CCNA SRWE Lab 2 Homework Deadline: 8.2.2021

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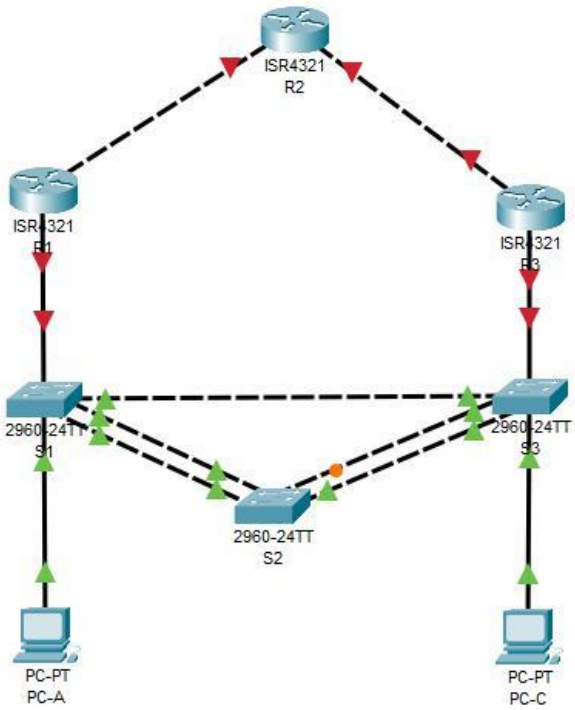
Spanning Tree Protocols

EtherChannel

HSRP Redundancy



NP Course NP Chapter 9

SRWE Modules 5 - 9:

Redundant Network Exam

Available and Reliable Networks Exam

Upload

Record your answers in this PDF File.

Write your answers in **red color**. You may use the comment capabilities of the free Adobe reader.

Upload the PDF file with your answers is Ilias.

Homework / Preparation

Part 1: Cisco IOS Basic Configuration Commands

a. Work through SWRE chapters 5 – 9, and NP chapter 9

b. Read the **Lab Instructions** of this Lab

c. Check the **IOS Command List**, provided for the Labs and Review already used and new configuration commands.

Part 2: Cisco IOS PVST+ and Rapid PVST+

a. What is the maximum default time for switch-over to redundant Ethernet links when using legacy IEEE 802.1D-1998 STP (PVST+)?
30 seconds

b. Set a switch to primary root for VLAN 10.

```
S1(config)# spanning-tree vlan 10 root primary
```

c. Enable Rapid PVST+ on a switch.

```
S1(config)# spanning-tree mode rapid-pvst
```

d. Sets PortFast mode and BPDUGuard on access port f0/1?

```
S1(config)# int f0/1
S1(config-if)# spanning-tree portfast
S1(config-if)# spanning-tree bpduguard enable
```

Part 3: EtherChannel

a. Which requirements must be fulfilled to form an EtherChannel?
A link aggregation technology is needed that permits redundant links between devices is known as EtherChannel.
EtherChannel is a link aggregation technology that groups multiple physical Ethernet links together into one single logical link. (reference from module 6.1.1)

b. What could prevent successful EtherChannel configuration?
Interface types cannot be mixed and the individual EtherChannel group member port configuration must be consistent on both devices. (reference from module 6.1.4)

c. Create an EtherChannel channel-group 2 (Po2), mode active, for the interface range f0/1 – f0/2.

```
S1(config)# interface range f0/1-f0/2
S1(config-if-range)# channel-group 2 mode active (passive)
```

d. Configure the EtherChannel interface port-channel 2 (Po2) as trunk, with Native VLAN 99, and allowed VLANs are 1, 100, 99.

```
S1(config)# interface range f0/1-f0/2
S1(config-if)# interface port-channel 2
S1(config-if)# switchport mode trunk
S1(config-if)# switchport trunk native vlan 99
S1(config-if)# switchport trunk allowed vlan 1,100,99
S1(config-if)# exit
```

Part 4: FHRP and HSRP

a. What makes it that critical, not to use only one router for the default gateway operation in a network?

A mechanism is needed to provide alternate default gateways in switched networks where two or more routers are connected to the same VLANs. That mechanism is provided by first hop redundancy protocols (FHRPs). In a switched network, each client receives only one default gateway. There is no way to use a secondary gateway, even if a second path exists to carry packets off the local segment. For example, if R1 is responsible for routing packets from PC1 and If R1 becomes unavailable, the routing protocols can dynamically converge to R2. R2 now routes packets from outside networks that would have gone through R1. (from module 9.1.1)

Describe the following functions in FHRP. **(from references)**

Virtual Router: **A wireless router implemented in software in a computer with wired Internet access and Wi-Fi capability.**

Virtual IP address: **A virtual IP address (VIP or VIPA) is an IP address that doesn't correspond to an actual physical network interface.**

Virtual MAC address: **The Virtual MAC address allows the High Availability pair to share the same MAC address, which dramatically reduces convergence time following a failover.**

Active Router: **The Active router is responsible for forwarding the traffic. If it fails, the Standby router takes up all the responsibilities of the active router and forwards the traffic.**

Standby Router: **The Standby router takes up all the responsibilities of the active router and forwards the traffic.**

b. Create a virtual router with HSRP on router R1 (interface g0/1) and R2 (interface f0/3). Virtual IP address is 172.16.10.200 / 24. R1 is active router with priority 150. R2 is passive router.

```
R1(config)# int g0/1
R1(config-if)# standby 1 ip 172.16.10.200
R1(config-if)# standby 1 priority 150
R1(config-if)# standby 1 preempt
R2(config)# int g0/3
R2(config-if)# standby 1 ip  172.16.10.200
```

c. What is the difference of HSRP and GLBP?

The main difference is that GLBP allows the load balancing of traffic among the master and standby routers while in HSRP (and VRRP) the standby routers do not help handle traffic. With GLBP, the single virtual IP address is associated with one virtual MAC address per GLBP member. (reference)