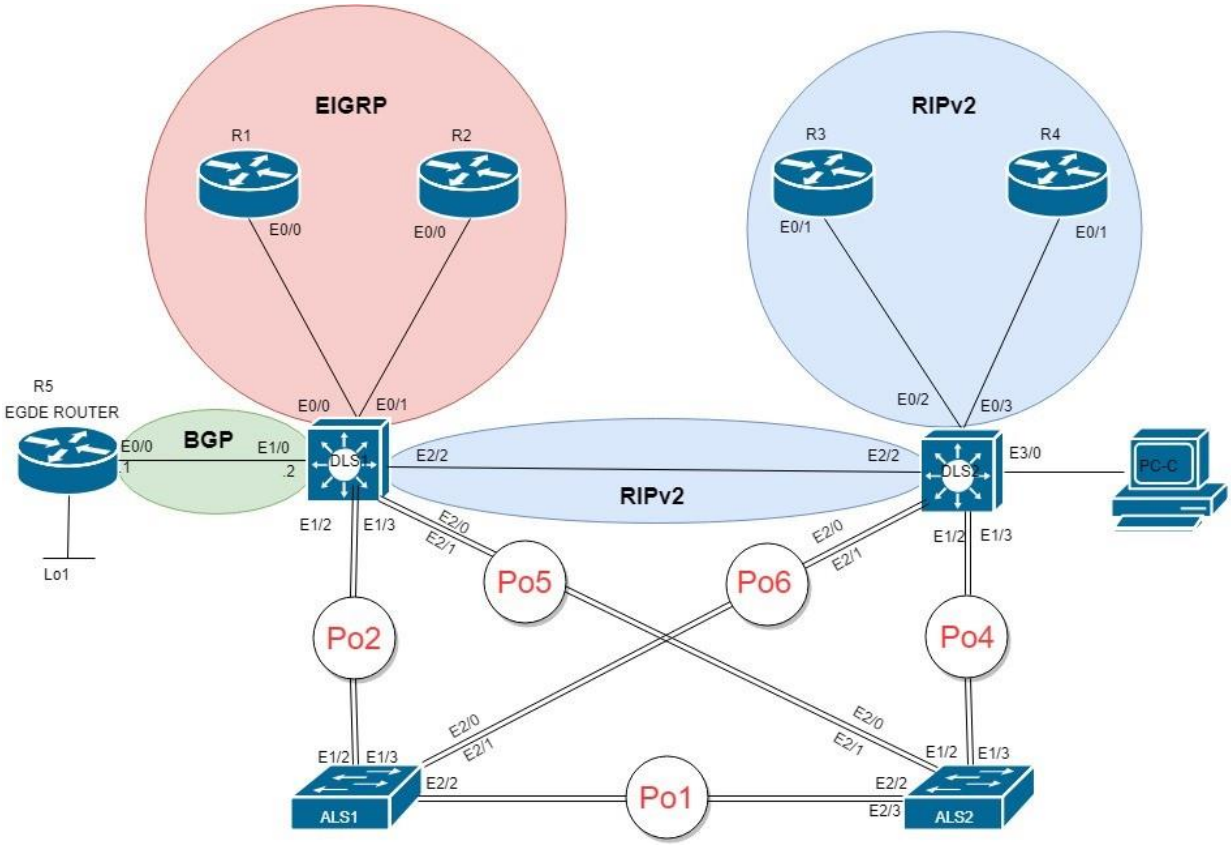
TSHOOT CASE STUDY

DOCUMENTATION

Rushi Patel
Yash Patel

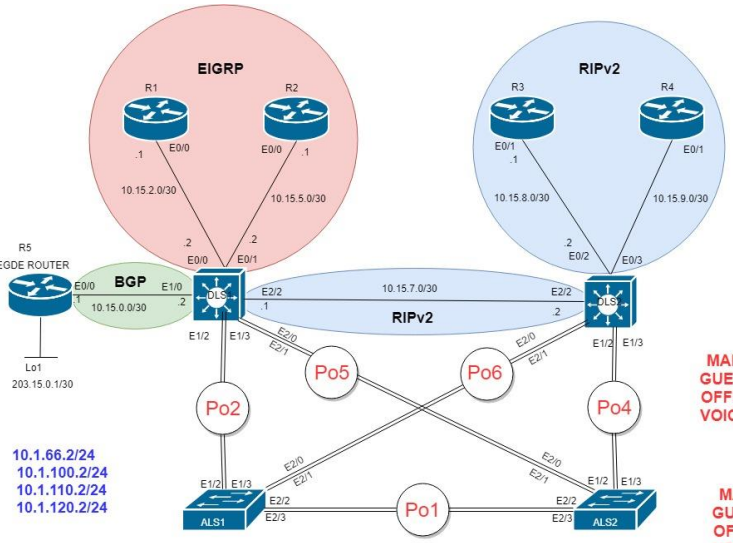
TABLE OF CONTENTS

1. Physical network diagram



2. Logical IPv4/IPv6 diagrams

IPv4:



