
- Host, target, and interconnect device characteristics
- Power-on sequence

Fibre Channel (FC) Basics

- FC terminology, port types, topologies, and layers
- Class of service

Fibre Channel Switches

- Switch configuration parameters
- Principal switch selection
- Frame routing within a fabric
- Trunking and port channels
- Virtualization within the fabric

SAN Hosts

- Host role within SAN and virtualization
- Host installation checklist and bus connections
- Boot from SAN and load balancing
- Multi-path SAN connections and software
- Multi-path I/O (MPIO) components within OS

Disk Targets

- Disk drives and associated technologies
- How disks are connected to controllers
- LUN masking and array management

Fibre Channel Advanced

- Fibre channel addressing and reserved addresses
- Ordered sets
- Primitive signals and sequences
- Flow control and zoning
- Link and fabric services
- Fabric login and segmentation

SAN Management

- SAN management choices and considerations
- Technologies driving SAN management
- HP SAN management today
- HP storage essentials

iSCSI

- IP storage
- iSCSI stack, packet construction, and name convention
- iSCSI connection, hardware options, and security

- HP Storage SAN as a sample of a iSCSI system

SAN Extension

- SAN extension technologies and implementations
- Fibre channel over IP (FCIP)
- FCIP and its role in SAN extension
- FCIP performance and security
- Fibre routing implementations in a SAN

FCoE / CEE

- FCoE and CEE standards
- FCoE I/O consolidation and terminology
- Lossless ethernet
- FCIP, iSCSI, and FCoE protocols

SAN Security

- Basic storage security model and access points
- Planning security in a SAN
- Core components for securing SAN data management
- Security in practice
- Authentication and encryption

Data Protection

- Backup types and their differences
- Accelerated and dynamic de-duplication
- Synchronous and asynchronous replication
- Split mirror and snapshot replication

Performance

- Factors affecting SAN, disk, and drive speed performance
- Fibre channel technology and how it affects storage performance
- Planning a disk system that accounts for effects of RAID, cache, and chunk size on performance
- I/O profiling

SAN Design

- Architecture choices and design considerations
- HP standard SAN topologies and topology design rules
- Core and edge architecture
- Levels of high availability in SAN architecture

For more information

To review course schedules and to register for a course, visit www.hp.com/learn/storage and select your country from the drop down menu.

