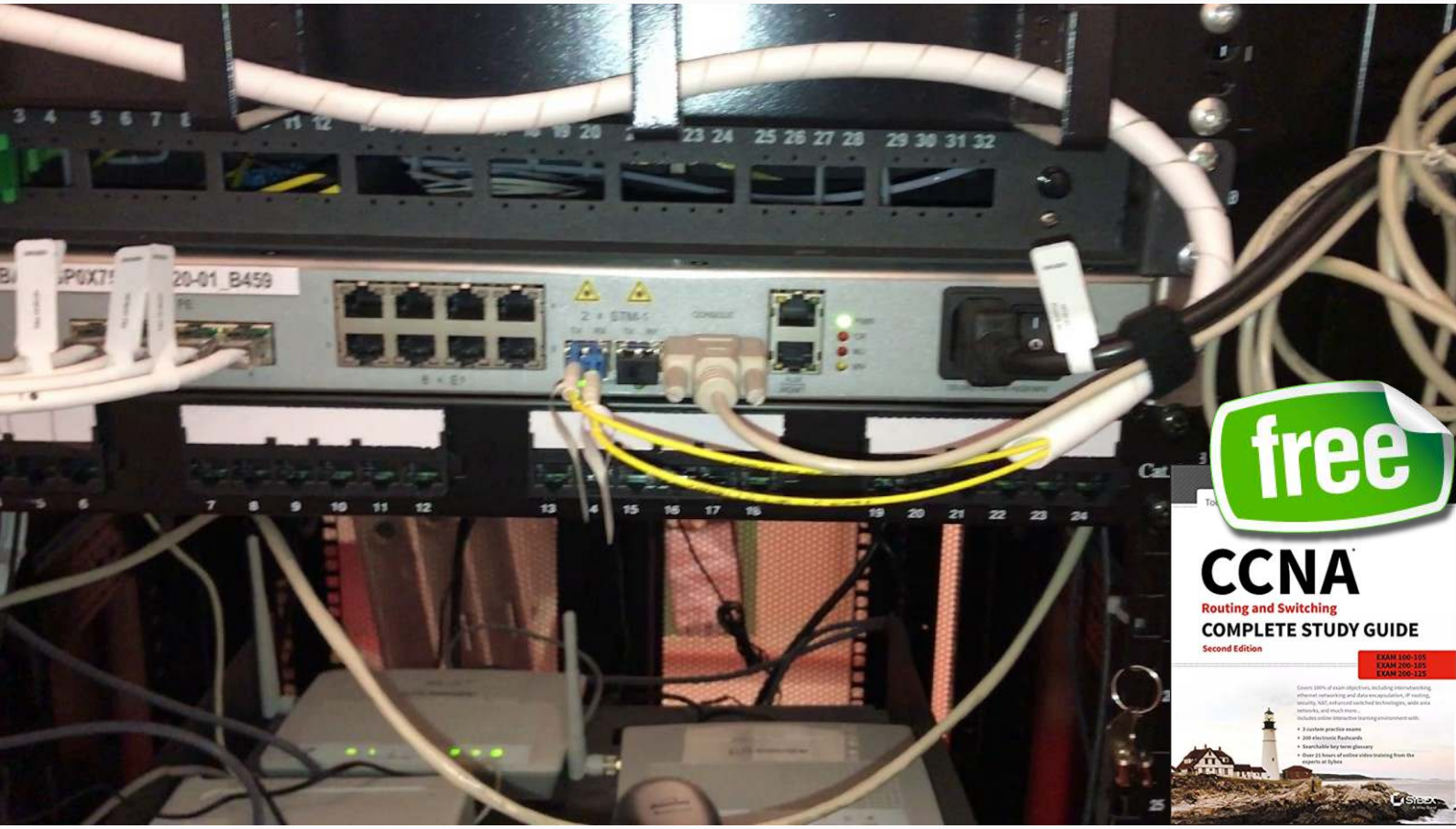
CCNA
& Network Security



Training Outline

neosphere
Shaping Digital Futures

> **There are only two types of companies:**
> those that have been hacked,
> and those that will be
>
> Robert Mueller
> FBI Director, 2012

