National Institute of Technology Calicut

Department of Computer Science and Engineering

ASSIGNMENT: Configuring L3 Switch & VLAN Trunking

Practice Question

You are supposed to design a network for a small organisation. In this organisation, there are five different networks, LAN, VLAN2, VLAN3, VLAN4, and VLAN5 which are assigned to each department. The departments are interconnected using a Layer 3 Core Switch so that they communicate to other networks. They are having 10 end systems in each of their departments, totalling to a total of 50 end systems. You have to use the IP ranges 192.168.1.0/24 for LAN, and IP Ranges 192.168.2.0/24, 192.168.3.0/24, 192.168.4.0/24, 192.168.5.0/24 for each of your VLANs.

Since you are not able to get a physical Layer 3 Switch, you are forced to configure your firewall as Layer 3 switch, and as your VLAN/LAN Gateway. Also note that you are having only one ethernet port through which you are forced to take the LAN and VLANs to the First Layer 2 switch, where you can untag (untrunk) and take it to different ports. The incoming cable from the Firewall (L3 Switch) will get terminated at port number 24. Each of the above LAN/VLANs has to be untagged to the ports of L2 Switch listed below

- VLAN2: Port # 2, 6
- VLAN3: Port # 3, 7
- VLAN4: Port # 4, 8
- VLAN5: Port # 5, 9
- LAN: In all other ports.

Also, note that you have to configure the firewall rules and the DHCPv4 IP Settings in the Firewall so that your firewall works as a gateway, DHCP Server and will provide access to outside network.

Testing: You will be able to get different IP addresses Series on connecting to each of the above Ports in the switch. Also you have to create another client VM (or Management VM) in the same physical host where you are hosting your L3 Switch. Make sure that you are able to access the Webserver hosted in your client VM (or Management VM) from any of the above IP Series.