

# ENCOR

## Implementing and Operating Cisco Enterprise Network Core Technologies

Das Training vermittelt Ihnen die Kenntnisse und Fähigkeiten, die Sie für die Installation, die Konfiguration, den Betrieb und die Fehlerbehebung eines Enterprise-Netzwerks benötigen, und führt Sie in das Design von Overlay-Netzwerken unter Verwendung von SD-Access- und SD-WAN-Lösungen ein. Außerdem lernen Sie, Sicherheitsprinzipien sowie Automatisierung und Programmierbarkeit innerhalb eines Enterprise-Netzwerks zu verstehen und zu implementieren.

### Kursinhalt

- Illustrate the hierarchical network design model and architecture using the access, distribution, and core layers
- Compare and contrast the various hardware and software switching mechanisms and operation, while defining the ternary content addressable memory (TCAM) and content addressable memory (CAM), along with process switching, fast switching, and Cisco Express Forwarding concepts
- Troubleshoot Layer 2 connectivity using virtual local area networks (VLANs) and trunking
- Implement redundant switched networks using Spanning Tree Protocol (STP)
- Troubleshoot link aggregation using EtherChannel
- Describe the features, metrics, and path selection concepts of Enhanced Interior Gateway Routing Protocol (EIGRP)
- Implement and optimize Open Shortest Path First (OSPF)v2 and OSPFv3, including adjacencies, packet types, areas, summarization, and route filtering for internet protocol (IP)v4 and IPv6
- Implement External Border Gateway Protocol (EBGP) interdomain routing, path selection, and single and dual-homed networking
- Implement network redundancy using protocols including Hot Standby Routing Protocol (HSRP) and Virtual Router Redundancy Protocol (VRRP)
- Implement internet connectivity within enterprise using static and dynamic Network Address Translation (NAT)
- Describe the virtualization technology of servers, switches, and the various network devices and components
- Implement overlay technologies, such as Virtual Routing and Forwarding (VRF), Generic Routing Encapsulation (GRE), virtual private network (VPN), and Location Identifier Separation Protocol (LISP)
- Describe the components and concepts of wireless networking including radio frequency (RF), antenna characteristics, and define the specific wireless standards
- Describe the various wireless deployment models available, including autonomous access point (AP) deployments and cloud-based designs within the centralized Cisco Wireless LAN Controller (WLC) architecture
- Describe wireless roaming and location services
- Describe how APs communicate with WLCs to obtain software, configurations, and centralized management
- Configure and verify Extensible Authentication Protocol (EAP), WebAuth, and pre-shared key (PSK) wireless client authentication on a WLC
- Troubleshoot wireless client connectivity issues using various available tools
- Troubleshoot enterprise networks using services such as Network Time Protocol (NTP), Simple Network Management Protocol (SNMP), Cisco Internetwork Operating System (Cisco IOS®) IP Service Level Agreements (SLAs), NetFlow, and Cisco IOS Embedded Event Manager
- Explain the use of available network analysis and troubleshooting tools, which include show and debug commands, as well as best practices in troubleshooting
- Configure secure administrative access for Cisco IOS devices using the command-line interface (CLI) access, Role-Based Access Control (RBAC), access control list (ACL), and Secure Shell (SSH), and explore device hardening concepts to secure devices from less secure applications, such as Telnet and HTTP
- Implement scalable administration using authentication, authorization, and accounting (AAA) and the local database, while exploring the features and benefits
- Describe the enterprise network security architecture, including the purpose and function of VPNs, content security, logging, endpoint security, personal firewalls, and other security features
- Explain the purpose, function, features, and workflow of Cisco Catalyst Center™ Assurance for intent-based networking (IBN), network visibility, proactive monitoring, and application experience
- Describe the components and features of the Cisco SD-Access solution, including the nodes, fabric control plane, and data plane, while illustrating the purpose and function of the virtual extensible LAN (VXLAN) gateways
- Define the components and features of Cisco SD-WAN solutions, including the orchestration plane, management plane, control plane, and data plane
- Describe the concepts, purpose, and features of multicast protocols, including Internet Group Management Protocol (IGMP) v2/v3, Protocol-Independent Multicast (PIM) dense mode/sparse mode, and rendezvous points
- Describe the concepts and features of Quality of Service (QoS), and describe the need within the enterprise network
- Explain basic Python components and conditionals with script writing and analysis
- Describe network programmability protocols such as Network Configuration Protocol (NETCONF) and Representational State Transfer Configuration Protocol (RESTCONF)
- Describe application programming interfaces (APIs) in Cisco Catalyst Center and Cisco Catalyst SD-WAN Manager

