

COURSE OVERVIEW:

Designing Cisco Network Service Architecture (ARCH) v3.0 is 5-day training program where the student will learn the conceptual, intermediate, and detailed design of a network infrastructure that supports desired network solutions over intelligent network services in order to achieve effective performance, scalability, and availability. This is an advanced course designed for CCNA and CCDA certified personnel or those with equivalent experience in routing and switching Cisco networks. You will learn how to apply Cisco network solution models and recommended design practices, to provide viable and stable enterprise internetworking solutions.

Additionally, you will learn the concepts that are necessary to design converged enterprise networks. You will also cover enterprise campus, data center, e-commerce, IP addressing and routing, security solutions, VPNs, IP multicast, and security in a borderless cloud environment.

WHO SHOULD ATTEND:

- Individuals seeking the CCDP certification and those working toward the CCDE certification
- Pre- and post-sales network engineers that are involved in network design, planning, and implementation
- Network administrators and designers that are responsible for designing and implementing the enterprise network
- CCDP and CCDE candidates

PREREQUISITES:

- Good understanding of the underlying technical principles for advanced network designs
- CCDA and CCNA certifications are recommended
- Familiarity with internetworking technologies, Cisco products, and Cisco IOS features
- ROUTE - Implementing Cisco IP Routing v2.0
- SWITCH - Implementing Cisco IP Switched Networks v2.0



COURSE OBJECTIVES

- Cisco network architectures for the Enterprise and how this Cisco design methodology addresses enterprise network needs for performance, scalability, and availability
- Advanced Cisco structured design principles building on the concepts covered in DESGN 3.0
- Enterprise campus network designs
- Enterprise data center Integration
- Enterprise edge and remote user infrastructure designs
- Designing security services
- VPN designs
- Designing for high availability (HA)
- Advanced EIGRP, OSPF, and IS-IS routing
- BGP routing
- WAN design
- SDN and APIC-EM (designing software defined networks)
- Transitioning to IPv6
- Designing IP multicast

COURSE OUTLINE:

Module 1: Enterprise Connectivity and High-Availability

- EIGRP OSPF
- IS-IS

Module 2: BGP Design

- IBGP
- BGP Communities
- Load Sharing

Module 3: Wide Area Network Design

- Service Provider Managed VPNs
- Enterprise Managed VPNs
- WAN Resiliency Design
- Campus Edge and Connectivity to Partners

- SDN and APIC-EM

Module 4: Enterprise Data Center Integration

- Modular and Scalable Data Center Network
- Multi-Tenant Data Center
- Data Center Interconnections
- Data Center Traffic Flows
- SDN and APIC-DC

Module 5: Designing Security Services

- Overview
- Designing Infrastructure Protection
- Firewall and IPS Solutions
- Network Access Control Solutions

Module 6: Design QoS for Optimized User Experience

- Overview
- Recommended QoS Design Principles
- Campus QoS
- Data Center QoS
- WAN QoS
- MPLS VPN QoS
- IPsec VPN QoS

Module 7: Transition to IPv6

- Deploying IPv6 Challenges

Module 8: IP Multicast Design

- Defining MCAST Trees and Forwarding
- PIM Sparse Mode
- Rendezvous Point Distribution Solutions
- IP Multicast Security

CASE STUDIES

- **Case Study 1:** Design Enterprise Connectivity
- **Case Study 2:** Design Enterprise BGP Network with Internet Connectivity
- **Case Study 3:** Design Resilient Enterprise WAN
- **Case Study 4:** Design Enterprise Data Center Connectivity
- **Case Study 5:** Design a Secure Network
- **Case Study 6:** Design QoS in the Enterprise Network
- **Case Study 7:** Design an Enterprise IPv6 Solution