Networking & Infrastructure

Program Brochure · 2026



CISCO CCIE ENTERPRISE

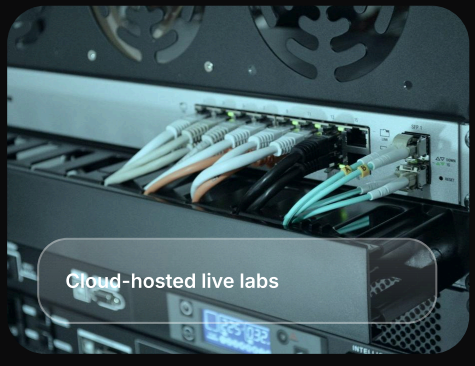
The expert networking challenge.

Advanced ↗ | 200 Hours ↗ | CCIE-ENT ↗

Networking & Infrastructure

Connect. Secure. Scale.

10 programs in this track



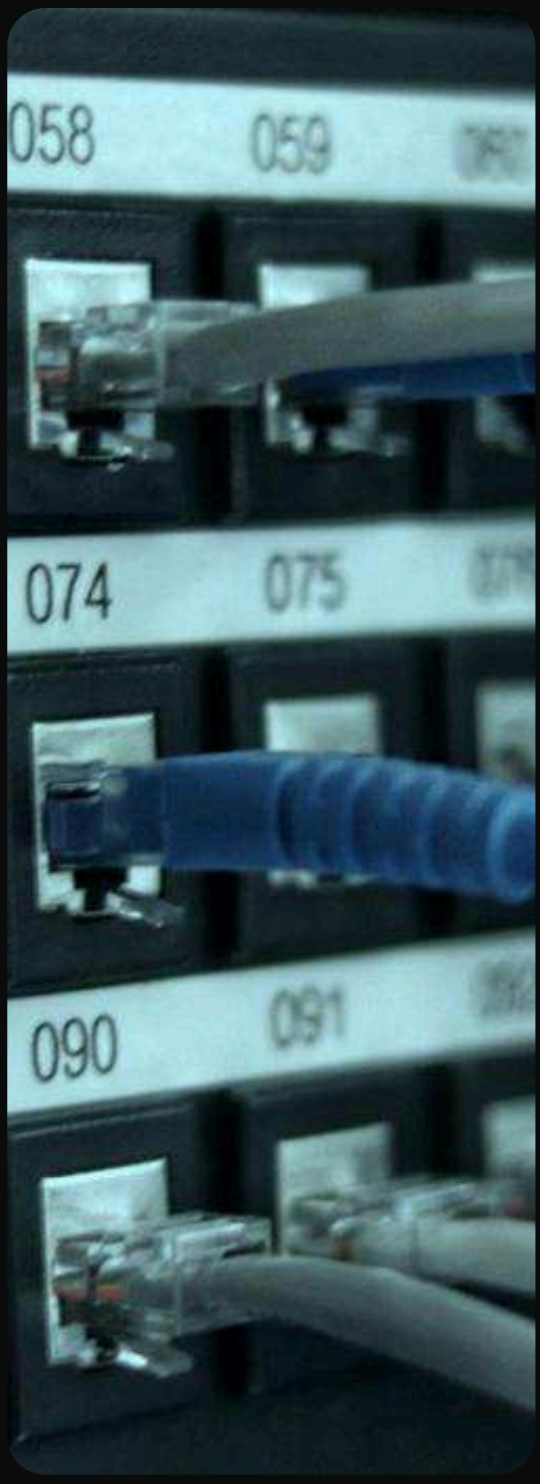
8

modules · hands-on labs · capstone project

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AT A GLANCE

Level	**Advanced**
Duration	**200 Hours**
Modules	**8**
Certificate	**CCIE-ENT**

Program overview

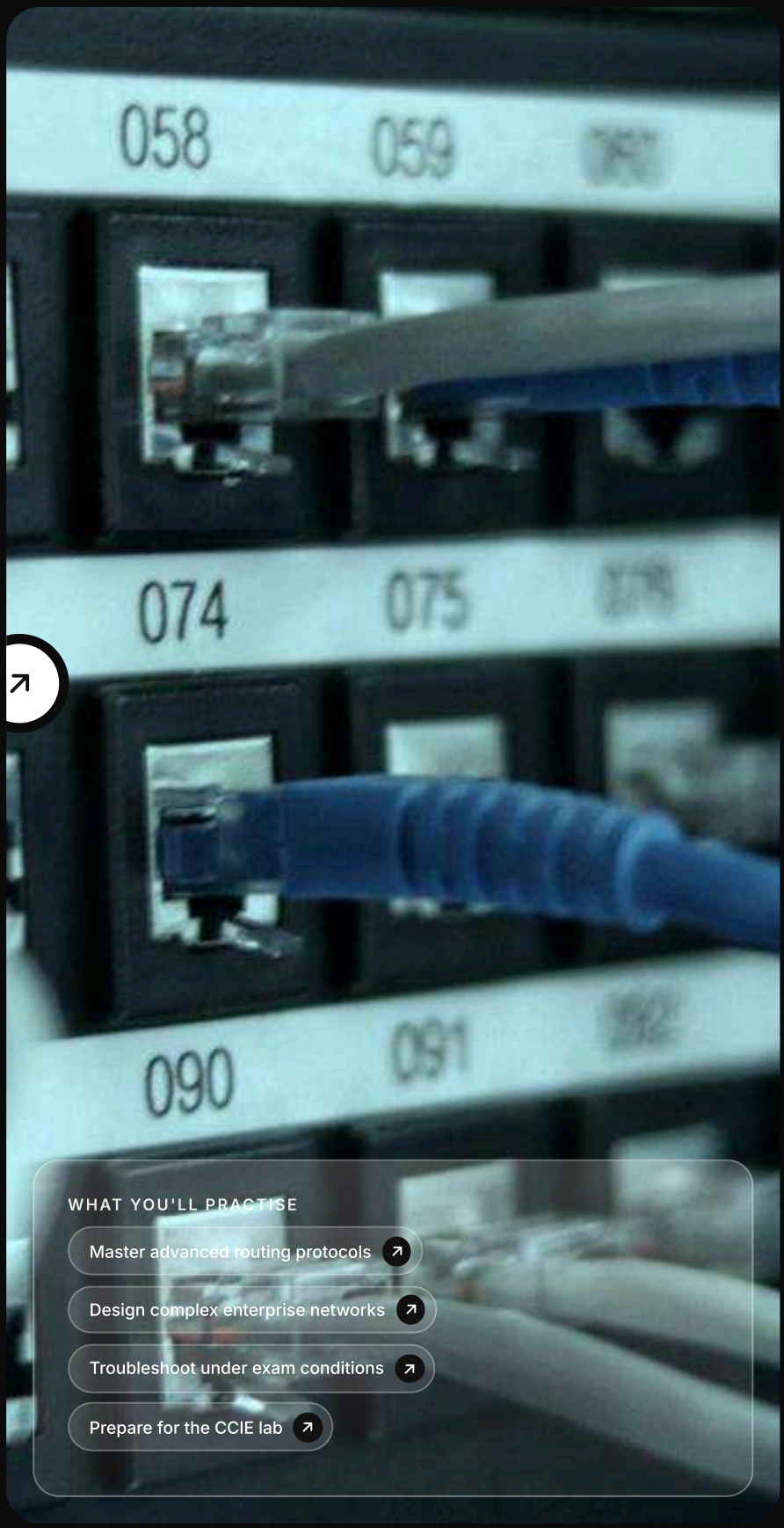
The expert networking challenge.

Expert-level preparation for CCIE Enterprise Infrastructure — design, deployment and troubleshooting.

The CCIE Enterprise Infrastructure lab tests expert-level design, deployment, operation and optimisation of complex networks under strict time pressure. This advanced preparation program follows the official lab exam topics, covering infrastructure, software-defined networking, transport, security and services, and automation, with extensive full-scale lab practice and troubleshooting drills. Structured feedback helps target weak areas before the lab.

