Re: Connecting two lans

Source:
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- *From*: "N. Miller" <anonymous@xxxxxxxxxxxxxxxxx>
- *Date*: Sun, 11 Jun 2006 04:50:25 −0700

On Tue, 6 Jun 2006 02:24:02 −0700, magician_s wrote:

> On Mon, 5 Jun 2006 22:38:45 −0400, Doug Sherman [MVP] wrote:
>
> > 2. Assuming that both routers are providing DHCP, you must turn this off on one of them. Assign this router a non−conflicting LAN IP which is compatible with the IPs being provided by the other router.
> >
> > 3. This creates a single network. However, if you want to continue to use your respective ISPs:
> >
> > The machines connected to the router which has DHCP turned off must have TCP/IP manually configured. Use compatible non−conflicting IPs and set both
> > the Default Gateway and Primary DNS to the LAN IP address of the non−DHCP
> > enabled router. All of these addresses should be excluded from the scope being provided by the DHCP enabled router.
>
> Okay how do i do steps 2−4 im very computer illiterate so i dont which numbers to put everywhere...and how to turn off dhcp etc etc

This is going to be a daunting task. Consider this example:

Network A:

at&t Yahoo! HSI
Netgear FR114P: 192.168.0.1/255.255.255.0
HP Pavilion 6745C: 192.168.0.100/255.255.255.0
DNS Server: 192.168.0.1

Network B:

Level 3 dial−up
SMC Barricade 7004BR: 192.168.123.254/255.255.255.0
HP Pavilion 6745C: 192.168.123.100/255.255.255.0
DNS Servers: 68.94.156.1, 68.94.157.1

The Network A computer has a routing table thus:

| Active Routes:
| Network Destination Netmask Gateway Interface Metric
| 0.0.0.0 0.0.0.0 192.168.0.1 192.168.0.100 1
| 127.0.0.0 255.0.0.0 127.0.0.1 127.0.0.1 1
| 192.168.0.0 255.255.255.0 192.168.0.100 192.168.0.100 1
| 192.168.0.100 255.255.255.255 127.0.0.1 127.0.0.1 1
| 192.168.0.255 255.255.255.255 192.168.0.100 192.168.0.100 1
| 224.0.0.0 224.0.0.0 192.168.0.100 192.168.0.100 1
| 255.255.255.255 255.255.255.255 192.168.0.100 2 1
| Default Gateway: 192.168.0.1

The Network B computer has a routing table thus:

| Active Routes:
| Network Destination Netmask Gateway Interface Metric
| 0.0.0.0 0.0.0.0 192.168.123.254 192.168.123.100 1
| 127.0.0.0 255.0.0.0 127.0.0.1 127.0.0.1 1
| 192.168.123.0 255.255.255.0 192.168.123.100 192.168.123.100 1
| 192.168.123.100 255.255.255.255 127.0.0.1 127.0.0.1 1
| 192.168.123.255 255.255.255.255 192.168.123.100 192.168.123.100 1
| 224.0.0.0 224.0.0.0 192.168.123.100 192.168.123.100 1
| 255.255.255.255 255.255.255.255 192.168.123.100 2 1
| Default Gateway: 192.168.123.254

Both of these routing tables are automatically built up by the computers based on the DHCP information from their respective routers. To connect the two computers on the same LAN, yet allow each to communicate to the Internet through their respective routers means that one of the computers will need to build its routing table independent of the DHCP server.

First, I connect a CAT 5e (or CAT 6) patch cable between the No. 4 ports on the two routers, and use the "Uplink" switch on the Netgear to put it into uplink mode. Or use a crossover cable. Unless one, or both of the routers can auto negotiate the link.

Next, I disable DHCP service in the Netgear, and assign it a new IP address: 192.168.123.1. In the SMC Barricade I will limit the scope of the DHCP assigned IP addresses to 50 devices, starting at 192.168.123.100.

Now, when I reboot everything, I will get this:

The Network A computer has a routing table thus:

| Active Routes:
| Network Destination Netmask Gateway Interface Metric
| 0.0.0.0 0.0.0.0 192.168.123.254 192.168.123.101 1
| 127.0.0.0 255.0.0.0 127.0.0.1 127.0.0.1 1
| 192.168.123.0 255.255.255.0 192.168.123.101 192.168.123.101 1
| 192.168.123.101 255.255.255.255 127.0.0.1 127.0.0.1 1
| 192.168.123.255 255.255.255.255 192.168.123.101 192.168.123.101 1
| 224.0.0.0 224.0.0.0 192.168.123.101 192.168.123.101 1
| 255.255.255.255 255.255.255.255 192.168.123.101 2 1
| Default Gateway: 192.168.123.254

