CCIE Service Provider Workshop - Die praktische Prüfung

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Dieser Workshop dient zur Vorbereitung auf das CCIE Service Provider Lab-Examen. Er vermittelt den Teilnehmern zu den unten angegebenen Themen ein Verständnis auf dem Niveau eines CCIE. Der Kurs besteht aus zahlreichen praktischen Übungen und kann sich bis in den Abend erstrecken.

Kursinhalt

- Interior Gateway Protocol
- Border Gateway Protocol
- Multicast for Core, Distribution and Access
- Multiprotocol Label Switching
- MPLS Traffic Engineering
- Virtualized Infrastructure
- Large scale MPLS Architecture
- Carrier Ethernet
- L3VPN
- Internet service
- Multicast VPN
- Quality of Service for Core, Distribution and Access
- Layer-2 Connectivity
- System level HA
- Routing/Fast Convergence
- Control plane security
- Management plane security
- Infrastructure security
- Network Assurance
- Network Automation

Voraussetzungen

Die Teilnehmer sollten über das Wissen eines CCNP Service Providers verfügen und das Examen zum Kurs SPCOR – Implementing and Operating Cisco Service Provider Network Core Technologies erfolgreich absolviert haben. CCIE-Kandidaten sollten vor der Prüfung über fünf bis sieben Jahre Erfahrung in der Implementierung von Service Provider-Lösungen verfügen.

Dieser Kurs im Web

Alle tagesaktuellen Informationen und Möglichkeiten zur Bestellung finden Sie unter dem folgenden Link: www.experteach.de/go/**CCPL**

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.

Training	Preise zzgl. MwSt.
Termine in Deutschland	10 Tage € 13.995,-
Termine in Österreich	10 Tage € 13.995,-
Online Training	10 Tage € 13.995,-

Termin/Kursort — Kurssprache Englisch

23.06.-04.07.25	HY Frankfurt	17.11.-28.11.25	HY Online
23.06.-04.07.25	HY Online	17.11.-28.11.25	HY Wien

Stand 20.03.2025

Service Provider & NMS

ExperTeach

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1.0 Core Routing
1.1. Interior Gateway Protocol
1.1.a. Design, deploy, and optimize IS-IS
1.1.b. Design, deploy, and optimize OSPFv2 and OSPFv3
1.1.c. Design and optimize IGP scale and performance
1.1.d. Design, deploy, and optimize IS-IS segment routing control plane for IPv4 and IPv6
1.1.e. Design, deploy, and optimize OSPFv2 and OSPFv3 segment routing control plane
1.2. Border Gateway Protocol
1.2.a. Design, deploy, and optimize IBGP, EBGP, and MP-BGP
1.2.b. Design, deploy, and optimize BGP route policy enforcement
1.2.c. Design BGP path attribute
1.2.d. Design and optimize BGP scale and performance
1.2.e. Design, deploy, and optimize BGP segments, BGP Labeled Unicast and BGP Linked State
1.3. Multicast for Core, Distribution and Access
1.3.a. Design, deploy, and optimize PIM (PIM-SM, PIM-SSM, and PIM-BIDIR)
1.3.b. Design, deploy, and optimize RP (Auto-RP, BSR, Static, Anycast RP, and MSDP)
1.3.c. Design, deploy, and optimize MLDP
1.3.3. Design, deploy, and optimize IGMP and MLD
1.3.d. Design, deploy, and optimize Tree-sid
1.4. Multiprotocol Label Switching
1.4.a. Design MPLS forwarding and control plane mechanisms
1.4.b. Design, deploy, and optimize LDP
1.4.c. Design and optimize LDP scale and performance
1.4.d. Design and optimize SR (SRGB and Max Labels Depth)
1.4.e. Design, deploy and optimize LDP and SR Interworking - Segment Routing mapping server
1.5. MPLS Traffic Engineering
1.5.a. Design, deploy, and optimize ISIS and OSPF extensions
1.5.b. Design, deploy, and optimize RSVP-TE
1.5.c. Design, deploy, and optimize MPLS TE policy enforcement
1.5.d. Design, deploy and optimize MPLS LSP attributes
1.5.e. Design, deploy and optimize SR-TE
1.5.f. Design, deploy and optimize PCE and PCEP technology
1.5.g. Design, deploy and optimize Flexible Algorithm
1.5.f. Optimize MPLS TE scale and performance

