Technical expectations

In this project, you are not provided an address table, as you have been so far. You will be given a starting IP address and you will be creating your own subnets and assigning IP addresses according to provided instructions.

Using your IP addresses, you are to create a working network following the provided topology and configure all basic configurations for your routers, PCs, switches, VLANs and server.

This project entails application of material covered this semester such as addressing, basic switch and router configs, inter-LAN communication, plus research and application of further topics such as:

- inter-VLAN communication (router on a stick) within the Blue network Some keywords to search for (for the blue network) are router on a stick, trunk, encapsulation 802.1q, router's sub-interfaces.
- backing up switches' and routers' configurations on to the server using TFTP (expected to back up both routers and switches configs).

IPv4 Addressing

1) Decide on a private class B IP address and subnet it into two equal sized subnets of 128 total hosts.
   - VLSM the 1st of the two subnets for the following networks:
     o Router to router network (with only two usable IP addresses).
     o Pink network (as many addresses as possible as the requirements allow).
   - VLSM the 2nd subnet to accommodate each of the VLANs in the blue network. Ensure you have enough usable IP addresses to meet future waste the least possible amount of host addresses.

Blue Network VLAN information		
VLAN ID/Name	Current # of hosts	Expected max # usable hosts
VLAN 10/HR	4	6
VLAN 20/R&D	6	12
VLAN 30/Sales	14	25
NOTE: Only need to configure two PCs per VLAN		

2) Be consistent in addressing.
- The switches get the last usable address in each subnet.
- The router gets the second to last usable address in the subnet (does not apply to router to router network)
- Other devices get the first few addresses of the subnet.

Configuration

1) You may use the equipment models you think are appropriate.
2) Rename PCs and server to a descriptive name, be consistent.
3) Use given topology diagram to set appropriate hostnames for routers and switches, rename the display name accordingly.
4) Set all enable secrets and console and vty 0 4 passwords as *final<Group#>* (i.e. *final3* for group 3, note that there are no caps, no spaces, no underscores, no brackets)
5) Use EIGRP or OSPF for your routing protocol.
6) Backup R1, R2, S1, S2 running-config to a tftp server (accept the default name).
7) Create VLANs 10, 20 and 30, with appropriate VLAN IDs and names according to the given table.
   a) Assign the appropriate number of switchports to each of the VLANs, according to "Current # of hosts" on table.
   b) Assign the appropriate switchport mode. Only one port should be set as trunk.
8) Save all configurations from RAM to NVRAM.
9) Shutdown unused ports (those ports that do not have a device connected to them at the time).
10) Ensure all devices are completely documented (PlaceNote on pkt). Use VLAN "color coding" as shown on the provided diagram.

Final Report

The final project memo report should be a summary of the project and the final results. This report must convey your knowledge of that that was asked of you and your understanding of testing each of these requirements. An ideal report should would be informative and within 2 pages long and it must include the following:

- a list of the provided requirements

- discussion of whether you met each of the provided requirements or not
- description of how you verify that your network did or did not meet the provided requirements (only use the sh run command reference if necessary).

- any troubleshooting you may have done for those requirements you did not meet or struggled plenty with

Your report may have bulleted lists, captioned figures, captioned tables, and other items, as applicable. Ensure to discuss/reference all of the provided items. Include a reference page (references need not to be within the two page limit), ensure to include those that were used for the "new" topics covered in this project.

Grading

For this project you are to submit the following:

- Taks 1 assignment (team submission)
  - know your teammate(s) text entry
- Task 2 assignment (team submission)
  - a completed Cisco Packet Tracer file
  - memo report (formal)
- Task3 assignment (individual submission)
  - self and peer evaluations (highlighted rubric)

Final Project	Points Worth	Points Earned	Comments
Final Project Task 1 (Team)	0		Submission required to get Task 2 assigned.
Final Project Task 2 (Team)			
Memo Results Report	70		
Simulation	100		
Final Project Task 3 (individual)			
Peer and Self Evaluation Submission	6		Submission of all evaluations required, otherwise no Task 3 points will be earned (none of the 30 total points).
Peer Evaluation Average	24		
Total Points	**200**		

Each student is to submit a complete evaluation sheet for every team member (including self). Provided evaluation rubric must be used. Submit your final project's **Individual portion.**

Topology

VLAN 10

VLAN 20

VLAN 30

PinkR

BlueR

PinkSW

BlueSW