**HOW DOES THE INTERNET WORK?**

From a normal user’s perspective it seems quite an easy yet one of the most difficult questions to answer. Before understanding how does the internet work let us try to understand why it was created in the first place. It was during the cold war times when the USA was afraid that the Soviets might destroy their telephonic systems thereby rendering their entire long distance communication useless. To avoid this situation the need for a trusted long distance communication source came up and that’s how the internet was developed.

Now let us discuss how the internet is different from the telephonic communication since it was created in the first place to counter the limitations and vulnerabilities of the telephonic communication system although it was a very reliable and stable way of communication. The telephonic communication system used (still uses) analog circuit switching of data. In simpler words, it creates a train of data which follows a particular dedicated path from the source to the receiver without being altered or modified on its way. Which means the data is received in a similar nature as it is sent which ensures that the quality of the data is maintained. On the other hand, internet has a different approach towards communication. It works through packet switching technique i.e. the data is divided into small packets containing not only the transmitted data but also destination information. Thus, every packet of data by itself knows where to end up. So each packet might not necessarily follow the same dedicated path (as in telephonic communication system) but still end up in the desired location. This method makes communication through internet path independent but also brings in a possible limitation i.e. traffic, since there are going to be lots of packets scattered on different paths. To understand the above procedure we can suppose that the telephonic communication system is like a train on a track with bogeys (data) attached to it going on a track (definite path) whereas, the internet can be thought of like any highway (independent paths) with lots of cars (packets of data) on it trying to reach the destination.

What we have learnt till now is the basic knowledge behind the working of the internet. Now let us go deeper and try to understand how the modern internet a.k.a. the World Wide Web (WWW) works. Basically, the modern internet is a network of computers all around the world communicating with each other through the above mentioned procedure. Now coming on to the more complicated part, there are protocols- namely TCP (Transmission Control Protocol) and IP (Internet Protocol) which are followed by the packets of data being transmitted to ensure that the flow of those packets is smooth and distortion free (as accurate as possible). The TCP is responsible for dividing the data into packets before transmission and reassembling them at the receivers end whereas, the IP is responsible for formatting and addressing the data packets being sent. The above mentioned protocols are followed with the help of four layers of transmission, which are:

1. Application Layer- it is responsible for interfacing with computer applications such as web browsers and email clients. To make it simpler it can be compared to writing a letter in the postal communication system.
2. Transport Layer- it is where the TCP works to divide the data into small packets which corresponds to packaging the written letter into an envelope.
3. Internet Layer- it is where the IP assigns address information and determines the route which the packet will take to reach the destination. This process is similar to writing our and the receiver’s address on the envelope.
4. Network Layer- it is where the physical hardware actually carries the data through wires, fibers etc. This can be compared to dropping the envelope in the post box for the postal workers top deliver it.

The entire process mentioned above is repeated in a reversed way at the receiver’s end and that is how entire communication through the internet takes place. I hope I have been able to answer the question asked to me in a concise as well as easy way so that everyone can understand it. Even if I have not been able to do so or have not satisfied your curiosity then I would like to defend myself by quoting Eric Schmidt, the executive chairman of Google, “The internet is the first thing that humanity has built that humanity doesn’t understand.”