Networking & Infrastructure

Program Brochure · 2026

SD-WAN & NETWORK AUTOMATION

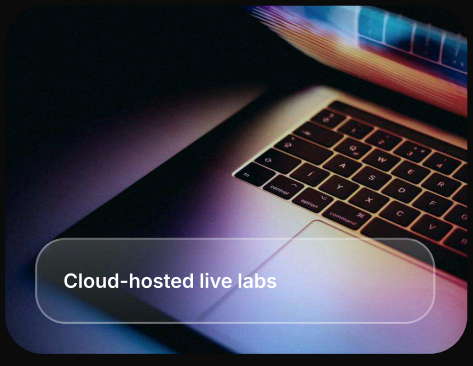
Smarter, automated WANs.

Intermediate ↗ | 56 Hours ↗ | SAM-SDWAN ↗

Networking & Infrastructure

Connect. Secure. Scale.

10 programs in this track



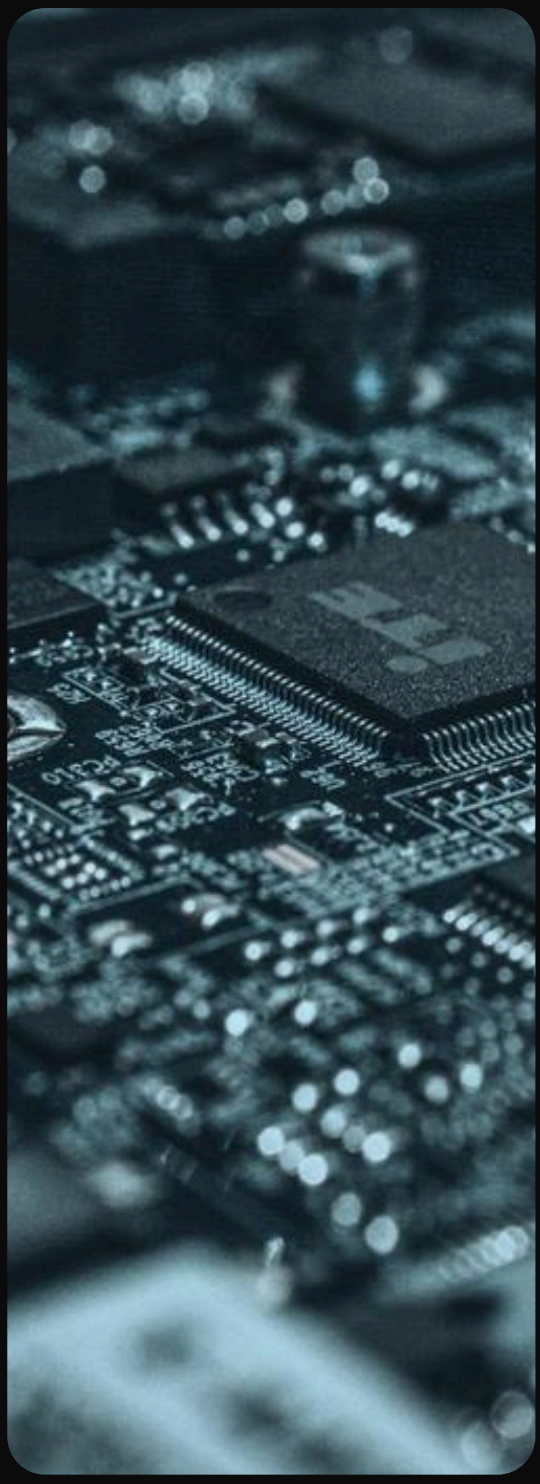
7

modules · hands-on labs · capstone project

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AT A GLANCE

Level	**Intermediate**
Duration	**56 Hours**
Modules	**7**
Certificate	**SAM-SDWAN**

