

Configuring and Evaluating IPv6 Transition Technologies

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MSSA Cohort #2

Lab Summary 3

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The company utilizes IPv4 for most of the applications, but several key applications have recently implemented IPv6 support. Windows Server 2016 allows a dual IP layer architecture, which means IPv4 and IPv6 could be used in a single protocol stack. There are some technologies for transitioning from IPv4 to IPv6. In the lab, ISATAP and 6to4 technologies have been applied to the organization. ISATAP stands for Intra-Site Automatic Tunnel Addressing Protocol. As its name, it is only suitable within a private network, which means it cannot be used over the Internet. Also, 6to4 provides IPv6 connectivity over the IPv4 Internet and is not suitable for scenarios using NAT.

To figure out how IPv6 works in the company, the first step is to identify and document the default IPv6 configuration. The DNS server in the Domain Controller at the head office contains all the IP addresses and names of the devices. Knowing IPv6 addresses for other servers is necessary for the tasks in the future. PowerShell is the tool to use to check for testing pings and connections to the servers. Ping to LON-SVR1 is successful, whereas ping to TOR-SVR1 is failed because the link-local IPv6 addresses cannot be routable, which means it is used for local subnet communication only.

IPv6 addresses should assign to the scopes in DHCP. The DHCP supports IPv6 by default in Windows Server 2016 but can configure with creating and configuring IPv6 scopes and other options. The IP address configured in the Domain Controller is FD00::/64, which means it only allows us to communicate in the private connection as using local address. The clients would have this IPv6 address within the range.

There are several options to configure networks to have IPv4 to IPv6 connectivity. The first option is the implementation of the ISATAP router. Usually, ISATAP is in the default global

query block list. Once removing it from the block list, the ISATAP could be configured via DNS. In another router, the London network is configured as an ISATAP router. After every step is finished, the admin could test the connection between TOR-SVR1 and LON-SVR1. If the ping succeeded, it means the ISATAP tunnel adapter is implemented successfully.

Another option is 6to4 connectivity. This also provides IPv6 connectivity over the IPv4 Internet. This allows working between sites or from host to site. Unlike ISATAP, this is for the connectivity over the Internet rather than for an internal network. The IP address with a 6to4 adapter is 2002:836b:a::836b:1 address, which assigns based on the public IPv4 address 131.107.0.10.

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Implementing DHCP (Expected Duration 1 hours, 10 minutes) Details ▾
Microsoft 20741B IDLx, Module 02

Required: Yes
Status: Saved
Started: Friday, February 7, 2020 11:32 AM (Pacific Standard Time)
Ended: Saturday, February 8, 2020 2:39 AM (Pacific Standard Time)

Resume Cancel

↓ Implementing DHCP

4 ☒ Configuring and Evaluating IPv6 Transition Technologies (Expected Duration 1 hours, 15 minutes) Details ▾ ⓘ
Microsoft 20741B IDLx, Module 03

Required: Yes
Status: Complete

Launch

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5 → Planning and Implementing Name Resolution by Using DNS / Integrating DNS with AD DS / Configuring Advanced DNS Settings (Expected Duration 2 hours, 0 minutes) Details ▾ ⓘ
Microsoft 20741B IDLx, Module 04A, 04B & 04C

Required: Yes
Status: Not Started