DLS1

MANAGEMENT VLAN 66:	10.1.66.4/24
GUEST VLAN 100:	10.1.100.4/24
OFFICE VLAN 110:	10.1.110.4/24
VOICE VLAN 120:	10.1.120.4/24

DLS2

MANAGEMENT VLAN 66:	10.1.66.5/24
GUEST VLAN 100:	10.1.100.5/24
OFFICE VLAN 110:	10.1.110.5/24
VOICE VLAN 120:	10.1.120.5/24

ALS1

MANAGEMENT VLAN 66:	10.1.66.2/24
GUEST VLAN 100:	10.1.100.2/24
OFFICE VLAN 110:	10.1.110.2/24
VOICE VLAN 120:	10.1.120.2/24

ALS2

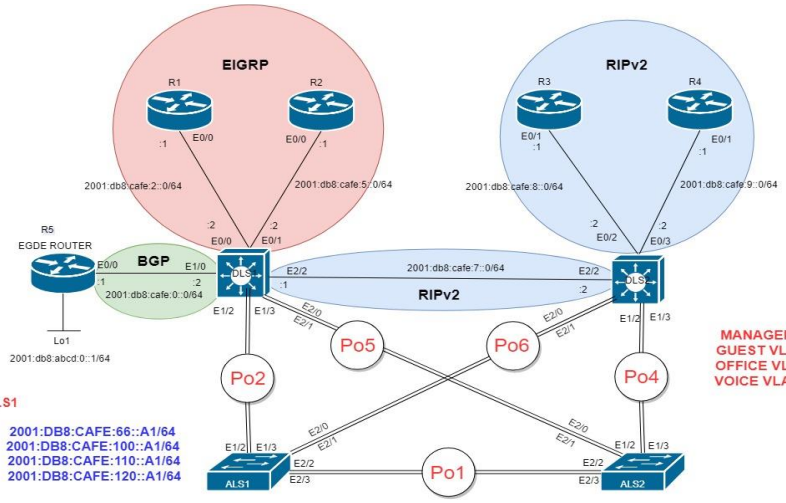
MANAGEMENT VLAN 66:	10.1.66.3/24
GUEST VLAN 100:	10.1.100.3/24
OFFICE VLAN 110:	10.1.110.3/24
VOICE VLAN 120:	10.1.120.3/24

DLS2 DHCP POOL

Office: 10.1.110.0/24, Default GW: 10.1.110.5
Voice: 10.1.120.0/24, Default GW: 10.1.120.5
Guest: 10.1.100.0/24, Default GW: 10.1.100.5

```
ip dhcp excluded-address 10.1.100.5
ip dhcp excluded-address 10.1.110.5
ip dhcp excluded-address 10.1.120.5
```

IPv6:



DLS1

MANAGEMENT VLAN 66:	2001:DB8:CAFE:66::D1/64
GUEST VLAN 100:	2001:DB8:CAFE:100::D1/64
OFFICE VLAN 110:	2001:DB8:CAFE:110::D1/64
VOICE VLAN 120:	2001:DB8:CAFE:120::D1/64

ALS1

MANAGEMENT VLAN 66:	2001:DB8:CAFE:66::A1/64
GUEST VLAN 100:	2001:DB8:CAFE:100::A1/64
OFFICE VLAN 110:	2001:DB8:CAFE:110::A1/64
VOICE VLAN 120:	2001:DB8:CAFE:120::A1/64

ALS2

MANAGEMENT VLAN 66:	2001:DB8:CAFE:66::A2/64
GUEST VLAN 100:	2001:DB8:CAFE:100::A2/64
OFFICE VLAN 110:	2001:DB8:CAFE:110::A2/64
VOICE VLAN 120:	2001:DB8:CAFE:120::A2/64

DLS2 DHCP POOL

Office: 2001:db8:cafe:110:D2::/80
Voice: 2001:db8:cafe:120:D2::/80
Guest: 2001:db8:cafe:100:D2::/80