Program overview

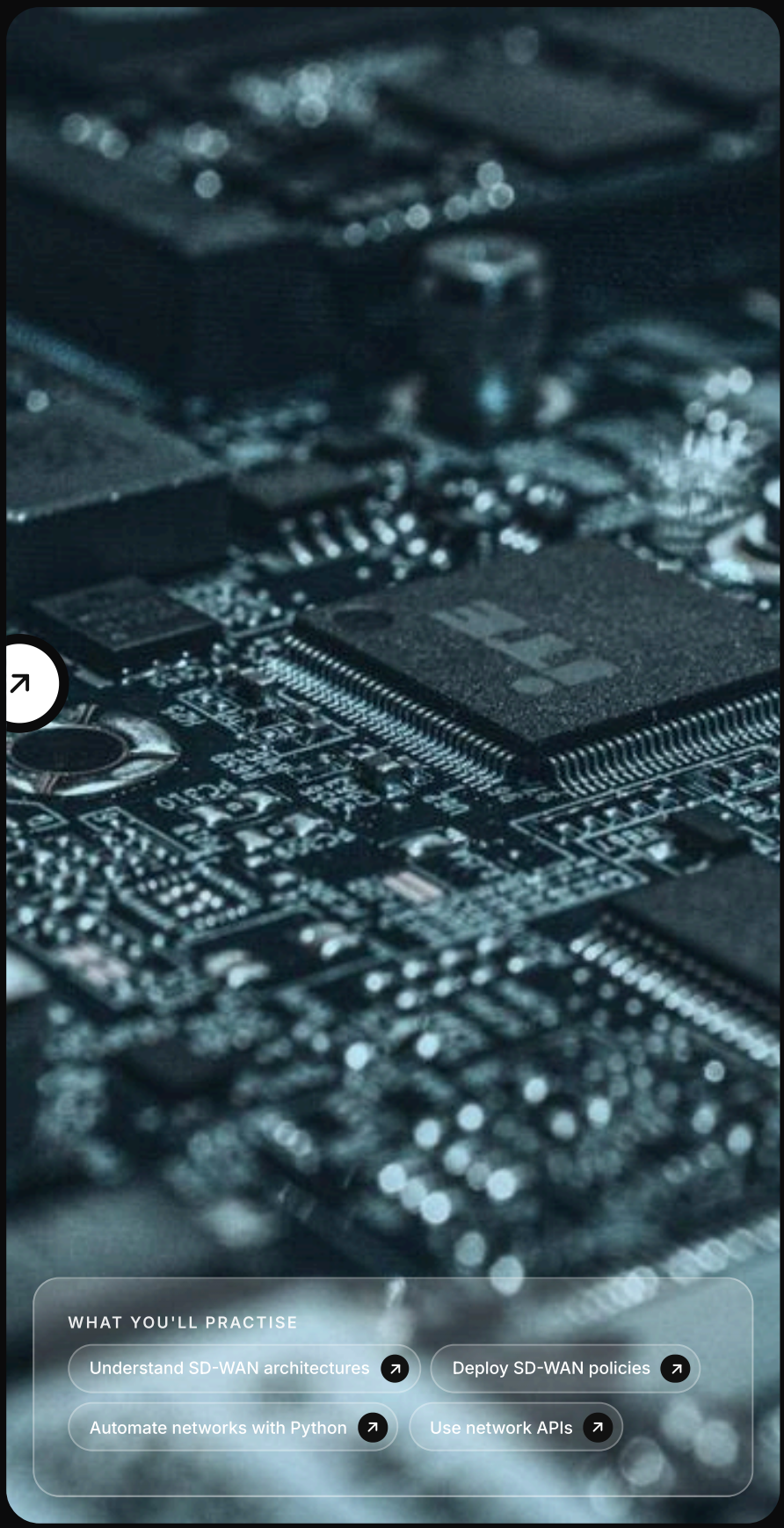
Smarter, automated WANs.

SD-WAN architectures and network automation with Python and APIs.

Organisations are replacing rigid, manually configured WANs with software-defined, policy-driven networks that are managed through code. This intermediate program covers SD-WAN architectures, application-aware routing and policy design, then builds practical automation skills with Python, REST APIs, Ansible and infrastructure-as-code practices to manage networks reliably and consistently. Every module is built around practical, lab-based exercises on realistic multi-site topologies.

