Group A1
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Case Study CCNA 3

For the required network the ABC Research Company provided a logical diagram which was partly completed. We used packet tracer to simulate the provided networking equipment. And since packet tracer can'ät actually connect to the internet we used a loopback to simulate those kind of requests. The address used for the loopback is 62.20.224.53, this was successfully pinged from all networks.

Routing

The designated router for the OSPF has been set to RAdminBuilding for it's location closer to the center of the network to minimize unnecessary traffic. Due to the topology of the 200.88.202.144/29 network between the admin and tech building placing the DR at another router would cause all OSPF packets to travel through the above mentioned network instead of the "border router" and then converging out from there.

The devices have all been configured with the OSPF and all subnets are advertised. All interfaces connected to the access layer has been set to passive so that OSPF doesn't advertise the networks to those networks. If they need to be configured this can be done via console cable or remotely.

Main Building reconfiguration

We chose Vlans 10, 20, 30 & 40 as it is easy to remember them. Management was set to 40 because the other three alternatives are more commonly attacked/exploited by unauthorized hosts.

Vlans are setup and named as follows:

- Server on Vlan 10
- Sales and marketing on Vlan 20
- Research and Development on Vlan 30
- Management on Vlan 40

To accommodate for a specific amount of different hosts per vlan on different floors the switches are configured as follows:

- Floor 1
    - Vlan 10 - 5 hosts
    - Vlan 20 - 6 hosts

    - Vlan 30 - 8 hosts
- Floor 2
    - Vlan 20 - 8 hosts
    - Vlan 30 - 12 hosts
- Floor 3
    - Vlan 20 - 4 hosts
    - Vlan 30 - 16 hosts

Each floor also have a Management Vlan which has assigned ip addresses to make it possible to configure the switches remotely.

On the switch for floor 1 STP was set as the primary root for all vlans. We did this to minimize the number of hops a packet would have to take while either traveling in our out of the Main building network. The mode of the Spanning-Tree is set to rapid-pvst.

Discussion

Since the new topology was to be configured with OSPF we started by removing RIPv2 and configuring the networks for the protocol.

We've also added password encryption on all routers and switches.