Internet history:

The internet increasingly permeates our lives, delivering information to us no matter where we are. It takes a complex system of cables, servers, towers, and other infrastructure, developed over decades, to allow us to stay connected or be in touch with our friends and family so effortlessly.

How the internet was created?

Before the internet, there was the ARPANET, the precursor to the modern internet, eas an academic project funded by the Advanced Research Projects Agency, a branch of the military known for funding ambitious research projects.

Kleinrock's early developed switching theory and his focus on analysis, design, and measurement. Second node created by Doug Engelbart's in the name of project " Augmentation of Human intellect". One month later when SRI connected to ARPANET, the first host-to-host message was sent from Kleinrock's laboratory to SRI in the year 1984 ARPANET becomes the internet.

Kahn first contemplated developing protocol local only to the packet radio network, continuing to use NCP. But NCP doesnt have ability to address the networks or nodes or machines. Started some protocols based changes to the NCP too...NCP relied onARPANET to provide end-to-endhost error control.

The first internet backbone

During the 1980s, the National Science Network funded several supercomputing centers around the United States. And in 1986 the agency created a TCP/IP-based network called NSFNET to link those supercomputing centers together and allow researchers across the country to use them. The primary goal was to allow computer science researchers to log into the supercomputers and perform academic research. But NSF decided not to limit NSFNET to that purpose, allowing the network to be used for a wide variety of academic purposes. As a result, the NSFNET became the internet's "backbone," the high-speed,

long-distance network that allowed different parts of the internet to communicate. Schools that didn't have a direct connection to the NSFNET worked together to build regional networks that linked them to each other and to the nearest NSF node. This shows the NSFNET as it existed in 1992. By this time, there were 6,000 networks connected to NSFNET, with a third of them located overseas. That meant that students and faculty at a growing number of universities had access to email, Usenet, and even a recently-invented application called the World Wide Web. And although the NSFNET was officially restricted to non-commercial use, for-profit companies were increasingly connecting to the network as well, setting the stage for the commercialization of the internet that followed.

Proving the Ideas:

DARPA let three contracts to Stanford (Cerf), BBN (Ray Tomlinson) and UCL (Peter Kirstein) to implement TCP/IP (it was simply called TCP in the erf/Kahn paper but contained both components)

- ➔ The early implementations of TCP were done for large time sharing systems such as Tenex and TOPS 20
- ➔ They produced an implementation, first for the Xerox Alto and then for the IBM PC.

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- ➔ First, there were only three classes of IP Addresses (Class A, B, C)
- ➔ Class - A - Large national scale networks
- ➔ Class - B - Regional scale networks
- ➔ Class - C - Local area networks

Domain Name System (DNS) was invented by Paul Mockapetris of USC/ISI

- ➔ Originally, there was a single distributed algorithm for routing the packets and information from one node to other node.
- ➔ It got replaced now with hierarchical model of routing with an interior gateway IGW.
- ➔ New methods got into existence like CIDR , e.t.c

One of the more interesting challenges was the transition of the ARPANET host protocol from NCP to TCP/IP as of January 1, 1983.

The transition of ARPANET from NCP to TCP/IP permitted it to be split into a MILNET supporting operational requirements and an ARPANET supporting research needs.

Thus, by 1985, Internet was already well established as a technology supporting a broad community of researchers and developers, and was beginning to be used by other communities for daily computer communications.

TRANSITION TO WIDESPREAD INFRASTRUCTURE

In addition to the selection of TCP/IP for the NSFNET program, Federal agencies made and implemented several other policy decisions which shaped the Internet of today.

- ➔ Federal agencies shared the cost of common infrastructure, such as trans-oceanic circuits.
- ➔ On the NSFNET Backbone - the national-scale segment of the NSFNET - NSF enforced an "Acceptable Use Policy" (AUP) which prohibited Backbone usage for purposes "not in support of Research and Education."
- ➔ Then documentation prepared for the previously happened discussions and protocols followed
- ➔ Followed by formation of broad community resulting in ever further substructure within both the IAB and IETF. The IETF combined Working Groups into Areas, and designated Area Directors. An Internet Engineering Steering Group (IESG) was formed of the Area Directors.