

CompTIA Network+ – Advanced Networking & Infrastructure Course

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Introduction:

CompTIA Network+ advanced networking and infrastructure practice is the applied skill set behind the vendor-neutral CompTIA Network+ certification, exam N10-009: designing, building, operating, securing and troubleshooting wired, wireless and cloud-connected networks. This 5-day course is for network managers and team leads and for network engineers, administrators, support specialists and analysts, and delegates finish with a Hybrid Network Infrastructure Design and Readiness Pack. It is taught at expert level through hands-on labs on routers, switches, wireless controllers and cloud virtual networks, mapped to the five N10-009 exam domains, with timed exam-style practice.

Course Objectives:

- Define the five CompTIA Network+ N10-009 domains and map existing infrastructure, addressing and services against them
- Distinguish OSPF from BGP, and static from dynamic routing, when designing routed paths between campus, branch and cloud sites
- Apply VLAN, IEEE 802.1Q trunking, spanning tree and wireless channel plans to segment and extend enterprise networks
- Interpret SNMP, flow and syslog data against baselines to detect capacity, availability and configuration problems
- Compare RADIUS with TACACS+, and port security with IEEE 802.1X network access control, when hardening devices and access layers
- Justify a Hybrid Network Infrastructure Design and Readiness Pack using the seven-step troubleshooting method, recovery targets and exam-style practice results

Target Audience:

- Network managers and infrastructure team leads who own network availability and decide which designs, changes and hardening controls go into production
- Network engineers who build routed and switched networks and choose routing protocols, VLAN layouts and redundancy mechanisms
- Network and systems administrators who run DHCP, DNS, monitoring and management access and judge when a baseline deviation needs action
- Technical support specialists who handle escalated connectivity faults and decide which tool and test isolates the cause
- Network and security analysts who review logs, flow data and access controls and judge whether traffic or configuration signals a threat
- Hybrid infrastructure practitioners who connect on-premises sites to cloud virtual networks and select gateways, overlays and security groups

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A graphic of a chessboard with several chess pieces (a king, a queen, a rook, and a pawn) positioned on the board, used as a background for the 'PARTNER' text.

Course Outline:

Day 1: Foundations: Networking Concepts, Modern Architectures and the Current-State Assessment

- OSI Model vs TCP/IP Model: Mapping Faults and Controls to Network Layers
- IPv4 and IPv6 Addressing Plans: Subnetting, VLSM and Dual-Stack Allocation Decisions
- Network Appliances and Functions: Routers, Layer 3 Switches, Firewalls, Load Balancers and Proxies
- Cloud Connectivity Concepts: VPCs, Network Security Groups, Gateways and Network Function Virtualisation
- Current-State Network Assessment: Topology Diagrams, Port and Protocol Inventory and Baselines

Day 2: Architectures: Comparing Routing, Switching, Wireless and Software-Defined Designs

- OSPF vs BGP: Interior and Exterior Routing Protocols and Route Selection Logic
- VLANs and IEEE 802.1Q Trunking: Segmentation Design, Native VLANs and Tagging
- Spanning Tree Protocol and Link Aggregation: Loop Prevention and Redundant Uplink Design
- IEEE 802.11 Wireless Standards: Bands, Channel Planning, Antennas and WPA3 Enterprise
- SDN, SD-WAN and VXLAN: Overlay Architectures for Hybrid and Cloud-Connected Sites

Day 3: Applying Implementation and Network Operations Skills in Lab Environments

- Static Routes vs Dynamic Routing: Configuring Routes, NAT/PAT and First Hop Redundancy
- Core Network Services: DHCP Scopes, DNS and DNSSEC, NTP and IPAM Records
- Network Monitoring with SNMP, Flow Data and Syslog: Baselines, Thresholds and Alerting
- Secure Management Access: SSH, Jump Boxes and Out-of-Band Management Networks
- Configuration and Change Management: Documentation, Version Control and Infrastructure as Code

Day 4: Analysing Security Hardening, Attack Patterns and Network Troubleshooting Cases

