33-1 WAN Configuration – Lab Exercise

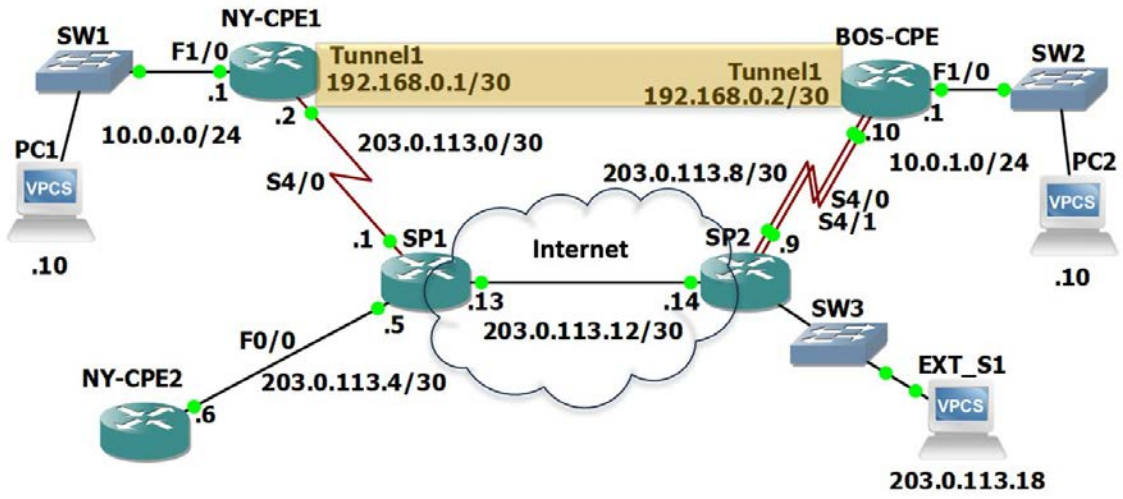
In this lab you will configure Wide Area Network connectivity for a company with offices in New York and Boston.

You will configure PPP with PAP authentication for a single leased line in New York site 1.
You will configure MultiLink PPP with CHAP authentication for New York site 2.
You will configure PPPoE for the DSL connection in the Boston office.
Finally you will configure a GRE tunnel between New York site 1 and Boston.

The SP1 and SP2 routers have already been configured at the service provider.

EXT_S1 is an external server at 203.0.113.18 which can be used to test Internet connectivity.

Lab Topology



Load the Startup Configurations

Open the '33-1 WAN Configuration.gns3project' file in GNS3 to load the lab.

Host Setup

1) Configure the IP address and default gateway on PC1, PC2 and Ext_S1 as shown:

```
PC1> ip 10.0.0.10/24 10.0.0.1

PC2> ip 10.0.1.10/24 10.0.1.1

EXT_S1> ip 203.0.113.18/30 203.0.113.17
```

PPP with PAP Authentication

2) Configure the leased line from router NY-CPE1 to the service provider router SP1 according to the network topology diagram.
   Interface Serial 4/0 is used on both sides of the link.
   The service provider has instructed you to configure PPP with PAP authentication using the username **NY1** and password **Flackbox**.
   Configure one way authentication, do not authenticate the service provider.
   Configure a bandwidth of 128kbps.

3) Verify the interface is up.

4) Ping the service provider to verify connectivity.

5) Configure a default static route for Internet access over the leased line.

6) Ping the external server at 203.0.113.18 from NY-CPE1 to verify Internet access.

7) Do you expect PC1 to be able to ping the external server at 203.0.113.18? Why or why not? Verify this.

MultiLink PPP with CHAP Authentication

8) Configure a MultiLink PPP leased line from router BOS-CPE to the service provider router SP2 according to the network topology diagram.
   Interfaces Serial 4/0 and 4/1 are used on both sides of the link.
   The service provider has instructed you to configure PPP with two way CHAP authentication using the password **Flackbox2**. The service provider router's hostname is **SP2**.
   Configure a bandwidth of 256kbps.

9) Verify the interface is up.

10) Ping the service provider to verify connectivity.

11) Configure a default static route for Internet access over the leased line.

12) Ping the external server at 203.0.113.18 from BOS-CPE to verify Internet access.

PPPoE

13) Configure PPPoE from router NY-CPE2 to the service provider router SP1 according to the network topology diagram.
   Interface FastEthernet 0/0 is used on both sides of the link.
   The service provider has instructed you to configure PPP with CHAP authentication using the password **Flackbox3**.
   Configure one way authentication, do not authenticate the service provider.

14) Verify the interface is up.

15) Ping the service provider to verify connectivity.

16) Configure a default static route for Internet access.

17) Ping the external server at 203.0.113.18 from NY-CPE2 to verify Internet access.

GRE

18) Configure a GRE tunnel between NY-CPE1 and BOS-CPE. Use IP addresses in the 192.168.0.0/30 subnet for the tunnel interfaces.

19) The tunnel interfaces will be up as long as the underlying physical interfaces are up. Verify the tunnel setup and connectivity by pinging the tunnel interface on BOS-CPE from NY-CPE1.

20) Do you expect PC1 in New York to be able to ping PC2 in Boston? Why or why not? Verify this.

21) Verify the tunnel interface appears in the routing tables on NY-CPE1 and BOS-CPE.

22) Enable single area OSPF on NY-CPE1 and BOS-CPE. Ensure that the PCs in New York site 1 and Boston have connectivity to each other. Do not enable OSPF on the Internet facing FastEthernet 0/0 interface.

23) Ping PC2 from PC1 to verify connectivity through the GRE tunnel.