

CCIE Service Provider Lab Exam Topics

Please review the Lab Exam Overview for general information about the CCIE Service Provider lab exam. The blueprint is a detailed outline of the topics likely to appear on the lab exam. Knowledge of troubleshooting is an important skill and candidates are expected to diagnose and solve issues as part of the CCIE lab exam. The topics listed are guidelines and other relevant or related topics may also appear. *In general, new product features become eligible for testing on CCIE lab exams six months after general release.*

1. Bridging and Switching

1. VTP, VLAN, Trunk, Spanning tree
2. Frame Relay, DLCI, FR multilink
3. ATM PVC, SVC, FR/ATM interworking
4. PPPoE

2. IGP Routing

1. IS-IS, Level 1/2, Metric
2. OSPF, LSA, Area
3. Redistribution, Summarization, Filtering
4. Policy routing

3. EGP Routing

1. IBGP, EBGP
2. BGP attributes
3. Confederation, Route reflector
4. Synchronization, Aggregation, Stability
5. Redistribution, Filtering
6. Multipath

4. SP Multicast

1. PIM-SM, PIM-DM, SSM, PIM-BIDIR, IGMP
2. Auto RP, Static RP, BSR, Anycast RP
3. MP-BGP for multicast, MSDP

5. MPLS

1. Label distribution, LDP/ TDP
2. Label filtering, Label merging, Multipath
3. MPLS COS
4. MPLS Netflow
5. MPLS over ATM
6. MPLS Traffic Engineering

6. L3/L2 VPN

1. MPLS VPN, MP-iBGP
2. PE-CE routing, RIPv2, OSPF, EIGRP, Static, ISIS, EBGP
3. BGP Extended Community
4. Inter AS MPLS VPN
5. Carrier Supporting Carrier
6. VRF-Lite, VRF Select
7. Multicast MPLS VPN
8. GRE, multipoint GRE
9. AToM, L2TPv3
10. 802.QinQ

7. SP QoS and Security

1. DSCP/EXP, TOS, NBAR
2. Marking, Shaping, Policing
3. CAR, FRTS
4. WRQ, CBWFQ, LLQ, PQ, CQ
5. RED, WRED
6. LFI, cRTP
7. RSVP
8. ACL, RPF, Filtering
9. Routing update security
10. Common attacks

8. High Availability

1. NSF, GLBP
2. Fast reroute, Link/Node protection
3. HSRP, VRRP

9. Management

1. SNMP, SYSLOG, RMON
2. Accounting
3. Netflow
4. NTP