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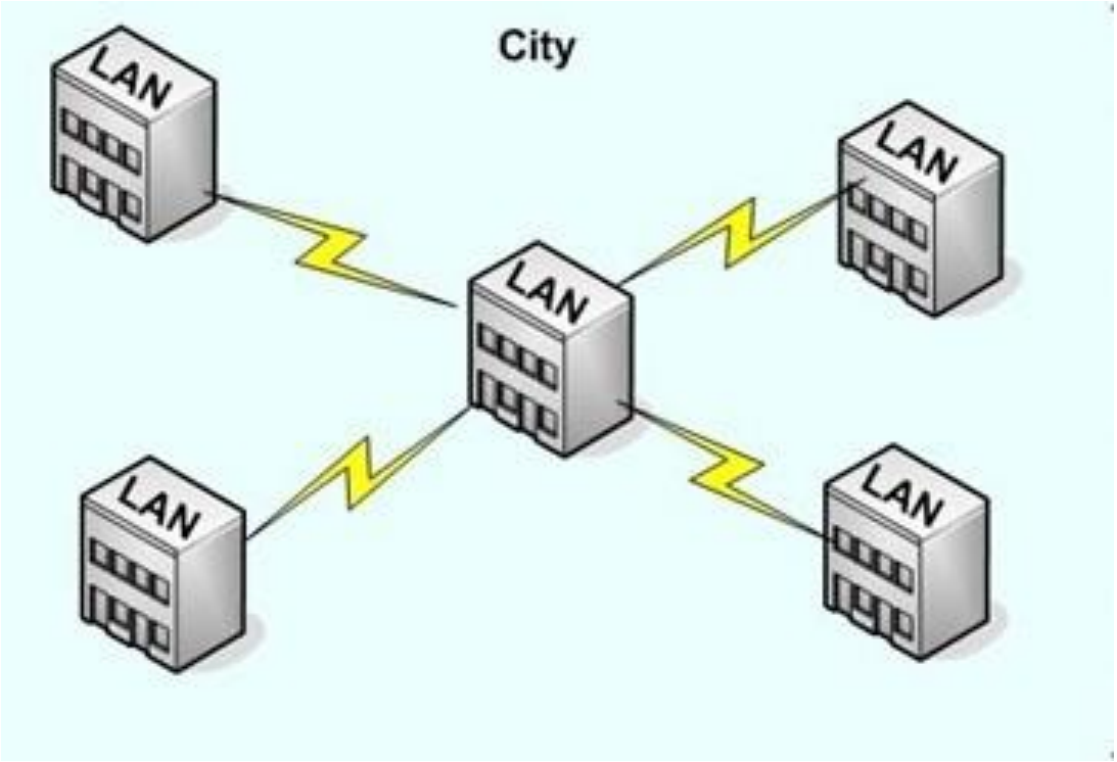

HP SAN Administration Fundamentals

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HP SAN Administration Fundamentals

- **Course Overview:**

This course is designed for new or entry-level B-Series SAN administrators. It provides a comprehensive understanding of everyday administration within an HPE SAN solution, covering a broad range of technologies and concepts such as FC, iSCSI, and FCoE. It discusses basics and building blocks of FC and IP-SAN with examples based on B-Series products, as well as the role of SAN-enabled hosts and disk targets. B-Series SAN features and management options are also presented. Other topics include data protection, basic SAN security, and performance aspects of SAN components. Please note that advanced technologies are only introduced in this course, while they are fully covered in the SAN Essentials II: Advanced B-series Networking class. This training helps students gain the experience needed to tackle the challenges of working in medium-sized and enterprise-class B- Series SAN environments. This course covers general SAN technologies and StoreFabric B-series specific topics.

