Building your own network: quick easy and cheap!

WHY BUILD YOUR OWN NETWORK?

You may find the process of building your own network rewarding for two reasons: First, you will be able to practice configuring: routing protocols, spanning tree, VLANs, access control lists, NAT and PAT, IPv6 and much more. Because it's your lab, you can practice whenever you want for as long as you want.

Second, building your own network will teach you a great deal about networks in general and Cisco equipment in particular. You won't just be configuring an existing network - you will have to do everything necessary to make your network operational. You will need to configure ports, design an IP address plan, choose routing protocols and much more. You may even want to configure your network to be accessible to the outside world by using port forwarding.

Your Network Topology
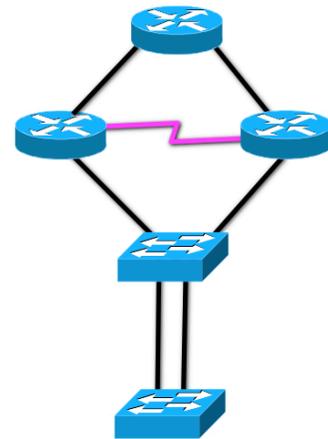
WHAT EQUIPMENT WILL YOU NEED?

A network with three routers and two switches will enable you to practice for all of the topics on the CCNA exam (with the possible exception of frame relay).

Here is a list of the equipment that I suggest you have to make up your lab:

> 2 2950 Switches
> 3 2611 Routers
> 2 Cisco 1-Port Serial WAN Interface Card (WIC-1T)
> 1 Cisco db 60 cable
> 4 Ethernet cables (straight through)
> 2 Ethernet cables (crossover)

The serial cards and serial cable are used to configure HDLC, PPP and for HSRP hello packets. The Ethernet crossover cables for router-to-router connections. The IOS version should be at least 12.2. Although the exam currently uses version 15, there are not many new testable features in version 15. The commands on 12.2 or later should be adequate for your test preparation.

WHERE TO FIND THE EQUIPMENT FOR YOUR LAB?

The first place to check for equipment is your company. Many companies have old equipment in storage they would be willing to give or loan to you. Your company may even be willing to purchase equipment for you. Even if you think this is unlikely you should still ask your boss or supervisor about this. Your boss may not say yes, but the answer is definitely no if you do not ask!

If your company will not provide you with the equipment need, you can still have your own lab for a very reasonable investment. On eBay you can find 2611 routers for less than $30 and 2950 switches go for about $20.   You can find serial cards for less than $20 and a serial cable can be found on eBay for less than $10. When you add in shipping costs, you should be able to outfit a basic lab for around $200.

In order to access your network via the Internet you will need either; to request a static IP address from your ISP or to use a Dynamic DNS provider. Dynamic DNS provides you with a web address. A software client program on a computer in your home automatically sends packets to the Dynamic DNS provider. The Dynamic DNS provider immediately learns of a change to the IP address of your home network so that the web address is always mapped to your current IP address.

Now that you have a way to reach the public IP address on your network, you will need to configure port forwarding (also known as port mapping). Port forwarding maps one TCP or UDP port number on the public IP address to a port number and IP address on the private network. For example, a TCP port 22 packet addressed to the public interface on your home router is forwarded to the host IP address 192.168.1.25 port 22. You will need to consult the documentation for your home router for the specific steps on how to accomplish this.

If you would like to get a little fancy, you could also add a device that will let you control the power to your devices via an Internet connection. The Web Power Switch 7 from Digital Loggers, Inc. will accomplish this neat trick for about $100.

http://www.digital-loggers.com/lpc.html?gclid=CM3qmeyvqLcCFcyj4AodvWMAUg