CCIE Service Provider Lab Exam Revision 5.1

Blueprint Revisions

Products and technologies are evolving faster than ever before. To keep up with the fast pace, we are introducing a new agile process that will allow us to align our exams faster with these changes: *minor revisions*. Minor revisions will provide us with the agility and speed that are necessary to adjust our programs to match industry changes and the evolution of technologies. Minor revisions will allow us to update track details (exam blueprint, equipment list, and software) more frequently while keeping overall changes to a minimum (smaller than 20%). These revisions allow us to ensure our content stays relevant, and they minimize learning curves between revisions.

The main objective of a minor revision is to:

- Further scope out the exam blueprint by ensuring exam objectives are clear.
- Introduce new blueprint tasks to ensure exams stay relevant.
- Phase out old(er) products and/or technology solutions that are less relevant today.
- Update equipment and/or software.

Today we are revising the CCIE Service Provider Lab Exam.

CCIE Service Provider Lab Exam, minor revision 5.1

The CCIE Service Provider lab exam is going through a *minor revision* (changes are small and incremental). Although the overall domains within the exam blueprint might look similar at first look, with this minor revision we added and removed technology solutions to ensure exam relevancy.

Refer to Cisco Certifications Roadmaps for the list of exam topics covered in the updated CCIE Service Provider lab exam and for more information about to the CCIE Service Provider certification program.

CCIE Service Provider Lab Exam Topics v5.1
CCIE Service Provider Lab Exam Learning Matrix
CCIE Service Provider Lab Exam Equipment and Software v5.1
CCIE Service Provider Lab Exam Format

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CCIE Service Provider Lab Exam (v5.1) – Executive Summary

The new minor revision for CCIE Service Provider allows us to keep the domains and topics closely aligned with today's Cisco Service Provider technologies and solutions. In the modern workplace, organizations want to leverage the cloud to provide flexibility, scalability, and real-time integrations to meet their service provider needs and business requirements. The v5.1 lab exam blueprint introduces Telco hybrid and multi-cloud, 5G converged packet transport architecture, SRv6, and Routed Optical Network topics. Also, the v5.1 lab exam updated some of the Service Provider appliance software to keep the lab exam current. These updates will allow candidates to gain knowledge on advanced features of Cisco IOS XR and enable them to perform successful deployments on relevant use cases.

A summary of the changes to the CCIE Service Provider v5.1 lab exam blueprint is below.

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These changes were made to the v5.1 blueprint:

V5.0	V5.1
1. Core Routing (25%)	**1. Core Routing (25%)**
1.3.e: P2MP RSVP-TE	Removed
1.6: N/A	1.6: Added new task called segment routing and consolidated all segment routing topics into a single task that includes SRv6
2. Architecture and Services (25%)	**2. Architecture and Services (25%)**
2.1: Virtualized Infrastructure	2.1: Replaced with Mobile infrastructure architecture
2.2: N/A	2.2: Added Routed optical network architecture
2.3.a: EVPN	2.4.c: Summarized EVPN topics to cover all use cases.
2.5.b: IPv6 transition mechanism, for example: NAT64, 6RD, MAP, and DS Lite	2.6.b: Removed 6RD, MAP and DS Lite, and added MAP-T
2.6.a Rosen and NG MVPN	2.7: Removed Rosen and consolidated NG mVPN profiles
3. Access Connectivity (10%)	**3. Access Connectivity (10%)**
3.1: N/A	3.1: Added BNG connectivity
3.2: Layer-3 Connectivity	3.2: Removed Layer 3 connectivity and summarized Layer 3 topics in 2.5
5. Security (10%)	**3. Security (10%)**
5.3.a: ACL	5.3.a: ACL compression and object groups
5.3.e: N/A	5.3.e: TLS and mTLS certificates using gRPC and gNMI
5.3.f: N/A	5.3.f: Design MACsec
6. Assurance and Automation (20%)	**6. Assurance and Automation (20%)**
6.2.b: Design NFV orchestration (NFVO) using NSO and ESC in an ETSI NFV architecture.	6.2.b: Removed NFVO and added Design and deploy model-driven telemetry templates on XR devices (Yang models, gRPC, gNMI, GPB, and device configuration and collection architecture)
6.2.c: Design and deploy Model-driven telemetry templates on XR devices (Yang models, gRPC, GPB, device configuration, collection architecture)	6.2.c: Deploy and optimize Ansible playbook and Python scripts that interacts with NSO, IOS XE, and IOS XR devices.
6.2.d: Deploy and Optimize Ansible playbook scripts that interacts with NSO, IOS-XE and IOS-XR devices.	6.2.d: IOS XR application hosting using native and container-based applications
6.2.e: N/A	6.2.e: Secure ZTP

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Hardware and Software Equipment

In support of the updated CCIE Service Provider revision 5.1 lab exam environment, changes were made to the equipment and software releases used. Candidates who want to prepare for the exam are now advised to use the following Cisco equipment and software releases. Visit CCIE Service Provider Lab Exam Equipment and Software v5.1 or a complete overview.

V5.0	V5.1
Service Provider Appliances	**Service Provider Appliances**
- RR, P, and PE role: ASR 9000 series running IOS XR 6.5.3 Release - RR and PE role: ASR 1000 series running IOS XE 16.6.5 Release - PE and CE role: Cisco Edge Routers running IOS XE 16.6.5 Release - Access and Aggregation: Cisco Access series running IOS 3.2.1S Release - Network Service Orchestrator (NSO) running 5.2 Release	**Virtual Machines:** - Cisco CSR 1000v Series Cloud Services Routers (CSR) Release 17.9.x - Cisco IOS XRV 9000 7.x - Network Service Orchestrator (NSO) Release 6.x - Cisco Catalyst 8000V Edge Release 17.x - Cisco IOS XRd Release 7.x

Exam Format

No changes have been made to the lab exam format in this minor revision. Visit CCIE Service Provider Lab Exam format for more information about the lab exam format.