DELIVERY

Instructor-led · Live virtual · Blended



WHAT YOU'LL PRACTISE

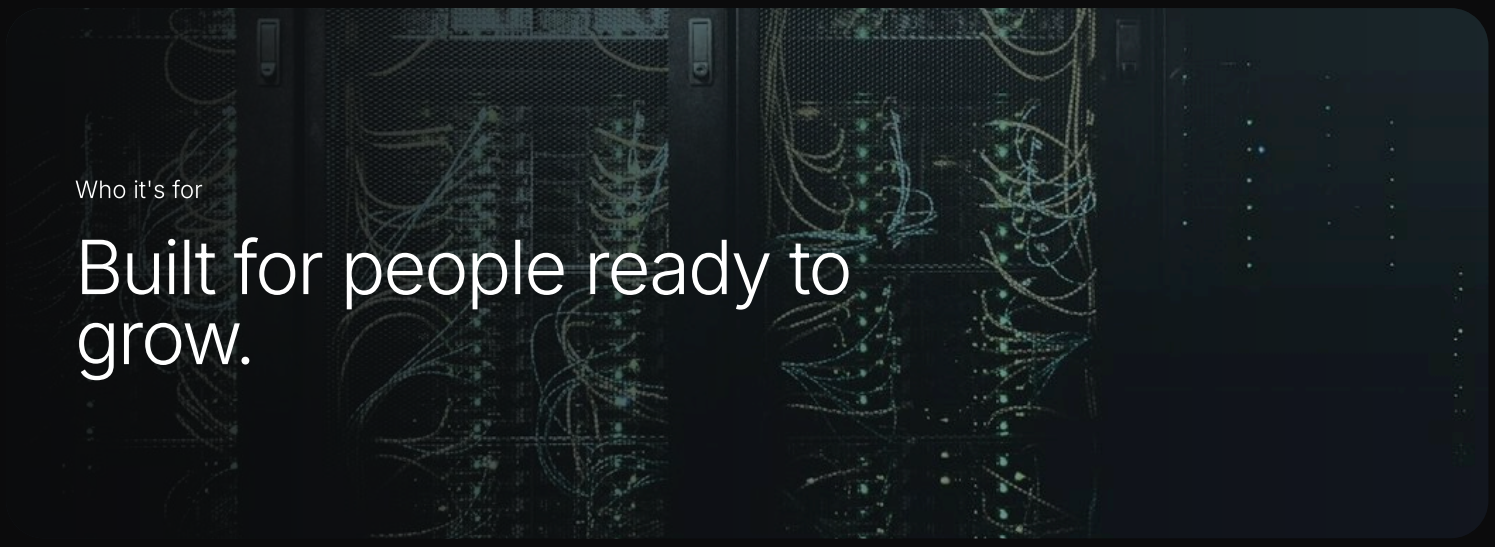
- Master advanced routing protocols
- Design complex enterprise networks
- Troubleshoot under exam conditions
- Prepare for the CCIE lab

LEVEL
Advanced

DURATION
200 Hours

CERTIFICATION
CCIE-ENT

TRACK
Networking & Infrastructure



Who it's for

Built for people ready to grow.

01

Beginners

Network+ and CCNA foundations

02

Network engineers

CCNP Enterprise, SD-WAN, automation

03

Security engineers

Palo Alto, Fortinet, network security

04

Architects

CCIE prep, Zero Trust, SASE / SSE

PREREQUISITES

- CCNP Enterprise or equivalent deep experience 01
- Several years of hands-on enterprise networking 02
- Working knowledge of Python and APIs 03

ROLES THIS PREPARES YOU FOR

- Senior Network Engineer ↗
- Network Architect ↗
- Lead Infrastructure Engineer ↗
- Network Consultant ↗
- Technical Escalation Engineer ↗

Learning outcomes

What you'll be able to do.



01 Configure and optimise complex Layer 2 and Layer 3 infrastructures

02 Master OSPF, EIGRP, BGP and redistribution at expert depth

03 Deploy and troubleshoot SD-Access and Catalyst SD-WAN solutions

04 Implement MPLS L3VPN, DMVPN and IPsec transport solutions

05 Secure infrastructure services and control-plane operations

06 Automate tasks using Python, NETCONF/RESTCONF and controller APIs

Program runway

Module by module.

