DEPARTAMENTO DE ELETRÓNICA, TELECOMUNICAÇÕES E INFORMÁTICA

LICENCIATURA EM ENGENHARIA DE COMPUTADORES E INFORMÁTICA

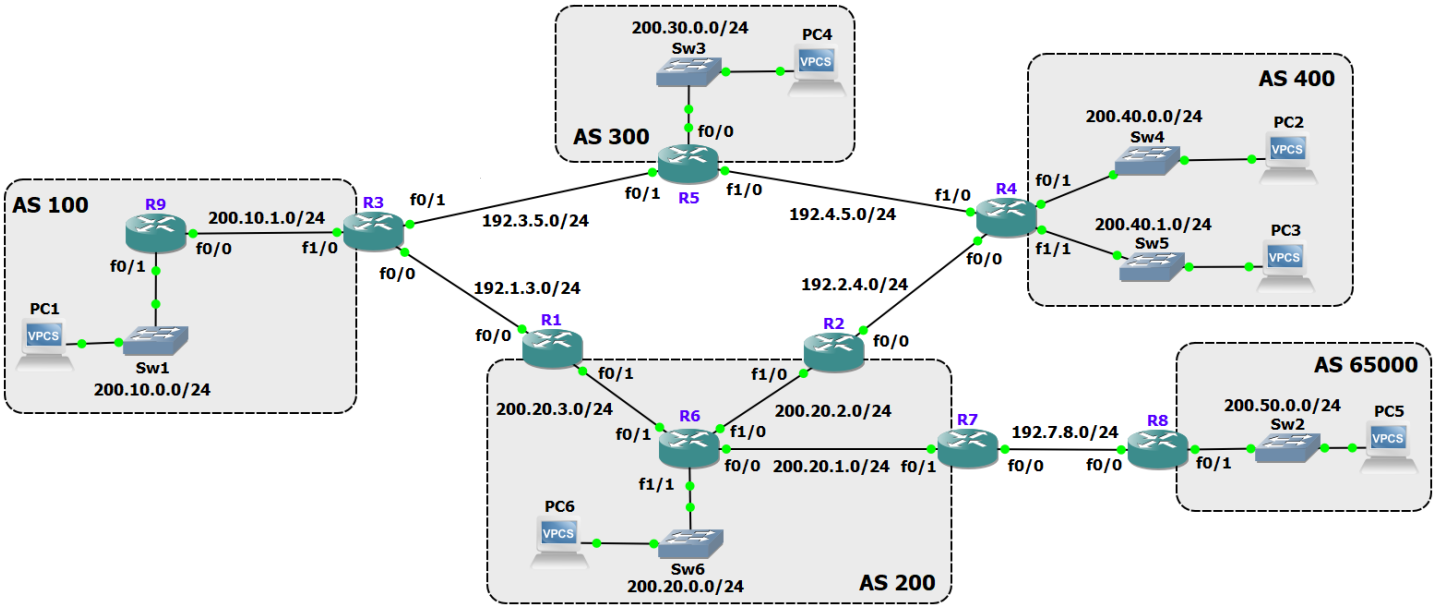
ANO 2024/2025

REDES DE COMUNICAÇÕES II

STUDENTS AUTO-EVALUATION OF LABORATORY GUIDE NO. 4

Scenario

Consider the following IPv4 network with all the configurations done at the end of Laboratory Guide no. 4.



Among the different iBGP and eBGP connections set up in the network, the following two BGP Updates were captured:

UPDATE 1

```
Border Gateway Protocol - UPDATE Message
    Marker: ffffffffffffffffffffffffffffffff
    Length: 65
    Type: UPDATE Message (2)
    Withdrawn Routes Length: 0
    Total Path Attribute Length: 38
  Path attributes
    > Path Attribute - ORIGIN: IGP
    > Path Attribute - AS_PATH: 400 300
    > Path Attribute - NEXT_HOP: 192.1.2.2
    > Path Attribute - MULTI_EXIT_DISC: 0
    > Path Attribute - LOCAL_PREF: 100
  Network Layer Reachability Information (NLRI)
    > 200.30.0.0/24
```

UPDATE 2

```
Border Gateway Protocol - UPDATE Message
    Marker: ffffffffffffffffffffffffffffffff
    Length: 51
    Type: UPDATE Message (2)
    Withdrawn Routes Length: 0
    Total Path Attribute Length: 24
  Path attributes
    > Path Attribute - ORIGIN: IGP
    > Path Attribute - AS_PATH: 100 300
    > Path Attribute - NEXT_HOP: 192.1.3.3
  Network Layer Reachability Information (NLRI)
    > 200.30.0.0/24
```

Classify as True (T) or False (F) each of the following statements:

T a) UPDATE 1 was sent by R2 to R1.

F b) UPDATE 2 was sent by R1 to R3.

T c) There is an iBGP connection between R2 and R7.

F d) AS 400 is a non-transit autonomous system.

T e) The NEXT_HOP attribute of the BGP Updates sent by R1 to R7 is always 192.1.7.1.

F f) In the BGP Updates of the AS 400 network prefixes sent by R5 to R3, the NEXT_HOP attribute is 192.4.5.4.

T g) In a ping from PC6 to PC3, the Echo Request messages are forwarded through ASs 200, 100, 300 and 400, and the Echo Reply messages are forwarded through ASs 400 and 200.

T h) The routing table of R4 can have the following OSPF entry:

```
B      200.50.0.0/24 [20/0] via 192.2.4.2
```

F i) The routing table of R5 can have the following OSPF entry:

```
B      200.20.0.0/24 [20/0] via 192.3.5.3
                     [20/0] via 192.4.5.4
```

F j) The command `show ip bgp` in R3 can have the following entry:

```
   Network          Next Hop      Metric LocPrf Weight Path
*  200.50.0.0       192.3.5.5                        0 300 400 200 65000 i
*>                  192.1.3.1                        0 200 65000 i
```

F k) The command `show ip bgp` in R4 can have the following entry:

```
   Network          Next Hop      Metric LocPrf Weight Path
*  200.20.3.0       192.4.5.4                        0 400 200 ?
*>                  192.3.5.3                        0 100 200 ?
```