- RADIUS vs TACACS+: AAA Choices for Device Administration and Network Access
- Network Hardening Controls: IEEE 802.1X, NAC, Port Security, ACLs and Screened Subnets
- Layer 2 and Wireless Attacks: VLAN Hopping, ARP Poisoning, Rogue DHCP and Evil Twins
- Zero Trust Architecture and SASE: Identity-Based Access for Remote and Cloud Users
- Seven-Step Troubleshooting Methodology: Diagnosing Cabling, Service and Performance Faults with Tools

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Day 5: Lab Practice: Building the Hybrid Network Infrastructure Design and Readiness Pack

- Hybrid Site Design Lab: Addressing, VLAN and Routing Plan for Cloud-Connected Branches
- RPO vs RTO in Disaster Recovery: Setting Recovery Targets and High Availability Designs
- Fault-Injection Troubleshooting Lab: Resolving Routing, Wireless and DNS Faults with Packet Captures
- N10-009 Exam-Readiness Practice: Performance-Based Questions Mapped to the Five Domains
- Hybrid Network Infrastructure Design and Readiness Pack: Diagrams, Hardening Checklist and Runbook

Skills You Will Gain:

- Subnetting and IPv6 Address Planning
- Dynamic Routing Configuration
- VLAN and Trunk Design
- Wireless Channel Planning
- Network Performance Baselineing
- Access Layer Hardening
- Structured Network Troubleshooting
- Hybrid Cloud Connectivity Design

Why Attend This Course:

- From fixing outages by trial and error to isolating faults with the seven-step method and the right command-line and hardware tools
- From flat networks with ad hoc VLANs to segmented designs with documented trunking, routing and wireless plans
- From reacting to user complaints to spotting degradation early through SNMP, flow and syslog baselines
- From scattered diagrams and unchecked configurations to a Hybrid Network Infrastructure Design and Readiness Pack with a hardening checklist and runbook

Conclusion:

Advanced networking and infrastructure work, as defined by the CompTIA Network+ N10-009 objectives, is the discipline of keeping networks addressable, reachable, observable, secure and recoverable across campus, branch, wireless and cloud environments. The course makes three distinctions clear: interior versus exterior routing, monitoring data versus troubleshooting evidence, and perimeter controls versus identity-based zero trust access. It suits network managers and team leads and network engineers, administrators, support specialists and analysts who already work with networks every day and now need applied, exam-aligned depth across implementation, operations, security and hybrid design rather than an introduction to the basics.

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Frequently Asked Questions FAQ:

What should delegates know before joining a CompTIA Network+ advanced networking and infrastructure course?

Delegates should already configure or support networks at work and understand IP addressing, common ports and protocols, and basic switching. Around a year of hands-on networking experience helps. The course moves quickly into routing, segmentation, hardening and troubleshooting labs rather than re-teaching fundamentals.

How does a CompTIA Network+ advanced networking and infrastructure course differ from an entry-level networking course?

It assumes the basics and concentrates on applied implementation, operations, security hardening, structured troubleshooting and hybrid design across all five N10-009 domains. Entry-level courses introduce cabling, addressing and devices; here delegates design, configure, break and repair networks, then practise performance-based exam questions.

Is CompTIA Network+ advanced networking and infrastructure knowledge vendor-neutral?

Yes. The N10-009 objectives describe protocols, standards and methods that apply across equipment makers and cloud platforms, such as OSPF, BGP, IEEE 802.1Q, 802.11 and 802.1X. Delegates learn concepts they can transfer to whichever routers, switches, wireless controllers or cloud networks their organisation runs.

What do delegates take back to work from a CompTIA Network+ advanced networking and infrastructure course?

Delegates take back a Hybrid Network Infrastructure Design and Readiness Pack: an addressing, VLAN and routing plan, network diagrams, a hardening checklist, recovery targets, a troubleshooting runbook and a domain-by-domain exam-readiness record, built in the labs and ready to adapt to their own network.

The graphic features the text 'UK Training' in a small, grey font above the word 'PARTNER' in a large, bold, black font. This text is positioned over a background of concentric grey circles and a chessboard pattern. In the foreground, three chess pieces—a king, a pawn, and a knight—are visible, rendered in a metallic gold and silver finish.

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