2.0 Architecture and Services
2.1. Virtualized Infrastructure
2.1.a. Design NFVI
2.1.b. Design cloud scale networking infrastructure
2.1.c. Design IaaS (Openstack) underlay architecture using Bare metal and Virtual Machines
2.1.d.Design convergence, virtual scaling, network Slicing and edge distribution in 5G Architecture
2.2. Large scale MPLS Architecture
2.2.a. Design, deploy and optimize Unified MPLS
2.2.b. Design, deploy and optimize Multi-domain Segment Routing with SR-PCE
2.2.c. Design, deploy and optimize SLA based on IGP/TE metrics and Disjoint Paths
2.3. Carrier Ethernet
2.3.a. Design, deploy, and optimize E-LINE, E-LAN and E-TREE
2.3.b. Design, deploy, and optimize VPWS, VPLS and H-VPLS
2.3.c. Design, deploy, and optimize EVPN, EVPN-VPWS and EVPN-IRB
2.3.d. Design, deploy, and optimize L2VPN service auto steering into segment routing policy
2.4. L3VPN
2.4.a. Design, deploy, and optimize L3VPN
2.4.b. Design, deploy, and optimize Inter-AS L3VPN
2.4.c. Design, deploy, and optimize shared services, for example: Extranet and Internet access
2.4.d. Design, deploy, and optimize L2VPN service auto steering into segment routing policy
2.5. Internet service
2.5.a. Design, deploy, and optimize IPv4 translation mechanism, for example: NAT44, CGNAT
2.5.b. Design, deploy, and optimize IPv6 transition mechanism, for example: NAT64, 6RD, MAP, and DS Lite
2.5.c. Design, deploy, and optimize Internet peering route and transit policy enforcement
2.6. Multicast VPN
2.6.a. Design, deploy, and optimize Rosen mVPN
2.6.b. Design, deploy, and optimize NG mVPN
2.7. Quality of Service for Core, Distribution and Access
2.7.a. Design, deploy, and optimize classification and marking
2.7.b. Design, deploy, and optimize congestion management and scheduling for example: policing, shaping, and queuing
2.7.c. Design, deploy, and optimize congestion avoidance
2.7.d. Design, deploy, and optimize MPLS QoS models (Pipe, Short Pipe, and Uniform)
2.7.e. Design, deploy, and optimize MPLS TE QoS (MAM, RDM, CBTS, PBTS, and DS-TE)

3.0 Access Connectivity
3.1. Layer-2 Connectivity
3.1.a. Design, deploy and optimize IEEE 802.1ad (Q-in-Q), IEEE 802.1ah (Mac-in-Mac), and ITU G.8032, REP
3.1.b. Design, deploy and optimize Spanning-Tree Access Gateway (MST-AG and PVST-AG)
3.1.c. Design and Operate MC-LAG
3.2. Layer-3 Connectivity
3.2.a. Design, deploy, and optimize PE-CE routing protocols (OSPF, ISIS, and BGP)
3.2.b. Design, deploy, and optimize Loop prevention techniques in multihomed environments

4.0 High Availability and Fast Convergence
4.1. System level HA
4.1.b. Design, deploy, and optimize SSO/NSF, NSR, and GR
4.2. Routing/Fast Convergence
4.2.a. Design, deploy and optimize IGP convergence
4.2.b. Design, deploy, and optimize LDP convergence
4.2.c. Design, deploy, and optimize BGP convergence - Prefix Independent Convergence (BGP-PIC)
4.2.d. Design, deploy, and optimize BFD
4.2.e. Design, deploy, and optimize LFA (LFA, Remote LFA and TI-LFA)
4.2.f. Design, deploy, and optimize IP FRR, MPLS TE FRR and Segment Routing FRR

5.0 Security
5.1. Control plane security
5.1.a. Design, deploy, and optimize control plane protection techniques (LPTS and CoPP)
5.1.b. Design, deploy, and optimize routing protocol and LDP authentication and security
5.1.c. Design, deploy, and optimize BGP prefix-based and attribute-based filtering
5.1.d. Design, deploy, and optimize BGP-RKPI (Origin AS validation)
5.2. Management plane security
5.2.a. Deploy, and optimize device management, for example: MPP, SSH, and VTY
5.2.b. Deploy, and optimize logging and SNMP security
5.2.c. Deploy and troubleshoot AAA
5.3. Infrastructure security
5.3.a. Design, deploy, and optimize ACL
5.2.b. Design, deploy, and optimize uRPF
5.3.d. Design, deploy, and optimize RTBH and Router Hardening
5.3.e. Design, deploy, and optimize BGP Flowspec

6.0 Assurance and Automation
6.1. Network Assurance
6.1.a. Design, deploy, and optimize Syslog and logging functions
6.1.b.Design, deploy, and optimize SNMP traps and RMON
6.1.c. Design, deploy, and optimize NetFlow and IPFIX
6.1.d. Design, deploy, and optimize Segment Routing OAM and MPLS OAM
6.1.e. Design, deploy, and optimize Segment Routing Data Plane monitoring
6.1.f. Design, deploy, and optimize IP/MPLS Performance monitoring (TCP, UDP, ICMP and SR)
6.1.g. Design, deploy, and optimize Ethernet OAM (Y.1564 and Y.1731)
6.2. Network Automation
6.2.a. Design, deploy and optimize NSO service packages (Yang model, template-based, python-based, fastmap, reactive fastmap, CLI NEDs, NETCONF NEDs, NSO northbound integration using REST and RESTCONF).
6.2.b. Design NFV orchestration (NFVO) using NSO and ESC in an ETSI NFV architecture.
6.2.c. Design and deploy Model-driven telemetry on XR devices (Yang models, gRPC, GPB, device configuration, collection architecture)
6.2.d. Deploy and Optimize Ansible playbook scripts that interacts with NSO, IOS-XE and IOS-XR devices

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