# BOOST
THE LEADING TRAINING PROVIDER

Information Technology

## HCIA Routing and Switching

# Course Introduction

This HCIA-Routing and Switching training course covers the basic IP network connectivity, TCP/IP technologies, Ethernet technologies such as STP and RSTP, VLAN and Link Aggregation and their implementation within Huawei switches. This course will explore topics such as the routing principles and OSPF routing protocol for IPv4 and IPv6 networks, WAN technologies, IP based security, network management as well as IPv4 and IPv6 based application services, MPLS and SR principles.

**Training Course Methodology**
This training course is designed to be interactive and participatory, and includes various learning
tools to enable the participants to operate effectively and efficiently in a multifunctional environment. The course will use lectures and presentations, and group discussions.

# Target Audience

- Cloud Computing Engineer
- Computer Network Specialist
- Computer Support Specialist
- Database Administrator
- Information Technology Analyst
- Information Technology Leadership
- Information Security Specialist
- Software/Application Developer
- Web Developer
- Technology sales consultant

# Learning Objectives

- Understand the fundamental principles of data communication and demonstrate competence in basic operations and maintenance (O&M) of IP networks.
- Plan and design IP addresses for network configurations.
- Perform essential Virtual Router Redundancy Protocol (VRP) operations.
- Explain the functions and working principles of switching equipment and establish efficient switching networks by configuring devices and running STP/RSTP protocols.
- Describe the basics of routing and routing protocols, and configure OSPF to build efficient routing networks.
- Configure common services like DHCP, FTP, and Telnet on enterprise networks to enable efficient network usage and management.
- Enhance Layer two networks' performance by configuring link aggregation and VLAN.
- Implement WAN interconnection through the configuration of HDLC, PPP, and PPPoE.
- Perform Network Address Translation (NAT) configuration.
- Provide security solutions for IP networks by configuring ACL, AAA, and IPSec/GRE.
- Set up SNMP for unified network management.
- Gain knowledge about the principles of MPLS and Segment Routing.

# Course Outline

- **Day 01**

  **IP Network Principles**

    - Ethernet and IP based data forwarding processes.
    - TCP/IP network protocols and data encapsulation.
    - VRP commands for basic navigation and configuration.
    - IPv4 addressing principles, address design and subnetting.
    - TCP/IP supporting applications such as Ping, Tracert, FTP, and Telnet.
- **Day 02**

### LAN Technologies

- LAN switching operations.
- Link Aggregation application and configuration.
- VLAN principle, application and configuration.
- STP and RSTP switching behavior, application and configuration.

### WAN Technologies

- Principles and application of serial technologies in wide area networks.
- HDLC and PPP encapsulation principles and configuration.
- PPPoE implementation at the customer edge.

- **Day 03**

### Routing Technologies

- Static and dynamic routing principles,
- OSPF dynamic routing protocol function and implementation in VRP Network Security
- Traffic Filtering technologies and their application in the enterprise network
- User management through authentication and authorization schemes.
- IPsec VPN technologies for protecting user data
- How network security is ensured by using network security technologies and firewalls

- **Day 04**

### Network Management

- Network Management protocols and technologies

### IPv6 Networks

- IPv6 principles and technologies.
- IPv6 routing technologies.
- Application services for IPv6 networks

- **Day 05**

### MPLS and Segment Routing

- MPLS basic principles
- Segment Routing basic principles

# Confirmed Sessions

| FROM | TO | DURATION | FEES | LOCATION |
| --- | --- | --- | --- | --- |
| Dec. 15, 2025 | Dec. 19, 2025 | 5 days | 4250.00 $ | UAE - Dubai |