

Course Contents:

Day 1:

The Internet Protocol v6

- Introduction to IPv6
- Drivers for IPv6 & Drawbacks of IPv4
- IPv6 adoption challenges & recommended approach

IPv6 Addressing Architecture

- IPv6 addresses Notations
- Addressing Model
- IPv6 address representations
- Link Local, Unique Local, Global Unicast Addresses
- Unicast, Anycast, Multicast, Reserved, A Node's Required Addresses
- /127 subnet for router point 2 point link

Overview on IPv6 Packet

- Comparison between IPv4 & IPv6 headers
- IPv6 Extension Headers (Next Headers)

Day 2:

ICMPv6 & NDP

- ICMPv6 packet format & Operation
- MTU, Path MTU
- Neighbor Discovery Protocol (NDP)
- Router discovery, Prefix discovery, Parameter discovery
- Neighbor discovery procedures, Solicitation Messages, Advertisement messages
- Address resolution & Next-hop determination
- Neighbor Unreachability Detection (NUD) & Duplicate address detection (DAD) IPv6 Device Configuration
- Stateless & Stateful Auto Configuration Translation Mechanisms
- Dual Stack Transitions Mechanisms
- Tunneling Mechanisms
- Protocol Translation Mechanisms

Day 3:

Introduction to Tunneling

- Manual Tunnel
- IPv6 over GRE
- Tunnel broker
- 6over4
- 6to4
- 6in4

3 DAYS PROGRAM ON IPV6

- ISATAP
- Teredo
- Tunnel Setup Protocol (TSP)
- 6rd
- DS Lite
- NAT64/DNS64

IPv6 Routing

- IPv6 Static Routes
- RIPng
- EIGRPv6
- OSPFv3

IPv6 Security

- IPSec Overview
- IP Encapsulating Security Payload
- IPSec Authentication Header & ESP
- IPv6 Security Threats

Hands-on training will be provided