DELIVERY

Instructor-led · Live virtual · Blended

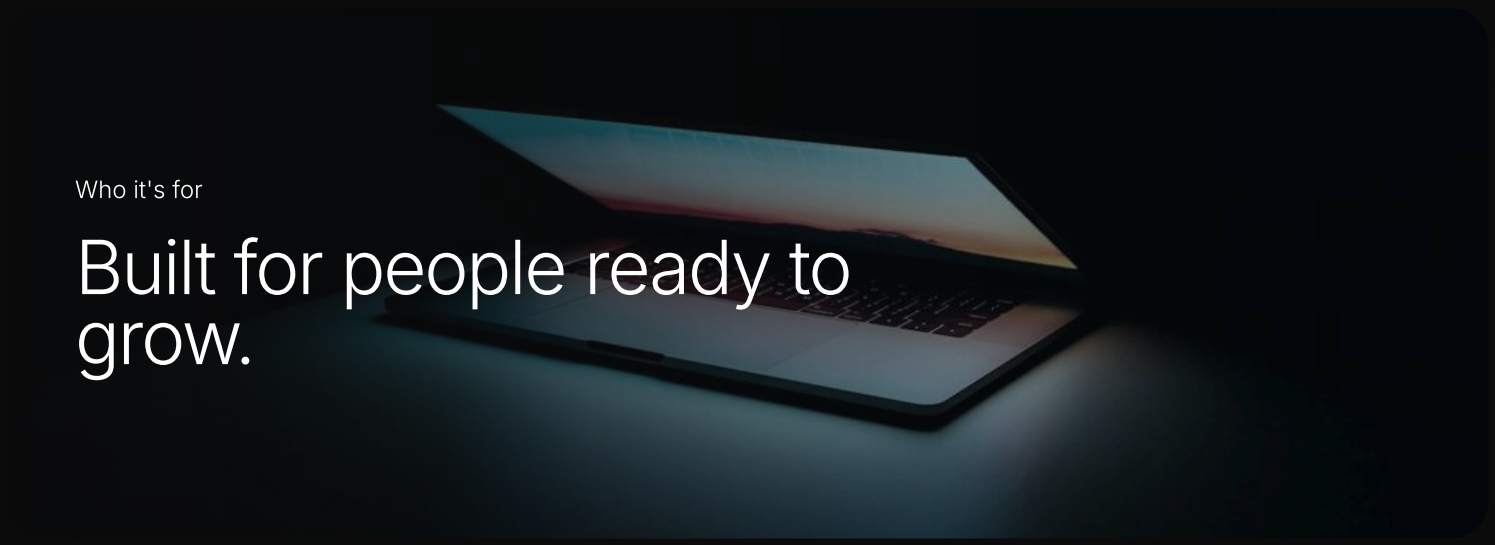


LEVEL
Intermediate

DURATION
56 Hours

CERTIFICATION
SAM-SDWAN

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

CCNA-level routing and switching knowledge	01
Basic Python or scripting familiarity	02
Understanding of WAN and VPN concepts	03

ROLES THIS PREPARES YOU FOR

- Network Automation Engineer ↗
- SD-WAN Engineer ↗
- Network Engineer ↗
- NetDevOps Engineer ↗
- Infrastructure Automation Specialist ↗

Learning outcomes

What you'll be able to do.



01	Explain SD-WAN architecture, overlays and control-plane components
02	Design application-aware routing and traffic steering policies
03	Deploy and operate a Cisco Catalyst SD-WAN lab
04	Write Python scripts using Netmiko, NAPALM and REST APIs
05	Automate configuration and compliance with Ansible playbooks
06	Apply Git, CI pipelines and testing to network changes

Program runway

Module by module.

