

## JNCIP-ENT Exam Objectives (Exam: JN0-643)

This list provides a general view of the skill set required to successfully complete the specified certification exam. Topics listed are subject to change.

### OSPF

- Describe the concepts, operation and functionality of OSPFv2 and OSPFv3
- OSPF LSA types
- OSPF area types and operations
- LSA flooding through an OSPF multi-area network
- DR/BDR operation
- SPF algorithm
- Metrics, including external metric types
- Authentication options
- Route summarization and restriction
- Overload
- Virtual links
- OSPFv2 vs OSPFv3
- Given a scenario, demonstrate knowledge of how to configure and monitor single-area and multi-area OSPF
- Implement OSPF routing policy

### BGP

- Describe the concepts, operation and functionality of BGP
- BGP route selection process
- Next hop resolution
- BGP attributes - concept and operation
- BGP communities
- Regular expressions
- Load balancing - multipath, multihop, forwarding table
- NLRI families - inet, inet6
- Advanced BGP options
- Given a scenario, demonstrate knowledge of how to configure and monitor BGP
- Implement BGP routing policy

### IP Multicast

- Describe the concepts, operation and functionality of IP multicast
- Components of IP multicast, including multicast addressing
- IP multicast traffic flow
- Any-Source Multicast (ASM) vs. Source-Specific Multicast (SSM)
- RPF - concept and operation
- IGMP, IGMP snooping

- PIM dense-mode and sparse-mode
- Rendezvous point (RP) - concept, operation, discovery, election
- SSM - requirements, benefits, address ranges
- Anycast RP
- MSDP
- Routing policy and scoping
- Given a scenario, demonstrate knowledge of how to configure and monitor IGMP, PIM-DM and PIM-SM (including SSM)
- Implement IP multicast routing policy

## Ethernet Switching and Spanning Tree

- Describe the concepts, operation and functionality of advanced Ethernet switching
- Filter-based VLANs
- Private VLANs
- Dynamic VLAN registration using MVRP
- Tunnel Layer 2 traffic through Ethernet networks
- Layer 2 tunneling using Q-in-Q and L2PT
- Given a scenario, demonstrate knowledge of how to configure and monitor advanced Ethernet switching
- Filter-based VLANs
- Private VLANs
- Dynamic VLAN registration using MVRP
- Tunnel Layer 2 traffic through Ethernet networks
- Layer 2 tunneling using Q-in-Q and L2PT
- Describe the concepts, operation and functionality of advanced spanning tree protocols, including MSTP and VSTP
- Given a scenario, demonstrate knowledge of how to configure and monitor MSTP and VSTP

## Layer 2 Authentication and Access Control

- Describe the operation of various Layer 2 authentication and access control features
- Authentication process flow
- 802.1x - concepts and functionality
- MAC RADIUS
- Captive portal
- Server fail fallback
- Guest VLAN
- Considerations when using multiple authentication/access control methods
- Given a scenario, demonstrate how to configure and monitor Layer 2 authentication and access control

## IP Telephony Features

- Describe the concepts, operation and functionality of features that facilitate IP telephony deployments
- Power over Ethernet (PoE)
- LLDP and LLDP-MED
- Voice VLAN
- Given a scenario, demonstrated how to configure and monitor features used to support IP Telephony

# Class of Service (CoS)

- Describe the concepts, operation and functionality of Junos CoS for Layer 2/3 networks
  - CoS processing on Junos devices
  - CoS header fields
  - Forwarding classes
  - Classification
  - Packet loss priority
  - Policers
  - Schedulers
  - Drop profiles
  - Shaping
  - Rewrite rules
- Given a scenario, demonstrate knowledge of how to configure and monitor CoS for Layer 2/3 networks