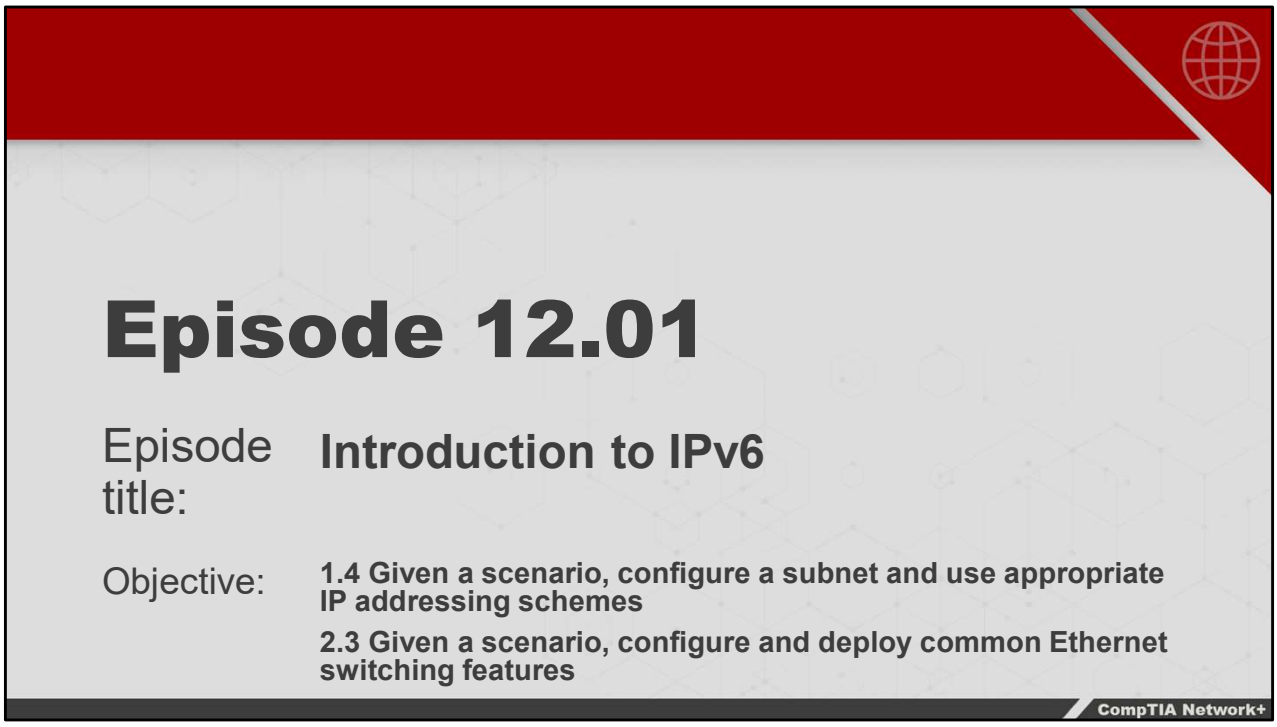
Chapter 12

IPv6


Episode 12.01
Episode title:
Introduction to IPv6
Objective:
1.4 Given a scenario, configure a subnet and use appropriate IP addressing schemes
2.3 Given a scenario, configure and deploy common Ethernet switching features
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Key Terms

- IPv4 address 184.125.22.13
- IPv4 range 000.000.000.000 – 255.255.255.255
- (555)111-0231
- 0011-231-5464721627
- 128-bit
- IPv6 address a0f0:0001:0000:0001:0000:0001:0000:1234
- Address space – 2^128
- Aggregation
- IPv6 is fast
- Self configuration
- Neighbor Discovery Protocol (NDP)

Quick Review

- IPv6 addresses are 128 bits and have a much larger address space than IPv4
- IPv6 addresses have 8 segments separated by 7 colons
- IPv6 allows data to move much faster through the Internet

Episode 12.02

Episode title: **IPv6 Addressing**

Objective: **1.4 Given a scenario, configure a subnet and use appropriate IP addressing schemes**

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Key Terms

- Link-local address
- Internet address
- IPv6 address/64
- Variable-length subnet mask (VLSM)
- Dual stack

Quick Review

- IPv6 addresses can be shortened by removing leading zeros, but be familiar with the rules
- IPv6 addresses have two IP addresses: a link-local address and an Internet address
- The second part of the IPv6 address using EU1-64 is generated from the MAC address

Episode 12.03

Episode title: **IPv6 in Action**

Objective: **1.4 Given a scenario, configure a subnet and use appropriate IP addressing schemes**

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Key Terms

- EUI-64 vs. randomizer
- Neighbor solicitation
- ICMP v6
- Neighbor advertisement
- Router solicitation
- Router advertisement
- Stateless auto configuration
- Router prefix
- Stateful DHCP v6
- Local DNS server

Quick Review

- EUI-64 uses the MAC address to generate a unique 64-bit ID to automatically configure a host address
- IPv6 uses router solicitations/advertisements to access Internet route information
- Applications sometimes request temporary IP addresses; this is easily supported by IPv6 stateless auto configuration

Episode 12.04

Episode title: **IPv4 and IPv6 Tunneling**

Objective: **1.4 Given a scenario, configure a subnet and use appropriate IP addressing schemes**

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Quick Review

- If you are on IPv4 you need a tunneling protocol to get to the IPv6 internet
- Microsoft provides some tunnels, like Toredo and 6to4
- Use the updated GoGo Client Web site: ipv6now.com.au