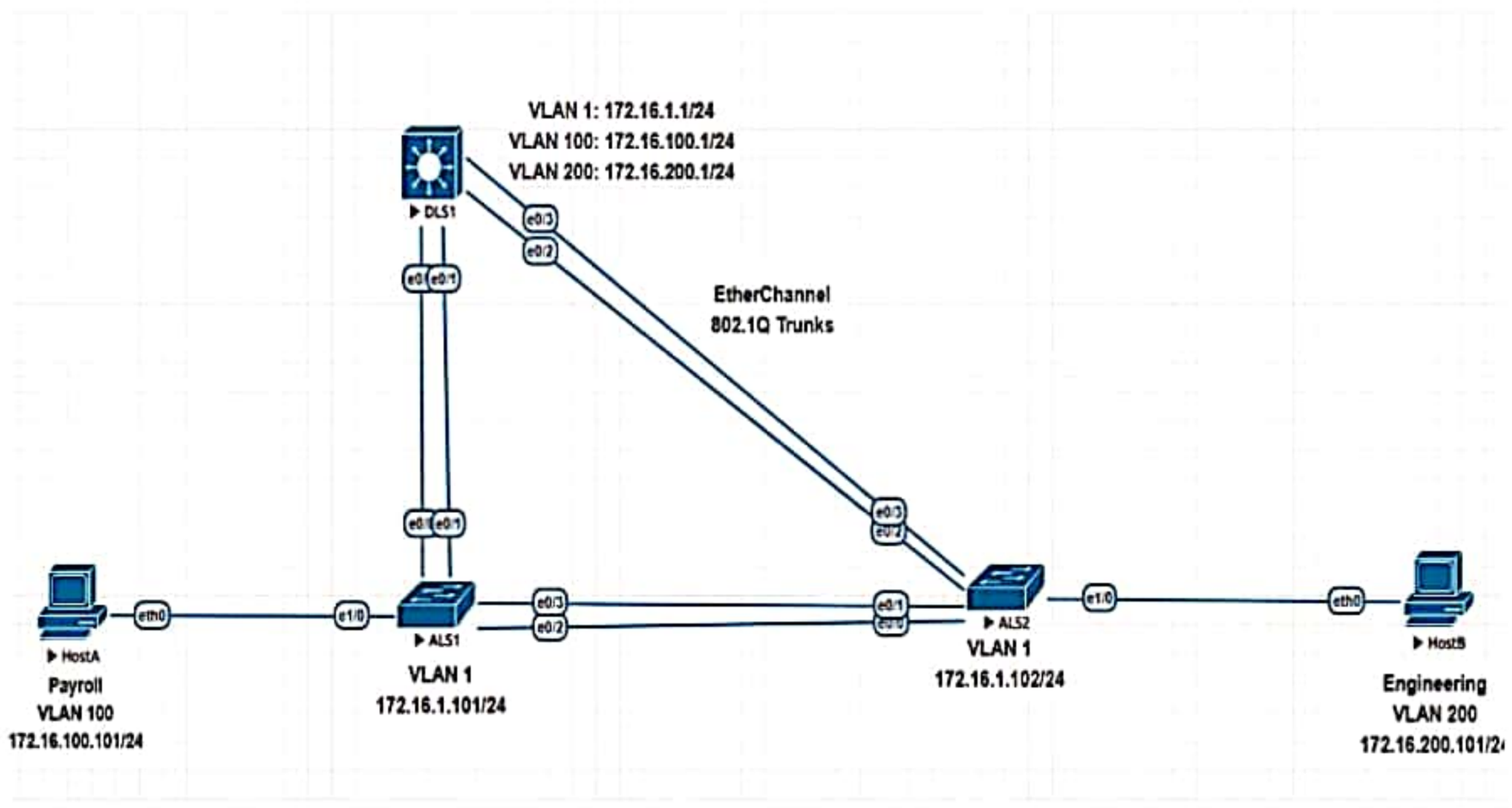
Practical 6

NETWORK TOPOLOGY



DLS1 Switch>en
Switch#conf t
Switch(config)#hostname DLS1
DLS1(config)#interface vlan 1
DLS1(config-if)#ip address 172.16.1.1 255.255.255.0
DLS1(config-if)#no shutdown
DLS1(config-if)#exit Configure the trunks and EtherChannel from DLS1 to ALS1. DLS1(config)#interface range e0/0-1
DLS1(config-if-range)#switchport trunk encapsulation dot1q
DLS1(config-if-range)#switchport mode trunk
DLS1(config-if-range)#channel-group 1 mode desirable Creating a port-channel interface Port-channel 1
DLS1(config-if-range)#exit Configure the trunks and EtherChannel from DLS1 to ALS2. DLS1(config)#interface range e0/2-3
DLS1(config-if-range)#switchport trunk encapsulation dot1q
DLS1(config-if-range)#switchport mode trunk
DLS1(config-if-range)#channel-group 2 mode desirable Creating a port-channel interface Port-channel 2
DLS1(config-if-range)#exit Configure VTP on DLS1 and create VLANs 100 and 200 for the domain DLS1(config)#vtp domain SWPOD Changing VTP domain name from NULL to SWPOD DLS1(config)#vtp version 2
DLS1(config)#vlan 100

DLS1(config-vlan)#name Payroll
DLS1(config-vlan)#exit
DLS1(config)#vlan 200
DLS1(config-vlan)#name Engineering
DLS1(config-vlan)#exit On DLS1, create the SVIs for VLANs 100 and 200. Note that the corresponding Layer 2 VLANs must be configured for the Layer 3 SVIs to activate DLS1(config)#interface vlan 100
DLS1(config-if)#ip address 172.16.100.1 255.255.255.0
DLS1(config-if)#no shutdown
DLS1(config-if)#exit
DLS1(config)#interface vlan 200
DLS1(config-if)#ip address 172.16.200.1 255.255.255.0
DLS1(config-if)#no shutdown
DLS1(config-if)#exit The ip routing command is also needed to allow the DLS1 switch to act as a Layer 3 device to route between these VLANs. Because the VLANs are all considered directly connected, a routing protocol is not needed at this time. The default configuration on 3560 switches is no ip routing.
DLS1(config)#ip routing
DLS1#sh ip route Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2 E1 - OSPF external type 1, E2 - OSPF external type 2 i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2 ia - IS-IS inter area, * - candidate default, U - per-user static route o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP a - application route + - replicated route, % - next hop override
Gateway of last resort is not set
