
Deploying Cisco Service Provider Network Routing (642-883)

Exam Description: The 642-883 SPROUTE Deploying Cisco Service Provider Network Routing exam is associated with the CCNP® Service Provider certification. This 90-minute, 65–75 questions exam tests a candidate's knowledge in configuring, verifying, and troubleshooting IPv4 and IPv6 advanced OSPF and IS-IS configuration, BGP configuration, using Cisco IOS-XR RPL to implement routing policies, and implementing high availability routing supporting a service provider network. This exam covers the Cisco IOS, IOS-XE and IOS-XR operating systems. Candidates can prepare for this exam by taking the Deploying Cisco Service Provider Network Routing (SPROUTE) course. The exam is closed book and no outside reference materials are allowed.

The following topics are general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam. In order to better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without notice.

- 19%** **1.0** **OSPFv2 and OSPFv3 Routing in Service Provider Environments**
 - 1.1 Describe multi-area OSPFv2 and OSPFv3 operations
 - 1.2 Implement multi-area OSPFv2 and OSPFv3 on IOS-XR and IOS-XE
 - 1.3 Implement different OSPF areas (stubby, totally stubby, NSSA) on IOS-XR and IOS-XE
 - 1.4 Implement OSPF neighbor authentication on IOS-XR and IOS-XE
 - 1.5 Troubleshoot OSPF IOS-XR and IOS-XE configuration errors

- 19%** **2.0** **IS-IS, IPv4, and IPv6 in Service Provider Environments**
 - 2.1 Describe multi-area IS-IS operations
 - 2.2 Implement multi-area IS-IS for IPv4 and IPv6 on IOS-XR and IOS-XE
 - 2.3 Implement IS-IS neighbor authentication on IOS-XR and IOS-XE
 - 2.4 Troubleshoot IS-IS IOS-XR and IOS-XE configuration errors

- 22%** **3.0** **BGP Routing in Service Provider Environments**
 - 3.1 Describe the Internet routing hierarchy: Network Service Providers (NSP), Network Access Point (NAP), ISP Tiers (Tier 1, 2 and 3)
 - 3.2 Describe connectivity between an enterprise network and an SP that requires the use of BGP
 - 3.3 Describe connectivity between a SP and upstream SPs
 - 3.4 Describe BGP transit AS operations
 - 3.5 Implement EBGP and IBGP on IOS-XR and IOS-XE
 - 3.6 Implement BGP neighbor authentication on IOS-XR and IOS-XE
 - 3.7 Optimize BGP IOS-XR configurations using af-groups, session-groups, and neighbor-groups
 - 3.8 Optimize BGP IOS-XE configurations using peer-groups
 - 3.9 Influence BGP route selection by using various BGP attributes on IOS-XR and IOS-XE

- 3.10 Troubleshoot BGP IOS-XR and IOS-XE configuration errors

- 21% 4.0 Route Manipulations in Service Provider Environments**
 - 4.1 Implement Routing Policy Language (RPL) to configure a desired routing policy on IOS-XR
 - 4.2 Implement Route-Maps to configure a desired routing policy on IOS-XE
 - 4.3 Implement route filterings using prefix-list, distribute-list, and as-path list on IOS-XE
 - 4.4 Implement route redistributions on IOS-XR and IOS-XE

- 19% 5.0 High Availability Routing Features**
 - 5.1 Implement NSF/NSR/Graceful Restart for OSPF on IOS-XR and IOS-XE
 - 5.2 Implement NSF/NSR/Graceful Restart for IS-IS on IOS-XR and IOS-XE
 - 5.3 Implement Bidirectional Forwarding Detection (BFD) for OSPF on IOS-XR and IOS-XE
 - 5.4 Implement Bidirectional Forwarding Detection (BFD) for IS-IS on IOS-XR and IOS-XE