

Getting Your Family Connected

In this issue I will be discussing some of the things you should consider when connecting your systems together in your home. By no means is this a comprehensive list, but it will give you some insight and keep you on the right track. Take note of all the different options and you should be able to determine which ones fit your specific situation.

Why Network? There are many benefits to connecting your computer and other devices together. The primary reason for doing so is to communicate and exchange data. Networking is all about sharing, and it allows your computers to connect to the Internet, talk to each other, and share resources like files and printers and can help you save money by sharing those devices. Networking adds a lot of flexibility in the way you work and spend time with your computers and other electronic devices.

Let's take a look at the two primary methods of networking, Wireless and Wired. Wireless communicates using radio wave technology while wired communicates through data cables. Two questions come to mind... Is one better than the other? How do you choose?

With wireless networks you don't have to string cables for your devices to connect to each other. A low grade radio wave is used that is very similar to the way a cordless phone work. The advantage of a wireless network is mobility and the freedom from having a fixed connection. Other benefits of wireless technology include but are not limited to:

- Mobility – work anywhere within connection distance of your wireless access point
- No Fixed Connection restricting your connection to your network
- Quick and effortless installation
- No cables to purchase
- Save cabling time and hassle
- Easy to expand your network

Wired Network technology today revolves around the standard known as Ethernet. The data cables can have different ratings that tell you the bandwidth or speed your network has the capacity to run. If you can, try to use either Category 5e or Category 6 cabling to take advantage of your router's speed. Why is this important? With the use of Video on your computers and other devices today you will need as much speed as possible. This is one of the limitations that we see with wireless when compared to wired networks and is why we usually suggest using as much wired technology you can to give you the best performance possible. We are beginning to see Gigabit Ethernet as the new standard which is being driven by video requirements for support and training.

For most of us a hybrid of both technologies will probably be the best choice. Parts of your network will be better supported with wired technology, while roaming around the house with your laptop or connecting systems in hard to reach locations are better suited to wireless technology.

In Figure 1, you see a typical home setup using a cable modem, wireless router and a high speed network switch to form the communication base. The Notebook in this case is connecting to the system through the access point on the router. This gives the notebook access to all of the devices on the network and of course the Internet.

The printer is shown with the three primary connectivity options. It could be hooked up to the workstation and shared through the USB port, or setup

as a wireless device that the notebook could print to wirelessly, or have an Ethernet port that allows it to be connected wired to the network and then be available to all other network devices.

The Network Storage is wired into the network and acts as a central repository for all of your data that can be accessed from the notebook through the Wireless Router and by the desktop computer through the wired connection.

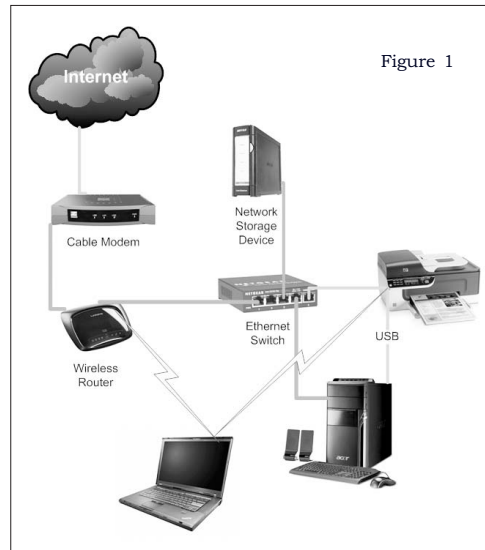


Figure 1

To attach a workstation to your wireless network you will need to add a Wireless Adapter to your machine. The easiest way is to purchase a USB NIC that simply plugs into any USB port on the outside of your machine. This will work with a laptop as well that supports USB connections that doesn't have a built-in wireless radio. On a notebook you can also add a PC-Card into the PCMCIA slot in the side of your unit if you don't have a built-in radio. Either method makes it easy to connect your systems to your wireless router.

Don't forget to secure your wireless connection. If you don't apply the security that is built-in to most wireless devices then you could be vulnerable to access from someone within proximity of your wireless router. I use three steps to secure my wireless network.

Change the SSID on the router and then turn off the broadcast feature once you have your systems setup. Think of the SSID as the name of your router (service set identifier). This will prevent your router from sending out its name looking for other devices to connect to it.

Make sure you change the default administrator login and password. These are well known and if you don't change them can allow easy access to the router from someone trying to access your system.