- **Course Outline:**

Introduction

- SAN definition, benefits and goals
- High-speed backup and high availability
- Server and storage consolidation
- DAS, NAS, and SAN concepts and comparisons
- SAN considerations
- Tier storage
- SAN components
- Host, target and interconnect device characteristics
- SAN portfolio overview
- Power-on sequence

Fibre Channel (FC) Basics

- Adressing
- FC terminology, WWNs, port types, and topologies

Switch Installation and Configuration

- In the box
- Steps overview
- Environmental issues
- Configuration parameters
- Initial CLI and serial connection
- Default passwords
- IP settings
- CLI settings
- Time settings
- Licensing management
- Login banner
- Switch, chassis, fabric and port names
- Syslog
- Checkin switch and ports status
- Configuration file backup
- Rebooting

SAN Hosts

- Host role within SAN
- Converged network adapters
- Host installation checklist and bus connections
- Boot from SAN
- Multi-path SAN and load balancing
- Multi-path I/O (MPIO) components within OS
- NPIV overview, benefits, scalability and management
- HPE Virtual Connect overview
- Finding WWNs

Disk Targets

- SATA interface
- SAS interface
- SSD technologies
- Disk enclosures
- Storage presentation
- Storage Virtualization
- Connecting disks to controllers

- Storage Deduplication
- Provisioning types
- Data encryption
- VVOLs
- Portfolio overview

Fibre Channel Basic Services

- SNS/name server
- SNS in Web Tools
- SNS related commands
- Zoning overview
- Zoning building blocks
- Basic zoning configuration
- Basic zoning configuration via CLI and GUI
- Fabric segmentation
- Zoning best practices

SAN Management

- SAN management choices and considerations
- Technologies driving SAN management
- HPE SAN management today
- SNMP
- REST API
- OneView
- Web Tools
- SAN Network Advisor

iSCSI

- IP storage overview
- iSCSI stack, packet construction and name convention
- iSCSI initiator options
- iSCSI discovery methods and security
- HPE Nimble array as an iSCSI product example

SAN Extension

- Basics and overview
- Cables and SFPs
- Fabric virtualization overview

FCoE/CEE

- FCoE and CEE standards
- FCoE I/O consolidation and terminology
- FCoE stack and encapsulation
- Lossless Ethernet
- Priority-based Flow Control (PFC)
- Enhanced Transmission Selection (ETS)
- Congestion Notification (CN)
- Data Center Bridging Capabilities Exchange (DCBX)
- FCIP, iSCSI and FCoE basic comparison

SAN Security

- Basic storage security model and access points
- Planning security in a SAN environment
- Core components for securing SAN data
- Data and management security models
- Roles management
- Password rules and local/remote authentication

Data Protection

- Reasons for data protection
- Data protection challenges
- Data classification
- Protection and recovery methods
- Backup types and their differences
- Backup topologies
- RMC
- RPO and RTO
- StoreOnce overview and introduction

- CloudBank Storage
- Local and remote replication
- Deduplication

Performance

- Factors affecting SAN performance
- SAN performance planning and considerations
- Latencies and congestion
- Performance monitoring
- Performance guidelines within the SAN
- Recommendations for switch ISL connectivity
- Determining the required bandwidth
- Storage performance (drive and RAID selection)

SAN Design

- Architecture choices and design considerations
- HPE standard SAN topologies and topology design rules
- Advantages, disadvantages and scalability of different topologies
- Data locality
- Topology data access usage
- SAN infrastructure performance factors
- Levels of high availability in SAN architecture
- SAN planning and documentation utilities

Prerequisites:

- Students should be experienced professionals with a solid understanding of servers, storage, networks and virtualization

Who Can Attend:

- New or entry-level technical professionals seeking a learning path that includes both con- ceptual knowledge of SAN technologies and experience in HPE B-series SAN environments

Number of Hours: 30hrs

Certification: HM9Q1S

Key Features:

- One to One Training
- Online Training
- Fastrack & Normal Track
- Resume Modification
- Mock Interviews
- Video Tutorials
- Materials
- Real Time Projects
- Virtual Live Experience
- Preparing for Certification