Configuring a Static Route

	Command	Purpose
Step 1	**configure terminal** **Example:** switch# configure terminal switch(config)#	Enters configuration mode.
Step 2	**ip route {ip-prefix | ip-addr ip-mask} {[next-hop | nh-prefix] | [interface next-hop | nh-prefix]} [tag tag-value [pref]** **Example:** switch(config)# ip route 192.0.2.0/8 ethernet 1/2 192.0.2.4	Configures a static route and the interface for this static route.
Step 3	**show ip static-route** **Example:** switch(config)# show ip static-route	Displays information about static routes.
Step 4	**copy running-config startup-config** **Example:** switch(config)# copy running-config startup-config	Saves this configuration change.

Source: https://www.cisco.com/c/en/us/td/docs/switches/datacenter/nexus3000/sw/unicast/503_u1_2/nexus3000_unicast_config_gd_503_u1_2/l3_route.html

Master Module

- Network Fundamentals
- LAN Switching Technologies
- Routing Technologies
- WAN Technologies
- Infrastructure Services
- Infrastructure Security
- Infrastructure Management

CISCO Exam Pattern

Topic	Percentage
Network Fundamentals	15%
LAN Switching Technologies	21%
Routing Technologies	23%
WAN Technologies	10%
Infrastructure Services	10%
Infrastructure Security	11%
Infrastructure Management	10%

Cisco Certified Network Associate (200-125)

neosphere
Shaping Digital Futures

Network Fundamentals

- OSI and TCP/IP models
- TCP and UDP protocols
- Firewalls
- Access Points
- Wireless Controllers
- Network Topologies
- Selecting Cabling type based on implementation requirements
- Troubleshooting
- Configure, verify, and troubleshoot IPv4 addressing and subnetting
- Unicast
- Broadcast
- Multicast
- IPv4 & IPv6
- IPv6 address types

We use networks in our home, office and other places, learn the concepts and hands-on practical on network fundamentals

LAN Switching Technologies

- MAC learning and Aging
- Frame Switching
- Frame flooding
- MAC address table
- Ethernet frame format
- Troubleshooting interfaces & Cable issues(collisions, errors, duplex, speed)
- Configure, verify, and troubleshoot VLANs (normal/extended range) spanning multiple switches
- Configure, verify, and troubleshoot interswitch connectivity
- Configure, verify, and troubleshoot STP protocols
- Configure, verify and troubleshoot STP related optional features
- Configure and verify Layer 2 protocols
- Configure, verify, and troubleshoot (Layer 2/Layer 3) EtherChannel

Network switching is the process of channeling data received from any number of input ports, to another designated port that will transmit the data to its desired destination.

Learn to master LAN Switching on the live devices

Routing Technologies

- Packet handling along the path through a network
- Forwarding decision based on route lookup
- Frame rewrite
- Components of a routing table
- How a routing table is populated by different routing information sources
- Configure, verify, and troubleshoot inter-VLAN routing
- Static routing and dynamic routing
- Distance vector and link state routing protocols
- Interior and exterior routing protocols
- Configure, verify, and troubleshoot IPv4 and IPv6 static routing
- Configure, verify, and troubleshoot OSPFv2 for Ipv4
- Configure, verify, and troubleshoot OSPFv3 for Ipv6
- Configure, verify, and troubleshoot EIGRP for Ipv4
- Configure, verify, and troubleshoot EIGRP for Ipv6
- Configure, verify, and troubleshoot RIPv2 for Ipv4
- Troubleshoot basic Layer 3 end-to-end connectivity issues

Routing is the process of moving packets across a network from one host to a another. It is usually performed by dedicated devices called routers.

