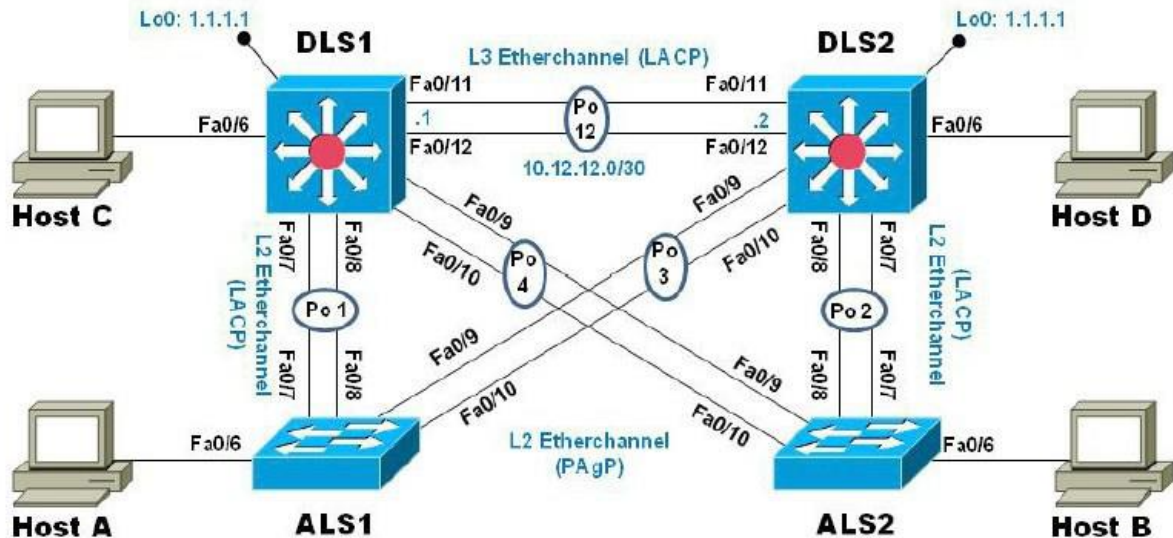


Etude de cas

Topology



Objectifs :

Part1 : construire la topologie sous GNS3

Part2 : Configurez les commutateurs dans la topologie selon le diagramme et les spécifications fournies.

Part3 : Testez le réseau pour la connectivité et les options configurées.

Part4 : Publiez vos travaux dans dans GNS3

Note :

This lab uses Cisco Catalyst 3560 and 2960 switches running Cisco IOS 15.0(2)SE6 IP Services and

LAN Base images, respectively. The 3560 and 2960 switches are configured with the SDM templates “dualipv4-and-ipv6 routing” and “lanbase-routing”, respectively. Depending on the switch model and Cisco IOS

Software version, the commands available and output produced might vary from what is shown in this lab.

Catalyst 3650 switches (running any Cisco IOS XE release) and Catalyst 2960-Plus switches (running any

comparable Cisco IOS image) can be used in place of the Catalyst 3560 switches and the Catalyst 2960 switches...

Required Resources :

2 switches (Cisco 2960 with the Cisco IOS Release 15.0(2)SE6 C2960-LANBASEK9-M image or comparable).

2 switches (Cisco 3560 with the Cisco IOS Release 15.0(2)SE6 C3560-IPSERVICESK9-M image or comparable).

Ethernet and console cables.

4 PCs with Windows OS to emulate with wmvare or virtualbox

1. PC C (Connected to DLS1) additionally requires the following software:

1. Zabbix server

2. TFTP32.

3. WinRadius or Tacas server

Part 1 : Build the Physical Network (Optional).

Connect all devices as shown in the topology. You must use the interfaces specified in diagram, if possible. Clear all previous configurations.

Part 2 : Configure the network according to specifications

1.a. Shutdown all interfaces on each switch.

1.b. Configure each switch with a hostname and the enable secret **class** .

1.c. Configure trunks and port-channels as shown in the diagram. Issue the **no shut** command as you go.

1.c.1) The connection between DLS1 and DLS2 will be a layer-3 EtherChannel using LACP. DLS1 will use the IP address 10.12.12.1/30 and DLS2 will use 10.12.12.2/30.

1.c.2) The Port-channels on interfaces fa0/7 and fa0/8 will use LACP.

1.c.3) The Port-channels on interfaces fa0/9 and fa0/10 will use PagP.

1.c.4) All trunks will use VLAN 800 as the native VLAN.

1.d. Configure DLS1, ALS1, and ALS2 to use VTP version 3.

1.d.1) Use the domain name **SWITCHSBA** with the password **!ssalc** .

1.d.2) Configure DLS1 as the primary server for VLANs,

1.d.3) Configure ALS1 and ALS2 as VTP clients.

1.e. On the primary VLAN server create and name the following VLANs:

VLAN Number	Vlan Name	Vlan Number	Vlan Name
800	Native	434	Parking
12	Executives	123	Cubes
234	Guest	1010	Voice
1111	VideoNet	3456	Management

1.f. On DLS1, suspend VLAN 434.

1.g. Configure DLS2 to be a VTP Transparent mode switch using VTP version 2, then locally configure the same VLANs and VLAN names. Suspend VLAN 434.

1.h. On DLS2, create VLAN 567 and name it ACCOUNTING. The Accounting VLAN will not be configured or available on any other switch in the network.

