



CCIE Enterprise Infrastructure v1.0 Bootcamp

Multicast



Core Multicast Goals

- + Establish PIM adjacencies
- + Establish RP connectivity
- + Verify multicast trees are built

PIM Considerations

- + Which PIM mode are we running?
 - + Dense Mode
 - + Sparse Mode
 - + Sparse Dense Mode
 - + SSM
 - + Bidirectional PIM

Dense Mode Considerations

- + Source trees only
 - + No RP assignments

Sparse Mode Considerations

- + Source and shared trees
 - + Implies RP assignments
- + How is the RP assigned?
 - + Static
 - + Auto-RP
 - + BSR
- + Is Anycast RP used?
 - + MSDP between RPs

SSM Considerations

- + Source trees only
 - + No RP assignments
- + Requires IGMPv3 signaling from receiver
 - + IGMP defaults to v2
- + Devices must agree on the SSM range
 - + Default is 232.0.0.0/8

Bidirectional PIM Considerations

- + Shared trees only
 - + RP must be bidir enabled
- + Use case is scaling the control plane
 - + E.g. your apps are both senders and receivers

RP Assignment Considerations

- + Do all devices agree on the RP?
 - + **show ip pim rp mapping**
- + Do all devices agree on group to RP mapping?
 - + **show ip pim rp mapping**
- + Do all devices allow join messages to the RP?
 - + **sh run | in accept-rp**
- + Does the RP agree to allow the source to register?
 - + **sh run | in accept-register**

Auto-RP Considerations

- + Are multicast trees built for Auto-RP control groups?
 - + 224.0.1.39 and 224.0.1.40
- + How can we build the Auto-RP control groups?
 - + Auto-RP Listener
 - + Sparse Dense mode
 - + Static RP assignment for control groups
- + What is the TTL of the announcements?
 - + Too low a value can result in RP not being learned

Multicast Tree Considerations

- + How do we verify the shared tree is built?
 - + **show ip mroute** for (*,G) from RP to receiver
- + How do we verify the source tree is built?
 - + **show ip mroute** for (S,G) from sender to RP
- + How do we verify the SPT is built?
 - + **show ip mroute** for (S,G) from sender to receiver

RPF Considerations

- + RPF check is performed against...
 - + RP in shared trees
 - + Auto-RP control plane sources
 - + BSR
 - + Source in shortest path trees
- + How can we verify RPF errors?
 - + **show ip rpf**
 - + **show ip mroute count**
 - + **debug ip mpacket**
 - + **debug ip mfib ps**

RPF Considerations (cont.)

- + How can we resolve RPF failure issues?
 - + Modify unicast routing
 - + Static mroute
 - + Multicast BGP

