**The Internet**

1. **What is the Internet?**

I once used to think that the Internet is a bubble cloud. This could be what comes to mind what asked. However, even in this age of cloud computing, the Internet is not a cloud. Once upon a time, Bon Kahn and Vint Cerf began working on a design of what we now call internet. It was a result of the United States’ Department of Defence research projjject. Paul Baran, the pioneer of computer network, was trying to figure out a communication system that might actually survive a nuclear attack. Hence, he had this idea of breaking up messages into blocks and sending them as fast as possible in every possible direction through a meshed network, and it worked.

Who is in-charge of the Internet? The honest answer would be nobody or everybody. Know that the internet is a global network of interconnected computer networks. It is a *network of networks* that consists of private, public, academic, business, and government networks of local to global scope, linked by a broad array of electronic, wireless, and optical networking technologies. It is made up of large number of independently operated networks. This system is fully distributed, no central control of deciding how packages are routed. The idea that who you know might be useful knowledge to someone else is the motivator in how information is shared freely on the Internet.

1. **Wires, Cables, and Wifi**

How do we send or/and receive emails? This is not magic, but the power of the internet, a tangible physical system that was made to move information. The Internet is a lot like the post office, but the physical stuff being shifted is different. Instead of Amazon boxes and envelops, the internet shifts binary information. The information is made up of bits. A bit can be described as any pair of opposites: on or off, left or right, yes or no. We typically use ONE and Zero for ON and OFF respectively. Because a bit has two possible states: on and off, it’s called a binary code. 8 bits make up a byte, 1024 bytes comprise a kilobytes, while 1024 kilobytes make up a megabyte. It does not matter what is being sent over the internet; everything is represented in ones and zeros. These are the atoms of binary information.

1. **IP Addresses and DNS**
2. **Packets, Routing, and Reliability**
3. **HTTP and html**
4. **Encryption and Public Keys**
5. **Cyber Security and Crime**
6. **How Search Works**