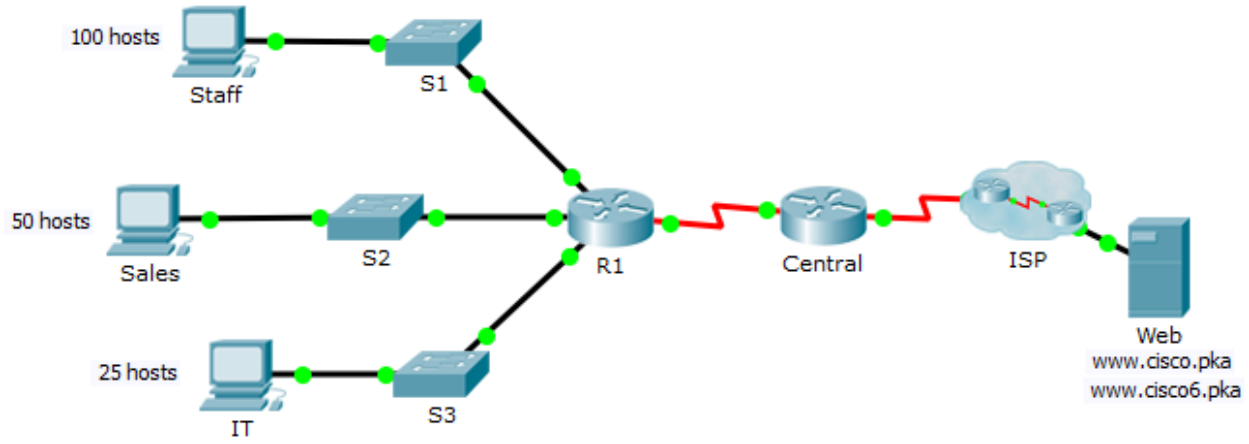
Packet Tracer – Skills Integration Challenge (Instructor Version)

Instructor Note: Red font color or gray highlights indicate text that appears in the instructor copy only.

Topology



Addressing Table

Device	Interface	IPv4 Address	Subnet Mask	Default Gateway
		IPv6 Address/Prefix	IPv6 Link-local	
R1	G0/0	192.168.0.1	255.255.255.128	N/A
		2001:DB8:ACAD::1/64	FE80::1	N/A
	G0/1	192.168.0.129	255.255.255.192	N/A
		2001:DB8:ACAD:1::1/64	FE80::1	N/A
	G0/2	192.168.0.193	255.255.255.224	N/A
		2001:DB8:ACAD:2::1/64	FE80::1	N/A
	S0/0/1	172.16.1.2	255.255.255.252	N/A
		2001:DB8:2::1/64	FE80::1	N/A
Central	S0/0/0	209.165.200.226	255.255.255.252	N/A
		2001:DB8:1::1/64	FE80::2	N/A
	S0/0/1	172.16.1.1	255.255.255.252	N/A
		2001:DB8:2::2/64	FE80::2	N/A
S1	VLAN 1	192.168.0.2	255.255.255.128	192.168.0.1
S2	VLAN 1	192.168.0.130	255.255.255.192	192.168.0.129
S3	VLAN 1	192.168.0.194	255.255.255.224	192.168.0.193
Staff	NIC	192.168.0.3	255.255.255.128	192.168.0.1
		2001:DB8:ACAD::2/64	FE80::2	FE80::1
Sales	NIC	192.168.0.131	255.255.255.192	192.168.0.129
		2001:DB8:ACAD:1::2/64	FE80::2	FE80::1
IT	NIC	192.168.0.195	255.255.255.224	192.168.0.193
		2001:DB8:ACAD:2::2/64	FE80::2	FE80::1
Web	NIC	64.100.0.3	255.255.255.248	64.100.0.1
		2001:DB8:CAFE::3/64	FE80::2	FE80::1

Scenario / Background

The router Central, ISP cluster and the Web server are completely configured. You have been tasked with creating a new IPv4 addressing scheme that will accommodate 4 subnets using 192.168.0.0/24 network. The IT department requires 25 hosts. The Sales department needs 50 hosts. The subnet for the rest of the staff requires 100 hosts. A Guest subnet will be added in the future to accommodate 25 hosts. You are also tasked with finishing the basic security settings and interface configurations on R1. Furthermore, you will configure the SVI interface and basic security setting on switches S1, S2 and S3.

Requirements

IPv4 Addressing

- Create subnets that meet the host requirements using 192.168.0.0/24.
  - Staff: 100 hosts
  - Sales: 50 hosts
  - IT: 25 hosts
  - Guest network to be added later: 25 hosts
- Document the assigned IPv4 addresses in the Addressing Table.
- Record the subnet for Guest network: _____ 192.168.0.224/27

PC Configurations

- Configure the assigned IPv4 address, subnet mask, and default gateway settings on the Staff, Sales and IT PCs using your addressing scheme.
- Assign IPv6 unicast and link local addresses and default gateway to the Staff, Sales, and IT networks according to the Addressing Table.