DLS2

MANAGEMENT VLAN 66:	2001:DB8:CAFE:66::D2/64
GUEST VLAN 100:	2001:DB8:CAFE:100::D2/64
OFFICE VLAN 110:	2001:DB8:CAFE:110::D2/64
VOICE VLAN 120:	2001:DB8:CAFE:120::D2/64

3. Full and complete IP addressing table

Device	Interface	IPv4	IPv6
Router 1	E0/0	10.15.2.1/30	2001:DB8:CAFE:2::1/64 FE80::1 link-local
Router 2	E0/0	10.15.5.1/30	2001:DB8:CAFE:5::1/64 FE80::2 link-local
Router 3	E0/1	10.15.8.1/30	2001:DB8:CAFE:8::1/64 FE80::3 link-local
Router 4	E0/1	10.15.9.1/30	2001:DB8:CAFE:9::1/64 FE80::4 link-local
Router 5	E0/0	10.15.0.1/30	2001:DB8:CAFE:0::1/64 FE80::5 link-local
	Lo1	203.15.0.1	2001:DB8:ABCD:0::1/64 FE80::5 link-local
DLS1	E0/0	10.15.2.2/30	2001:DB8:CAFE:2::2/64 FE80::6 link-local
	E0/1	10.15.5.2/30	2001:DB8:CAFE:5::2/64 FE80::6 link-local
	E1/0	10.15.0.2/30	2001:DB8:CAFE:0::2/64 FE80::6 link-local
DLS2	E0/2	10.15.8.2/30	2001:DB8:CAFE:8::2/64 FE80::7 link-local
	E0/3	10.15.9.2/30	2001:DB8:CAFE:9::2/64 FE80::7 link-local

ALS1	Vlan 66	Management	10.1.66.2/24	FE80::A1 link local 2001:DB8:CAFE:66::A1/64
	Vlan 100	Guest	10.1.100.2/24	FE80::A1 link local 2001:DB8:CAFE:100::A1/64
	Vlan 110	Office	10.1.110.2/24	FE80::A1 link local 2001:DB8:CAFE:110::A1/64

	Vlan 120	Voice	10.1.120.2/24	FE80::A1 link local 2001:DB8:CAFE:120::A1/64
ALS2	Vlan 66	Management	10.1.66.3/24	FE80::A2 link local 2001:DB8:CAFE:66::A2/64
	Vlan 100	Guest	10.1.100.3/24	FE80::A2 link local 2001:DB8:CAFE:100::A2/64
	Vlan 110	Office	10.1.110.3/24	FE80::A2 link local 2001:DB8:CAFE:110::A2/64
	Vlan 120	Voice	10.1.120.3/24	FE80::A2 link local 2001:DB8:CAFE:120::A2/64
DLS1	Vlan 66	Management	10.1.66.4/24	FE80::D1 link local 2001:DB8:CAFE:66::D1/64
	Vlan 100	Guest	10.1.100.4/24	FE80::D1 link local 2001:DB8:CAFE:100::D1/64
	Vlan 110	Office	10.1.110.4/24	FE80::D1 link local 2001:DB8:CAFE:110::D1/64
	Vlan 120	Voice	10.1.120.4/24	FE80::D1 link local 2001:DB8:CAFE:120::D1/64
DLS2	Vlan 66	Management	10.1.66.5/24	FE80::D2 link local 2001:DB8:CAFE:66::D2/64
	Vlan 100	Guest	10.1.100.5/24	FE80::D2 link local 2001:DB8:CAFE:100::D2/64
	Vlan 110	Office	10.1.110.5/24	FE80::D2 link local 2001:DB8:CAFE:110::D2/64
	Vlan 120	Voice	10.1.120.5/24	FE80::D2 link local 2001:DB8:CAFE:120::D2/64

4. VLAN assignment table

VLAN Information Per Device			
Device	VLANS	VLAN NAME	Ports
DLS1	1	Default	E0/2, E0/3, E1/1, E2/3

	66	Management	
	99	Parking	
	100	Guest	
	110	Office	
	120	Voice	
	222	Native	
DLS2	1	Default	E0/0, E0/1, E1/0, E1/1, E2/3, E3/1, E3/1, E3/2, E3/3, E4/0, E4/1, E4/2, E4/3
	66	Management	
	99	Parking	
	100	Guest	
	110	Office	E3/0
	120	Voice	
	222	Native	
ALS1	1	Default	E0/0, Et0/1, E0/2, E0/3, E1/0, E1/1
	66	Management	
	99	Parking	
	100	Guest	
	110	Office	

