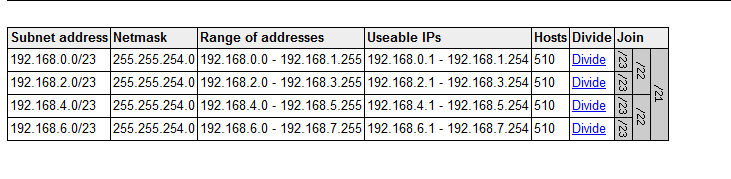
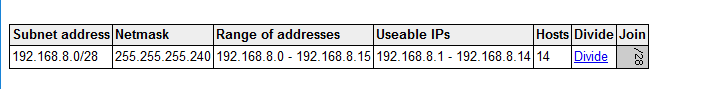
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Vlan ID | Vlan Name | New Network addreess | Subnet | First avail ip ADDRESS |
| VLAN 10 | Users | 192.168.0.0 | 255.255.254.0 | 192.168.0.1 vitual ip hsrp |
| VLAN 20 | Finance | 192.168.2.0 | 255.255.254.0 | 192.168.2.1 |
| VLAN 30 | Sales | 192.168.4.0 | 255.255.254.0 | 192.168.4.1 |
| VLAN 40 | Corp | 192.168.6.0 | 255.255.254.0 | 192.168.6.1 |
| VLAN 99  (default gateway) | Management | 192.168.8.0 | 255.255.240.0 | 192.168.8.1 |
| Vlan 50 | Router-connect | 10.10.10.8 | 255.255.255.252 | 10.10.10.9 - 10.10.10.10 |

sn





**Vlan 99** 255.255.240.0

|  |  |  |  |
| --- | --- | --- | --- |
| Dist\_Switch\_1 | 192.168.8.2 | 255.255.240.0 | Int vlan 99 |
| Dist\_Switch\_2 | 192.168.8.3 | 255.255.240.0 | Int vlan 99 |
| Acc\_Switch\_1 | 192.168.8.4 | 255.255.240.0 | Int vlan 99 |
| Acc\_Switch\_2 | 192.168.8.5 | 255.255.240.0 | Int vlan 99 |
| Acc\_Switch\_3 | 192.168.8.6 | 255.255.240.0 | Int vlan 99 |
| Dist\_Switch\_1 | 10.10.10.9 | 255.255.255.252 | Int vlan 50 |
| Dist\_Switch\_2 | 10.10.10.10 | 255.255.255.252 | Int vlan 50 |

Vlan 50

Dist 1 10.10.10.9 - dist 210.10.10.10

**End devices**

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Vlan + IP | Subnet | Gateway |
| PC\_Sales vlan 30 | Vlan 10 192.168.0.2 | 255.255.254.0 | 192.168.0.1 |
| HO\_User | Vlan 20 192.168.2.2 | 255.255.254.0 | 192.168.2.1 |
| PC\_Corp | Vlan 30 192.168.4.2 | 255.255.254.0 | 192.168.4.1 |
| PC\_Finance | Vlan 40 192.168.6.2 | 255.255.254.0 | 192.168.6.1 |
|  |  |  |  |

**Dist\_Switch\_1**

|  |  |  |  |
| --- | --- | --- | --- |
| Fa0/1 | Connection to Acc\_Switch\_1 | 10,20,30,40,99 |  |
| Fa0/2 | Connection to Acc\_Switch\_1 | 10,20,30,40,99 |  |
| Fa0/3 | to Acc\_Switch\_2 | 10,20,30,40,99 |  |
| Fa0/4 | to Acc\_Switch\_2 | 10,20,30,40,99 |  |
| Fa0/5 | to Acc\_Switch\_3 | 10,20,30,40,99 |  |
| Fa0/7 | to Acc\_Switch\_3 | 10,20,30,40,99 |  |
| Fa0/8 | to Acc\_Switch\_3 | 10,20,30,40,99 |  |
| Fa0/9 | To Dist\_Switch\_2 | 10,20,30,40,99 |  |
| G0/1 | description Connection to Head Office Router 1 | 10,20,30,40,99 |  |

