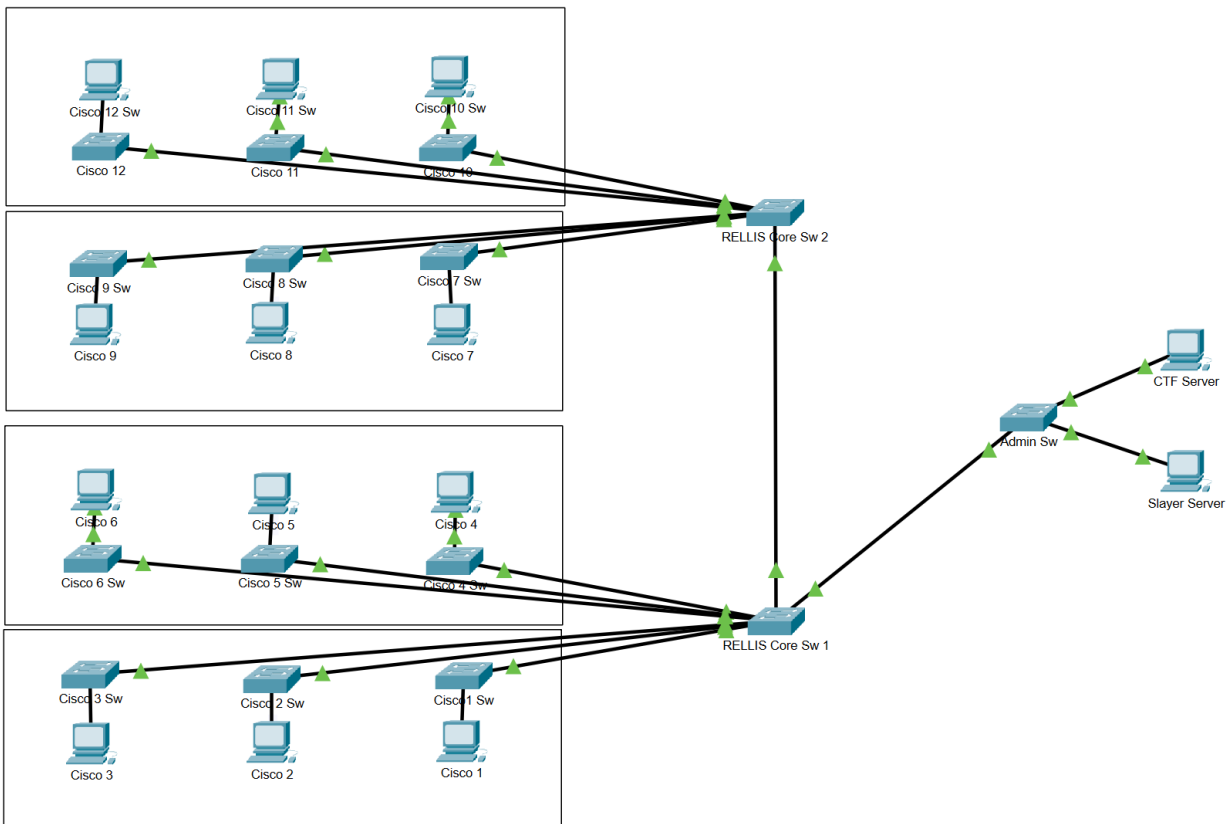# VLANs: Fall 2022

Purpose:
Segment the network using VLANs and test connectivity by connecting to Halo multiplayer servers.

Part 1:
Assign IP address to your respective PC.

- We will be using the 192.168.1.0 /28 IP address block for this lab.There are 14 available IP addresses available in this range

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- Use the following table below to assign your IP addresses to the PCs in the topology

Device	IP address
Cisco 1	192.168.1.1

- Assign your IP address to your PC with the following directions:
  - Control Panel> Network and Internet> Network and Sharing Center> Change Adapter Settings> Ethernet> Properties> Internet Protocol Version 4 (TCP/IPv4)> Use the following IP address
  - Enter your IP address with the correct subnet mask

Part 2:
Create two VLANs on the switch.

- Plug in the blue console cable into the PC and connect it to the console port on the switch
- On your PC, open Device Manager and click on the COMM tab
- Open Putty, select the Serial button and enter the COMM port the console cable is on
- Now that we're in the the CLI, we're going to make the VLANs you will use throughout the lab
- Enter the following commands to create VLAN 10 and 20
  - ```
    switch> enable
    ```
  - ```
    switch# configure terminal
    ```
  - ```
    switch(config)# vlan 10
    ```
  - ```
    switch(config-vlan)# name CTF
    ```
  - ```
    switch(config-vlan)# exit
    ```
  - ```
    switch(config)# vlan 20
    ```
  - ```
    switch(config-vlan)# name Slayer
    ```
  - ```
    switch(config-vlan)# end
    ```
  - ```
    switch# show vlan
    ```

Part 3:
Assign VLANs to designated ports on the switch.

- First, assign the following ports as trunk ports
    - `switch# configure terminal`
    - `switch(config)# interface range fa0/1-2`
    - `switch(config-if)# switchport mode trunk`
    - `switch(config-if)# end`
    - `switch# show interface trunk`

- Next, assign the following ports as access ports
    - `switch# configure terminal`
    - `switch(config)# interface fa0/3`
    - `switch(config-if)# switchport mode access`
    - `switch(config-if)# switchport access vlan 10`
    - `switch(config-if)# exit`
    - `switch(config)# interface fa0/4`
    - `switch(config-if)# switchport mode access`
    - `switch(config-if)# switchport access vlan 20`

Part 4:
To verify that the VLANs have been configured correctly, we will test connectivity by connecting to the Halo multiplayer servers.

- If you are sitting at an odd numbered station, physically connect the PC to port 3 on your switch. You should be connected to VLAN 10.
    - You should see the CTF server when you open the Halo lobby
- If you are sitting at an even numbered station, physically connect the PC to port 4 on your switch. You should be connected to VLAN 20.
    - You should see the Slayer server when you open the Halo lobby

- To open Halo, click on the Halo Trial folder, then the icon labeled Halo. Use the following directions to get to the Halo lobbies:
  - Multiplayer> Connect to LAN> Click on the name of the server

- After playing a match on the respective server, switch VLANs by unplugging the ethernet cable from either port 3 or 4 and plug it into the other one. You should see the other game mode server.

Part 5:
Now, we need to wipe the switch of all the VLANs and trunks that are on it.

- Use the following commands wipe the VLANs from the switch's memory
  - ```
    switch# show vlan
    ```
  - ```
    switch# show interface trunk
    ```
  - ```
    switch# configure terminal
    ```
  - ```
    switch(config)# interface range fa0/1-2
    ```
  - ```
    switch(config-if-range)# switchport mode access
    ```
  - ```
    switch(config-if-range)# end
    ```
  - ```
    switch# delete vlan.dat
    ```
    - Press enter to the questions that pop up
  - ```
    switch# write erase
    ```
  - ```
    switch# reload
    ```
  - ```
    switch> enable
    ```
  - ```
    switch# show vlan
    ```
  - ```
    switch# exit
    ```

Conclusion:
Now you can proficiently create and assign VLANs to network switches and connect to servers on a network.