

1. What differentiates a SOHO router from an Enterprise router?

- a. Typically, SOHO routers are less expensive than Enterprise routers and provide some of the benefits of Enterprise routers. They are easier to configure, often providing a GUI for administrators and are easy to train on, don't require extensive expertise.

2. When you're dealing with an ISP, why would you want a static IP address?

- a. In the case that a business runs a server or service that needs connection from outside the network, having a static IP address prevents that IP from changing and causing configuration issues on the server and the network.

3. What functions (services) do you normally find in a SOHO router?

- a. SOHO routers normally come with DHCP, DNS, and Firewalls.

4. What does a firewall do?

- a. Firewalls accept or deny traffic into or out of a network through rules and configuration. Firewalls can block certain ports, to secure the network from potential threats.

5. With a SOHO router, why would redundancy be desirable?

- a. Because having a backup plan is a good idea for even a small business that requires internet/power to run their business effectively.

6. What is a DMZ? Why would a small company want one?

- a. Demilitarized Zone is an area in a network that isn't very secure, often open to customers or public areas for network access. A company would want one to be able to better protect important assets or information from being available on the same network as customers or public areas.

7. In a small office, what would be the disadvantage of using Enterprise level routers?

- a. Some disadvantages would be the cost of the equipment might exceed the cost or need of the company

+ Notes

- Basically, normal routers only do one thing: route traffic to different subnets.
- SOHO routers combine multiple logical devices into one physical device, so it's also a switch and has a firewall, DNS, and even VPN capabilities...

SOHO vs. Enterprise

+ Prices vary... SOHO is not the cheapest equipment, but still expensive. Enterprise is usually double that price.

- SOHO is web GUI administrable
 - o Easy to learn and administer // Better than residential
- Enterprise level devices don't have a GUI, it's all command line/DOS-like commands
 - o Large learning curve

External IP addresses

+ **Static IP Address**—An IP that never changes, you have it always...

- Gotta pay extra
- You would want a Static IP Address so that when you configure services like a Web server or Email server, you don't have to worry about the IP address changing. If that happens, your services will no longer be reachable by the internet or external clients trying to access it.

+ **Dynamic IP Address**—An IP that changes every so often... and you don't know when. ;)

DHCP—Dynamic Host Configuration Protocol

- This allows the router to assign IP addresses to any device on the network that needs one
 - o A computer that connects to the network will ask for an IP, the router will give it one...
 - It chooses the IP's from a pool of IP's it has available
 - o You can state what range of IP's you want to give out/assign to computers, etc.

DNS—Domain Name Services

- Turns computer names into IP Addresses
 - o When requests for a computer name are made to the router (DNS), it finds the name and returns the IP address so that a connection can be made
- On SOHO routers, DNS is either on or off, little room to configure

Port Forwarding—it tells the router to forward a specific type of traffic to a specific computer on the internal network

- So if someone is connecting to an external IP looking for a webserver, the router will know that the request is looking for the IP that is configured with the internal IP address on the network and route the request to that machine
 - o Every service that works on the internet has a different port (Email, Skype, HTTP, SSH, FTP)
 - o Main thing, all servers, or constant machines, should have their IP addresses hard coded, not provided by DHCP

Firewall—accepts or denies traffic in or out of a network based on rules or specifications configured on the service

- Blocks traffic on specific ports
 - o Tracks connections in and out of a network

Port Triggering—service on all SOHO routers, automatic version of port forwarding

Redundancy—automatic backup configuration for internet/power

DMZ—demilitarized zone, the idea is that you're using ONE single internet connection but you want TWO levels of security

- Part of the network has no security at all
- The other part of the network has A LOT of security
 - o DMZ is considered an open/less secure area of the network, behind another router with full firewall configuration
 - o The default gateway states, "Where does a computer look if it can't find what it's looking for on a local network?"

Sharing Internet

- Having one internet connection and sharing it to multiple businesses
 - o Connection goes to a modem, then a switch, and then into different routers