

The Future Of



The Home Network

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Introduction

Have you ever thought about what it would be like to have a network of computers but not all of the cables that are needed to connect everything? Imagine if we could just run our power cables and everything we want networked would run by wireless, this would include computers, phones, televisions, and gaming devices. How about instead of adding extra Ethernet cable we could just use the electrical outlets. And what about backing up our data, video, and media at home? I know there are external hard drives, USB jump drives, DVD/CDRWs, and even servers that we can use. But what about the non-technical user who needs more space, user friendly software or hardware, and needs the security that is offered to businesses. Now after thinking about these thoughts, imagine yourself sitting in front of your sixty inch LCD panel television, not just watching your favorite show but also ordering your groceries for the week because you forgot to pick them up after work today and while you are doing that you are changing the temperature in your refrigerator for the food you purchased and in your home by controlling the thermostat. During your favorite television show you pause it live time, because your child wants to play you in Madden 2008 on the same television. Another example would be that you forgot to send out an email to staff at work and you want them to receive it right away the next morning, instead of getting up and going to your office where the computer is, you can just sit at the TV, access your computer, and take care of the forgotten, but important, email. This innovation of technology in the home is becoming more and more popular. In my research I have also read that you will be able to control your thermostat settings, lighting, and your refrigerator settings by not physically being by the appliances.

Today's Technology

With today's home networks we hear about DSL (digital subscriber line), Cable, and Wireless networking. If we create networks in our home it is usually for sharing a printer, Internet access, and email. Of course with our youth and the rage with gaming we also hear and see LAN fests. Running Category 5 or higher cable along with wall jacks is very popular in today's construction of new homes, multi-family buildings, and businesses. When we built a new home back in the mid 1990's it was never in the thought process of the contractor or the home owner of installing cable and jacks into a home for the use of computer technology, if you were fortunate to have Internet, it was dial-up through the phone line. You can even run Ethernet in preexisting structures that may be external or internal to the walls depending on the material and infrastructure of the buildings themselves.

DSL (Jeff Fisher, DSL Installation Tutorial) comes into our homes through our phone lines similar to dial-up. Our phone line is actually divided in half, half for voice and the other half to our DSL modem/router for data. From the DSL modem you will typically use a Cat5e patch cable to connect to your computer. Usually you can go through your local telephone company or provider to preview their DSL packages before purchasing one.

Cable (Greg Shultz, How to Install Cable and DSL Modems) uses the same cable that comes into our homes that is used for the television. Again you need a special Cable Modem that will separate the signal that will be used for your Internet access. From the Cable modem you will use a Cat5e patch cable to connect to your computer.

WLAN, wireless, or Wi-Fi is a rapidly growing connection in the technology industry and the home. Whether you are using DSL or Cable it is possible to have wireless technology. The modem you have and the technology (laptop) you want to use needs wireless capabilities and the service needs to be available through your Internet Service Provider.

Problems that exist with these technologies, especially when thinking about setting up home networks is with DSL and Cable you need to run cables in order to have more than one device to have access. If you have devices in more than one room or location within your home this can be an issue. With the rise of the wireless world there are still issues with speed and security.

No matter what your choice is, these technologies are a vast improvement over the earlier stages of accessing the Internet from home, or any where, through the use of dial-up and a modem in your computer. Speed and home networks are becoming more and more popular everyday.

With today's technology we are able to do out of the ordinary and everyday things we never thought of years ago. We can use the Internet for banking, sending emails, and to access our medical records. But just think of the possibilities of how these things are changing. Are we going to have to walk into a bank in the future? Will there be Post Offices' for mail, or will we be able to scan and send a card through the Internet. What about our ability to learn and go to school? Who thought about doing a master's program online a couple of years ago? Training gets done through a computer program or CBT. We can access our grades and see what was done in class if we missed a day. So the thoughts and the future of home networking are not just about the new gadgets and technology we can purchase, but of what we can do with the devices, appliances, and access to doing things in our everyday lives. Some of those appliances have been around for longer than we have and it is the technology of connecting devices within our homes that is going to make the future of networking within our homes to new heights.

The Future

According to In-stat (Elaine Potter, Future Home Network Growth to be Driven Mostly by Asia), the increase of home networks will rise by over 20% from 2005 to 2010, along with this data the number of networked computers per household will also rise from 2.4 to 2.6. Along with the increase in home networks and computers we also have and increase in the number of people who are working from home either part-time or full-time that is determining the amount of technology and what type to have installed in their home.

Wireless technology seems to be the goal, the dream, and the view of users in the technology world. With wireless, we are removing the hassle of physically connecting devices along with the fact we are constantly on the go making our lives much easier by being able to access information via mobility. This does not mean we are going to be able to eliminate all of the cable that is used with devices. We will still need the backbone (ISP) that comes into our homes to give us the access to the outside world. The Consumer Electronics Show (CES) met in Las Vegas and had these thoughts in mind for the future of the home network (David Haskin, January 26, 2007); the demand for high-bandwidth to go along with our video and audio on our computers and the high-definition televisions will mean we will continue to need to run cables for these purposes, storage and back-up is going to factor into the home to manage the media, and the other interesting technology that was talked about was the 'HomePlug' technology (The HomePlug Alliance) where you use your electrical outlets and wiring which can provide speeds of up to 200Mb/s. The one thought that stands out to me from the CES is the idea of being able to use our electrical outlets as a mean to access the outside world. The HomePlug Power line Alliance (The HomePlug Alliance) along with Linksys (Linksys) has the PLE200 adapter that assists home net workers with high speed data transfer through the power lines. According to the information it is easy to install and a reliable and secure form of access to the outside world for the home user.

