OSPF Capstone Project

Objectives

- Configure basic OSPFv2 to enable internetwork communications in a small- to medium-sized IPv4 business network.
- Implement advanced OSPF features to enhance operation in a small- to medium-sized business network.
- Implement multiarea OSPF for IPv4 to enable internetwork communications in a small- to medium-sized business network.
- Configure basic OSPFv3 to enable internetwork communications in a small- to medium-sized IPv6 business network.

Scenario

Your company has made the decision to implement the OSPF routing protocol on its network. You have decided that you need to review the concepts related to OSPF in order to make a smooth transition to this protocol.

Create a network using Packet Tracer. Configure the network with these OSPF routing protocol options:

- Multiarea OSPFv2
- Single-area OSPFv3
- Bandwidth
- Cost
- Authentication
- Default routes
- DR and BDR elections for segments

Required Resources

- Packet Tracer
- Student/group-created rubric for assessment of the assignment

Step 1: Design and build a network from scratch.

    a. Your design must include three routers connected to a multi-access network in area 0 for use with IPv4.

        1) Enable authentication.

        2) Establish the DR and BDR using the `router id` command.

Step 2: Add one additional router with two connections to area 0, representing another OSPF area.

Step 3: Configure the bandwidth or cost to favor one route.

Step 4: Add a network containing end devices and a passive OSPF interface.

Step 5: Add a route to a default network such as the Internet.

Step 6: Add an IPv6 addressing scheme on the routers and configure OSPFv3.

    a. Enable IPv6 unicast routing.

    b. Establish the DR and BDR using the `router id` command.

    c. Do not configure timers, bandwidth, cost, default routes, or authentication.