### History of internet

The Internet has revolutionized the computer and communications world like nothing before. The Internet is at once a world-wide broadcasting capability, a mechanism for information dissemination, and a medium for collaboration and interaction between individuals and their computers without regard for geographic location.

The evolution of internet begins by the urgent need to design a communications system capable of surviving a devastating thermonuclear attack. In order to understand, the original Internet’s plan was not to be centralized. In fact it was a project by the **US DoD (Department of Defense)** to establish a computer data communications network that could withstand events and disasters like war. Therefore it must be decentralized so that if one part of the system fails the rest can still function. It must also be able to communicate using interconnectivity without relying on a single computer. Another important consideration is that the computers must be interoperable among dissimilar systems, so that more devices can be a part of the network.

It all started with the idea of resource sharing first emerging in APRA as **ARPANET** in October 29, 1969 when the first successful message was sent from a computer in UCLA to another computer (also called node) at the Stanford Research Institute (SRI). Given that the network was supposed to facilitate the sharing of expensive and scarce resources, namely the mainframe computers that ARPA had funded in various research centers across the country, a key obstacle to overcome was the fact that these machines were incompatible with one another. For each of them to participate in a network would require the creation of complex, customized networking software which would enable each machine to communicate with every other machine on the system.

Then it was build a ‘sub-net’ of identical minicomputers (which came to be called ‘interface message processors’ or IMPs) each linked to a single mainframe ‘host’. In that way the task of writing networking software for a host was greatly reduced: it would simply have to communicate with a single machine – the IMP assigned to it.

**Development of the TCP/IP-based ‘internetwork’: 1973–1983**

During and after the construction of the ARPANET, other significant developments in networking technology were under way. Within ARPA, it was decided to build on this work by creating a packet-switched radio network (named PRNET).By the early to mid-1970s, therefore, ARPA found itself running three separate ‘experimental’ networks – ARPANET, PRNET, and SATNET – all of which used packet switching technology, but in different ways. An obvious next step was to see whether a method for ‘internetworking’ them, so that they functioned as an apparently seamless whole, could be developed.

In the end, a suite of interlocking protocols centred on two new ones (TCP and IP ) evolved. In this way TCP/IP became the cornerstone of the new ‘network of networks’. The great advantage of this approach was that implicit in it was the possibility of organic growth: as long as a given network ‘spoke’ TCP/IP (as it were) it was free to join the Internet.

**Transition from a military/research network to a ‘civilian’ one: 1983–1995**

Until the end of the 1970s, access to the developing Internet was restricted to those working in a relatively small number of institutions which held research contracts from ARPA. As computer science became an accepted academic discipline in universities, the exclusiveness of the ARPANET/Internet club was increasingly perceived as irritating and dysfunctional. This led the US National Science Foundation (NSF) to fund the creation of the Computer Science Network (CSNET) in the early 1980s. After an initial hiccup, it was decided CSNET would use the TCP/IP protocols, which meant that a connection between CSNET and ARPANET was feasible and so, at a stroke, the community of networked computer scientists was significantly expanded. While access to ARPANET was only granted to researchers funded by the agency, membership of CSNET was open to computer scientists in any institution willing to pay the annual subscription (although *commercial use* of the network was prohibited under the NSF's ‘acceptable use’ policy). The result was that the network began to grow at a faster rate – from 2000 host computers in 1985, to 185,000 in October 1989, and 1,776,000 in July 1993.

CSNET turned out to be just the first step in the NSF's involvement in networking. In mid-1984, the foundation began funding the establishment of several new supercomputing centres around the US. To make these available to the widest possible community of researchers, a national network was required. The original idea was for a network – NFSNET – linking the centres that would form the ‘backbone’ of a wider academic network, but in 1998, an agreement was reached to use the ARPANET as the (temporary) backbone of the new network while it was being built. On 28 February 1990, the ARPANET was officially decommissioned; the era of formal military involvement in the operation of the Internet had ended.

. In 1994, the NSF implemented a plan to allow Internet service to be taken over by commercial companies known as ‘Internet Service Providers’ (ISPs), each of which would operate its own backbone, enabling the old NSF backbone to be decommissioned. Customers would connect to one of the companies’ backbones, and the ISPs would operate a set of gateways at which a number of ISPs could interconnect their systems, allowing traffic to pass smoothly from one network to another, giving end users the illusion of interacting with a seamless, unitary system. What this also implied, though, was that the network was open for businesses.