R1 Configurations

- Configure the device name according to the Addressing Table.
- Disable DNS lookup.
- Assign **Ciscoenpa55** as the encrypted privileged EXEC mode password.
- Assign **Ciscoconpa55** as the console password and enable login.
- Require that a minimum of 10 characters be used for all passwords.
- Encrypt all plaintext passwords.
- Create a banner that warns anyone accessing the device that unauthorized access is prohibited. Make sure to include the word **Warning** in the banner.
- Configure all the Gigabit Ethernet interfaces.
  - Configure the IPv4 addresses according to your addressing scheme.
  - Configure the IPv6 addresses according to the Addressing Table.
- Configure SSH on R1:
  - Set the domain name to **CCNA-lab.com**
  - Generate a **1024**-bit RSA key.
  - Configure the VTY lines for SSH access.
  - Use the local user profiles for authentication.
  - Create a user **Admin1** with a privilege level of **15** using the encrypted password for **Admin1pa55**.
- Configure the console and VTY lines to log out after five minutes of inactivity.
- Block anyone for three minutes who fails to log in after four attempts within a two-minute period.

Switch Configurations

- Configure the device name according to the Addressing Table.
- Configure the SVI interface with the IPv4 address and subnet mask according your addressing scheme.

- Configure the default gateway.
- Disable DNS lookup.
- Assign **Ciscoenpa55** as the encrypted privileged EXEC mode password.
- Assign **Ciscoconpa55** as the console password and enable login.
- Configure the console and VTY lines to log out after five minutes of inactivity.
- Encrypt all plaintext passwords.

Verify Connectivity

- Using the web browser from Staff, Sales, and IT PCs, navigate to **www.cisco.pka**.
- Using the web browser from Staff, Sales, and IT PCs, navigate to **www.cisco6.pka**.
- All PCs should be able to ping all the devices.

Running Scripts

R1 Configuration

```
hostname R1
service password-encryption
security passwords min-length 10
login block-for 180 attempts 4 within 120
enable secret Ciscoenpa55
username Admin1 secret Admin1pa55
no ip domain-lookup
ip domain-name CCNA-lab.com
interface GigabitEthernet0/0
 ip address 192.168.0.1 255.255.255.128
 ipv6 address FE80::1 link-local
 ipv6 address 2001:DB8:ACAD::1/64
 no shutdown
interface GigabitEthernet0/1
 ip address 192.168.0.129 255.255.255.192
 ipv6 address FE80::1 link-local
 ipv6 address 2001:DB8:ACAD:1::1/64
 no shutdown
interface GigabitEthernet0/2
 ip address 192.168.0.193 255.255.255.224
 ipv6 address FE80::1 link-local
 ipv6 address 2001:DB8:ACAD:2::1/64
 no shutdown
banner motd ^CWarning: Unauthorized Access Prohibited!^C
line con 0
 exec-timeout 5 0
 password Ciscoconpa55
 login
line vty 0 4
 exec-timeout 5 0
 login local
```

```
 transport input ssh
end
```

S1 Configuration

```
hostname S1
service password-encryption
enable secret Ciscoenpa55
no ip domain-lookup
interface Vlan1
 ip address 192.168.0.2 255.255.255.128
 no shutdown
ip default-gateway 192.168.0.1
line con 0
 password Ciscoconpa55
 login
 exec-timeout 5 0
line vty 0 4
 exec-timeout 5 0
 login
line vty 5 15
 exec-timeout 5 0
 login
 end
```

S2 Configuration

```
hostname S2
service password-encryption
enable secret Ciscoenpa55
no ip domain-lookup
interface Vlan1
 ip address 192.168.0.130 255.255.255.192
 no shutdown
ip default-gateway 192.168.0.129
line con 0
 password Ciscoconpa55
 login
 exec-timeout 5 0
line vty 0 4
 exec-timeout 5 0
 login
line vty 5 15
 exec-timeout 5 0
 login
 end
```

S3 Configuration

```
hostname S3
service password-encryption
```

```
enable secret Ciscoenpa55
no ip domain-lookup
interface Vlan1
 ip address 192.168.0.194 255.255.255.224
 no shutdown
ip default-gateway 192.168.0.193
line con 0
 password Ciscoconpa55
 login
 exec-timeout 5 0
line vty 0 4
 exec-timeout 5 0
 login
line vty 5 15
 exec-timeout 5 0
 login
 end
```