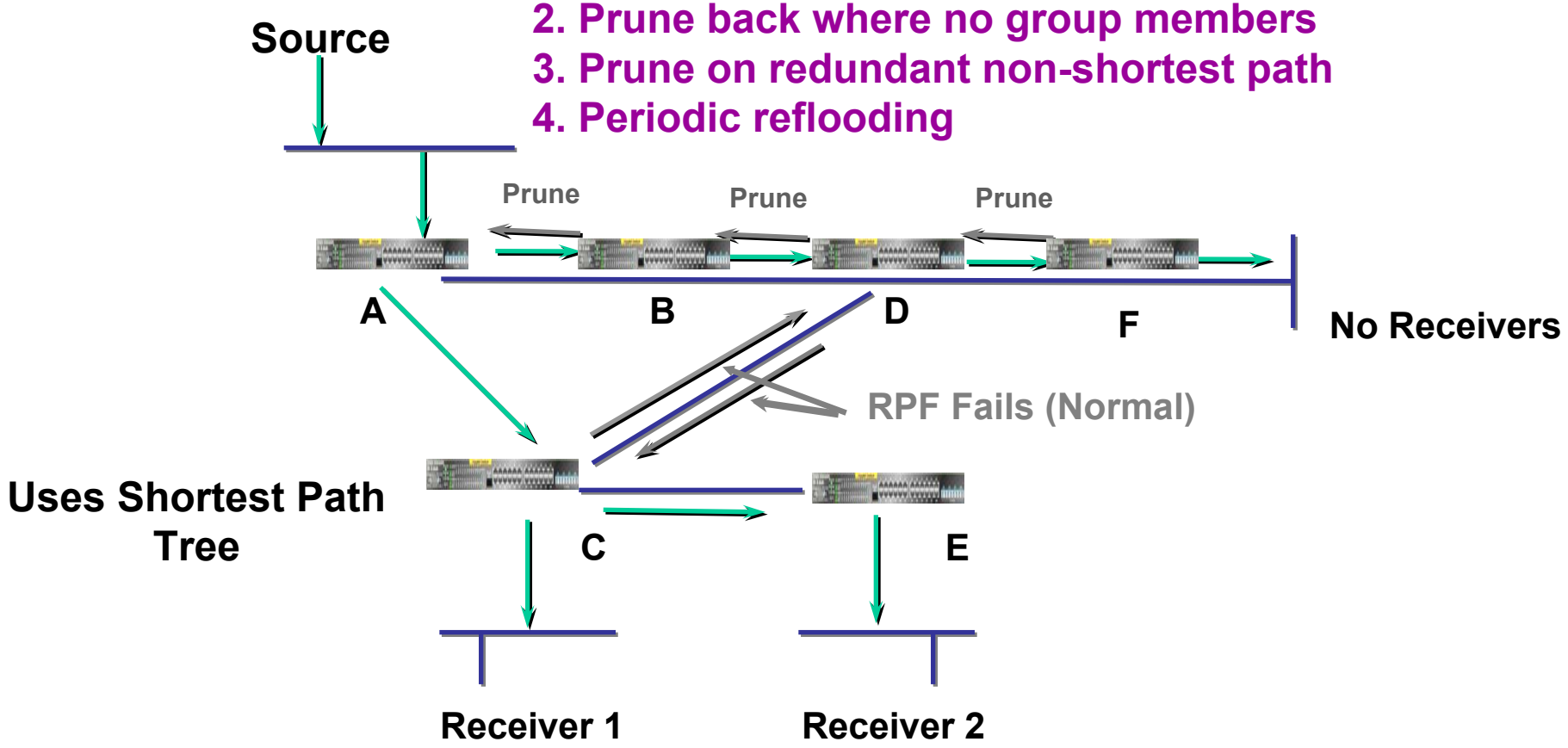
PIM-DM

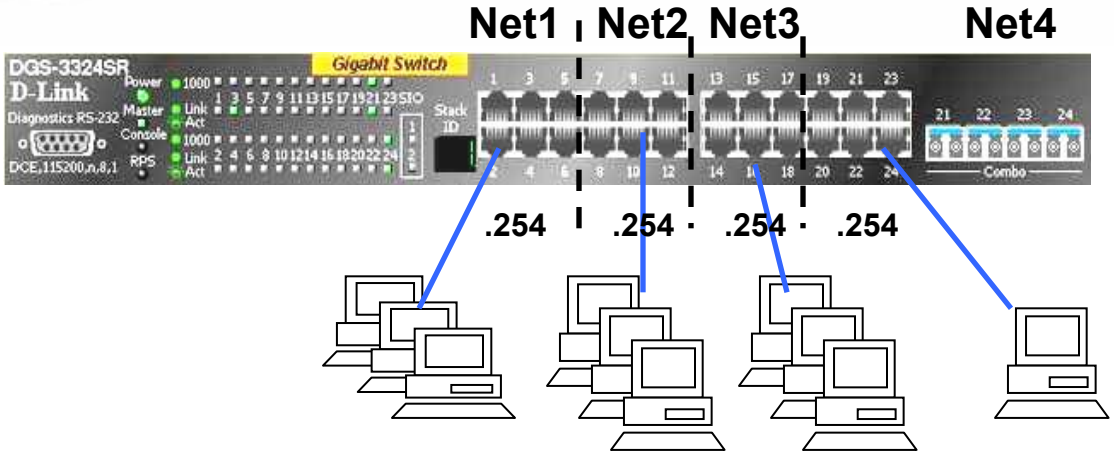
- PIM - Protocol Independent Multicast
- PIM contains two protocols: PIM – Dense Mode (PIM-DM), and PIM – Sparse Mode (PIM-SM)
- PIM-DM is similar to DVMRP for forming delivery trees
- PIM-DM also forwards multicast messages on all downstream interfaces until it receives prune messages, while DVMRP forwards multicast traffic to child nodes in the delivery tree.
- PIM-DM uses graft messages for attaching a previously pruned branch to the delivery tree, similar to DVMRP.

PIM-DM
The Flood and Prune Method

1. Flood everywhere initially
2. Prune back where no group members
3. Prune on redundant non-shortest path
4. Periodic reflooding



[Scenario] PIM-DM 1/4



DGS-3324SR

Multicast client Running IPTV viewer
192.168.1.1/24
Gw192.168.1.254

192.168.2.x/24
Gw192.168.2.254

192.168.3.x/24
Gw192.168.3.254

Multicast Servers (Cisco IPTV or Microsoft Media Server)
192.168.4.2/24
Gw192.168.4.254

- **Objective:**
  1. **Configure 4 IP subnets and IP packets can be routed (L3) between Subnets.**
  2. **Client at Net1 running multicast client viewer can see the programs played at Multicast server on Net4.**
  3. **Multicast Routing Protocol = PIM-DM**

PROCDEURE:
At DGS-3324SR
1. Delete ports from default vlan for other vlan use.
config vlan default delete 1:1-1:24

2. Create VLAN, add ports into it, and then create IP interface for the VLAN.
create vlan v101 tag 101
config vlan v101 add untagged 1:1-1:6
create ipif net1 192.168.1.254/24 v101 state enabled

create vlan v102 tag 102
config vlan v102 add untagged 1:7-1:12