172.16.0.0/16 is variably subnetted, 6 subnets, 2 masks
C 172.16.1.0/24 is directly connected, Vlan1
L 172.16.1.1/32 is directly connected, Vlan1
C 172.16.100.0/24 is directly connected, Vlan100
L 172.16.100.1/32 is directly connected, Vlan100
C 172.16.200.0/24 is directly connected, Vlan200
L 172.16.200.1/32 is directly connected, Vlan200
Configure the Cisco IOS IP SLA source to measure network performance
DLS1(config)#ip sla 1
DLS1(config-ip-sla)#icmp-echo 172.16.100.101
DLS1(config-ip-sla-echo)#exit
DLS1(config)#ip sla 2
DLS1(config-ip-sla)#icmp-echo 172.16.200.101

DLS1(config-ip-sla-echo)#exit
DLS1(config)#ip sla 3
DLS1(config-ip-sla)#udp-jitter 172.16.1.101 5000
DLS1(config-ip-sla-jitter)#exi
t DLS1(config)#ip sla 4
DLS1(config-ip-sla)#udp-jitter 172.16.1.102 5000
DLS1(config-ip-sla-jitter)#exit
DLS1(config)#ip sla schedule 1 life forever start-time now
DLS1(config)#ip sla schedule 2 life forever start-time now
DLS1(config)#ip sla schedule 3 life forever start-time now
DLS1(config)#ip sla schedule 4 life forever start-time now Monitor IP SLAs operations
DLS1#show ip sla configuration 1
IP SLAs Infrastructure Engine-III Entry number: 1 Owner: Tag: Operation timeout (milliseconds): 5000 Type of operation to perform: icmp-echo Target address/Source address: 172.16.100.101/0.0.0.0 Type Of Service parameter: 0x0 Request size (ARR data portion): 28 Data pattern: 0xABCDABCD Verify data: No Vrf Name: Schedule: Operation frequency (seconds): 60 (not considered if randomly scheduled)
Next Scheduled Start Time: Start Time already passed Group Scheduled : FALSE Randomly Scheduled : FALSE Life (seconds): Forever Entry Ageout (seconds): never
Recurring (Starting Everyday): FALSE Status of entry (SNMP RowStatus):
Active Threshold (milliseconds): 5000
Distribution Statistics:
Number of statistic hours kept: 2
Number of statistic distribution buckets kept: 1
Statistic distribution interval (milliseconds): 20 E
nhanced History: History Statistics:
Number of history Lives kept: 0
Number of history Buckets kept: 15
History Filter Type: None
DLS1#show ip sla configuration 3 IP SLAs Infrastructure Engine-III
Entry number: 3
Owner: Tag: Operation timeout (milliseconds): 5000
Type of operation to perform: udp-jitter
Target address/Source address: 172.16.1.101/0.0.0.0 Target port/Source port: 5000/0
Type Of Service parameter: 0x0
Request size (ARR data portion): 32

