CEWP MOD3 Networks and Protocols
Course Project Description
W2018

Description

The aim of this project is to design and configure an enterprise network according to a set of given requirements, using packet tracer. The enterprise consists of a headquarter (HQ), 3 branches (branch-1, branch-2, and branch-3) and a home office (SOHO). It is also attached to a Broadcasting Network. The entire network is presented in figure 1, together with a set of requirements.

You may work in groups of 2 or 3 and the project will require the following:
- Configuring networks
- Static routing: Specific + Default routes
- Dynamic routing
- Wireless access
- IPv6 on branch 1 (At least!)
- Configuring and testing applications on the internet

You will need to submit a packet tracer file to Moodle. The file should be properly documented. Documentation should include IP addresses of router interfaces and any servers. You do not have to document the PC addresses as they are assigned via DHCP, except for the manually entered IPv6 PC.

- Deadline: May 7th, 2018 (Midnight)

Requirements

1. **Building the network.**
   Create a packet tracer with the network presented in figure 1
   Please use ONLY the following Routers: 1921 or 2911
   Add for each subnet at least two PCs
   Assign hostnames for routers with any theme you want, but keep the reference part indicated in figure 1. As an example: For a Disney theme, for HQ1 you can rename it as MickeyMouse-HQ1

2. **IPv4 addressing.**
   - Plan the addressing scheme in the company according to the requirements highlighted in figure 1
   - All PCs should be dynamically configured via DHCP. You can either i) use one DHCP server per subnet or ii) use one DHCP server per branch/headquarter
   - For Facebook, you just need to set the IP address on the connected router's interface and create a File Server with an appropriate IP address

3. **Configuring routing.**
   - For FB, BR1, BR2, BR3, HQ1, HQ2, ISP1, ISP2, ISP3 and ISP4 use EIGRP routing protocol
   - For OSPF-1, OSPF-2 and OSPF-3 use OSPF routing protocol
   - On OSPF-1 create a default static Route that points to ISP2, then propagate the default route to the rest of the OSPF routers. Please configure ISP2 so that it can reach the networks in the Broadcast Company. You will have to advertise the static routes entered into ISP2 in the EIGRP routing process, using the "redistribute static" command

4. **IPv6 addressing.**
   You need to assign IPv6 addresses in branch-1
   - Assign your own global unicast addressing so that the global routing prefixes are the same but the subnets are different
   - At least one interface on the router must have a manually assigned link local address

5. **SSH.**
   - Configure SSH for your company's network routers (do not include the ISPs)

6. **HTTP.**
   - Create an HTTP server for Facebook's network
   - Change the homepage to reflect Facebook's homepage (Include FB logo, welcome to Facebook, …)

7. **FTP, HTTP, Email for each zone.**
   - For each zone in Figure 1 add one server, it will take the role of an HTTP, FTP and email server
   - Create two users for email and FTP access in their appropriate zones
   - Choose 4 PCs and give them names as in Figure 1
   - Send an email from sales manager to the HR manager and have him reply back
   - Send an email from manufacturing manager to the IT helpdesk and have him reply back
   - Create a file in HR manager called "listToFire.txt" and put it on the engineering file server

8. **DNS.**
   - Create a DNS server in the headquarter for the entire company network with the appropriate zones for each server as indicated in Figure 2

9. **SOHO.**
   - Configure the link between the SOHO router and SOHO wireless router as another subnet in the ISP's network
   - Configure the wireless SOHO router by considering the requirements in Figure 1
   - Secure the wireless SOHO router
   - Connect a laptop to the wireless SOHO router