Get hands-on experience with the live routers

WAN Technologies

- Configure and verify PPP and MLPPP on WAN interfaces using local authentication
- Configure, verify, and troubleshoot PPPoE client-side interfaces using local
- authentication
- Configure, verify, and troubleshoot GRE tunnel connectivity
- WAN topology options
- WAN access connectivity options
- Configure and verify single-homed branch connectivity using eBGP Ipv4
- QoS concepts
- Prioritization
- Device Trust
- Shaping
- Policing
- Congestion Management

This modules covers WAN standards, technologies, and purposes in the real business enterprise. It guide you to select the appropriate WAN technologies, services, and devices to meet the enterprise requirements.

Get hands-on training with live devices

Infrastructure Services

- DNS lookup operation
- Troubleshooting DNS issues
- Configuring and verifying DHCP on a router
- Troubleshooting client- and router-based DHCP connectivity issues
- Configure, verify, and troubleshoot basic HSRP
- Configure, verify, and troubleshoot inside source NAT
- Configure and verify NTP operating in a client/server mode

This module covers: Domain Name Server (DNS), Dynamic Host Control Protocol (DHCP), Hot Standby Router Protocol (HSRP), Network Address Translation (NAT) and Network Time Protocol (NTP)

Get hands-on training with live devices

Infrastructure Security

- **Port Security**
  - Static
  - Dynamic
  - Sticky
  - Max MAC addresses
  - Violation actions
  - Err-disable recovery
- **Access layer threat mitigation techniques**
- **Configure, verify, and troubleshoot IPv4 and IPv6 access list for traffic filtering**
  - Standard
  - Extended
  - Named
- **Verify ACLs using the APIC-EM Path Trace ACL Analysis tool**
- **Configure, verify, and troubleshoot basic device hardening**
  - Local Authentication
  - Secure Password
  - Access to Device
    - Source Address
    - Telnet/SSH
  - Login Banner
- **Describe device security using AAA with TACACS+ and RADIUS**

This module covers the configuration on port security, access layer threat mitigation techniques, access control lists (ACLs), basic device hardening and device security using AAA.

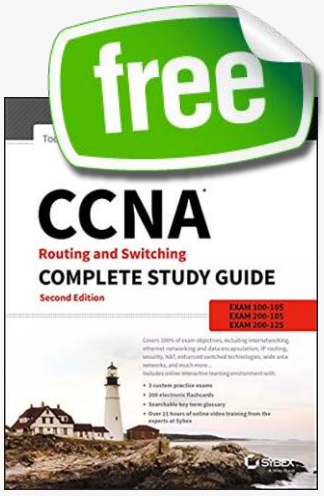
Get hands-on training with live devices

Infrastructure Management

- **Configure and verify device-monitoring protocols**
  - SNMPv2
  - SNMPv3
  - Syslog
- **Troubleshoot network connectivity issues using ICMP echo-based IP SLA**
- **Configure and verify device management**
  - Backup and restore device configuration
  - Using Cisco Discovery Protocol or LLDP for device discovery
  - Licensing
  - Logging
  - Timezone
  - Loopback
- Configure and verify initial device configuration
- Device maintenance
- Cisco IOS upgrades and recovery (SCP, FTP, TFTP, and MD5 verify)
  - Password recovery and configuration register
  - File system management
- Cisco IOS tools to troubleshoot and resolve problems
  - Ping and traceroute with extended option
  - Terminal monitor
  - Log events
  - Local SPAN
- Network programmability in enterprise network architecture
  - Function of a controller
  - Separation of control plane and data plane
  - Northbound and southbound APIs

This module covers about network infrastructure, which is a combination of routers, switches and the LAN/WAN links that bind those devices together. Management refers to the use of concepts, protocols and tools for day-to-day maintenance and troubleshooting of networks.

Get hands-on training with live devices



CCNA
& Network Security

neosphere
Shaping Digital Futures

6th floor, Indra's City Square, New Baneshwor, Kathmandu

Phone: 01- 555 15 15 | 9801 200 111 . Email: info@neosphere.com.np