Packet Interval (milliseconds)/Number of packets: 20/10 Verify data:
No Vrf Name: Control Packets: enabled Schedule:
Operation frequency (seconds): 60 (not considered if randomly scheduled)
Next Scheduled Start Time: Start Time already passed Group Scheduled :
FALSE Randomly Scheduled : FALSE Life (seconds): Forever Entry Ageout
(seconds): never
Recurring (Starting Everyday): FALSE Status of entry (SNMP RowStatus):
Active Threshold (milliseconds): 5000 Distribution Statistics:
Number of statistic hours kept: 2
Number of statistic distribution buckets kept: 1 Statistic distribution interval
(milliseconds): 20 Enhanced History: Percentile:
DLS1#show ip sla application IP Service Level Agreements Version: Round
Trip Time MIB 2.2.0, Infrastructure Engine-III
Supported Operation Types: icmpEcho, path-echo, path-jitter, udpEcho,
tcpConnect, http dns, udpJitter, dhcp, ftp, lsp Group, lspPing, lspTrace
pseudowirePing, udpApp, wspApp, mcast, generic Supported Features:
IPSLAs Event Publisher IP SLAs low memory water mark: 225778552
Estimated system max number of entries: 165365
Estimated number of configurable operations: 165241 Number of Entries
configured : 4 Number of active Entries : 4
Number of pending Entries : 0
Number of inactive Entries : 0 Time of last change in whole IP SLAs:
*14:08:46.139 EET Sat Apr 11 2020 DLS1#show ip sla statistics 1 IPSLAs
Latest Operation Statistics IPSLA operation id: 1 Latest RTT: 1 milliseconds
Latest operation start time: 14:34:23 EET Sat Apr 11 2020
Latest operation return code: OK
Number of successes: 26
Number of failures: 1 Operation time to live: Forever
DLS1#show ip sla statistics 3 IPSLAs Latest Operation Statistics IPSLA
operation id: 3 Type of operation: udp-jitter Latest RTT: 1 milliseconds Latest
operation start time: 14:34:36 EET Sat Apr 11 2020 Latest operation return
code: OK RTT Values: Number Of RTT: 10 RTT Min/Avg/Max: 1/1/2
milliseconds Latency one-way time
: Number of Latency one-way Samples: 6
Source to Destination Latency one way Min/Avg/Max: 0/0/1 milliseconds
Destination to Source Latency one way Min/Avg/Max: 0/0/1 milliseconds
Jitter Time:
Number of SD Jitter Samples: 9
Number of DS Jitter Samples: 9
Source to Destination Jitter Min/Avg/Max: 0/1/1 milliseconds