8
modules · 200 hours

01	**Lab Strategy and Design Thinking** CCIE lab format and modules, Design module approach, Time management strategies	10 hrs
02	**Expert Switching Infrastructure** Advanced VLAN and trunk design, MST and spanning tree optimisation, EtherChannel and stacking	25 hrs
03	**Expert IGP Routing** OSPFv2 and OSPFv3 advanced features, EIGRP named mode optimisation, Complex mutual redistribution	35 hrs
04	**BGP and Multicast** BGP attributes and path manipulation, Route reflectors and confederations, BGP security and filtering	30 hrs
05	**Transport: MPLS, DMVPN and IPsec** MPLS LDP and L3VPN, DMVPN phases 1, 2 and 3, IPsec and FlexVPN	30 hrs
06	**Software-Defined Infrastructure** SD-Access fabric roles and LISP, Catalyst Center workflows, Catalyst SD-WAN control plane	30 hrs
07	**Security, Services and Automation** Control plane policing and uRPF, 802.1X, MAB and TrustSec, IP SLA, NetFlow and NTP	20 hrs
08	**Full Mock Labs and Review** Full-length timed mock labs, Troubleshooting module drills, Deploy and optimise module practice	20 hrs
★	**Capstone · Full-Scale CCIE Mock Lab** Assessment, capstone review and certification	

The syllabus.

Modules 01–03

Module 01

Lab Strategy and Design Thinking

10 hours

Hands-on lab
Analyse a design scenario and justify decisions within a time limit.

TOPICS COVERED

- CCIE lab format and modules
- Design module approach
- Time management strategies
- Reading complex requirements
- Verification-first methodology

Module 02

Expert Switching Infrastructure

25 hours

Hands-on lab
Build and optimise a multi-switch campus with MST and redundancy.

TOPICS COVERED

- Advanced VLAN and trunk design
- MST and spanning tree optimisation
- EtherChannel and stacking
- Layer 2 security at scale
- First hop redundancy at expert depth

Module 03

Expert IGP Routing

35 hours

Hands-on lab
Solve a multi-protocol redistribution scenario with loop prevention.

TOPICS COVERED

- OSPFv2 and OSPFv3 advanced features
- EIGRP named mode optimisation
- Complex mutual redistribution
- Route filtering and summarisation
- IPv6 routing and transition



LEARN BY DOING

Every module ends in a guided hands-on lab — 8 labs across the programme.

Syllabus, continued.

Modules 04–06

Module 04

BGP and Multicast

30 hours

Hands-on lab
Deploy route reflectors and multicast across a service provider topology.

TOPICS COVERED

- BGP attributes and path manipulation
- Route reflectors and confederations
- BGP security and filtering
- PIM sparse mode and RP design
- Multicast troubleshooting

Module 05

Transport: MPLS, DMVPN and IPsec

30 hours

Hands-on lab
Build a DMVPN phase 3 overlay over an MPLS L3VPN underlay.

TOPICS COVERED

- MPLS LDP and L3VPN
- DMVPN phases 1, 2 and 3
- IPsec and FlexVPN
- VRF-aware services
- QoS for WAN transport

