Group A1
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Case Study CCNA 4

For the required network the company provided a logical diagram which was partly completed. We used packet tracer to simulate the provided networking equipment.

Routing:

All the routers except for the Galway node is configured with OSPF, the Galway is configured for RIP but uses redistribution to interconnect the two routing protocols. Since we are group A1 we chose to have OSPF 1. OSPF does not advertise all subnets only the ones needed for routing to work. All interfaces connected to the access layer has been set to passive so that OSPF doesn't advertise the networks to those networks. None of the networks has been scaled for a 100% increase in devices.

Galway:

To accommodate the 510 devices, the router and switch the Galway network was increased to 1022 addresses. The first 512 of these are excluded, leaving 510 ip addresses to be leased by DHCP in compliance with the explicit requirement of "up to 510 devices". The ACL is also set on this router on the g0/0 interface. We have set it on inbound traffic from the 172.16.0.0 network and the permits are configured to allow DHCP traffic, web access (port 80) and communication inside the 172.16.0.0/20 network everything else is denied. Galway uses RIPv2 as it's routing protocol

The serial connection between Galway and Cork uses PPP for encryption and authentication. The CHAP authentication was used and Usernames and passwords were set for the respective routers.

Cork:

The Cork router is configured with the CorkSwitch to use three vlans: 10, 20 and 30, with 250 devices on each. On the Cork router we have two routing protocols configured, RIPv2 and OSPF. RIPv2 is configured for the serial link to the galway network while ospf has that serial link set as a passive interface to make sure no ospf traffic is sent on that link. To enable traffic between Galway and Cork we have redistributed OSPF on the RIPv2 configuration and vice versa on the OSPF configuration. The metric for OSPF redistribution is set to 193 since the longest path it can take is through 3 serial links, each worth 64, and then plus 1 (64*3+1=193). For the RIPv2 redistribution the metric was set to 3, we considered 1 to be too low since the risk for loops are higher.
The Vlan 20 and 30 are currently set as administratively down.

Belfast:

Has a gateway of last resort to the ISP and default-information originate to propagate it through the network. On belfast we configured NAT to use the IP address handed to us as the connection for all devices in the network through PAT.

Limerick:

The Limerick network was configured with basic configuration and OSPF routing protocol

ISP:

The ISP is configured with the loopback interface to represent an internet connection. Loopbacks IP address is: 62.20.224.53.

Discussion:

All switches and routers have been configured with console and vty passwords aswell as a privileged exec password. All passwords have also been encrypted to ensure security.

While configuring the routers and switches we also added logging synchronous to make it less confusing to configure the router. The command disables state changes to interrupt while typing commands.

Below is a Limerick we thought it was funny:

The limerick packs laughs anatomical
Into space that is quite economical.
But the good ones I've seen
So seldom are clean
And the clean ones so seldom are comical.