7
modules · 56 hours

01	**WAN Evolution and SD-WAN Concepts** Traditional WAN and MPLS limitations, SD-WAN overlay and underlay, Control, data and management planes	6 hrs
02	**Cisco Catalyst SD-WAN Deployment** Manager, Controller and Validator roles, WAN edge onboarding, Templates and configuration groups	10 hrs
03	**SD-WAN Policy and Security** Centralized and localized policies, Application-aware routing, SLA classes and path selection	8 hrs
04	**Python for Network Engineers** Python data types and control flow, Working with JSON and YAML, Netmiko for CLI automation	10 hrs
05	**APIs and Model-Driven Programmability** REST API fundamentals, SD-WAN Manager API usage, YANG models, NETCONF and RESTCONF	8 hrs
06	**Ansible and Infrastructure as Code** Ansible inventory and playbooks, Network modules and collections, Jinja2 configuration templates	8 hrs
07	**NetDevOps Practices** Git workflows for network configs, CI pipelines for network changes, Automated testing with pyATS	6 hrs
★	**Capstone · Automated SD-WAN Rollout** Assessment, capstone review and certification	

The syllabus.

Modules 01–03

Module 01

WAN Evolution and SD-WAN Concepts

6 hours

Hands-on lab
Compare MPLS and SD-WAN designs for a five-branch enterprise.

TOPICS COVERED

- Traditional WAN and MPLS limitations
- SD-WAN overlay and underlay
- Control, data and management planes
- Vendor landscape overview
- SD-WAN and SASE relationship

Module 02

Cisco Catalyst SD-WAN Deployment

10 hours

Hands-on lab
Onboard WAN edge devices and verify overlay tunnels in a lab.

TOPICS COVERED

- Manager, Controller and Validator roles
- WAN edge onboarding
- Templates and configuration groups
- OMP and TLOC concepts
- Overlay verification and monitoring

Cisco

Module 03

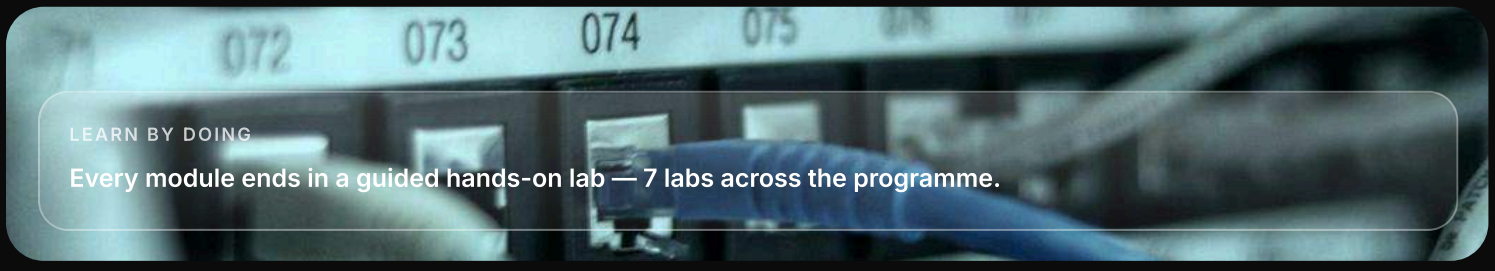
SD-WAN Policy and Security

8 hours

Hands-on lab
Create an application-aware routing policy steering voice traffic by SLA.

TOPICS COVERED

- Centralized and localized policies
- Application-aware routing
- SLA classes and path selection
- Direct internet access design
- Integrated security features



LEARN BY DOING

Every module ends in a guided hands-on lab — 7 labs across the programme.

Syllabus, continued.

Modules 04–05

Module 04

Python for Network Engineers

10 hours

Hands-on lab
Write a Python script that backs up configurations from multiple devices.

TOPICS COVERED

- Python data types and control flow
- Working with JSON and YAML
- Netmiko for CLI automation
- NAPALM for multi-vendor abstraction
- Error handling and logging