**E-Book:** Sie erhalten die englischen Original-Unterlagen als Cisco E-Book. Bei der Cisco Digital Learning Version sind die Inhalte der Kursunterlage stattdessen in die Lernoberfläche integriert.

### Zielgruppe

- Netzwerktechniker
- Netzwerkadministratoren
- Netzwerktechniker
- Helpdesk-Techniker

### Voraussetzungen

Für diese Schulung gibt es keine Voraussetzungen. Es wird jedoch empfohlen, dass Sie über folgende Kenntnisse und Fähigkeiten verfügen, bevor Sie an diesem Training teilnehmen:

- Verständnis für die Implementierung von Unternehmens-LAN-Netzwerken
- Grundlegendes Verständnis für Unternehmens-Routing und drahtlose Konnektivität
- Grundlegendes Verständnis für Python-Skripte

Diese Fähigkeiten können in den folgenden Cisco-Lernangeboten gefunden werden:

- Implementing and Administering Cisco Solutions (CCNA)
- Programming for Network Engineers (PRNE)

### Kursziel

Dieser Kurs unterstützt Sie bei der Vorbereitung auf die Prüfung ENCOR, die Teil von vier Zertifizierungen ist:

- CCNP® Enterprise
- CCIE® Enterprise Infrastructure
- CCIE® Enterprise Wireless
- Cisco Certified Specialist – Enterprise Core

**Bearbeitungszeit**  
ca. 30 Stunden

### Dieser Kurs im Web



Alle tagesaktuellen Informationen und Möglichkeiten zur Bestellung finden Sie unter dem folgenden Link: [www.experteach.at/go/ENCO](http://www.experteach.at/go/ENCO)

### Vormerkung

Sie können auf unserer Website einen Platz kostenlos und unverbindlich für 7 Tage reservieren. Dies geht auch telefonisch unter 06074 4868-0.

### Garantierte Kurstermine

Für Ihre Planungssicherheit bieten wir stets eine große Auswahl garantierter Kurstermine an.

### Ihr Kurs maßgeschneidert

Diesen Kurs können wir für Ihr Projekt exakt an Ihre Anforderungen anpassen.

| Cisco Digital Learning & Cisco U. Preise zzgl. MwSt. |           |
|------------------------------------------------------|-----------|
| 6 Monate Freischaltung                               | € 1.000,- |

