# CompTIA Storage+ Powered by SNIA

http://www.snia.org/education/courses/training_tc

**Course Length:  4 days**
• 9AM–5PM

**Course Fee: $2,495 USD**
• Register: https://www.regonline.com/Register/Checkin.aspx?EventID=635346

**Course Locations:**
• January 27-30, 2014 – San Jose, CA
• March 17-20, 2014 – Miami, FL
• May 13-16, 2014 – Austin, TX
• July 21-25, 2014 – Portland,
• November 17-20, 2014 – San Diego, CA

**Course Instructional Method:**
Course Instructional Method:
• Interactive Lecture
• Exam Study Sessions

**Course Documentation:**
• Password protected eBook's of all material
• This material is copyrighted for the exclusive use of the student only

## Course Description (Overview):

This course educates the student on the abundance of technologies that power today's data centers. It not only addresses the underlying technology alternatives that connect, virtualize, secure, manage, and store the massive data accumulated by all data center applications, it also concentrates how to minimize the total cost of ownership while simultaneously increasing asset utilization and application performance. This course examines system design points and common components used to architect, construct, and design a storage networked solution aimed at powering any business application.

This course goes beyond passing a certification exam and dives into actual troubleshooting and best practices associated with real storage networking equipment and applications. This course provides you with well-defined and documented industry standard techniques and tools that will assist you in troubleshooting or configuring any storage networking product you experience regardless of vendor.

# Course Descriptions – CompTIA Storage+ Certification Topics

• Course Introduction
• Certifications
• Basics
- Basic Concepts
• Networks vs. Storage
• Capacity
- • Network Links
- • Storage
- • Servers
- • Network Devices
• DAS, NAS, SAN, FAN & Hybrids
• External vs. Internal SANs
• Blocks, Files & Objects Overview
• Storage
–Storage Concepts
- • Hard Disk Drive (HDD)
- • Solid State Drive (SSD)
- • Tape
- • JBOD
- • Storage Arrays
  - • LUN Presentation
  - • LUN Aggregation
  - • Dynamic LUN Expansion
  - • Thick & This Provisioning
  - • Persistent Binding
- • RAID levels
- • Combined RAID Levels
- • MAID

– Storage Technologies
- • SCSI Storage Overview
- • P-SCSI
- • SAS
- • SATA
- • Networks
–Fibre Channel Technologies
- • FC Overview
- • FC Topologies
- • FC Names & Addresses
- • FC Names & Addresses NPIV
• FC Architecture
- • FC Architecture Overview
- • FC-0

- FC-1
- FC-2
- FC-Services
- FC-3
- FC-4 SCSI & IP

–Fibre Channel Components
- HBAs and CNAs
- FC Hubs & Loop Switches
- FC Bridges, Routers & Gateways
- FC Fabric Switches
  - Switches
  - Switch Fabric Design
  - Switch Fabric Pathing
  - Switch Fabric Zoning & LUN Masking
  - Switch Fabric Router
  - Switch Virtual Fabrics

- FC Animations

–IP Storage & iSCSI Technologies
- Storage Networking & IP
- IP over FC (IPFC)
- Internet Fibre Channel Protocol (iFCP)
- Metropolitan Fibre Channel Protocol (mFCP)
- Fibre Channel over IP (FCIP)
- Internet SCSI Protocol (iSCSI)
- Data Center Networks –Converged Enhanced Ethernet and Data Center Bridging (CEE & DCB)
- Data Center Networks –Fibre Channel over Ethernet (FCoE)

–Networking Concepts
- Introduction to Networking
- What is a layered stack?
- Data Structures
- Physical Transport Networks
- Simplex and Duplex
- Network Models
- Circuit & Packet Switch
- Bus, Loop & Expanse
- Connection-Oriented vs. Connectionless
- Bit Rate, Bandwidth, Latency and Throughput
- Ports and PHYs
- Names & Addresses
- Flow Control
- Segmentation & Offload

–System Interface Technologies

## Storage Network Certifications:

This course is explicitly designed to prepare the student for many vendor neutral and vendor specific Storage Network Certification Programs including:

### CompTIA
- CompTIA Storage+ Powered by SNIA exam leading to the CompTIA Storage+ Powered by SNIA credential

### Storage Networking Industry Association (SNIA)
- Storage Networking Storage Management & Administration exam leading to the SNIA Certified Storage Engineer (SCSE) credential
- SNIA Architect – Assessment Planning & Design exam leading to the SNIA Certified Storage Architect (SCSA) credential
- SNIA Certified Storage Networking – Expert (SCSN-E) credential


## Course Objectives (What you will learn):

What's exciting about it, why it's important, where it's going?
- Learn from an expert storage networking technologist with over 20 years of experience
- This detailed seminar includes all of the topics needed to understand Storage Networking concepts and solutions including Ethernet, Fibre Channel, Serial Attached SCSI, SATA, iSCSI, FC over Ethernet, InfiniBand, and PCI Express technologies.
- Students will gain a fundamental understanding of the entire Storage Networking industry and all the components that enable today's and tomorrow's Data Centers.
- Students will gain a fundamental understanding of the how tiered storage enables cost effective Data Centers and all the standards and associations that drive today's Storage Networking technologies (FCIA, STA, SNIA, etc.).
- Topics include Storage Fundamentals which detail SCSI protocol; disk, tape, optical, and Flash devices, file system concepts, RAID (all levels) and JBOD, as well as DAS, NAS and SAN components, configurations, and protocols.
- This seminar also details practical and typical SAN Applications including consolidation, backup/restore, and disaster recovery with key insights into issues facing today's IT departments including interoperability, management, and defining storage requirements such as capacity planning, high availability, and security.
- Learn how emerging technologies and can impact future data center designs


## Audience (Who should attend):
- This seminar is recommended for students needing a broad deep knowledge and understanding of Storage and Storage networking concepts, applications, and technologies.
- All storage network practitioners
- Anyone who designs, implements, manages, specifies or selects Storage Networking technologies

- IS/IT technical staff and managers, product developers, systems integrators, systems engineers and technical marketing personnel
- Product and project teams that are involved with applications, systems, storage and end users will benefit from this course.
- Developers, integrators, engineers, administrators, managers, marketing personnel and others with a need for an understanding of Storage Networking will find this seminar extremely informative.
- Anyone involved in storage or data communications networking will understand the similarities and differences between thee environments and will be in position to take on the challenges introduced by Storage Networking.

## Job Roles:

This course content and technical level are targeted for professionals working in roles similar to the following:
- Product /Application/Service Development
- Product /Application/Service Support
- Customer Management & Technical Personnel
- Sales/Pre Sales/Marketing & Systems Engineers
- Technical Project

**Prerequisites:**
Computer technology degree or equivalent experience
Understanding of computer theory and technology (i.e. CPU, server, storage, network, switch, RAM, etc.).