Study Case. Switching and routing

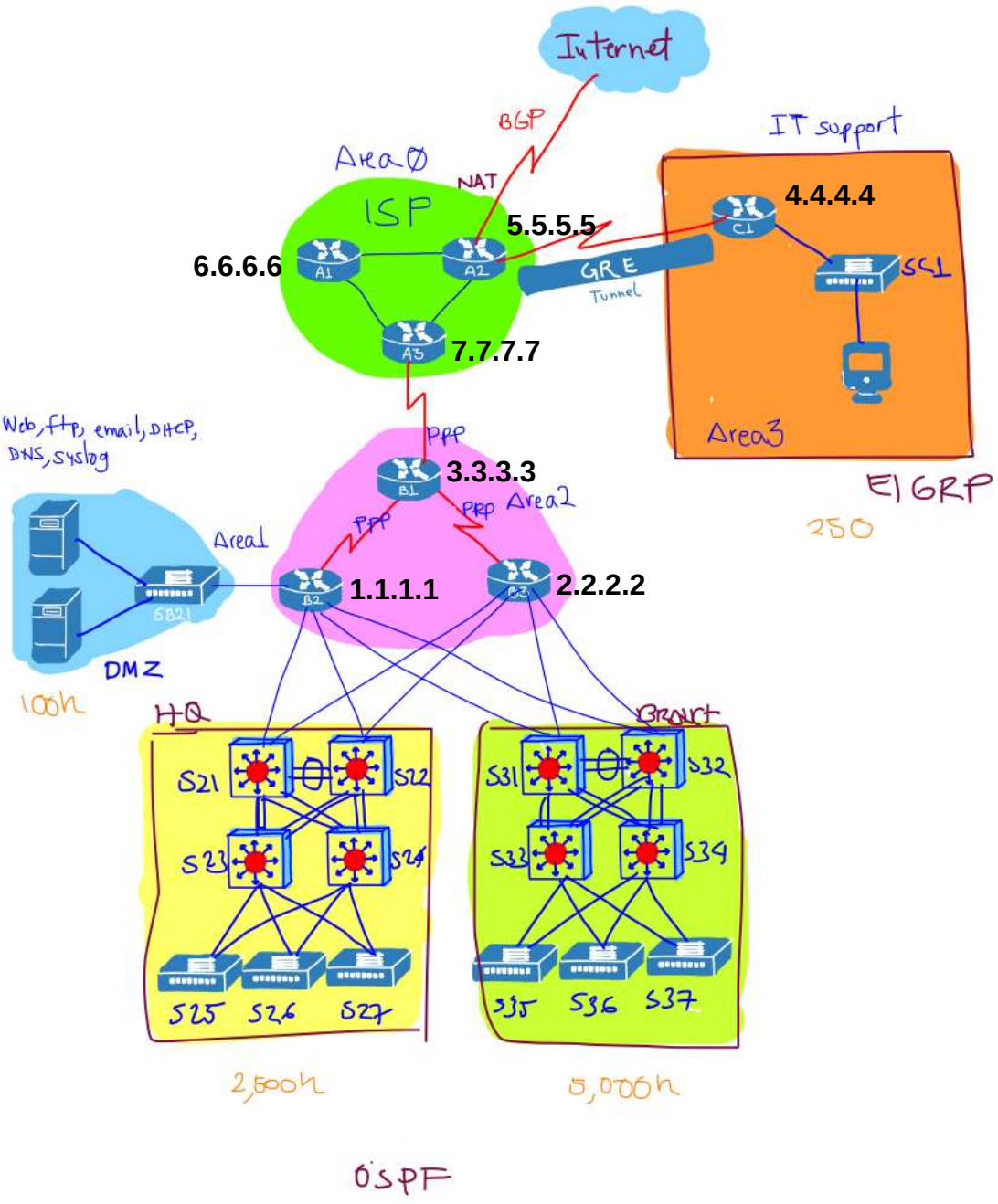

Figure #1. Scenario Topology

Scenario

It is a small to mid-size company with corporate offices and a branch. This company contracted a company to help in the management activities remotely in such a way that they have to make the necessary configurations to allow the company to access the company's servers.