Module 06

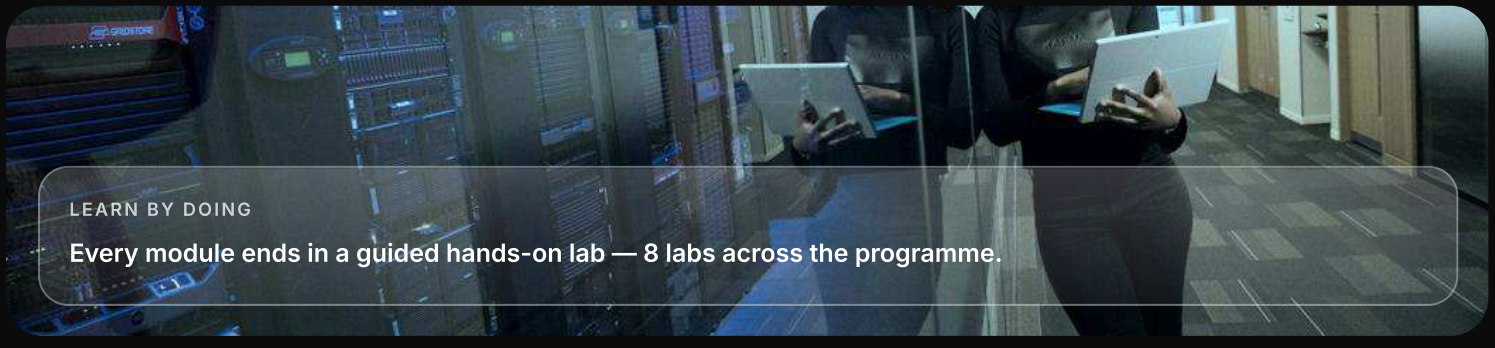
Software-Defined Infrastructure

30 hours

Hands-on lab
Provision an SD-Access fabric and an SD-WAN policy end to end.

TOPICS COVERED

- SD-Access fabric roles and LISP
- Catalyst Center workflows
- Catalyst SD-WAN control plane
- SD-WAN policy and templates
- Fabric troubleshooting



LEARN BY DOING

Every module ends in a guided hands-on lab — 8 labs across the programme.

Syllabus, continued.

Modules 07–08

Module 07

Security, Services and Automation

20 hours

Hands-on lab
Automate a configuration change with RESTCONF and validate via telemetry.

TOPICS COVERED

- Control plane policing and uRPF
- 802.1X, MAB and TrustSec
- IP SLA, NetFlow and NTP
- Python, NETCONF and RESTCONF
- Controller APIs and model-driven telemetry