create ipif net2 192.168.2.254/24 v102 state enabled

create vlan v103 tag 103
config vlan v103 add untagged 1:13-1:18
create ipif net3 192.168.3.254/24 v103 state enabled

create vlan v104 tag 104
config vlan v104 add untagged 1:19-1:24
create ipif net4 192.168.4.254/24 v104 state enabled

3. Enable PIM-DM for multicast routing protocol, and enable the Interfaces where multicast Server and Client located, with "all" for all interfaces.

enable pim
config pim all state enable

4. Enable IGMP for those interfaces where Multicast Client are located, with "all" for all interfaces.

config igmp all state enable

5. Enable the global IGMP snooping, and enable the IGMP Snooping on those VLANs where Multicast client located, with "all" for all VLANs.

enable igmp_snooping
config igmp_snooping all state enable

6. Commands for checking the multicast groups.

sh ipmc cache
sh igmp group

At Multicast Server

1. **Manually configure IP address, mask, for the associated IP Network**
2. **Install and run the Multicast Server program, for example, CISCO IPTV Server or Microsoft's MediaServer.**
3. **Play the video program using "multicast"**

At Client PC

1. **Manually configure IP address, mask, for the associated IP Network.Interface IP.**
2. **Install and run the Multicast client software, for example, CISCO IPTV viewer or Microsoft IE/MediaPlayer.**

[Scenario]
PIM-DM 4/4

TEST:

1. **Multicast Client 192.168.1.1 at Net1 can join the programs at multicast Server 192.168.4.2 at Net4, and view the video.**
2. **Because of IGMP snooping enabled, other un-joined clients at Net1 will not received the multicast packets.**