



*Training Course:  
Advanced Data Center Networking*

*8 - 12 September 2025  
Madrid (Spain)  
Pestana CR7 Gran Vía*

## Training Course: Advanced Data Center Networking

Training Course code: IT236223 From: 8 - 12 September 2025 Venue: Madrid (Spain) - Pestana CR7 Gran Vía Training Course Fees: 6000 € Euro

### Introduction

This advanced-level training program, designed by Global Horizon Training Center, delves into the complex and high-performance networking systems that form the backbone of modern data centers. With the rapid rise of virtualization, cloud computing, software-defined networking SDN, and edge computing, data center professionals must be equipped with deep technical knowledge and strategic insights to build and manage robust networking infrastructure.

This program provides a comprehensive exploration of advanced data center networking, including spine-leaf architecture, Layer 2 and Layer 3 integration, SDN, network function virtualization NFV, overlay networks, high availability, and network automation. The training equips participants with the skills needed to design, optimize, and troubleshoot modern data center networks that are scalable, secure, and future-ready.

### Objectives

By the end of this training program, participants will be able to:

- Design and implement scalable Layer 2 and Layer 3 data center network architectures.
- Deploy spine-leaf and fabric-based topologies for high-performance environments.
- Apply Software-Defined Networking SDN and Network Function Virtualization NFV concepts.
- Manage overlay technologies such as VXLAN, NVGRE, and Geneve.
- Optimize traffic flow, redundancy, and high availability.
- Automate network operations and apply orchestration tools e.g., Ansible, Python scripting.
- Monitor, analyze, and troubleshoot network issues using industry best practices.

### Course Methodology

- Instructor-led technical sessions
- Live network simulation and lab demonstrations
- Case studies from real-world enterprise and cloud data centers
- Group-based network design exercises
- Hands-on exposure to SDN controllers and network automation tools

- Interactive discussions and peer learning

## Organizational Impact

Organizations that invest in this training will benefit from:

- Robust and scalable data center networks supporting business-critical services
- Improved network performance, uptime, and resilience
- Reduced network operational costs through automation and orchestration
- Enhanced security through segmentation and programmable policies
- Future-proof infrastructure ready for cloud, AI, and edge computing demands
- Stronger internal capabilities in troubleshooting and optimizing complex network environments

## Target Audience

- Data Center Network Engineers and Architects
- Senior Network Administrators
- IT Infrastructure and Operations Managers
- Cloud Engineers working with virtualized networking
- Systems Integrators and Network Consultants
- Professionals preparing for Cisco, Juniper, or other data center certifications

## Course Outline

### Day 1: Modern Data Center Network Architecture

- Evolution from traditional 3-tier to spine-leaf topology
- Layer 2 vs. Layer 3 design in data centers
- VLANs, Trunking, STP alternatives e.g., TRILL, SPB
- VXLAN, EVPN, and overlay network introduction
- Traffic flow patterns and segmentation requirements

### Day 2: Spine-Leaf Design and Fabric Technologies

- Design principles of spine-leaf architecture
- Equal-cost multi-path ECMP routing
- Fabric management and scaling strategies
- Integration with SD-Access and network virtualization
- Network convergence, latency optimization, and scalability

#### Day 3: Software-Defined Networking SDN and Virtualization

- SDN architecture and components
- OpenFlow protocol and SDN controllers
- Introduction to NFV and its use in virtualized data centers
- Cisco ACI / VMware NSX overview
- Policy-based network management and segmentation

#### Day 4: Network Automation and Orchestration

- Introduction to network automation tools Ansible, Terraform, Python
- Automating common tasks: configuration, provisioning, validation
- Intent-based networking and model-driven telemetry
- REST APIs and programmable interfaces
- DevOps and NetDevOps principles in network operations

#### Day 5: Security, Monitoring, and Troubleshooting

- Securing the data center network: microsegmentation, ACLs, firewalls
- Real-time monitoring and performance metrics SNMP, NetFlow, sFlow
- Troubleshooting network bottlenecks and failures
- High availability, failover strategies, and redundancy design
- Final case study: Design and simulation of an advanced data center network

## Registration form on the Training Course: Advanced Data Center Networking

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Training Course Fees: 6000 € Euro

Complete & Mail or fax to Global Horizon Training Center (GHTC) at the address given below

### Delegate Information

Full Name (Mr / Ms / Dr / Eng): .....  
Position: .....  
Telephone / Mobile: .....  
Personal E-Mail: .....  
Official E-Mail: .....

### Company Information

Company Name: .....  
Address: .....  
City / Country: .....

### Person Responsible for Training and Development

Full Name (Mr / Ms / Dr / Eng): .....  
Position: .....  
Telephone / Mobile: .....  
Personal E-Mail: .....  
Official E-Mail: .....

### Payment Method

- ☐ Please find enclosed a cheque made payable to Global Horizon
- ☐ Please invoice me
- ☐ Please invoice my company

### Easy Ways To Register

Telephone:  
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provisionally reserve your  
place.

Fax your completed  
registration  
form to: +20233379764

E-mail to us :  
info@gh4t.com  
or training@gh4t.com

Complete & return the  
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to: Global Horizon  
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