Networking Essay, Research Paper

There are many kinds of networks, however this paper will be about networking computers. As we move further and further into the paperless society, the need for people to be connected and able to exchange data just as fast as they could by handing a paper to someone increases. This can be accomplished by having a group of computers connected by a network, so that as soon as data is entered into one computer, it can be immediately accessed by someone else on a connected computer, no matter how far away it may be (though usually it is in the same building). There is much work involved in this and it in includes a lot of math, from equations to basic problems. This report will be based around the mathematical aspects of setting up a network.The first mathematical question in setting up a network is very basic. How many computers will be connected to this network and how many guest computers might come on at one time is the question. An example of a guest computer is if someone brought a laptop and connected it for a short while to download or access data. To find the answer to the question, simply count the desktop computers that will be connected and how many guest computers you expect to be connected at one time. The second mathematical problem that occurs is best solved using an algebraic equation. Let x=the amount of desktop computers that will always be connected, y=the amount of guest computers that you expect to be connected at one time. So, the equation is: x+y+1. The one added on the end of the equation is another guest file just to make sure you don’t fall short. So, this tells you how many files you need to create. The guest files will all be generically named so that all guests have the same access privileges, and all the permanent computers will have their own named file so they can have more personalized access privileges. These files are put on one main computer, the server. This controls all access privileges and any data put into a computer branching off from it in it’s network can be accessed from this all-powerful server computer. The previously stated problems are a large part of networking, although I couldn’t possibly tell about all the math involved without going on for another 3 or 4 pages. Those problems help with networking as far as setting up the network on the computer goes, but there is a whole nother side. The physical side.The physical side of computer networking involves problems such as how many feet of cable are you going to need to connect the computers. Some large office buildings can have 1 mile of cable between their networked computers! If someone has 2 computers in their house, it may only involve 3 feet. The mathematical procedure is quite simple although it might take a while to complete. Just take out the old meter stick and start measuring. Don’t measure direct lines between the computers unless you want the cable stretching in a straight line between them. Chances are you will want it to run along a wall or around another object. Once the measuring is done, just add up the cable length and you have the answer to the problem.If you don’t have a very tight budget, you can afford faster networks than cable networks. These are more sophisticated but I was lucky enough to get to try it this summer. It is called infrared data transfer (IDT). Instead of cables, you have an infrared connector hooked to your computer. Just aim the little infrared panel at the infrared panel on the other computer and it will trade information with infrared light. These panels are usually about 1 square inch in size. This is much quicker and doesn’t involve annoying cables. You still need to gauge distance because there is a distance limit on how far apart they can be and still work. When you install them, your computer will ask you questions such as how many lumens (measurement of brightness of light) you would like your panel to emit. It is invisible to the naked eye but the amount of lumens it outputs is critical. If you have a fast computer, you might want more lumens so that your computer doesn’t crash because of lagging. If you have a slower computer you will want less lumens because other wise you will be sending data too fast for your computer and there will end up being a lot of gibberish that will mess up the receiving computer. The mathematical things that networking involves are almost endless depending on the situation. I couldn’t adequately explain them if I had the time, because anybody who didn’t understand quite a bit about computers wouldn’t know what I was talking about, forcing me to explain many things that are off the subject of mathematics in networking. I hope I have given you an idea of what it involves, but if you want to know about all of the mathematics, you will just have to network some computers yourself.