

CCNP Case Study BGP/OSPF Routing

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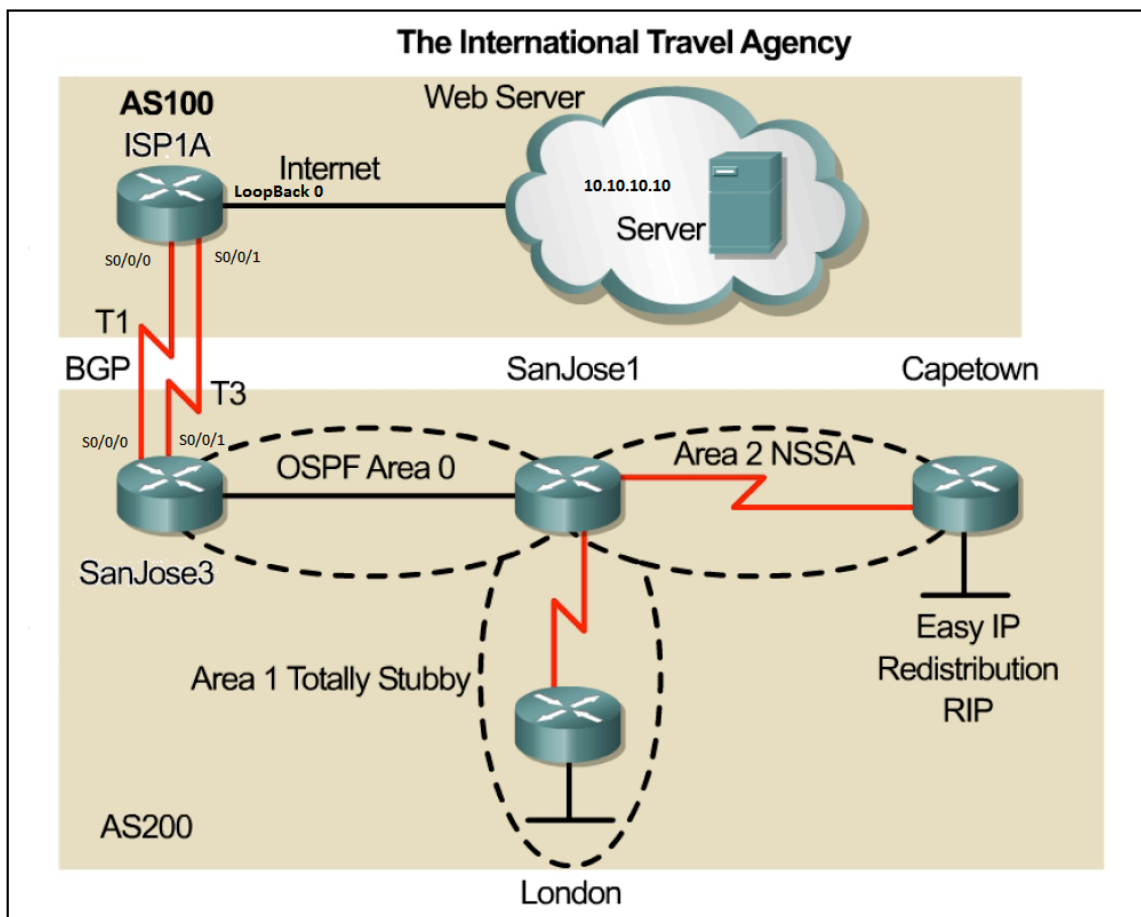
Student names: _____

Netacad usernames: _____

Instructions

Plan, design and implement the complex International Travel Agency BGP/OSPF network shown in the diagram and description below. Implement the design on the lab set of routers. Verify that all configurations are operational and functioning according to the guidelines.

Scenario



The International Travel Agency relies heavily on the Internet for its advertising and sales. Therefore, it has been decided to establish a primary and a backup route to the Internet. Additionally, other network changes have been planned as shown in the diagram above and described below. The responsibilities of the network engineer include creating, maintaining, and implementing changes to the network. The network will be based on and must meet the following requirements:

- 1. The San Jose core routers must run **OSPF** and be configured in **Area 0**.
- 2. The network has been allocated one **Class B** license 172.16.0.0/16. Plan for **approximately 30** networks in each area in the diagram with the exception of the core, known as **Area 0**.
- 3. Use **VLSM** on all serial interfaces as may be appropriate.
- 4. This network will have **three outer areas**. The London branch office in **Area 1** will be a **totally stubby** network. The Capetown branch office in **Area 2** will be an **NSSA**. The third area will be a **RIP** network.
- 5. Summarize all routes from each area into the core. Implement the planned networks with **loopback** interfaces on the branch routers.
- 6. Redistribute routing information **from RIP into OSPF**. The RIP network should use default routing to access the rest of the network and Internet.
- 7. In the RIP area, implement **EZ IP** (DHCP) for end user devices.
- 8. This International Travel Agency network will be multihomed to ISP1A. The primary link will be a T3 connection. A backup T1 link will also be configured. All outbound and inbound traffic are to use the T3 link. The T1 link should be used only if the T3 link goes down. Implement the functionality using **MED** and **floating static default routes**. For the BGP routing configure a **loopback interface** on SanJose3 router with IP address 200.200.200.254/24 and include that into the BGP-process.
- 9. WWW-server at 10.10.10.10 reachable from a workstation in the RIP network.
- 10. List two suggestions for improving this network configuration and design. (5 points)

- 11. What were the implementation issues or limitations? (5 points)

ISP Configuration

```
hostname ISP1A
!
ip subnet-zero
!
ip audit notify log
ip audit po max-events 100
!
enable secret cisco
!
interface FastEthernet0/0
ip address 200.200.100.1 255.255.255.0
no ip directed-broadcast
!
interface Serial0/0/0
ip address 200.200.1.1 255.255.255.0
no ip directed-broadcast
no ip mroute-cache
no fair-queue
!
interface FastEthernet0/1
no ip address
no ip directed-broadcast
shutdown
!
interface Serial0/0/1
ip address 200.200.2.1 255.255.255.0
no ip directed-broadcast
!
interface LoopBack0
ip address 10.10.10.10 255.255.255.255
!
router bgp 100
no synchronization
network 200.200.100.0
neighbor 200.200.1.2 remote-as 200
neighbor 200.200.2.2 remote-as 200
!
ip classless
ip default-network 200.200.200.0
ip http server
!
!
line con 0
logging synchronous
exec-timeout 0 0
transport input none
line aux 0
line vty 0 4
password cisco
login
!
end
```