Cable Modem Vs Dsl Essay, Research Paper

The new competition for Internet Service Providers (ISP) is the new high-speed digital technology. This high-speed digital technology now comes in two different forms: Cable modem or DSL (digital subscriber line). Cable modems piggyback on your local cable TV lines and DSL takes advantage of the already existing phone lines. These two services are competing on availability, security, speed, reliability and finally price. Therefore, let’s compare the two.

A cable modem is a device that allows you to hook your PC to a local cable TV line. A cable modem can also be added to or integrated with a set-top box that provides your TV set with channels for Internet Access. A cable modem has two connections: one to the wall outlet and the other to a PC or to a set-top box for a TV set. Although a cable modem does modulate between analog and digital signals, it is a much more complex device than a telephone modem. It can be an external device or it can be integrated within a computer or set-top box. Typically, the cable modem attached to a standard 10Base-T Ethernet card in the computer. (Ulrich)

DSL is a technology for bringing information to homes and small businesses over ordinary copper telephone lines. Plain Old Telephone Service (POTS) was created to allow the exchange of voice information with other phone users. This type of transmission is called an analog signal. Analog transmission only uses a small portion of the available amount of information that could be transmitted over copper wires. Through the regular modem, the ability of your computer to receive information is constrained by the fact that the telephone company filters information that arrives as digital data, puts it into analog form for your phone line, and requires your modem to change it back into digital.

DSL is a technology that assumes digital data does not require change into analog from and back. Digital data is transmitted to your computer directly as digital data and this allows the phone company to use a much wider bandwidth for transmitting information to you. The signal can be separated so that some of the bandwidth is used to transmit an analog signal so that you can use your telephone and computer on the same line at the same time. (Calm, Holmstrom, Hohenberger)

Now that there is a clear understanding of what each service is. Let’s begin comparing the two. The first component is availability. One of the main disadvantages of the DSL service is that only systems within 3 to 4 miles of a telephone switching office can use DSL. Since cable doesn’t have the distance limitations of DSL, cable Internet is generally ideal for homes that are already wired for cable TV. However, many businesses aren’t wired for cable. This gives DSL the advantage in the commercial arena. (White)

The next competing component is security. Security is always a main concern when dealing with the Internet. Many people are concerned about how secure cable modems actually are, since they are operated on a shared system, much like an old-fashioned party line. Cable Internet shares its bandwidth with 100 or so TV channels. Cable is a broadcast service, so the same signal is sent to every subscriber. The receiving cable modem recognizes the parts of the signal that are meant for the particular customer and extracts them. (White) DSL service, on the other hand, is inherently more secure than using a cable modem because DSL provides a dedicated connection over your existing telephone line. (Garfinkel)

Speed is also a main concern when dealing with the Internet. Dedicated connection to the Internet blurs the boundary between where your computer ends and where the Internet begins. Both cable modem and DSL provide download transfer rates more than twice as fast as a 56Kbps modem. Cable modems are capable of receiving data at 3Mbps to 10Mbps. However, this speed tends to be slower when data is being sent upstream, from your PC to the Internet. It is then limited to a maximum speed of 2Mbps. However, transfer rates can drop significantly if everyone on your block logs on at the same time. (White)

DSL gives users dedicated bandwidth. However, the speed of DSL often depends on how close the home or business is located to a telephone company. Persons that are located close enough to the telephone company central office that offers DSL may be able to receive data at rates up to 6.1Mbps. Individual connections, however, provide from 1.5Mbps to 512Kbps downstream and about 128Kbps upstream. (Calm, Holmstrom, Hohenberger)

Keynote Systems, the recognized authority on Internet performance, conducted a study to determine which of the two systems were faster. The results showed that the median download time over DSL for 40 web pages was 3.55 seconds during the hours of 5pm to 11pm Pacific Time, which are peak personal-use hours. The result was nearly 11 percent faster than the median of 3.97 seconds over cable modem during the same period. However, the cable modem outperformed DSL during business hours with a 3.68 second performance versus DSL’s 4.30 seconds, cable modem performance degraded by 8 percent during the evening hours while DSL performance improved 17 percent. (Shklar)

When it comes to reliability, people voice justifiable concern that their local cable company doesn’t offer a high-quality television server, so it seems even more doubtful that they will provide high-quality Internet service. The telephone company, on the other hand, has been providing high-quality, uninterrupted service to its customers for years. (Garfinkel)

Another aspect that people pay attention to in terms of reliability is the amount of time a service has been available. DSL technologies, on the whole, are only about a year old. Cable modem technologies, on the other hand, are at least 6 to 7 years old. Cable modems, which deliver Internet access over a cable-television connection, are far better established. There are nearly 200,000 cable modem subscribers in North America. (Broersma)

Finally, these two systems are competing on price. Cable Internet is reasonably priced. You can get a cable connection for $30 to $40 per month. Plus this price usually includes services such as email and newsgroup access. In addition the actual cable modem that is necessary in order to receive Internet service is usually either provided to the customer by the cable provider or is relatively inexpensive. DSL connection costs, on the other hand, range from $20 to $80 per month, but many times that doesn’t even include Internet access. Plus DSL modems are proprietary and usually pretty costly. (White)

One of the reasons that cable service costs less than DSL is because it’s a shared facility. A coaxial cable traveling in a neighborhood from house to house can provide high-speed service to thousands of customers. A single piece of equipment at the cable company’s office can patch those thousands of customers onto the Internet. DSL, on the other hand, requires a separate pair of wires for each subscriber. The company must install a special DSL modem for each phone line at its central office. (Garfinkel)

PC’s in homes wired for cable but also close enough for DSL have the option of choosing either service. However, it is most likely that the home market will decide to go with the cable modem since it is considerably cheaper. Businesses, on the other hand, that are interested in maximum speed, security, and guaranteed performance will probably choose DSL. The DSL market also invites more competition than does cable. This means that DSL prices in the future should drop. (White)

The bottom line here is that neither the telephone nor the cable industries are doing everything that they can to roll out their technology very quickly. This is due to the fact that they would be replacing a lot of the infrastructure that they’ve invested in over the years which is still working fine for carrying telephone or cable-TV signals. They also know that there is the potential of satellite-based Internet access waiting in the near future. (Broersma)