The Network B computer has a routing table thus:

| Active Routes:
| Network Destination Netmask Gateway Interface Metric
| 0.0.0.0 0.0.0.0 192.168.123.254 192.168.123.100 1
| 127.0.0.0 255.0.0.0 127.0.0.1 127.0.0.1 1
| 192.168.123.0 255.255.255.0 192.168.123.100 192.168.123.100 1
| 192.168.123.100 255.255.255.255 127.0.0.1 127.0.0.1 1
| 192.168.123.255 255.255.255.255 192.168.123.100 192.168.123.100 1
| 224.0.0.0 224.0.0.0 192.168.123.100 192.168.123.100 1
| 255.255.255.255 255.255.255.255 192.168.123.100 2 1
| Default Gateway: 192.168.123.254

Here is the problem: All Internet traffic will go through the SMC Barricade 7004BR, and be routed through a dial−up modem. We need to change the Network B computer, and we need a way to do this automatically.

You will need to go into the Network Properties setting for each computer on Network B and manually configure the computer. Select the TCP/IP −> <Network Adapter Name> line for each computer, and click on Properties. We need to work on two of the tabs: IP Address, and Gateway. Get yourself a notepad and write these settings down, so you won't forget them.

IP Address tab:

Change this to "Specify an IP address:", and then fill in the blanks.

IP Address: 192.168.123.200
Subnet Mask: 255.255.255.0

Increment the IP address by one for each computer. Notice that I am using "200" for the final number set for the Network A computer. This is the reason that I limited the DHCP scope in the SMC Barricade; I can manually set IP addresses outside of that scope. Manual assignment is _essential_ to make this work.

Gateway tab:

Enter 192.168.123.2 into the field, then click on the "Add" button. Both of these steps must be done for each computer using the at&t Yahoo! HSI connection.

Finally, to be technically correct, you could also changed the DNS servers on the "DNS Configuration" tab. For these computers, with a DSL modem acting as a DNS server proxy, after enabling DNS, you would enter 192.168.0.1 into the field. You need to know your DNS servers for this connection if you want to configure them.

If you have done everything properly, you should have the following:

Network A:

at&t Yahoo! HSI
Netgear FR114P: 192.168.123.1/255.255.255.0
HP Pavilion 6745C: 192.168.123.200/255.255.255.0
DNS Server: 192.168.0.1

Network B:
Level 3 dial−up
SMC Barricade 7004BR: 192.168.123.254/255.255.255.0
HP Pavilion 6745C: 192.168.123.100/255.255.255.0
DNS Servers: 68.94.156.1, 68.94.157.1

And your routing tables would come up like this:

The Network A computer has a routing table thus:

| Active Routes:
| Network Destination Netmask Gateway Interface Metric
| 0.0.0.0 0.0.0.0 192.168.123.1 192.168.123.200 1
| 127.0.0.0 255.0.0.0 127.0.0.1 127.0.0.1 1
| 192.168.123.0 255.255.255.0 192.168.123.200 192.168.123.200 1
| 192.168.123.200 255.255.255.255 127.0.0.1 127.0.0.1 1
| 192.168.123.255 255.255.255.255 192.168.123.200 192.168.123.200 1
| 224.0.0.0 224.0.0.0 192.168.123.200 192.168.123.200 1
| 255.255.255.255 255.255.255.255 192.168.123.200 2 1
| Default Gateway: 192.168.123.1

The Network B computer has a routing table thus:

| Active Routes:
| Network Destination Netmask Gateway Interface Metric
| 0.0.0.0 0.0.0.0 192.168.123.254 192.168.123.100 1
| 127.0.0.0 255.0.0.0 127.0.0.1 127.0.0.1 1
| 192.168.123.0 255.255.255.0 192.168.123.100 192.168.123.100 1
| 192.168.123.100 255.255.255.255 127.0.0.1 127.0.0.1 1
| 192.168.123.255 255.255.255.255 192.168.123.100 192.168.123.100 1
| 224.0.0.0 224.0.0.0 192.168.123.100 192.168.123.100 1

| 255.255.255.255 255.255.255.255 192.168.123.100 2 1
| Default Gateway: 192.168.123.254

Now, based on the routing table for Network A, everything should work.
Alas, I just tried it for a real world test. I have a problem with the
very real SMC Barricaded 7004BR in that it can't be seen by the second
HP Pavilion 6745C. Odd. I can ping every LAN device but that router from
that one computer. Time to troubleshoot...

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Norman
~Oh Lord, why have you come
~To Konnyu, with the Lion and the Drum
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