

Lab5 - Guideline

Topics

- A. Dynamic routing
- B. RIPv2 on IPv4

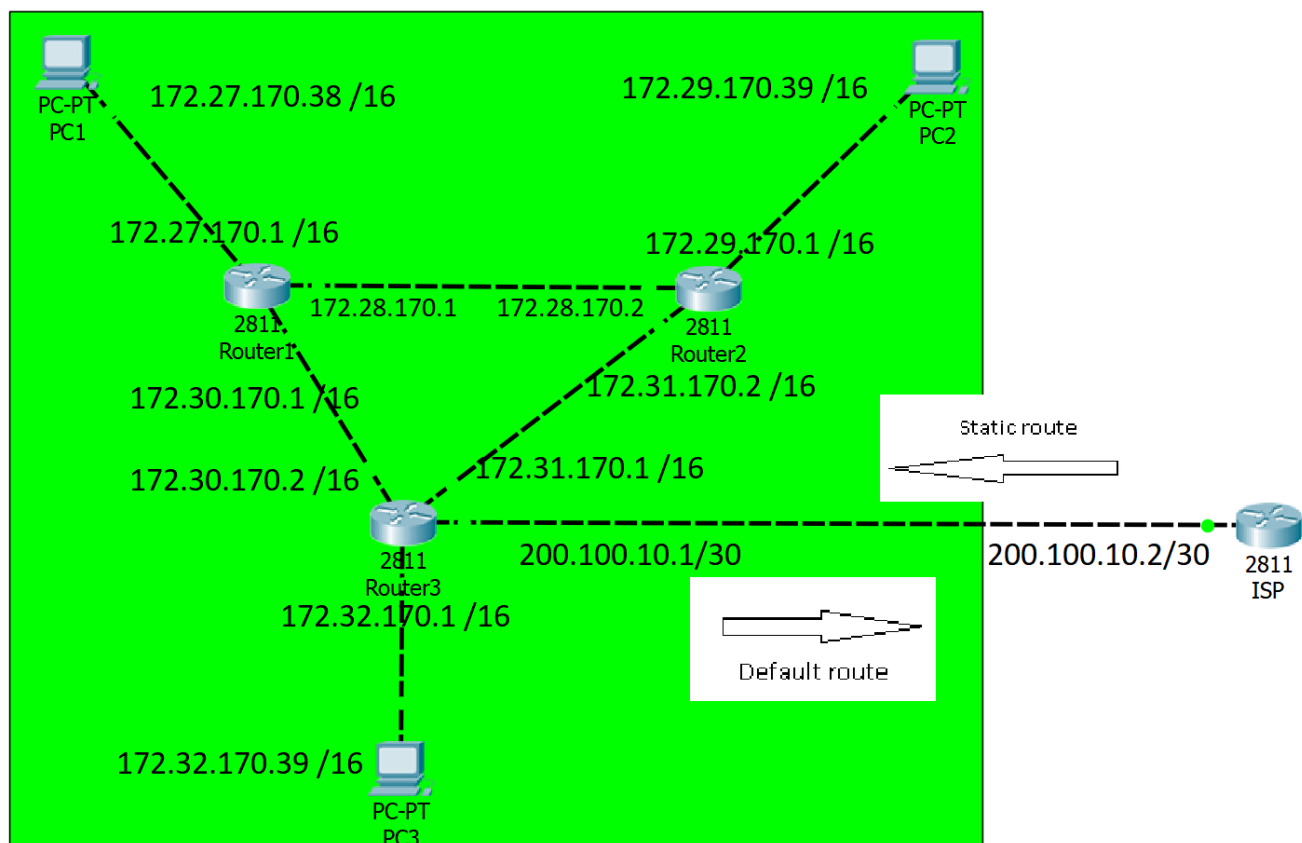
A. Dynamic routing

- a. routing metrics: hop, bandwidth, delay, reliability, load, and cost
- b. distance-vector routing: distance, direction; local info, send advertise to neighbors, periodic updates
- c. link-state routing: topological database; send advertise to all routers, updates only on changes
- d. autonomous system

B. RIPv2 on IPv4

- a. metric: hop count
- b. VLSM
- c. Update every 30 sec, 15 hop limit
- d. For Ipv6: RIPvng

Laboratory test configuration:



Step1: Assign static IPv4 addresses to router interfaces and computers

```
Router3(config)#interface fastethernet 0/0
Router3(config-if)#ip address 172.32.170.1 255.255.0.0
Router3(config-if)#no shutdown
```

Description: Add an IP address on Fa0/0subinterface

Steps for configuring RIP:

Router3(config)#router rip

Description: Enabling RIP routing protocol on the router

Router3(config-router)#version 2

Description: Specifying the RIP version to run

Router3(config-router)#network 172.30.0.0

Router3(config-router)#network 172.31.0.0

Router3(config-router)#network 172.32.0.0

Description: Configuring the network addresses to be included in routing updates

Router3(config-router)#no auto-summary

Description: disable auto summarization (if not, routes will be automatically summarized into classful network)

OBS: do not advertise network 200.100.10.0 using RIP

Optional: configure passive interfaces

RouterC(config)#router rip

Router3(config-router)#passive-interface Fa0/1

Description: stop RIP messages from being broadcasted out a specific interface

Steps for verifying RIP:

Router3 #show ip route

Description: Visualize the routing table

Router3 #show ip protocols

Description: routing status

Test the connectivity.

e. *ping <target IP>*

f. *tracert <target IP>*

Create static routes:

1. default route:

On router R3 create a default route to network 200.100.10.0 /24 (static route)

2. static route

On router ISP create a static route to the summarized network address

(requirement: summarize the following networks 172.27.170.0 - 172.33.170.0)

Propagate the default route to all the routers in the network,:

Router3(config)#ip route 0.0.0.0 0.0.0.0 200.100.10.2

Router3(config)#router rip

Router3(config-router)#default-information originate

Description: advertise a default route to other routers using RIP

RouterISP(config)#ip route 172.0.0.0 255.192.0.0 200.100.10.1