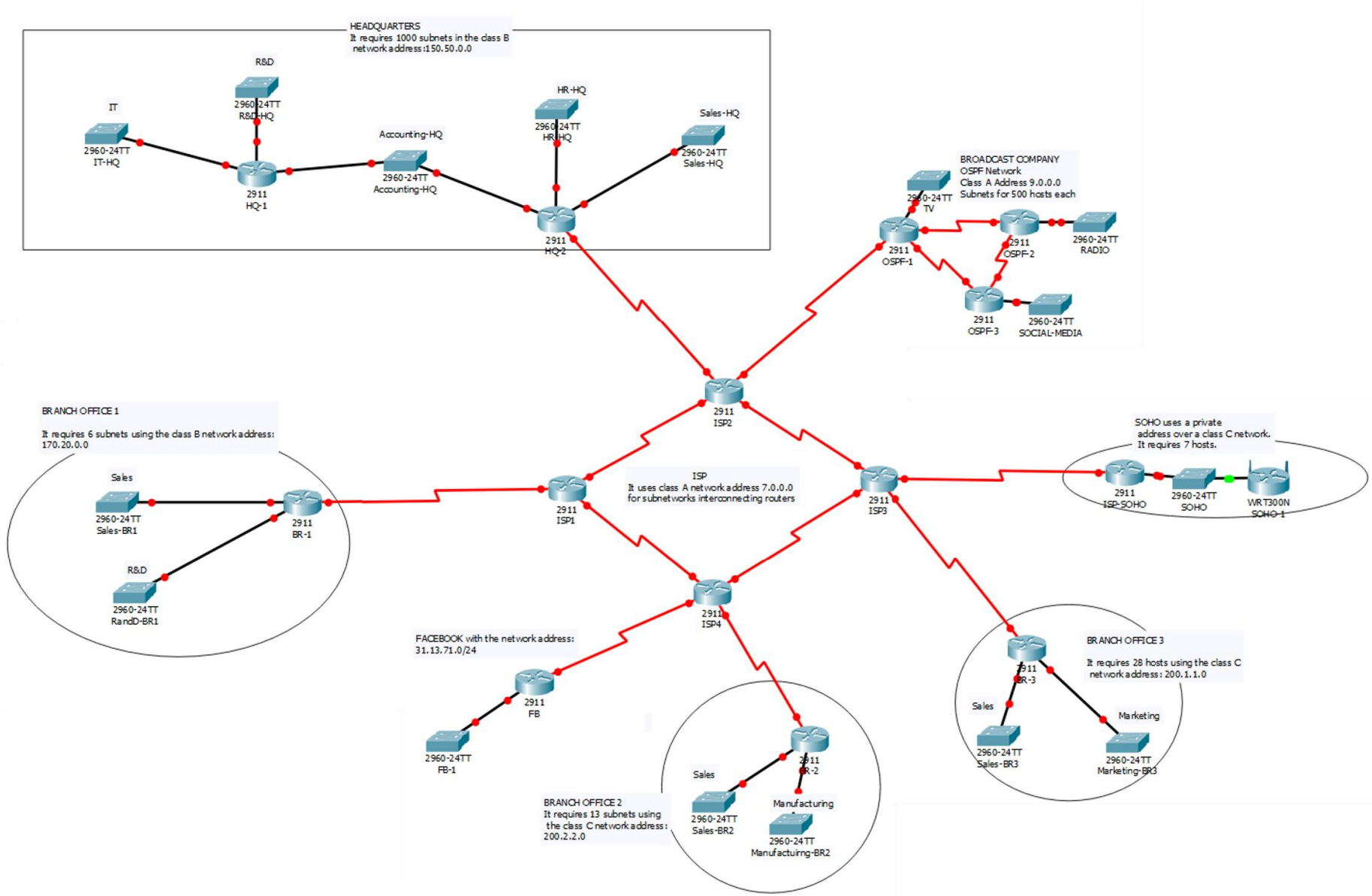

Figure 1: Network topology and requirements

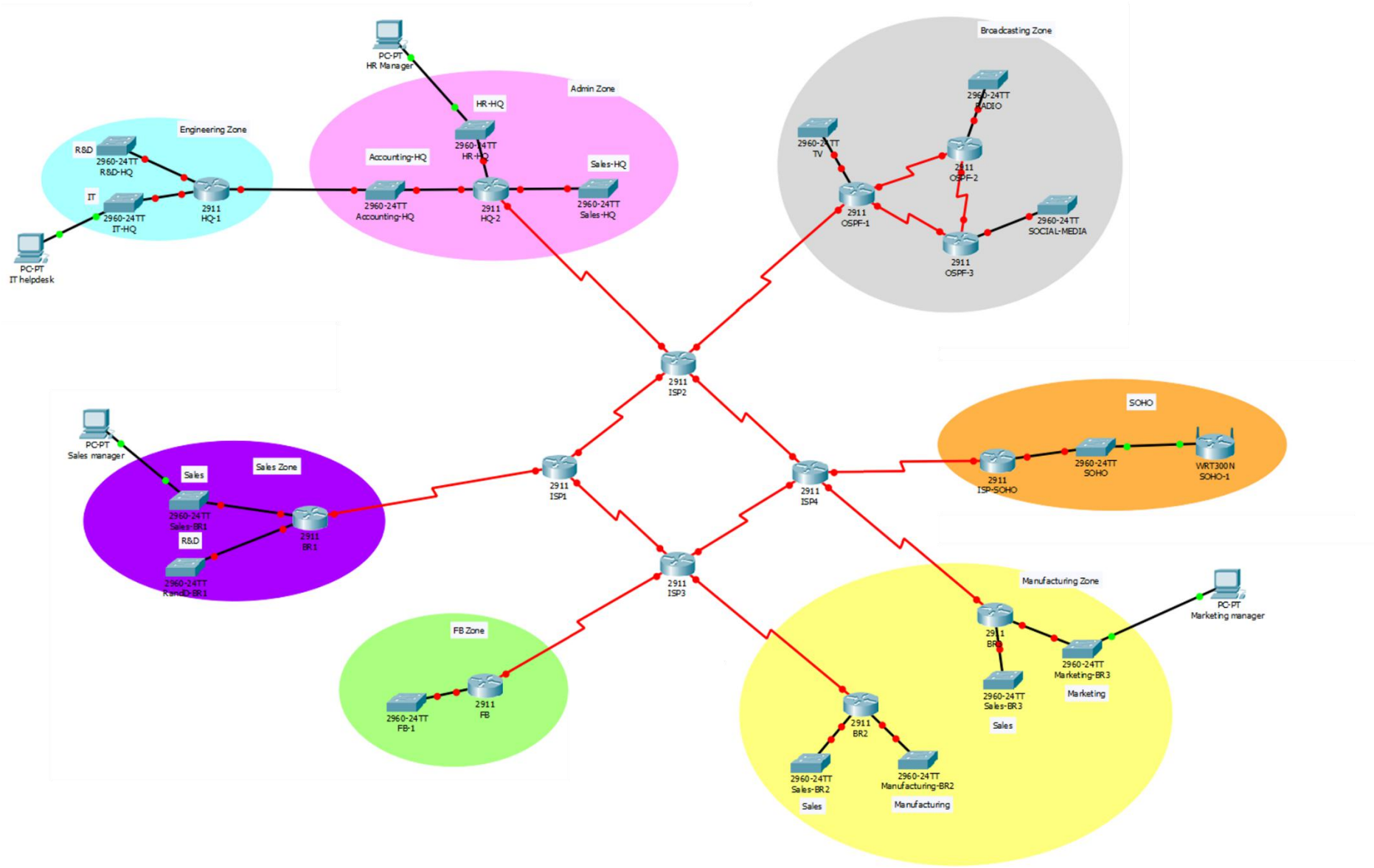

Figure 2: DNS zones