Destination to Source Jitter Min/Avg/Max: 0/1/1 milliseconds Over Threshold: Number Of RTT Over Threshold: 0 (0%) Packet Loss Values: Loss Source to Destination: 0
Source to Destination Loss Periods Number: 0 Source to Destination Loss Period Length Min/Max: 0/0 Source to Destination Inter Loss Period Length Min/Max: 0/0 Loss Destination to Source: 0 Destination to Source Loss Periods Number: 0
Destination to Source Loss Period Length Min/Max: 0/0
Destination to Source Inter Loss Period Length Min/Max: 0/0 Out Of Sequence: 0 Tail Drop: 0 Packet Late Arrival: 0 Packet Skipped: 0 Voice Score Values: Calculated Planning Impairment Factor (ICPIF): 0 Mean Opinion Score (MOS): 0 Number of successes: 27 Number of failures: 0 Operation time to live: Forever Configure Remote Span
DLS1(config)#vlan 100 DLS1(config-vlan)#remote-span
DLS1(config-vlan)#exi
t DLS1(config)#monitor session 1 source interface e0/0 both
DLS1(config)# monitor session 1 destination remote vlan 100 ALS1
Switch>en Switch#conf t
Switch(config)#hostname ALS1
ALS1(config)#interface vlan 1
ALS1(config-if)#ip address 172.16.1.101 255.255.255.0
ALS1(config-if)#no shutdown
ALS1(config-if)#exit
ALS1(config)#ip default-gateway 172.16.1.1
Configure the trunks and EtherChannel between ALS1 and DLS1
ALS1(config)#interface range e0/0-1
ALS1(config-if-range)# switchport trunk encapsulation dot1q
ALS1(config-if-range)#switchport mode trunk
ALS1(config-if-range)#channel-group 1 mode desirable Creating a port-channel interface Port-channel 1
ALS1(config-if-range)#exit
Configure the trunks and EtherChannel between ALS1 and ALS2
ALS1(config)#interface range e0/2-3
ALS1(config-if-range)#switchport trunk encapsulation dot1q
ALS1(config-if-range)#switchport mode trunk
ALS1(config-if-range)#channel-group 2 mode desirable Creating a port-channel interface Port-channel 2 Configure VTP on ALS1
ALS1(config)#vtp mode client Setting device to VTP Client mode for VLANS.
ALS1(config)#int e1/0
ALS1(config-if)#switchport mode access

ALS1(config-if)#switchport access vlan 100
ALS1(config-if)#exit Configure Cisco IOS IP SLA responders.
ALS1(config)#ip sla responder
ALS1(config)#ip sla responder udp-echo ipaddress 172.16.1.1 port 5000
ALS1#show ip sla responder General IP SLA Responder on Control port 1967
General IP SLA Responder on Control V2 port 1167 General IP SLA Responder
is: Enabled Number of control message received: 16
Number of errors: 0 Recent sources: 172.16.1.1 [14:23:36.259 EET Sat Apr 11
2020] 172.16.1.1 [14:22:36.257 EET Sat Apr 11 2020] 172.16.1.1 [14:21:36.255
EET Sat Apr 11 2020] 172.16.1.1 [14:20:36.256 EET Sat Apr 11 2020]
172.16.1.1 [14:19:36.258 EET Sat Apr 11 2020] Recent error sources:
Number of control v2 message received: 0
Number of errors: 0
Recent sources: Recent error sources:
Permanent Port IP SLA Responder Permanent Port IP SLA Responder is:
Enabled udpEcho Responder: IP Address Port 172.16.1.1 5000
ALS2 Switch>en Switch#conf t Enter configuration commands, one per line.
End with CNTL/Z. Switch(config)#hostname ALS2
ALS2(config)#interface vlan 1
ALS2(config-if)#ip address 172.16.1.102 255.255.255.0
ALS2(config-if)#no shutdown
ALS2(config-if)#exit
ALS2(config)#ip default-gateway 172.16.1.1 Configure the trunks and
EtherChannel between ALS2 and ALS1
ALS2(config)#interface range e0/0-1
ALS2(config-if-range)#switchport trunk encapsulation dot1q
ALS2(config-if-range)#switchport mode trunk
ALS2(config-if-range)#channel-group 2 mode desirable Creating a port-
channel interface Port-channel 2
ALS2(config-if-range)#exit Configure the trunks and EtherChannel between
ALS2 and DLS1 ALS2(config)#interface range e0/2-3
ALS2(config-if-range)#switchport trunk encapsulation dot1q
ALS2(config-if-range)#switchport mode trunk
ALS2(config-if-range)#channel-group 1 mode desirable Creating a port-
channel interface Port-channel 1
ALS2(config-if-range)#exit Configure VTP on ALS2
ALS2(config)#vtp mode
client Setting device to VTP Client mode for VLANS
ALS2(config)#int e1/0 ALS2(config-if)#switchport mode access
ALS2(config-if)#switchport access vlan 200

ALS2(config-if)#exit Configure Cisco IOS IP SLA responders.
ALS2(config)#ip sla responder
ALS2(config)#ip sla responder udp-echo ipaddress 172.16.1.1 port 5000