Python

Module 08

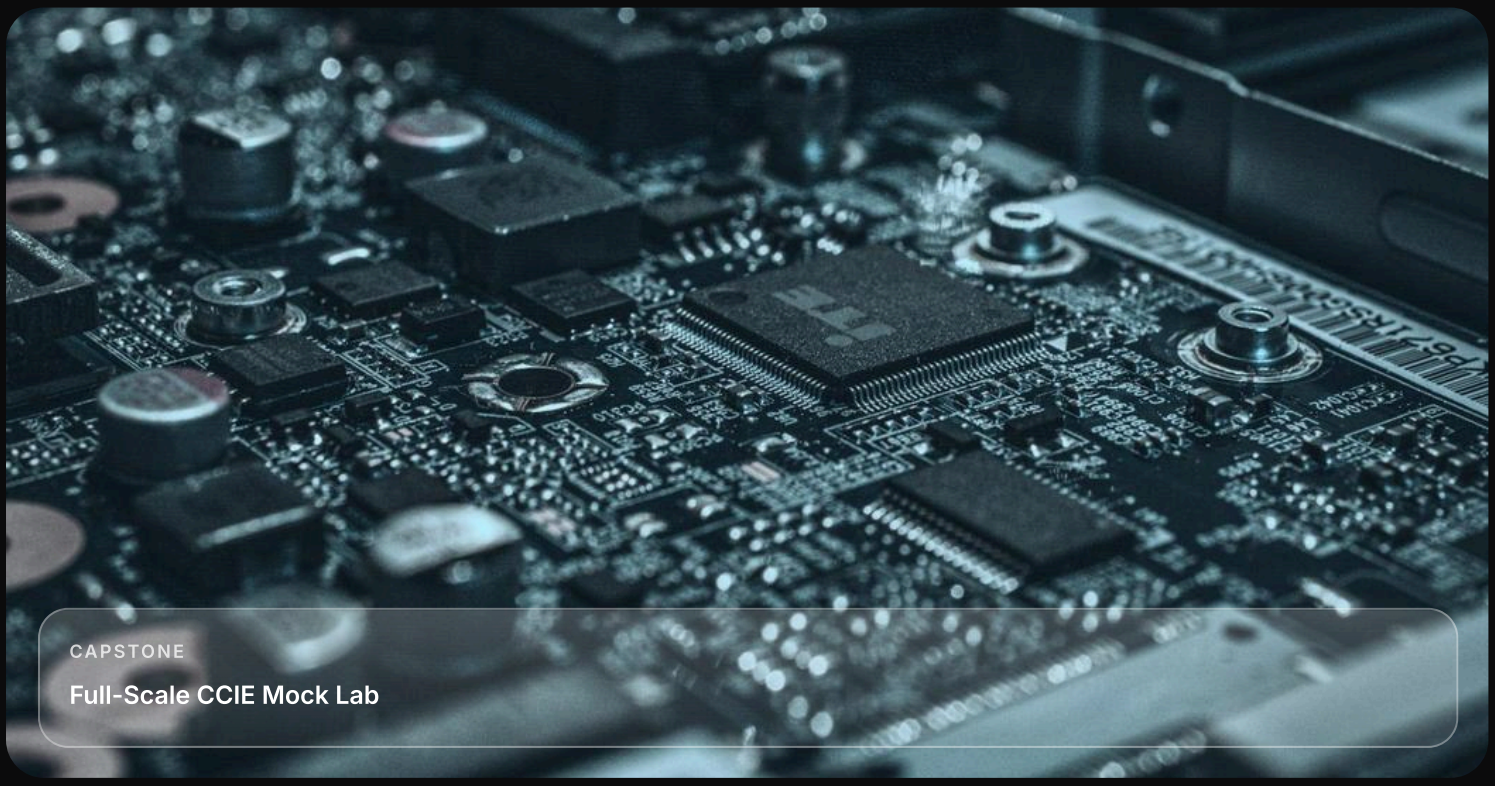
Full Mock Labs and Review

20 hours

Hands-on lab
Complete a full eight-hour mock lab and review results.

TOPICS COVERED

- Full-length timed mock labs
- Troubleshooting module drills
- Deploy and optimise module practice
- Weak-area remediation plans
- Exam-day strategy