**Dist\_Switch\_2**

|  |  |  |  |
| --- | --- | --- | --- |
| Fa0/1 | Connection to Acc\_Switch\_2 | 10,20,30,40,99 |  |
| Fa0/2 | Connection to Acc\_Switch\_2 | 10,20,30,40,99 |  |
| Fa0/3 | to Acc\_Switch\_1 | 10,20,30,40,99 |  |
| Fa0/4 | to Acc\_Switch\_1 | 10,20,30,40,99 |  |
| Fa0/5 | to Acc\_Switch\_3 | 10,20,30,40,99 |  |
| Fa0/7 | To Dist\_Switch\_2 | 10,20,30,40,99 |  |
| Fa0/8 | to Acc\_Switch\_3 | 10,20,30,40,99 |  |
| Fa0/9 | To Dist\_Switch\_2 | 10,20,30,40,99 |  |
| G0/1 | description Connection to Head Office Router 2 | 10,20,30,40,99 |  |

Access Switch 1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| FastEthernet0/1 | description Connection to Dist\_Switch\_1 | 10,20,30,40,99 |  |  |  |
| FastEthernet0/2 | description Connection to Dist\_Switch\_1 | allowed vlan 10,20,30,40,99  \ |  |  |  |
| Int vlan 99 |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

HO LAN Routers

A screenshot of a cell phone

Description automatically generated

|  |  |  |  |
| --- | --- | --- | --- |
| **HO Router 1** |  |  |  |
| Int g0/1 | description to site 1 Router 2 | 172.16.0.93 | 255.255.255.252 |
| int s0/1/0 | description serial c  onnection to Site 1 Router 1 | 172.16.0.89 | 255.255.255.252 |
| Int g0/0 | Connection to dist switch 1 | n/a | n/a |
| GigabitEthernet0/1.10 | Sub interface connection for User vlan PCs | 192.168.0.2 | 255.255.254.0 |
| GigabitEthernet0/1.20 | Sub interface connection for Finance PCs | 192.168.2.4 | 255.255.254.0 |
| GigabitEthernet0/1.30 | Sub interface connection for Sales PCs | 192.168.4.4 | 255.255.254.0 |
| GigabitEthernet0/1.40 | Sub interface connection for CorpPCs | 192.168.6.10 | 255.255.254.0 |
| GigabitEthernet0/1.99 | Sub interface connection for Management | 192.168.8.10 | 255.255.254.0 |
|  |  |  |  |

**HO Router 3**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| GigabitEthernet0/1.10 | Sub interface connection for User vlan PCs |  |  |  |
| GigabitEthernet0/1.30 | Sub interface connection for Sales PCs | 192.168.4.5 | 255.255.254.0 |  |
| GigabitEthernet0/1.40 | Sub interface connection for Corp PCs | 192.168.6.11 | 255.255.254.0 |  |
| GigabitEthernet0/1.99 | Sub interface connection for Management | 192.168.8.11 | 255.255.254.0 |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Site 1 Router 1

|  |  |  |  |
| --- | --- | --- | --- |
| GigabitEthernet0/1 | 172.16.0.97 | 255.255.255.252 | description connection to switch 1 router 2 |
| S erial0/1/0 | 172.16.0.90 | 255.255.255.252 |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Site 1 Router 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Loopback0 | 200.10.11.1 | 255.255.255.0 |  |  |
| GigabitEthernet0/0 | 172.16.0.94 | 255.255.255.252 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Site 2 Router 1

|  |  |  |  |
| --- | --- | --- | --- |
| GigabitEthernet0/1 | 172.16.0.97 | connection to switch 1 router 2 | 255.255.255.252 |
| Serial0/1/0 | 172.16.0.90 | connection to Head Office router one | 255.255.255.252 |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Site 2 Router 1

|  |  |  |  |
| --- | --- | --- | --- |
| Serial0/0/0 | 2001:DB8:CAFE:4::1/64 | description Connection to Site-2-R2 | FE80::1 link-local |
| Serial0/1/0 | 2001:DB8:CAFE:2::1/64 | Connection to Site-2-R3 | FE80::1 link-local |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Site 2 Router 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| GigabitEthernet0/1.10 | 2001:DB8:CAFE:6::1/64 | FE80::2 link-local | Sub interface connection for VLAN 10 |  |
| GigabitEthernet0/1.30 |  | FE80::2 link-local | Sub interface connection for VLAN 30 |  |
| GigabitEthernet0/1.40 | 2001:DB8:CAFE:7::1/64 | FE80::2 link-local | description Connection to Site 2 VLAN 40 |  |
| Serial0/0/0 | 2001:DB8:CAFE:4::2/64 |  | connection to Site 2 Router 1 |  |