Set up security for your wireless network. Many new wireless systems make it easy to setup your new router so that it is secure. Follow the directions that come with your unit because each one is different. Make sure that you document everything and place the information in a secure location. If you lose this information you will have to reset all of your devices back to factory default settings and start from scratch to reset up the network.

Which wireless technology is best for you? You will need to consider the four current standards for wireless computing: Wireless-A, Wireless-B, Wireless-G and Wireless-N.

Wireless-A (802.11a) operates at a frequency of 5GHz which is considerably less crowded than 2.4GHz where telephone and microwaves can cause interference. Although the speed is up to 54Mbps, the maximum range is only 75 feet. Wireless-A is incompatible with Wireless-B and G because it operates at a different frequency.

Wireless-B (802.11b) operates on the 2.4GHz frequency band and can transmit data at speeds of up to 11Mbps within a range of up to 100-150 feet. Wireless range can be affected by reflective or signal-blocking obstacles, such as mirrors, walls, devices and location, whether indoors or outdoors. This is an older wireless technology and not suitable for video sharing at all.

Wireless-A and B came out roughly at the same time and are the older technology. Laptop technology today is widely using Wireless-B in public access areas like airports and restaurants.

Wireless-G (802.11g) features the same benefits as Wireless-B, but offers 5X the speed at up to 54Mbps. Wireless-G currently offers the best combination of performance and value. Wireless-G is compatible with Wireless-B equipment, but you will lose the higher performance speeds of Wireless-G.

Wireless-N (draft 802.11n) the current generation of high-speed wireless networking is capable of delivering the range and capacity to support today's most bandwidth-hungry applications like streaming video. Wireless-N builds on the previous wireless standards by adding multiple-input multiple-output (MIMO) technology. Wireless-N is a draft standard, meaning The Institute of Electrical and Electronics

Wireless Standard	Dual-Band Wireless-N (802.11n)	Wireless-N (802.11n)	Wireless-G (802.11g)	Wireless-B (802.11b)	Wireless-A (802.11a)
Frequency	2.4GHz and 5GHz	2.4GHz	2.4GHz	2.4GHz	5GHz
Maximum Speed	108Mbps	108Mbps	54Mbps	11Mbps	54Mbps
Range	300'-450'	300'-450'	100'-150'	100'-150'	25'-75'
Compatibility	Wireless-B, -G & -A	Wireless-B & -G	Wireless-B, & -N	Wireless-G & -N	Not compatible w/ Wireless-B, G or -N.
Figure 2					
Maximum wireless signal rates are based on IEEE Standard specifications. Actual data throughput will vary. Network conditions and environmental factors can lower actual data throughput rates and range (coverage).					

Engineers has not yet adopted it. Most devices supporting Wireless-N will work together but some of the companies are adding special functions to differentiate their product from others so be careful.

Dual-Band Wireless-N (draft 802.11n) dual-band routers are compatible with both 2.4GHz and 5GHz frequencies. Non-concurrent dual-band routers only allow usage in one of the frequency bands during set up and configuration. In a concurrent (or simultaneous) dual-band router both radio bands work at the same time, substantially expanding the available channel bandwidth and allowing more data flow.

Have I totally confused you? I hope not. Remember that if you can wire, do it and use Category 6 to "Futurize" your wired infrastructure. If you are planning to share video across your network you will need to consider Wireless-A or N to get the best bandwidth. Wireless-N will also provide better range than Wireless-G and B. And, if you want the best that wireless can provide consider a concurrent dual-band router.

I hope that this information will help you design your own home network. If you are still not quite sure of what you want to do or need to bounce ideas off of our design specialists you can contact me at bobstechtalk@live.com or call Computer Connections at 800-640-7506.

More Shops Around the Corner

CURRENT THYMES
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Handmade Bulgarian Pottery and Alfresco vases are forever tempting me. Certainly among the most interesting of the garden collection items are the *Down Under Pots*. Intended for hanging from porches, trees or even indoors, these Australian terracotta creations are quite unique, since the plants they hold face downward. Disconcerting at first, but perfect for those of us who like to have the world turned upside down on occasion.

Why don't you allow *Current Thymes* to play cupid for you this Valentine's Day? Host an impromptu picnic for the significant other in your life by purchasing a paisley cooler, jute wine tote with flip flop wine glass coasters and fill your acquisitions with romantic food and beverage choices. Coincidentally, Heather stocks a number of gourmet food items and suggests the Spicy Apple Garlic Jam of *Earth & Vine Provisions* wrapped with brie in puff pastry and accompanied by a dry white. Sounds like seductive rendezvous fare to me. Indulging in a little retail therapy in *Current Thymes* could go a long way toward curing your winter and fiscal blues this year!