Python

Module 05

APIs and Model-Driven Programmability

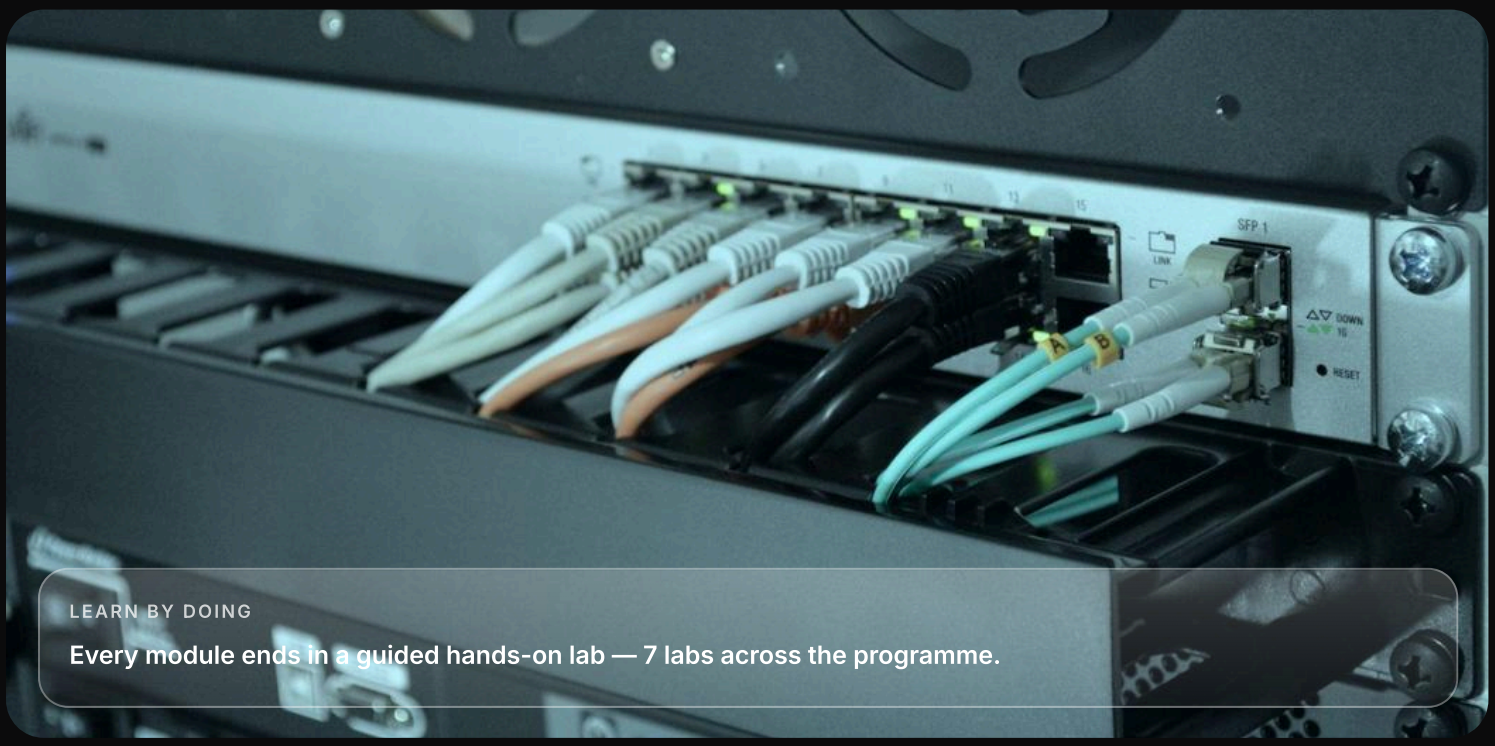
8 hours

Hands-on lab
Retrieve SD-WAN device inventory and health through the REST API.

TOPICS COVERED

- REST API fundamentals
- SD-WAN Manager API usage
- YANG models, NETCONF and RESTCONF
- Postman and Python requests
- Streaming telemetry concepts

Python Postman



LEARN BY DOING

Every module ends in a guided hands-on lab — 7 labs across the programme.

Syllabus, continued.

Modules 06–07

Module 06

Ansible and Infrastructure as Code

8 hours

Hands-on lab
Build an Ansible playbook that deploys templated VLAN configurations.