1.i. Configure DLS1 as the spanning tree root for VLANs 1, 12, 434, 800, 1010, 1111, and 3456 and as a secondary root for VLANs 123 and 234.

1.j. Configure DLS2 as the spanning tree root for VLANs 123 and 234 and as a secondary root for VLANs 12, 434, 800, 1010, 1111, and 3456.

1.k. Configure all trunks so that, with the exception of VLANs 1, 434 and 567, only the VLANs that have been created are allowed to cross the trunk.

1.l. Assign interfaces as access ports to VLANs as follows :

	DLS1	DLS2	ALS1	ALS2
Interface Fa0/6	3456	12 /voice 1010	123 /voice 1010	234
Interface fa0/15	1111	1111	1111	1111
Interface fa0/16-18		567		

m. All unused interfaces will be assigned to the parking lot VLAN and shut down.

1.m. Configure SVIs on DLS1 and DLS2 in support of all of the VLANs and inter-VLAN routing. Use the following table for subnet assignments :

VLAN	Vlan Name	Subnet	Vlan	Vlan Name	Subnet
12	Executives	10.0.12.0/24	123	Cubes	10.0.123.0/24
234	Guest	10.0.234.0/24	1010	Voice	10.10.10.0/24
1111	VideoNet	10.11.11.0/24	3456	Management	10.34.56.0/24

DLS1 will always use the .252 address and DLS2 will always use the .253 address for IPv4 addresses. VLAN 567 on DLS2 will NOT be supported by routing.

Use 10.34.56.101 as the management address on ALS1 and 10.34.56.102 on ALS2.

1.n. Configure an interface Loopback 0 on both DLS1 and DLS2. This interface will be addressed 1.1.1.1/32 on both switches.

1.o. Configure HSRP with interface tracking for VLANs 12, 123, 234, 1010, and 1111.

1.o.1) Use HSRP version 2.

1.o.2) Create two HSRP groups, aligning VLAN 12, 1010, 1111, and 3456 to the first group and 123 and 234 to the second group.

1.o.3) DLS1 will be the primary switch for VLANs 12, 1010, 1111, and 3456; DLS2 will be the primary switch for VLANs 123 and 234.

1.o.4) Configure all groups with preemption. Further configure priority to ensure that the primary switch takes over upon recovery.

1.o.5) Use the virtual address .254 as the standby address for all VLANs.

1.o.6) Configure interface tracking so that each group tracks the local interface Loopback 0 interface.

1.p. Set the correct UTC time, configure DLS1 as an NTP server and then set the correct time zone.

1.q. Configure DLS2, ALS1, and ALS2 to use the Management network to synchronize time with the NTP server.

1.r. Configure HOST C with a static IP address of 10.34.56.50/24 and a default-gateway of 10.34.56.254.

1.s. Configure all four switches to use AAA to authenticate VTY lines 0 through 4. The RADIUS server is on HOST C (10.34.56.50) and uses WinRadius with a shared secret key of WinRadius. Ensure aaa newmodel is configured. Further ensure that there is a fallback account configured should the RADIUS server not be available.

1.s.1) AAA Account: studentaaa password cisco123 .

1.s.2) Local Fallback Account: lastditch password 321ocsic .

1.t. Configure all four switches to use SNMP version 3.

1.t.1) The SNMP Server is HOST C at 10.34.56.50.

1.t.2) SNMP v3 will use PRIV with AES 128 and AUTH with SHA.

1.t.3) The community string will be switch-sba .

1.t.4) The secret key will be cisco123 .

1.t.5) The username will be sbastudent and password will be cisco123 .

Note : if you don't want to use Windradius, go to the gns3 marketplace and find the appliance named tacas GUI and use it.

1.u. Configure DLS1 to be a DHCP server for VLANs 12, 123, and 234.

1.u.1) Exclude the addresses .251-.254 in each subnet.

1.u.2) Set the DNS server to 1.1.1.1 for all three pools.

1.u.3) Set the default router to the HSRP virtual address for each VLAN.

1.v. Obtain IPv4 addresses on Hosts A, B, and D via DHCP.

Part 3: Test network connectivity and configured options.

1.a. Create a Tcl script to test connectivity from each distribution layer switch to the addresses you assigned in the topology.

1.b. What is the show command used to verify that the correct VLANs exist on all switches and contain the correct ports ?

1.c. What is the show command used to verify that the EtherChannel between DLS1 and ALS1 is configured correctly?

1.d. What is the show command used to verify the spanning-tree configuration and root bridge (DLS1 or DLS2) for each VLAN?

1.e. What is the show command used to verify that the correct SVIs exist and that the correct HSRP routers are primary and standby for each VLAN?

1.f. Verify that NTP is working. DLS2, ALS1 and ALS2 should have NTP sync with DLS1.

1.g. Verify that AAA is working. From HOST C, telnet to each switch and login using the **studentaaa** account.

1.h. Verify that SNMPv3 is working. From HOST C, use Zabbix to do a GET of the OID .

1.3.6.1.2.1.2.2 (the interface table). from each switch. Run Trap Viewer and enter then exit configuration mode on each switch. You should see traps received in the viewer window.

1.i. Verify that HSRP is working. From HOST A, start a continuous ping to 1.1.1.1. Then go to DLS2 and shutdown interface loopback 0. When this occurs, DLS2's interface tracking should fail, causing it to demote itself from being the virtual gateway for VLAN 123. DLS1 will take over, and the still-running ping should show only minor packet loss.