IT115 – NETWORKING

NOTES for 3RD WEEK
(a short guide for activity 3&4)

Legacy Inter-VLAN Routing

- Same process and commands used with Router-on-a-Stick Inter-VLAN Routing. However, in Legacy we don't do trunklinking.

Router-on-a-Stick Inter-VLAN Routing

Here are the process and commands for Router-on-a-Stick Inter-VLAN Routing:

VLAN CONFIG. (CLI)
>en
>config t
>vlan (indicate to which vlan belong to ex. Vlan 10)
>name (indicate the name of vlan ex. name ICTO)
>exit
>int range fa0/1-10
>switchport mode access
>switchport access vlan 10
>exit
>sh vlan br

Take Note:

- Do same thing to other VLANs if there are any (ex. vlan 10, 20, 30)
- To check exit all and use the parameter "sh vlan br" in here you will see if the VLANs are grouped and created. Same thing will be done to check if the ports are grouped to their vlans.
- Next is to group the ports to their VLANs
- For int range just enter the range of the port you'll be using for a vlan. Do the same process if there's any.

HOW TO DO TRUNKLINK
>en
>config t
>int g0/1
>switchport mode tr
>switchport tr native vlan 99
>exit
>sh vlan br
>sh int tr

Take Note:

- The cable that is being used in trunk link is a crossover
- There will be 2 usable ports here w/c are g0/1-2
- The same process will be done on the other switch/es, there would be an error so better yet do native vlan 99 when configuring the switch.

INTER VLAN ROUTING
(Done in Router – CLI)
>en
>sh ip int br
>config t
>int fa0/0.10
>encapsulation dot1q 10
>ip address (enter ip address + subnet ex. ip address 192.168.10.1 255.255.255.0)
>exit (do the same thing on other vlans if there are any)
>int fa0/0
>no shutdown
>exit
>exit
>sh ip int br
(Done in Switch to where the router is connected)

- do trunklinking

>en
>config t
>int fa0/3 (please check to what port it is connected)
>switchport mode tr
>switchport tr native vlan 99
>exit
>exit

Take Note:

- same process will be done if there are 2 or more to configure
- always check the connection whether connected on fa0/1, fa0/8, g0/2
- when inside global configuration (config t) and you want to check whether you're done configuring just type "do sh int acc/tr
- Can do 'no shutdown' command even before configuration

Privilege mode – gives you access in the configuration in CLI the command used is 'enable' or simple type 'en'(**Switch>en**)

Global Configuration Mode – allows you to change configuration in the switch. The command used is 'configuration termina' or simply type 'config t' (**Switch#config t**). Take note that you'll be able to do this after you enter privilege mode.

Show Vlan Brief – Is the command used to check the created vlans in a switch (**Switch#sh vlan br**)

Show interface trunk – is the command used to check if you successfully done trunklinking. (**Switch#sh int tr**)

Show ip interface brief – command used in checking the assigned ip addresses for each switch. This is done in the router (**Router#sh ip int br**)

Layer 3 Switch (Multi-Layer Switching)

To configure:

Sw(config)#int vlan (the group of the vlan either 10, 20, etch.)

Ip add (enter ip and subnet)

Repeat process if you have more than one vlans

Back to global config mode

Sw(config)#ip routing

Spanning Tree Protocol

CISCO switches run per VLAN spanning tree have the ability to set spanning tree on every VLAN.

Configuring STP:

Electing the Root Bridge

- CBTSW1
  - En
  - Sh span
  - Sh spanning-tree

Go to global config mode

- CBTSW1 >config t
  - >spa
  - >spanning-tree
  - >spanning-tree vlan 1
  - >spanning-tree vlan 1 root

In electing the root bridge, it has primary and secondary. So, instead typing root do:

- >spanning-tree vlan 1 pr
- >spanning-tree vlan 1 root primary

Go back to privilege mode

- >^2
- >Sh span
- >Sh spanning-tree

Hello-time in Spanning-tree

- >config t
- >span
- >spanning-tree vlan 1
- >spanning-tree vlan 1 hello-time

Change the priority

- CBTSW1 (config)>int fa0/11
  - >spa
  - >spanning-tree
  - >spanning-tree cost 1
  - >span
  - >spanning-tree priority-port

Cost and Priority Difference

Cost – how the switch finds the best way to the root bridge.
Priority – in spanning tree if you have two switched the lower port value is greater than higher port values.

In spanning tree lower is greater than higher in terms of:

- BPDU
- Root bridge election
- Cost
- Priority

Port Aggregation Protocol (PAgP)

- int range go/1-2
- swi mode tr
- channel group ?
  this will show you the group number that available
- channel group 1
- channel group 1 mode ?
  two modes will be shown which are auto and desirable
- channel group 1 mode auto
- end
  do the same process to the other switch that is connected to the first switch you've configured just change the mode to desirable since auto was first selected.

Link Aggregation Control Protocol (LACP)

- int range go/1-2
- swi mode tr
- channel group ?
  this will show you the group number that available
- channel group 2
- channel group 2 mode ?
  two modes will be shown which are active and passive
- channel group 1 mode active
- end
- do the same process to the switch that is connecting all the switches (the middle switch) you've configured just change the mode to passive since active was first selected.
  To verify use the command
- sh etherchannel summary.

This process is done when there are two ethernet connections and you want to use both connection at the same time without blocking the other ports.