| Training                                                                                                         | Preise zzgl. MwSt.                                                                                               |                  |
|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------|
| <b>Termine in Deutschland</b>                                                                                    | <b>5 Tage</b>                                                                                                    | <b>€ 3.395,-</b> |
| <b>Termine in Österreich</b>                                                                                     | <b>5 Tage</b>                                                                                                    | <b>€ 3.395,-</b> |
| <b>Termine in der Schweiz</b>                                                                                    | <b>5 Tage</b>                                                                                                    | <b>€ 4.700,-</b> |
| <b>Online Training</b>                                                                                           | <b>5 Tage</b>                                                                                                    | <b>€ 3.395,-</b> |
| <b>Termin/Kursort</b>                                                                                            | Kurssprache Deutsch         |                  |
| 05.05.-09.05.25  Online     | 15.09.-19.09.25  Online     |                  |
| 05.05.-09.05.25  Wien       | 06.10.-10.10.25 Berlin                                                                                           |                  |
| 02.06.-06.06.25  Frankfurt  | 06.10.-10.10.25  Hamburg    |                  |
| 02.06.-06.06.25  Online     | 06.10.-10.10.25  Online     |                  |
| 23.06.-27.06.25  München    | 13.10.-17.10.25 Zürich                                                                                           |                  |
| 23.06.-27.06.25  Online     | 27.10.-31.10.25  Online     |                  |
| 23.06.-27.06.25 Stuttgart                                                                                        | 27.10.-31.10.25  Wien       |                  |
| 07.07.-11.07.25  Online     | 10.11.-14.11.25  Düsseldorf |                  |
| 07.07.-11.07.25  Wien       | 10.11.-14.11.25  Online     |                  |
| 28.07.-01.08.25 Berlin                                                                                           | 24.11.-28.11.25  Frankfurt  |                  |
| 28.07.-01.08.25  Hamburg    | 24.11.-28.11.25  Online     |                  |
| 28.07.-01.08.25  Online     | 08.12.-12.12.25  München    |                  |
| 11.08.-15.08.25  Düsseldorf | 08.12.-12.12.25  Online     |                  |
| 11.08.-15.08.25  Online     | 08.12.-12.12.25 Stuttgart                                                                                        |                  |
| 01.09.-05.09.25  Frankfurt  | 19.01.-23.01.26 Frankfurt                                                                                        |                  |
| 01.09.-05.09.25  Online     | 19.01.-23.01.26 Zürich                                                                                           |                  |
| 15.09.-19.09.25  München    | 18.05.-22.05.26 Zürich                                                                                           |                  |

Stand 30.04.2025



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### Course Outline

Examining Cisco Enterprise Network Architecture  
Exploring Cisco Switching Paths  
Implementing Campus LAN Connectivity  
Building Redundant Switched Topology  
Implementing Layer 2 Port Aggregation  
Implementing OSPF  
Optimizing OSPF  
Explaining EIGRP  
Exploring EIGRP  
Implementing Network Redundancy  
Implementing NAT  
Introducing Virtualization Protocols and Techniques  
Exploring Virtual Private Networks and Interfaces  
Examining Wireless Deployment Options  
Examining Wireless AP Operation  
Implementing Wireless Client Authentication  
Troubleshooting Wireless Client Connectivity  
Implementing Network Services  
Introducing Multicast Protocols  
Introducing QoS  
Using Network Analysis Tools  
Implementing Infrastructure Security  
Implementing Secure Access Control  
Discovering the Basics of Python Programming  
Introducing Network Programmability Protocols  
Explaining Wireless Principles  
Exploring Wireless Roaming and Location Services  
Exploring Enterprise Network Security Architecture  
Exploring Cisco Catalyst Center—Network Automation and Management  
Examining the Cisco SD-Access Solution  
Exploring the Working Principles of the Cisco Catalyst SD-WAN Solution  
Introducing APIs in Cisco Catalyst Center and Cisco Catalyst SD-WAN Manager

### Apply OSPF Optimization

Implement OSPFv3  
Configure and Verify Single-Homed EIGRP  
Implement HSRP  
Configure VRRP  
Implement NAT  
Configure and Verify VRF  
Configure and Verify a GRE Tunnel  
Configure Static VTI Point-to-Point Tunnels  
Configure Wireless Client Authentication in a Centralized Deployment  
Troubleshoot Wireless Client Connectivity Issues  
Configure Syslog  
Configure and Verify Flexible NetFlow  
Configure Cisco IOS EEM  
Troubleshoot Connectivity and Analyze Traffic with Ping, Traceroute, and Debug  
Configure and Verify Cisco IP SLAs  
Configure Standard and Extended ACLs  
Configure Control Plane Policing  
Implement Local and Server-Based AAA  
Write and Troubleshoot Python Scripts  
Explore JSON Objects and Scripts in Python  
Use NETCONF Via SSH  
Use RESTCONF with Cisco IOS XE Software

### Lab Outline

Investigate the CAM  
Analyze Cisco Express Forwarding  
Troubleshoot VLAN and Trunk Issues  
Tune STP and Configure RSTP  
Configure Multiple STP  
Troubleshoot EtherChannel  
Implement Multiarea OSPF  
Implement OSPF Tuning

