



SAN CCIE Storage SAN CCIE v2.0 – Written Blueprint

Describe standards-based SAN protocols

- Describe Fibre channel standards and protocols
- Describe SCSI standards and protocols
- Describe iSCSI standards and protocols
- Describe IP standards and protocols
- Describe IPFC standards and protocols
- Describe FCIP standards and protocols
- Describe FICON standards and protocols

Design a solution that addresses a customer's fibre channel SAN requirements

- Evaluate the customer's SAN utilization and propose consolidation options
- Evaluate customer's Storage Virtualization implementation strategy
- Evaluate customer's Security requirements
- Evaluate over-subscription ratio for a given design
- Identify characteristics of customer's host operating systems that could impact their SAN design
- Select the appropriate design option given a set of customer requirements including applications such as data replication, high availability
- Propose protocols, topologies, devices, and features that would improve customer solution
- Design an appropriate Cisco management infrastructure
- Determine hardware configurations, power requirements, environmental considerations to support SAN fabric design

Implement FCP and FICON fibre channel features

- Implement port channel, ISL, and trunking
- Implement VSAN
- Implement basic and enhanced zoning
- Implement IVR, including IVR 2, IVR service groups, IVR static FCIDs
- Implement traffic engineering
- Implement port tracking
- Implement Dynamic Port VSAN Membership
- Implement Device Aliases
- Implement CFS capable applications
- Implement FC domain parameters
- Implement FICON
- Implement proper oversubscription
- Implement standards-based and Cisco-specific FC-0 through FC-2 features
- Implement SAN extension over optical
- Implement fibre channel security features
- Validate proper configuration of FCP and FICON fibre channel features

Identify switch interoperability requirements

- Identify considerations that should be addressed when designing a heterogeneous fabric
- Implement switch interoperability modes 0-4
- Validate proper configuration of interoperability

Design IP configurations

- Determine requirements for IP addressing and IP routing
- Determine appropriate VLAN requirements for storage solutions
- Determine ACL requirements for storage solutions
- Determine end-to-end QoS requirements for SAN extension
- Determine components needed for a SAN extension solution
- Determine HA requirements based on customer service-level agreements

Implement IP Storage-based solutions

- Implement IP features, including high-availability
- Implement iSCSI, including advanced features
- Implement SAN Extension Tuner
- Implement Network Simulator
- Implement ISLB
- Implement ISNS
- Implement FCIP, including advanced features
- Implement iSCSI security features
- Implement FCIP security features and use of special frames
- Validate proper configuration of IP Storage-based solutions

Implement SAN management

- Implement Performance Manager
- Implement NTOP
- Implement Fabric Manager and Device Manager
- Implement CLI variables, aliases, scripting, and Command Scheduler
- Implement Call Home, SNMP, and RMON features
- Implement IPFC
- Configure licensing to insure proper licensing compliance
- Implement SAN Management security features
- Implement AAA services
- Verify performance statistics
- Validate proper configuration of SAN Management

Implement Cisco intelligent storage services

- Implement Fibre channel write acceleration
- Implement SANTap
- Implement SME
- Implement DMM
- Implement Storage virtualization
- Implement SDV
- Validate proper configuration of Cisco intelligent storage services

Troubleshoot SAN infrastructure

- Troubleshoot problems and failures using Command Line Diagnostic tools, show and debug commands, and GUI
- Capture and analyze fibre channel flows using FCAnalyzer, SPAN, and RSPAN
- Troubleshoot using RMON, SNMP, and Call Home for detecting problems
- Configure and interpret the various system logs
- Troubleshoot problems with switch recovery, upgrades, and rollbacks