

Implementing OSPF, BGP, and MPLS on Huawei Routers

Prerequisite: HCIA or equivalent

Duration: 5 days

Day 1: OSPF Fundamentals and Configuration

- **OSPF Overview:**
 - Introduction to OSPF, its role in network routing
 - OSPF design principles and characteristics
 - Comparison with other routing protocols
- **OSPF Concepts:**
 - OSPF terminology (areas, routers, networks, interfaces)
 - OSPF packet types and their functions
 - OSPF neighbor and adjacency relationships
 - DR/BDR election process
- **OSPF Configuration:**
 - Basic OSPF configuration on Huawei routers
 - Configuring OSPF network types (point-to-point, broadcast, non-broadcast)
 - OSPF authentication
 - Verification commands

Day 2: Advanced OSPF Topics

- **OSPF Routing and Redistribution:**
 - OSPF routing process (SPF algorithm, route calculation)
 - Redistributing routes between OSPF and other protocols
 - Route summarization
- **OSPF Areas:**
 - OSPF area concepts and hierarchy
 - Area types (stub, totally stub, NSSA)
 - Area configuration and inter-area routing
- **OSPF Troubleshooting:**
 - Common OSPF issues and troubleshooting steps
 - OSPF debugging commands

Day 3: BGP Fundamentals and Configuration

- **BGP Overview:**
 - Introduction to BGP, its role in internet routing
 - BGP architecture and components (AS, peer, neighbor)
 - BGP attributes and route selection
- **BGP Configuration:**
 - Basic BGP configuration on Huawei routers
 - Configuring BGP neighbors and peer groups

- Route filtering and redistribution
- **BGP Troubleshooting:**
 - Common BGP issues and troubleshooting steps
 - BGP debugging commands

Day 4: Advanced BGP Topics and MPLS Introduction

- **BGP Advanced Topics:**
 - BGP policies and route maps
 - BGP confederations and route reflectors
 - BGP multipath and load balancing
- **MPLS Overview:**
 - Introduction to MPLS, its benefits and applications
 - MPLS architecture and components (label, LSR, LDP)
 - MPLS label distribution protocols (LDP)

Day 5: MPLS Configuration and Integration

- **MPLS Configuration:**
 - Basic MPLS configuration on Huawei routers
 - Configuring LDP and label distribution
 - MPLS traffic engineering (TE) concepts
- **MPLS and OSPF/BGP Integration:**
 - Integrating MPLS with OSPF and BGP
 - MPLS VPN (VPNs)
 - MPLS TE and traffic engineering