Site Router 3

|  |  |  |  |
| --- | --- | --- | --- |
| GigabitEthernet0/1.10 | FE80::3 link-local | 2001:DB8:CAFE:A::1/64 | Connection to Site 1 VLAN 10 |
| GigabitEthernet0/1.20 | FE80::3 | 2001:DB8:CAFE:B::1/64 | Connection to Site 1 VLAN 20 |
|  |  |  |  |
|  |  |  |  |

Hierarchial networking model composes of an access, distribution and core level. The distribution layer aggregates data received from the access layer before sending it to the core layer to be routed. The access layer is where end devices can be found. The core layer is considered the network backbone, and is responsible for transporting traffic & connectivity. Utilizing this model helps with designing and implementing a cost effective network. In this assignment, we have implemented a two tier collapsed core design. Because our network is small and not designed for scalability, we have opted to for a collapsed core. The primary reason for using a collapsed core topology is reducing network cost.

4. <root bridge description>

A screenshot of a cell phone

Description automatically generatedA screenshot of a social media post

Description automatically generated

6

Using portfast allows interfaces to connect to the network immediately, nbypassing the listening and learning states.Ports with the portfast command enabled are activated 6 times faster than a port using spanning tree. Portfast can only be enabled on access ports which accelerates the transition to a forwarding state. By ensuring we issue the portfast command on the appropriate interfaces we can increase the speed of our network.

7

The purpose of bpdu portfast guard is to disable all non-trunking ports from participating in the Spanning Tree Protocol process. Spanning tree can be problematic in the instance a switching loop occurs. When you apply BPDU guard on a switch, spanning tree will apply it to all portfast interfaces.

Ensure all switches do not participate in VTP. Explain why it is good to do this. [5 marks]

If you are confident with VTP it can be incredibly helpful as other devices can inherit vlans created on a single switch, as opposed to having to configure vlans manually on each and every switch. The danger with VTP lies in creating new vlans as a simple error could make a big mess. As long as the VTP revision number is greater than the vlan being replaced, thigs will be okay. If the number was lower, then this would affect other vlan configurations on the network, meaning the affected vlans would no longer work.VTP also leaves to room for human error to create a bigger mess than usual. Because we are working on a reasonably small network and because my VTP knowledge isn’t strong, it makes sense that we would not implement VTP on this network.

**vtp mode transparent**

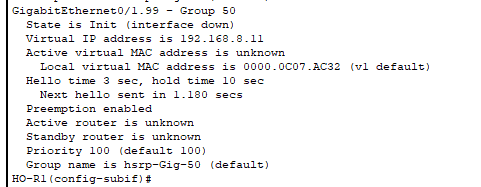
**Holan routers**

**5 – premption**

**<document what pre-emption does>**

**HO\_R1**

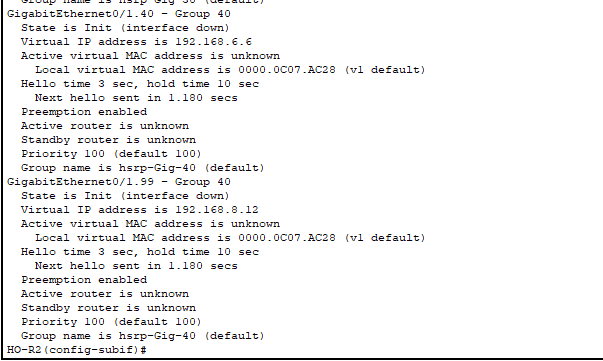
A screenshot of a cell phone

Description automatically generated

**HOR2**

**A screenshot of a cell phone

Description automatically generated**

****

9A screenshot of a cell phone

Description automatically generatedA screenshot of a cell phone

Description automatically generated

Describe the normal process for DR election. Describe how you influenced it to achieve the desired result.

Md 5 authentication

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Description automatically generated

A screenshot of a cell phone

Description automatically generated