TOPICS COVERED

- Ansible inventory and playbooks
- Network modules and collections
- Jinja2 configuration templates
- Idempotency and check mode
- Terraform for network resources

Terraform Ansible

Module 07

NetDevOps Practices

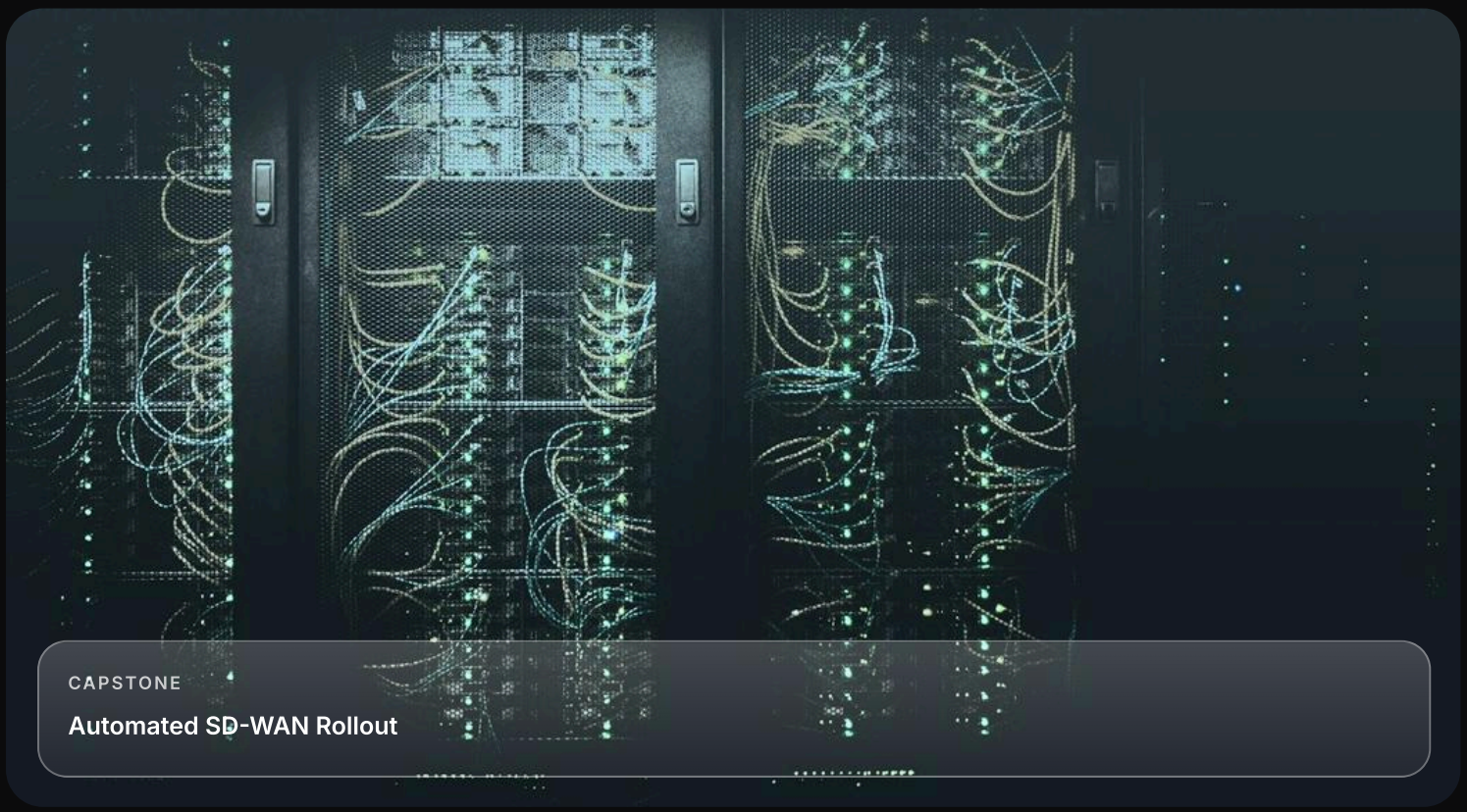
6 hours

Hands-on lab
Run a Git-triggered pipeline that validates and deploys a change.