	120	Voice	
	222	Native	
ALS2	1	Default	E0/0, Et0/1, E0/2, E0/3, E1/0, E1/1
	66	Management	
	99	Parking	
	100	Guest	
	110	Office	
	120	Voice	
	222	Native	

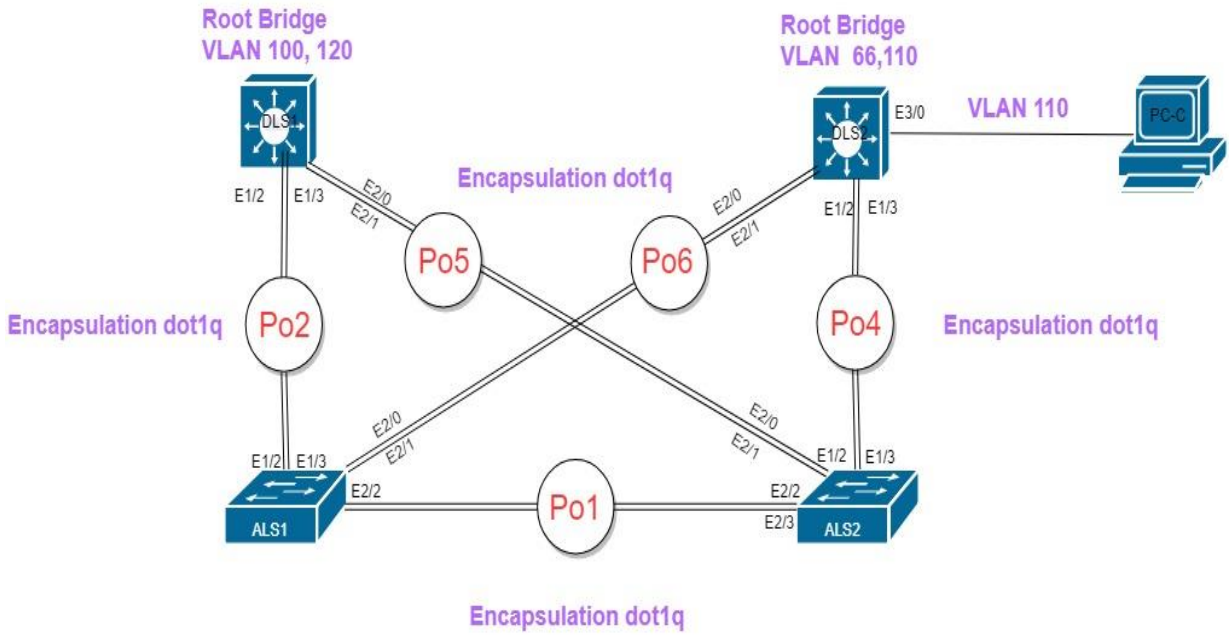
Trunking Information Per Device				
Devices	Port Channels	Vlans allowed on trunk	Vlans allowed and active in management domain	Vlans in spanning tree forwarding state
DLS1	Po2	66, 110 ,120, 200	66, 110 ,120, 200	66, 110 ,120, 200
	Po5	66, 110 ,120, 200	66, 110 ,120, 200	66, 110
DLS2	Po4	66, 110 ,120, 200	66, 110 ,120, 200	100, 120
	Po6	66, 110 ,120, 200	66, 110 ,120, 200	66, 110 ,120, 200
ALS1	Po1	66, 110 ,120, 200	66, 110 ,120, 200	66, 110 ,120, 200
	Po2	66, 110 ,120, 200	66, 110 ,120, 200	66, 110 ,120, 200
	Po6	66, 110 ,120, 200	66, 110 ,120, 200	66, 110 ,120, 200

ALS1	Po1	66, 110 ,120, 200	66, 110 ,120, 200	66, 110 ,120, 200
	Po4	66, 110 ,120, 200	66, 110 ,120, 200	66, 110 ,120, 200
	Po5	66, 110 ,120, 200	66, 110 ,120, 200	66, 110 ,120, 200

