

## IPv6 Fundamentals, Design and Deployment

**Duration: 40 Hrs**

### Course Outline

#### Introduction to IPv6

Explaining the rationale for IPv6  
Evaluating IPv6 features and benefits  
Understanding Market Drivers

#### IPv6 Operations

Understanding IPv6 Addressing Architecture  
Describing the IPv6 Header Format  
Enabling IPv6 on Hosts  
Enabling IPv6 on Cisco Routers  
Using ICMPv6 and Neighbor Discovery  
Troubleshooting IPv6

#### IPv6 Services

IPv6 Mobility  
Describing DNS in an IPv6 Environment  
Understanding DHCPv6 Operations  
Understanding QoS Support in an IPv6 Environment  
Using Cisco IOS Software Features

#### IPv6-Enabled Routing Protocols

Routing with RIPng  
Examining OSPFv3  
Examining Integrated IS-IS  
Examining EIGRP for IPv6  
Understanding MP-BGP  
Configuring IPv6 Policy-Based Routing  
Configuring FHRP for IPv6  
Configuring Route Redistribution

#### IPv6 Multicast Services

Implementing Multicast in an IPv6 Network  
Using IPv6 MLD

#### IPv6 Transition Mechanisms

Implementing Dual Stack  
Describing IPv6 Tunnelling Mechanisms

#### IPv6 Security

Configuring IPv6 ACLs  
Using IPsec, IKE and VPNs  
Discussing Security Issues in an IPv6 Transition Environment

Understanding IPv6 Security Practices  
Configuring Cisco IOS Firewall for IPv6

## **Deploying IPv6**

Examining IPv6 Address Allocation  
Understanding the IPv6 Multihoming Issues  
Identifying IPv6 Enterprise Deployment Strategies

## **IPv6 and Service Providers**

Identifying IPv6 Service Provider Deployment  
Understanding Support for IPv6 in MPLS  
Understanding 6VPE  
Understanding IPv6 Broadband Access Services

## **IPv6 Case Studies**

Planning and Implementing IPv6 in Enterprise Networks  
Planning and Implementing IPv6 in Service Provider Networks  
Planning and Implementing IPv6 in Branch Networks