Due to the increase in high definition video and audio streaming it is going to be important for the home users to be able to store and have their important data in one location. At the CES, Microsoft (Chris Preimesberger, July 28, 2006) came out with new home storage software. HP's home storage server contains the software (Hewlett Packard Company, HP MediaSmart Server). According to HP and Microsoft, the software will provide RAID-like storage, but will be user friendly for the home user. Non-technical users will not only be able to use the software for organization of their data and media but also for creating those important backups.

With an increase of the home network population and people working from home, we are hearing more and more about the increase of servers being built specifically for the home network and user. HP (Hewlett Packard Company) came out with their MediaSmart flat-panel TVs with built-in intelligence and Microsoft's new software. The combination of these two connected to HP's network storage device gives the home user a remote-control friendly interface for playing games or music, storing data or media, and retrieving those files when needed while you are sitting at your TV. Think of it as having a 40 to 60 inch computer monitor.

Besides computers, Internet access, gaming, and all the other gadgets that are becoming popular with home networking we can't forget about our analog voice systems called telephones. We are used to picking up a phone and dialing a number to make voice contact with another person. The integration of the technology of VoIP (Voice over Internet Protocol) is giving us the ability to make phone calls by using broadband (Consumer and Governmental Affairs Bureau). Meaning we can make phone calls from our computers or our regular phones connected to special adapters. Instead of the signal being analog our voice is converted into a digital signal that can travel over the Internet. With this technology we are looking at the ability to not just network our computers, televisions, and gaming devices but also our phones. This also gives us the ability to make and take phone calls on our computer systems, or our networked flat screen

televisions. Video screens (Consumer and Governmental Affairs Bureau) on VoIP phones are also being looked at for the future which will give us the real-time video interaction of the person we are talking to. Imagine seeing the person you are talking to on a 40 inch or higher LCD television when having a complete video, audio, and voice network. This is the future above and beyond the cellular technology. Our cellular phones were developed for mobility. VoIP is a technology that can be used in our homes and connected to our home networks. The phones will actually be given an IP address just like our computers have on a network at home or at work. All these technologies can lead to more and more people working from home if their employer allows this, or more people going into business for them, and having their main office at their home.

When we add these old, current, and new technologies together we have the makings of more and more people and employers having the opportunity to have their offices out of the home, or employees working from home. It is not just the technologies that are making our family time and free time easier and accessible to the outside world, but it gives us the opportunity to be creative with our professional careers. With this increase in technology that is provided for businesses and those businesses allowing their employees to work from home, that same technology will be needed in the home to have compliance. More and more work is being done from the home. It is not just the business side of it that is determining this factor; it is also the management of our lives at home. We as a society today are becoming technically and medial driven. We use the Internet as a means of communication with family, friends, and co-workers. The Internet provides us with means of being in touch with the outside world. We use it for shopping, reading news, accessing audio and visual media; it has become a way of life. Because of this means and reliability, it is becoming of common habit to integrate more than one computer into the home which introduces the home network. If we have one computer that has high speed Internet, we can easily connect one or two more.

Impact Analysis

As technology improves, changes, and becomes easier to understand daily in our lives today we are constantly trying to adapt as much as we have time and can afford to. The future of the home network is increasing just about as fast as the cost of a computer. According to (Elaine Potter, January 17, 2007), with the increase in computers in a home by 2010, means there will be the need for networking those computers. The biggest impact I have seen through my research and in my personal life is seeing my wife being able to spend more time at home working from our networked office rather than having to drive to an office every day.

This gives a person the responsibility of keeping track of their hours, but may also give them time to take one of their children to school or pick them up after a practice. There would be less stress and time wasted by being on the road to and from work. Of course there would also be drawbacks. Security is a big issue when you need to log into work or a database to access files. If you are issued a work computer or you use one of your own, no one else should have access to that computer, including yourself, for personal reasons. What about these up and coming technologies that I have talked about. Are they going to give us everything we want, or are we going to want more? I feel that networking our devices and being able to control our home environment will make our lives much easier,

but it will take time and organization. The connections, servers, software, voice, and media will all play an important role in our future homes. But, what if we don't do a backup, or the power goes out due to an electrical storm, we will have a good chance of losing data, having our network go down (all our appliances that we have connected), and possible damaged hardware and devices. It seems like when we get close to mastering or becoming used to a new technology it changes. We will need to become more technical ourselves in our family roles. If we rely on these future technical trends for our homes, and if something happens where we can not operate for a period of time where we can not wait for a technician, we need to have that ability to service our own network. There is a possible bright spot for the future of the Networking Technician/Administrator, like myself, not every home owner is going to take the time to learn the technical side of networking to solve their problems.

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