

Lab Final – Group A

1. Use Cisco Packet Tracer to configure the topology.
2. Use the following IP addressing. Any Point-to-Point connections (L3), use /30.

LA office, use 10.64.0.0/10.

Each VTP domain, use /17

SD office, use 172.20.0.0/17.

SF office, use 172.22.128.0/17.

NY office, use 192.168.0.0/17.

3. Configure VLANs.

Core_3650_1 and Core_3650_2:

VLAN 99: Management and Native, /24

VLAN 15: WLC and AP, /24

VLAN 16: VoIP Server, /24

VLAN 110: Servers, /23

VLAN 112: IT, /23

VLAN 114: Admins, /23

VLAN 116: VoIP Phones, /23

VLAN 120: Students, /21

VLAN 122: Wireless (SSID: staff-xx, xx is the VTP domain name.), /22

VLAN 144: Wireless (SSID: students-xx, xx is the VTP domain name.), /21

NY:

VLAN 1: Management and Native, /24

VLAN 15: WLC and AP, /24

VLAN 16: VoIP Server, /24

VLAN 110: Servers, /23

VLAN 114: Admins, /23

VLAN 116: VoIP Phones, /23

VLAN 120: Students, /21

VLAN 122: Wireless (SSID: staff-xx, xx is the VTP domain name.), /22

VLAN 144: Wireless (SSID: students-xx, xx is the VTP domain name.), /21

Others:

VLAN 99: Management and Native, /24

VLAN 15: WLC and AP, /24

VLAN 114: Admins, /23

VLAN 116: VoIP Phones, /23

VLAN 120: Students, /21

VLAN 122: Wireless (SSID: staff-xx, xx is the VTP domain name.), /22

VLAN 144: Wireless (SSID: students-xx, xx is the VTP domain name.), /21

DMZ:

VLAN 99: Management and Native, /24

VLAN 110: Servers, /23

4. Configure VTP as specified in the topology.
5. Configure EtherChannel (LACP) according to the topology.

6. Configure inter-VLAN routing on 3650 switches according to the topology.
7. Configure HSRP (IPv4 only):
 - Between Core_3650_1 and Core_3650_2 for each VLAN. Active router: Core_3650_1
 - Between Core_3650_3 and Core_3650_4 for each VLAN. Active router: Core_3650_3
 - Between Core_3650_5 and Core_3650_6 for each VLAN. Active router: Core_3650_5
 - Between Core_3650_7 and Core_3650_8 for each VLAN. Active router: Core_3650_7
 - Between SD_3650_1 and SD_3650_2 for each VLAN. Active router: SD_3650_1
 - Between SF_3650_1 and SF_3650_2 for each VLAN. Active router: SD_3650_1
 - Between FW_2911_1 and FW_2911_2. Active router: FW_2911_1
8. Configure STP.
 - STP Root Primary for all configured VLANs:
Core_3650_1
Core_3650_3
Core_3650_5
Core_3650_7
SD_3650_1
SF_3650_1
NY_3650_1
 - STP Root Secondary for all configured VLANs:
Core_3650_2
Core_3650_4
Core_3650_6
Core_3650_8
SD_3650_2
SF_3650_2
9. Configure NAT for computers and other devices.
10. Configure static routes only (public networks only) on LA_Internet_2911, LA_ISP_2911, and NY_ISP_2911.
11. Configure EIGRP in LA, SD, and SF, static routes only in NY. Disable the unnecessary EIGRP updates to VLANs.
12. You will configure **FW_2911_1** and **FW_2911_2** to simulate Fail-Over between two devices. **FW_2911_1** is an active router and **FW_2911_2** is a standby router. All the traffic will be routed through **FW_2911_1**. When **FW_2911_1** fails, all the traffic will be routed through **FW_2911_2**. Since **FW_2911_2** has two Internet connections, use a floating static route. You can shutdown **FW_2911_1** to test the fail-over. Use the **traceroute** command see the path to Internet.
13. Configure IPv4 and gateway on L2 switches.
14. Configure DHCP for VoIP Phones, Students, and Wireless VLANs only, according to the topology.
15. Connect devices to each VLAN on VTP clients.
Management VLAN: no devices, L2 switches only.
WLC and AP VLAN: one WLC and one AP per VTP domain
VoIP Server VLAN: one 2811 router
Servers VLAN: connect one server.
IT VLAN: connect one PC.

Admins VLAN: connect one PC.

VoIP Phones VLAN: connect one 7960 IP phone.

Students VLAN: connect one PC.

Wireless (staff-xx) VLAN: Connect a laptop with a wireless adapter. SSID: staff-xx

Wireless (students-xx) VLAN: Connect a laptop with a wireless adapter. SSID: students-xx

***xx is the VTP domain name.

***Laptops should be connected to the AP in the same VTP domain.

16. Configure VoIP server (2811 router) and IP phones.

***West (DN: 1000 – 1999) and East (2000 – 2999)

17. Configure the servers.

18. Label each L3 interface with interface name, IP address and prefix.

19. Label each PC, laptop, and L2 switch with IP address, prefix, default gateway and DNS IP address. The devices using a dynamic IP, label it as "Dynamic IP"; no need to label DG and DNS IP.

20. Test connectivity.