

Arista Networking - WAN Routing - MPLS Core (MPLSCORE)

ID MPLSCORE Price CHF 4,995.—(excl. VAT) Duration 5 days

Who should attend

This course targets network engineers or service provider technicians in telecom or enterprise settings who manage WAN configurations and troubleshooting. It's especially valuable for those with prior knowledge of routing protocols like BGP or IS-IS, professionals transitioning to Arista from other vendors, and individuals involved in data center interconnect initiatives.

This course is part of the following Certifications

ACE - Specialist WAN Routing MPLS Core (AN-RT-MP)

Prerequisites

- Solid understanding of Layer 2/3 network technologies and protocols
- IGP protocols (OSPF, IS-IS)
- Basic BGP knowledge

Course Objectives

At the end of the course, you should be able to understand these subjects:

- MPLS elements (LDP, RSVP-TE)
- Secure L2/3 VPN services via EVPN
- Pseudowires
- BGP, EVPN-VXLAN, protocol verification
- Diagnostic techniques

Course Content

MPLS Overview

MPLS Basics

- Introduction to MPLS labels
- MPLS packet and devices
- Establishing LDP sessions
- MPLS flow and terminology
- MPLS control plane & data plane tables
- IGP routing & MPLS control plane convergence

- MPLS data plane
- Penultimate hop popping (PHP)
- MPLS services vs. applications vs transport
- Lab – Configuring IP addressing
- Lab – Configuring provider network reachability
- Lab – Configuring MPLS and LDP

MPLS troubleshooting basics

- Route aggregation in an MPLS domain
- Loop detection with TTL propagation
- IGP vs. LDP convergence
- Show commands walkthrough & LDP label distribution

Layer 2 VPN services

Virtual private networks

- Overview of VPNs
- Use of VRFs in VPN architecture
- VPN control plane
- VPN data plane
- Benefits of MPLS

MPLS L2 VPN Basics

- Introduction to E-Line services and LDP pseudowires
- Point-to-point layer 2 services
- Multipoint Layer 2 VPN service
- Configuring E-Line with LDP pseudowire
- Lab – Configuring E-Line and LDP pseudowire

EVPN Overview

- Introduction to EVPN
- EVPN terminology
- VRF operation
- EVPN route type 2 (MAC-IP)
- Lab - E-Line with EVPN VPWS
- Lab - E-LAN with EVPN Route Type 2
- Lab - Configuring L3EVPN Route Type 5
- Lab - Troubleshooting L3EVPN Data Plane

Ethernet VPN implementations

- Static flow aware transport (FAT) support on EVPN VPWS
- E-Line with EVPN VPWS
- E-LAN with EVPN type-2 (L2EVPN)
- Lab – E-Line with EVPN VPWS

L3VPN with BGP

BGP as PE-CE protocol

- Configuring common AS number in multiple sites
- Allowas-In
- Lab – Configuring MP-BGP and L3VPN

L3VPN advanced services

- Overlapping VPNs
- Configuring overlapping VPNs
- Share service VPNs
- Configuring shared service VPN
- Managed service VPNs
- Configuring managed service VPN
- Lab – Configuring managed service VPNs
- Lab – Configuring overlapping VPNs
- Lab – Configuring shared service VPNs

MPLS Tunnels

MPLS RSVP-TE elements

- Introduction to TE
- Tunnel and link attributes overview
- RSVP path and reservation concepts
- RSVP Parth state table and RSVP error messages
- MPLS RSVP TE configuration
- MPLS RSVP TE explicit path configuration
- Lab – configuring MPLS RSVP TE dynamic tunnels

MPLS RSVP tunnel protection

- Tunnel protection via multiple tunnels
- MPLS TE – RSVP – FRR
- RSVP FRR facility bypass data plane
- Configuring FRR node-protection bypass
- Lab – Configuring RSVP TE multiple tunnels
- Lab – Configuring dynamic and explicit multi-tunnel FRR
- Lab – Using admin-groups for link and tunnel attributes
- Lab - Using secondary path for path selection

Segment Routing

Segment routing fundamentals and transitions

- BGP-SR fundamentals – building the MPLS foundation
- Segment routing – Overview
- Segment routing foundations and basic traffic engineering
- LDP vs. segment routing – foundations and protocols
- LDP vs. segment routing – a comparative overview
- Exploring segment routing and traffic engineering in MPLS networks
- MPLS transport SR options
- MPLS core with SR-TE
- Advanced segment routing – Global significance and network types
- Advanced Segment routing – Traffic engineering and proxy sets
- Lab – IS-IS SR TE
- Lab – Configuring SR-TE policy