TOPICS COVERED

- Git workflows for network configs
- CI pipelines for network changes
- Automated testing with pyATS
- Source of truth with NetBox
- Peer review and rollback strategies

Git



CAPSTONE

Automated SD-WAN Rollout



Cisco
Enterprise networking

Python
Automation & scripting

Ansible
Configuration automation

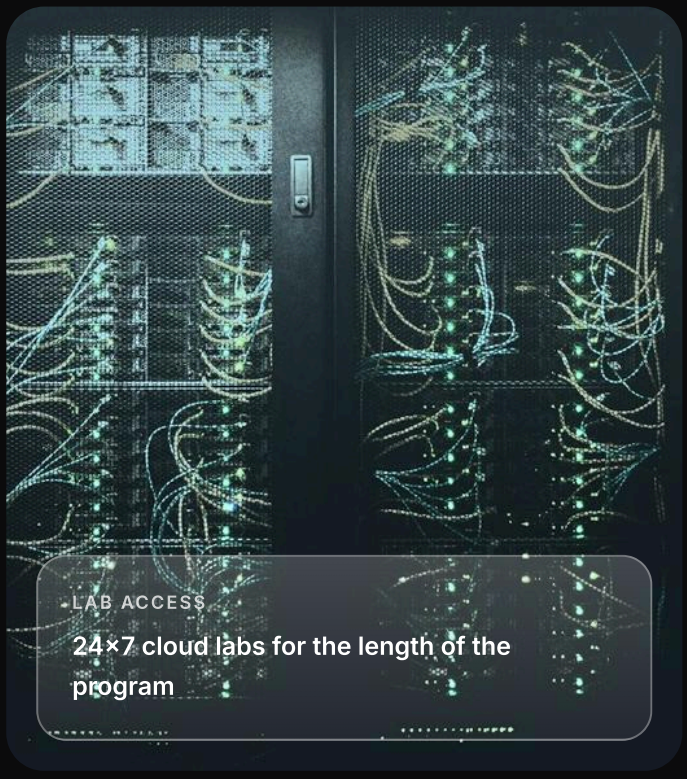
Git
Version control

Terraform
Infrastructure as code

Postman
API testing

What you will build

Understand SD-WAN architectures	01
Deploy SD-WAN policies	02
Automate networks with Python	03
Use network APIs	04



01

SD-WAN Branch Policy

Design and deploy SD-WAN policies for three branches with application-aware routing and direct internet access.

02

Configuration Backup Automation

Build a Python tool that collects, versions and compares device configurations across a multi-vendor lab.

03

Ansible Compliance Checker

Create Ansible playbooks that audit devices against a configuration baseline, report deviations and automatically remediate configuration drift.



Capstone project

Automated SD-WAN Rollout

Plan and automate an SD-WAN branch rollout using templates, APIs and Ansible, integrate NetBox as source of truth and validate changes through a CI pipeline with automated tests.

Real-world scenario ↗ Mentor review ↗ Portfolio ready ↗

Certification

SAM-SDWAN

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.

