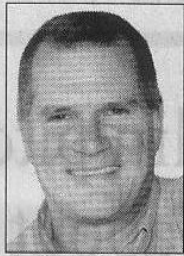


Small routers becoming more user friendly

In the late 1980s I took a class on Cisco routers to prepare for a networking project at my employer CogniSeis Development. The class was difficult and the interface was terse but I picked up on the basics quickly.



John Deans

After the first couple of classroom hours with hands-on configuration drills I knew this kind of skill set would be a necessity to further my IT career.

We typed in phrases like "show interfaces" into the CLI (Command Line Interface) to see the multiple network adapters installed within the \$10,000 Cisco AGS+ router. This new multi-slot router was state-of-the-art back then and connected numerous Ethernet networks along with multiple private wide area networks via Frame Relay and T-1 links.

The next decade brought the Internet with Cisco Systems providing over 80 percent of the routing infrastructure that is present to this day. Since then Cisco has been slowly migrating from the complex CLI which required geeks like me to remember hundreds of commands and option combinations to a more user friendlier GUI (Graphical User Interface) on many of their router models.

The vast majority of small business and home level routers all have GUIs that are accessible from any Web browser. These smaller routers from DLink,

SMC, NetGear and Cisco's own Linksys all have simple to use GUIs that most people talk to with Internet Explorer.

Basically these routers have a Web server module built into them which allows us to browse to a common address of

<http://192.168.1.1> for Linksys and most other routers. It will initially ask you for a username and password which will be documented in the router's packaging.

The default username is blank and the password is 'admin' for the most common and widely used router by Linksys. I buy several Linksys routers a month to install at client offices and homes for new Internet service, better security practices, or wider wireless coverage.

These handy routers cost around \$70 and come in a slick black casing with a single Internet port and four LAN (Local Area Network) Ethernet ports. The Internet port connects to your broadband modem from either DSL by AT&T, Cable TV from SuddenLink or wireless from providers like Texas Broadband, Broadwaves or America's Internet.

By default the router's Internet port is configured to ask the provider for a public IP (Internet Protocol) address when you first plug the CAT5 patch cable from the modem to the router.

Also by default, the four LAN ports are setup to deliver local IP address to client PCs that are plugged into them.

This IP address distribution is called DHCP which stands for Dynamic Host Configuration Protocol. The router is a DHCP client to the Internet Service Provider (ISP) and also a DHCP server to the computers connecting to it usually at a range of 192.168.1.100-150 with that last number incrementing as each new computer is added.

Most homes with high speed broadband Internet access will already have a router if they own more than one computer. The only difficult part in setting up the router initially is the DSL authentication required by AT&T. This is usually the AT&T username like deansconsulting@att.net and a password that you would have set up initially during the DSL startup procedure.

The initial credentials exchange is called PPPoE (Point to Point Protocol over Ethernet) and is usually the issue of DSL connection problems. Many times I have had to work with techs from India on the phone to obtain a DSL password reset to get the Internet link operational again.

Both Cable TV and wireless providers do not require such authentication and the default DHCP client handles acquiring the public IP address upon connection. This makes initial router setups quite easy and basically plug-and-play.

The major configuration users need to perform is changing that default 'admin' password and enabling wireless encryption so neighbors will not highjack their network.

In larger homes or offices it may be necessary to have a second router to act as a wireless access point to extend the wireless coverage to another part of the home or office. This can be done easily with just a few configuration changes to the router.

For this example we'll use the most common router being the Cisco Linksys basic WRT54G. First you will need to change the default address from 192.168.1.1 to 192.168.1.2 which can be accomplished on the first page of the setup menu.

After that you will have to re-establish the connection to that secondary router by browsing to <http://192.168.1.2> and then disable the DHCP server option which should also be on the initial setup menu.

These are two critical steps since we do not want two identical IP addresses nor two DHCP servers running on the same network. Next we need to join the two routers with a single Ethernet cable.

I usually run a long CAT5 Ethernet patch cable from the original router to the new router location. From there I plug in that new extension network cable from any of the four LAN ports on the primary router to any of the four LAN ports on the secondary router.

Finally I change the wireless network name called the SSID from the default of "linksys" to something like deans2 or deanswest to signify the physical location of the wireless network. Try to use different wireless

SSIDs so you will know which one you are connected to and be able to see if any of the available networks are ever down.

You can continue this network extension process by even adding a third or fourth router just by continuing to increment the additional router's IP address (ie. 192.168.1.3 and 192.168.1.4) along with having different wireless network SSID names.

Bottom line: Small routers

have become much more user friendlier over the past couple of decades so grow your network by adding multiple wireless routers to your home or office network.

Next week's column: Tax preparation.

John Deans of DeansConsulting.com is a Brenham area computer networking consultant who can be reached at 289-2233 or John@DeansConsulting.com for questions and comments.