Segment routing traffic engineering and steering

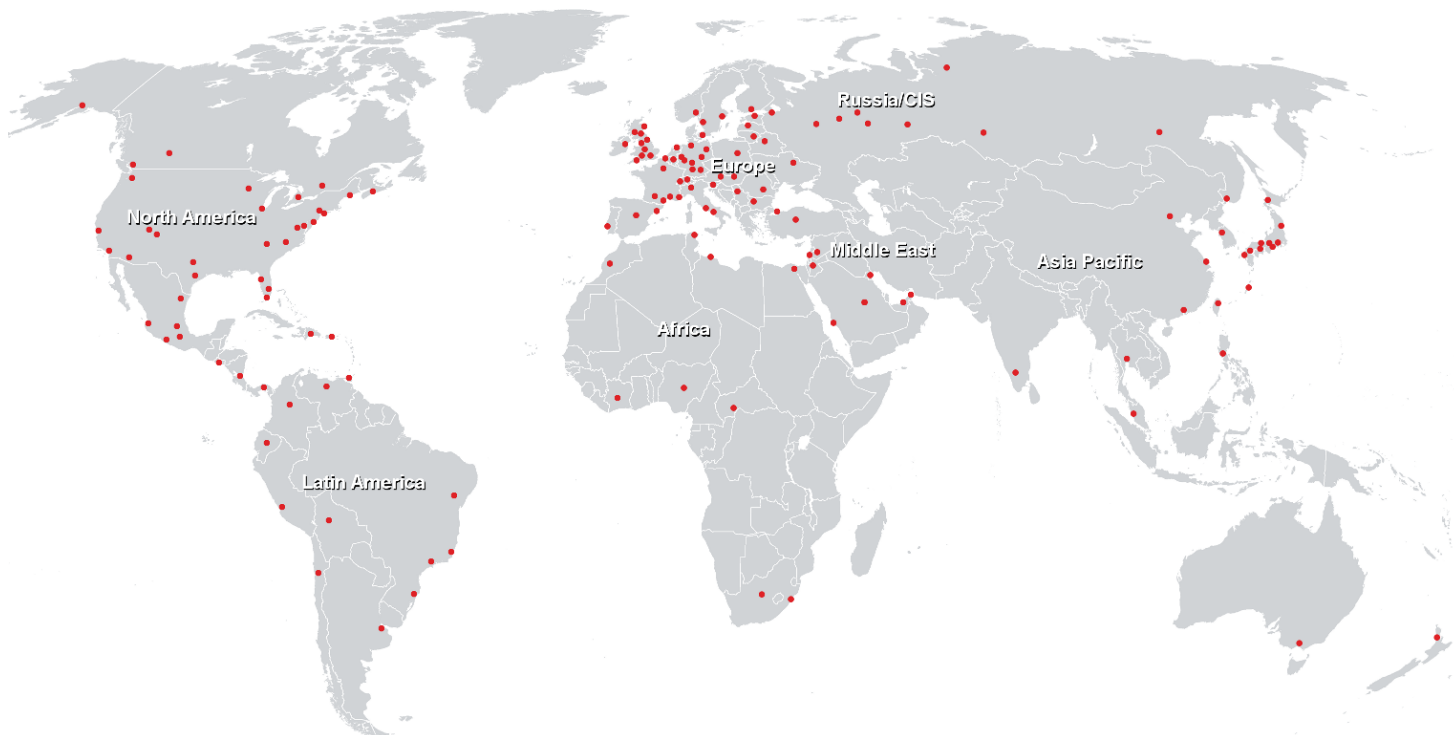
- Traffic steering and service mapping case study
- IS-IS SR TE configuration
- SR-TE choosing best candidate paths
- Verify and test SR-TE policy
- Implementing SR-TE for color steering
- Steering traffic into SR-TE policies
- Configuring color steering with SR-TE policy
- Lab – Steering traffic into TE policy
- Lab – System tunnel RIB
- Lab – User defined tunnel RIB
- Lab – Color steering SR-TE policy

SR-WAN and DCI

SR-WAN and DCI

- MPLS Inter-AS Deployment Scenarios
- L2 Connectivity Over MPLS-SR WAN
- DCI with BGP L3VPN and EVPN Connectivity Challenges
- L3 Connectivity over MPLS-SR WAN
- DCI EVPN VXLAN DC with MPLS-SR WAN
- Case Study – L2 and L3 Connectivity over MPLS-SR WAN
- Lab – Data Center Interconnect

Training Centres worldwide



Fast Lane Institute for Knowledge Transfer (Switzerland) AG

Husacherstrasse 3
CH-8304 Wallisellen
Tel. +41 44 832 50 80

info@flane.ch, <https://www.flane.ch>