CAPSTONE

Full-Scale CCIE Mock Lab

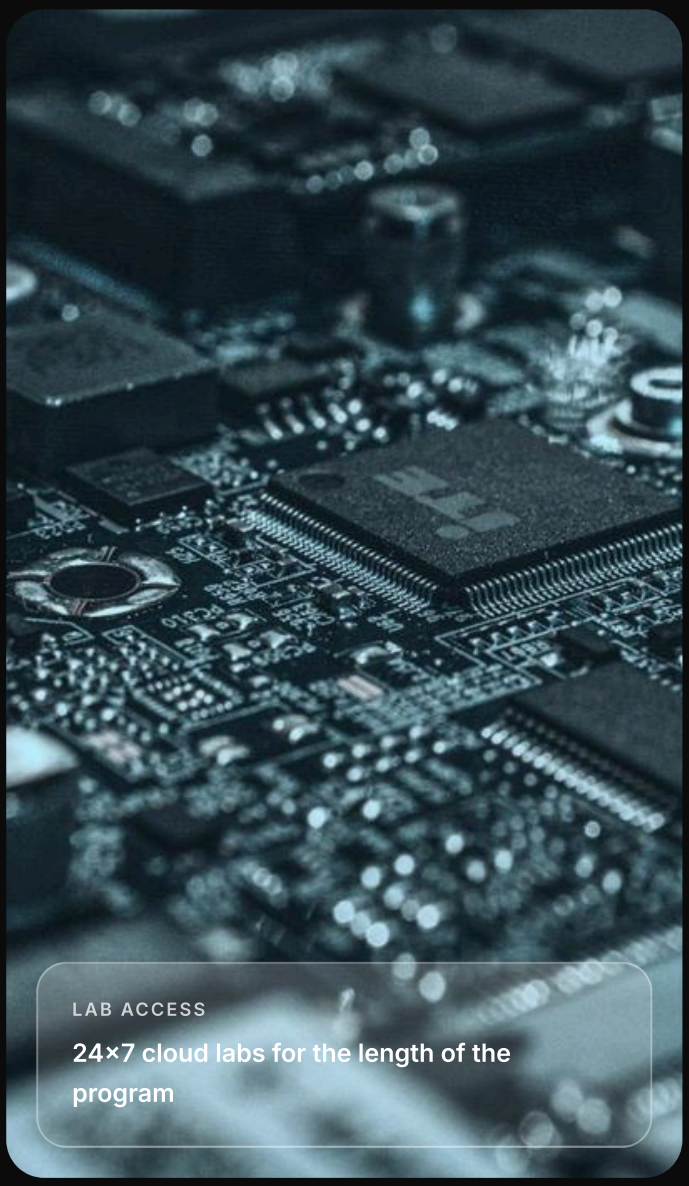


Cisco
Enterprise networking

Python
Automation & scripting

What you will build

Master advanced routing protocols	01
Design complex enterprise networks	02
Troubleshoot under exam conditions	03
Prepare for the CCIE lab	04



01

Multi-Protocol Redistribution Lab

Design and solve a complex OSPF, EIGRP and BGP redistribution scenario with documented loop-prevention techniques.

02

MPLS and DMVPN Transport

Build an MPLS L3VPN backbone with a DMVPN overlay, IPsec protection and QoS for branch connectivity.

03

Fabric and SD-WAN Integration

Deploy SD-Access and Catalyst SD-WAN in a lab and document policy, segmentation and troubleshooting workflows.



Capstone project

Certification

CCIE-ENT

Awarded on successful completion of the program assessments.

- MCQ assessments
- Practical lab evaluation
- Project & capstone review
- Final presentation



The SAM Learning Framework™

Scenario · Apply · Master · Mentor

Phase 01

Scenario

Real-world attack and use-case scenarios open every module.

Phase 02

Apply

Hands-on lab work, CTF challenges and live projects.

Phase 03

Master

Assessment, peer review and certification prep.

Phase 04

Mentor

Post-program career guidance and support.

DELIVERY MODELS

- Instructor-Led (ILT)
- Virtual Instructor-Led
- Self-Paced Online
- E-Learning Licensing
- Blended Learning
- Corporate Onsite
- Bootcamp Intensive

Learning path · Networking & Infrastructure

Where this program fits.

Beginner	Intermediate	Advanced	Expert
2 programs	3 programs	You are here	2 programs

Before this

Cisco CCNP Enterprise	120 Hours
Network Security Fundamentals	48 Hours
SD-WAN & Network Automation	56 Hours

Up next

Zero Trust Network Architecture	48 Hours
SASE & SSE Architecture	40 Hours



CAREER ROLES

- Senior Network Engineer
- Network Architect
- Lead Infrastructure Engineer
- Network Consultant
- Technical Escalation Engineer

Questions, answered.

Q01

Do I need prior experience to join?

Yes. This is an expert program. You should hold CCNP Enterprise or equivalent knowledge and have substantial hands-on enterprise networking experience. Passing the ENCOR qualifying exam before attempting the CCIE lab is required by Cisco.

Q02

How is the program delivered and scheduled?

The 200 hours program is instructor-led and delivered live virtual or blended, combining concept sessions, demonstrations and guided hands-on work. Batch timings and session frequency are confirmed with the academy team at enrollment.

Q03

Will I get a certificate, and is the official exam included?

You receive a Samcommunity Academy certificate of completion after passing the program assessments. The CCIE Enterprise Infrastructure lab exam is booked and taken separately through Cisco's official testing process; exam fees are included only if stated in your enrollment details.

Q04

What labs and tools will I have access to?

Preparation relies on extensive practice in virtual environments such as Cisco Modeling Labs or EVE-NG, plus Cisco DevNet sandboxes. Lab topologies, workbooks and access arrangements are shared at enrollment; self-practice between sessions is essential.

Q05

Is career support provided?

Yes. You receive guidance on building a portfolio from your projects, presenting skills on your resume and preparing for interviews. Career support helps you present yourself well, but job placement, interviews and salaries are not guaranteed.



Let's talk

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Learn practical skills. Grow with mentors.

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