Visit *Current Thymes* at 106 N. Fairfield Street in Ligonier. To contact call 724-238-2930 or email currentthymes@verizon.net

— Story & Photos by Barbara M. Neill

JOE'S STORE
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Although my nephew is going to outgrow those *Ice Age* DVDs and Gummi Pizzas in the not too distant future, I like to think there will always be something for Zach and his Aunt Barbie when they visit a store named *Joe's*.

— Story & Photos by Barbara M. Neill



Every Story Begins At Home.

Five Things You Learned About Networking from Your Mother

by Michelle Donovan

Mothers are a beautiful thing. They care for us, nurture us, and teach us the dos and don'ts of life. I've learned a lot from my mother. Especially when she taught me all about life, love . . . and networking! I'm sure she didn't realize she was teaching me about networking at the time. But she was. And I bet your mom taught you about networking as well. Perhaps the words of my mom will sound familiar to you.

"Share your toys."

I can't remember how many times my mom told me to share! She felt it was important that we knew how to give to others. Growing up in a large family, I had to share almost everything. Sharing is good to learn when you're young, because it's a skill that makes us approachable.

Networking wouldn't be networking if we didn't share. We build stronger relationships with people when we're willing to share our resources. Some of our best resources include time, money, connections, information, knowledge, and skills. People appreciate us when we're willing to give to the relationship. Giving people are approachable and reap the benefits of reciprocity.

"Walk, don't run."

I used to hear this phrase no matter where we were: the house, grocery store, mall, church, or school! As a kid, I was always in a hurry to get to the next exciting thing. There always seemed to be someplace more interesting than where I was at the time. My attention was short, and my mom wanted me to learn patience.

Patience is a virtue when it comes to networking. A fast-paced networker misses the true essence of the event and can very easily blow right past a tremendous opportunity. Fast-paced networkers tend to build shallow relationships that offer little or nothing of value to their business. On the other hand, patient networkers build deep, long-lasting relationships that lead to the growth of their business. Establishing a network that has depth far exceeds one that is shallow.

"You have to work for it."

Nothing in life worth having comes easy; you have to work for it! My parents taught me this lesson by example. Both of my parents worked hard for what they accomplished and gave to their five children. They were determined to provide a wonderful life for their family—and they did. Today, in their retirement, they are reaping the benefits of their labor. Networking is no different. That's why it's called, net-WORK! It's not net-SIT or net-EAT! Building relationships takes not only time, but effort and energy. It also takes commitment and dedication to the process. Some people put their faith in the six degrees of separation theory, which tells them that they're connected to anyone by only six degrees. In fact, this theory is flawed. This study actually shows that only 29% of the population is indeed separated by six degrees! So, for the majority of us, we've got to work hard to get into the 29%, and work hard to just stay there. The reward for accomplishing this task is great, beyond what we can even imagine. Our mothers had foresight, didn't they?

"Say thank you."

Not long after we began to speak my mom was making sure that we knew how to say thank you! As most kids do, I wanted to know why it was important to say thank you. Being a fast paced kid, there seemed to be no time for saying thank-you. In true mom form, my mother would reply, "It's the right thing to do." Before I knew it, saying thank you became second nature—and it felt right, too. Now it's part of who I am and how I operate. Saying thank you to those who have helped you in some way shows your gratitude, expresses your appreciation, and solidifies the steps made towards further developing the relationship. It seems as though these two little words don't pack much of a punch these days. But I can assure

you, handwriting a note of thanks to a referral partner will enhance the possibility of future referrals.

"Clean up after yourself."

What does cleaning up after yourself have to do with networking? As kids, there was always one last thing to do when we played with our toys: Put them away. That was our quiet lesson in follow-up. As kids, we ended every play time with a consistent behavior of cleaning up after ourselves. As adults, one huge component of networking is follow-up and, more importantly, our ability to do it consistently. Meeting people and building relationships mean very little if we never bother to follow-up with them. Making promises to help someone without efficient follow-up is vain. This homegrown lesson in follow-up might be the most important networking lesson of all.

These five lessons grounded me as a person and helped me develop into a successful professional. I can still hear my mom saying, "Some day you'll thank me!" So, Mom, thanks for teaching me lessons that would one day help me to be an effective networker!

Perhaps it's time you thanked your mom, too.

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