5. Layer 2 redundancy diagrams / tables

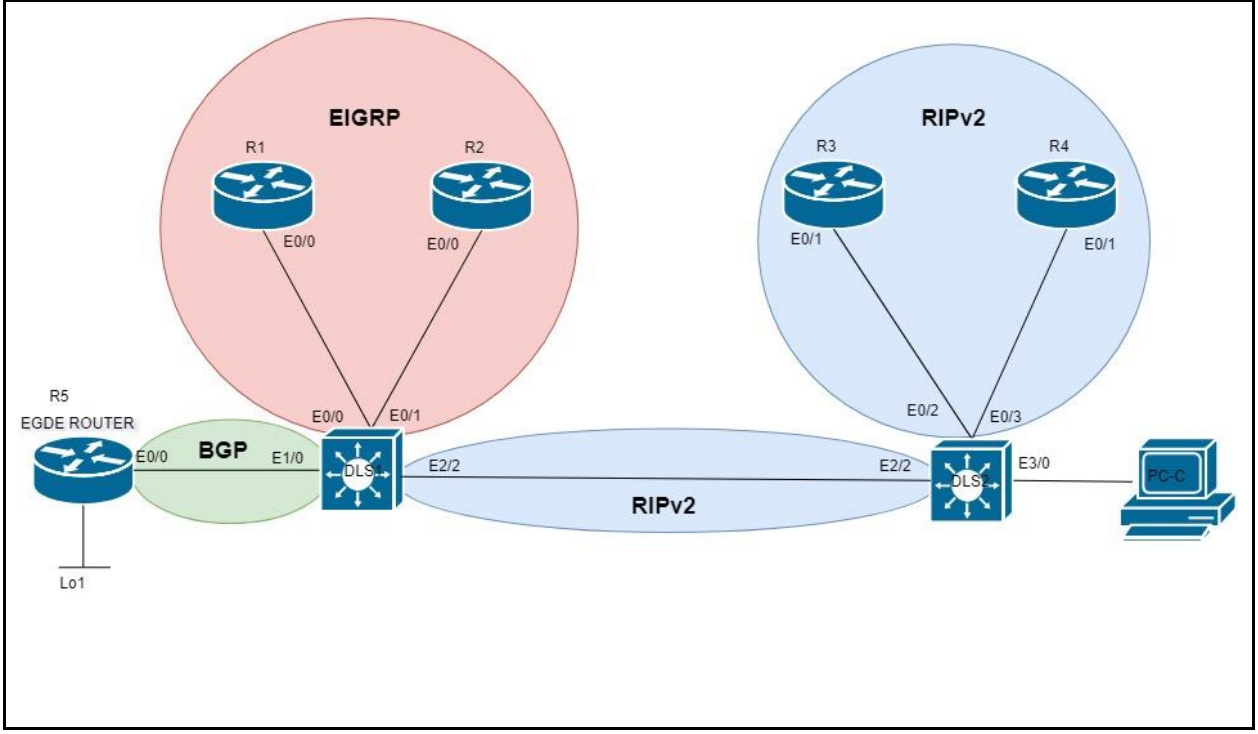
Layer 2 Redundancy Table			
Devices	Port-channel	Groups	Ports
DLS1	Po2	2	E1/2, E1/3
	Po5	5	E2/0, E2/1
DLS2	Po4	4	E1/2, E1/3
	Po6	6	E2/0, E2/1
ALS1	Po1	1	E2/2, E2/3
	Po2	2	E1/2, E1/3
	Po6	6	E2/0, E2/1
ALS2	Po1	1	E2/2, E2/3
	Po4	2	E1/2, E1/3
	Po5	5	E2/0, E2/1

Layer 2 Redundancy Diagram



6. Routing protocols implemented and where (diagram/table)

Protocol	Devices	Ports
BGP	R5	E0/0, Lo1
	DLS1	E1/0
EIGRP	R1	E0/0
	R2	E0/0
	DLS1	E0/0, E0/1
RIPv2	DLS1	E2/2
	DLS2	E2/2, E0/2, E0/3
	R3	E0/1
	R4	E0/1

Routing Protocols


7. Application layer protocols implemented and where

Implemented NTP server on R1 and kept other devices as clients. All other devices will now sync their time to the NTP server.

```
R1#show ntp status
Clock is synchronized, stratum 5, reference is 127.127.1.1
nominal freq is 250.0000 Hz, actual freq is 250.0000 Hz, precision is 2**10
ntp uptime is 235300 (1/100 of seconds), resolution is 4000
reference time is DF93087E.A45A1E70 (21:58:54.642 EET Sun Nov 11 2018)
clock offset is 0.0000 msec, root delay is 0.00 msec
root dispersion is 2.18 msec, peer dispersion is 1.20 msec
loopfilter state is 'CTRL' (Normal Controlled Loop), drift is 0.000000000 s/s
system poll interval is 16, last update was 0 sec ago.
```

8. Security measures implemented

Security	Protocol	Device
MD5 authentication (Key-chain)	RIP	DLS1,DLS2, R3, and R4
SHA authentication (Key-chain)	EIGRP	DLS1, R1, and R2