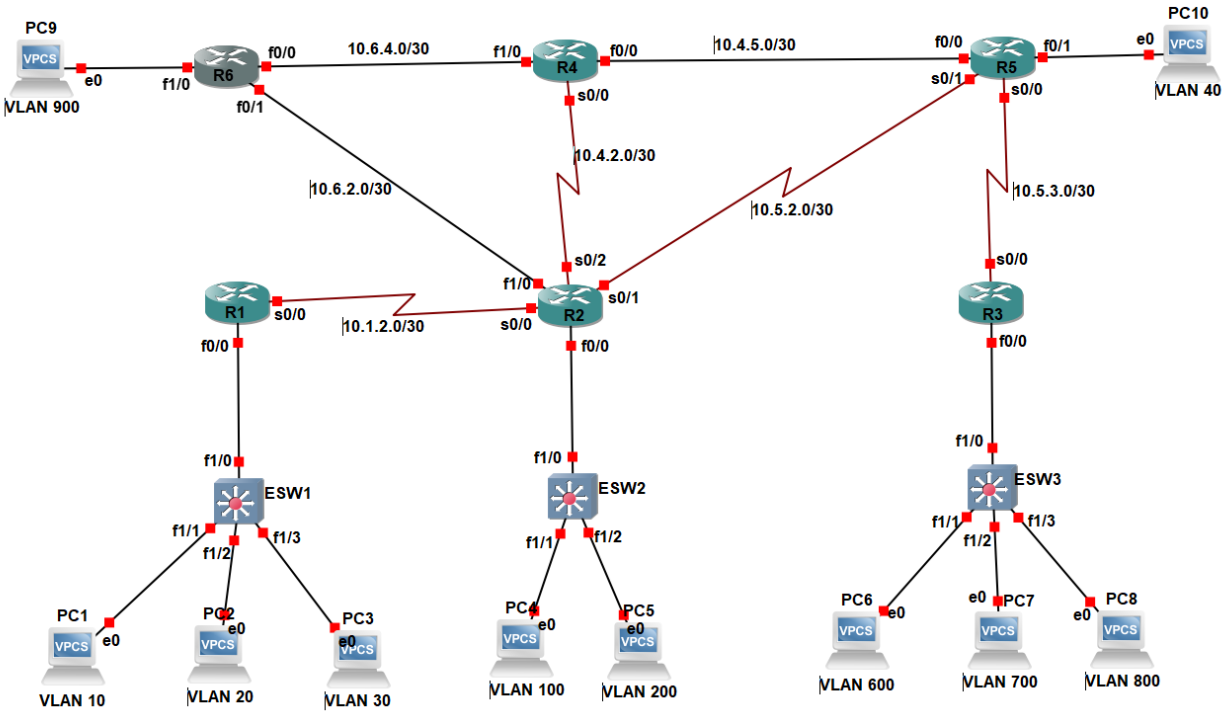
Netlab5 – Part 1: Advanced Router Configuration – with multiple VLANs

Purpose: In this Lab exercise, we will create a topology with multiple routers and VLANs. Besides practicing more about setting up VLANs, this lab will help you understand routing protocols.

Procedure

1. Launch GNS3 emulator.
2. Build the topology depicted here. Use six NetLab Routers and three ESW switches.



3. Each VPC in the topology represents a broadcast domain (aka subnet). The goal is to make all VPCs communicate (ping) to each other after applying routing to the system.

4. Configure all the routers accordingly. Please note that some routers require to be setup as "router-on-stick". The network IDs you need for the VLANs are listed in the following table.

VLAN 10	10.10.8.0/22		VLAN 200	10.200.16.0/20
VLAN 20	10.20.0.0/18		VLAN 600	10.60.6.0/23
VLAN 30	10.30.64.96/27		VLAN 700	10.70.7.8/29
VLAN 40	10.40.240.16/28		VLAN 800	10.88.45.96/28
VLAN 100	10.100.234.64/26		VLAN 900	10.9.128.0/18

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5. Fill in the following table indicating what IP addresses you are going to use in your topology.

Router	Interface Name	IP Address	Mask in Decimal Dotted Notation
R1			
R1			
R1			
R1			
Router	**Interface Name**	**IP Address**	**Mask in Decimal Dotted Notation**
R2			
R2			
R2			
R2			
R2			
R2			
Router	**Interface Name**	**IP Address**	**Mask in Decimal Dotted Notation**
R3			
R3			
R3			
R3			
Router	**Interface Name**	**IP Address**	**Mask in Decimal Dotted Notation**
R4			
R4			
R4			
Router	**Interface Name**	**IP Address**	**Mask in Decimal Dotted Notation**
R5			
R5			
R5			
R5			
Router	**Interface Name**	**IP Address**	**Mask in Decimal Dotted Notation**
R6			
R6			
R6			

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VPC	Interface Name	IP Address	Mask in Decimal Dotted Notation
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

6. Proceed to configure the routers, switches, and VPCs. If needed, use the IOS command reference sheet. Verify that your interfaces are up by using the command "show ip interface brief". Also verify that you **can** ping the direct connected router from the VPCs. Next, verify each router can ping their neighbor routers.

   Execute the command to display the records in the routing table in **R1** and record the output here (screenshot is acceptable)

   ```
   R1#show ip route
   ```

   Save your configurations in all devices. Shut down all the devices in the topology, export a portable project, and upload it to OneDrive. You Lab paper should be completed and uploaded in the Labs dropbox on beachboard.