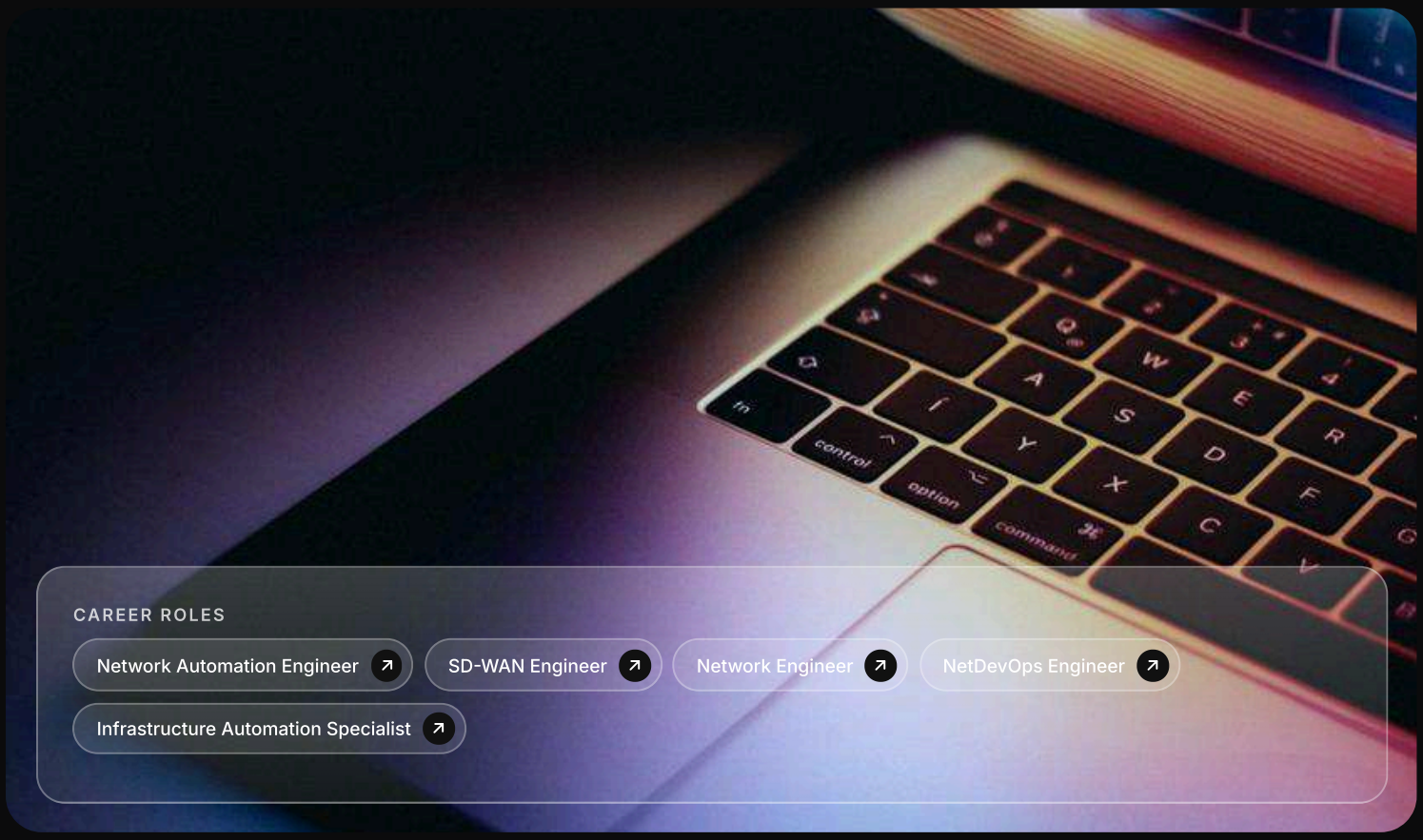
Beginner	Intermediate	Advanced	Expert
2 programs	You are here	3 programs	2 programs

Before this

Networking Fundamentals (CompTIA Network+)	56 Hours
Cisco CCNA — Networking Associate	80 Hours

Up next

Cisco CCIE Enterprise (Prep)	200 Hours
Palo Alto PCNSE Prep	72 Hours
Fortinet NSE 4–7 Track	96 Hours



CAREER ROLES

- Network Automation Engineer
- SD-WAN Engineer
- Network Engineer
- NetDevOps Engineer
- Infrastructure Automation Specialist

Questions, answered.

Q01

Do I need prior experience to join?

You should have CCNA-level networking knowledge. Basic Python or any scripting experience helps, but programming fundamentals are covered from a network engineer's perspective, so you do not need to be a developer to join.

Q02

How is the program delivered and scheduled?

The 56 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 receive a certificate?

Yes. Participants who attend the required sessions and pass the program assessments, including practical tasks and a capstone review, receive the Samcommunity Academy SAM-SDWAN certificate for SD-WAN & Network Automation.

Q04

What labs and tools will I have access to?

Labs use Cisco DevNet sandboxes or virtual SD-WAN environments, Python, Ansible, Git and NetBox. Access details and setup guidance for each lab environment are shared at the start of the program.

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

START SD-WAN & NETWORK AUTOMATION.

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Learn practical skills. Grow with mentors.

Xylyn Samcommunity Private Limited · DPIIT-recognized startup · Surat, Gujarat, India