The architecture of the LAN has a hierarchical design (Access, Distribution, Core), which meets the design requirements of a fault tolerant network, scalability, QoS, and security.

Will practice and be evaluated in the following skills:

A. Configuration of initial device settings
B. Interface addressing
C. Configuration of VLANs and trunking
D. Routing between VLANs
E. Dynamic routing with OSPF multiarea
F. Configuration of standard, extended ACLs
G. Switch port security configuration
H. Remote switch management configuration
I. Syslog and NTP configuration
J. Interface activation and addressing in IPv4
K. Static and default routing in IPv4
L. Static and dynamic NAT configuration
M. DHCP server configuration
N. Configure PPP encapsulation and CHAP authentication for serial links.
O. Configure a GRE tunnel.
P. Configure dynamic routing OSPF, EIGRP
Q. Configure BGP.
R. Configure standard and extended IPv4 ACLs.
S. STP
T. EtherChannel & HSRP

Tasks to do

1. Create the topology in Packet Tracer multiuser mode according to the diagram
2. Design a **VLSM** addressing scheme that meets the needs of the company.
    a. Three zones
    b. VLANs
    c. Segmentos requeridos
    d. Tablas de distribución de segmentos de redes
    e. Direcciones IP estáticas para servidores y dispositivos intermedios
    f. IP dinámicas para dispositivos finales
3. Initial configuration of device values
4. Configure the addressing of the interfaces
5. Configure VLANs and Truncking
6. Configure inter-VLAN requered
7. Dynamic routing
    a. OSPF multiarea en las tres áreas
8. Configuration of standard, extended ACLs
    a. According to the requirements of the company, create the necessary ACLs::
        The company that was hired to assist in the administration remotely can:
        1. Access the HQ servers
        2. El acceso remoto debe ser a través de una conexión segura SSH.
9. **Servers**:
    They must have static IP addresses according to the assigned segment. They must also be configured with **static NAT** so that they can be accessed from anywhere in the network.
    a. WEB
    b. FTP
    c. Email
    d. DHCP
10. **Security**
    a. Firewall (ACLs)
    b. Point-to-Point GRE VPN Tunnel between route rA2, rC1
    c.
11. **Management**
    a. Configurar los siguientes servicios
        i. DNS
        ii. NAT
        iii. Syslog
        iv. NTP
12. **LAN**
    a. Switch port security configuration
    b. Remote switch management configuration
    c. VLANs

i. VLANs (Sales, Accounting, HR, , Production, Management, Native)
ii. VTP
iii. Inter-VLAN routing

d. DTP
e. STP (version)
f. **Redundancy**

i. Configure Etherchannel where necessary, making use of:

1. LACP
2. PAgP

ii. HSRP

1. Configure in Router B2, B3

13. **NAT**

- The servers in the DMZ zone must be configured to have a **static NAT** in such a way that they can be accessed from any part of the internetwork
- **Dynamic NAT** for others situations

14. **DHCP**

- Configure a DHCP server
- The routers (rB1, rB2, rB3) must be configured as DHCP relay agents

15. **DELIVERABLES**

Evidences for:

1. VLSM Scheme addressing (addressing tables)
2. Output (screen capture) of evidence of commands where the verification of its operation is shown

NOTE:

Any modification that is required to make over the original topology must be justified to the instructor and reported before performing.

	Direccionamiento	
#	Privado	Público
1	10.0.0.0/8	200.10.0.0/16
2	11.0.0.0/8	200.11.0.0/16
3	12.0.0.0/8	200.12.0.0/16
4	13.0.0.0/8	200.13.0.0/16
5	14.0.0.0/8	200.14.0.0/16
6	15.0.0.0/8	200.15.0.0/16
7	16.0.0.0/8	200.16.0.0/16
8	17.0.0.0/8	200.17.0.0/16
9	18.0.0.0/8	200.18.0.0/16
10	19.0.0.0/8	200.19.0.0/16
11	20.0.0.0/8	200.20.0.0/16
12	21.0.0.0/8	200.21.0.0/16