Rob Kahn – h1

Inventor of TCP and IP - p

Background Information – h2

Kahn was born in Brooklyn to Jewish parents (Beatrice Pauline (née Tashker) and Lawrence Kahn, a high school administrator). Through his father, he is related to futurist [Herman Kahn](http://en.wikipedia.org/wiki/Herman_Kahn). After receiving a [B.E.E.](http://en.wikipedia.org/wiki/Bachelor_of_Engineering) degree in [electrical engineering](http://en.wikipedia.org/wiki/Electrical_engineering) from the [City College of New York](http://en.wikipedia.org/wiki/City_College_of_New_York) in 1960, Kahn earned [M.A.](http://en.wikipedia.org/wiki/Master_of_Arts) and [Ph.D.](http://en.wikipedia.org/wiki/Doctor_of_Philosophy) degrees from [Princeton University](http://en.wikipedia.org/wiki/Princeton_University) in 1962 and 1964 respectively. After finishing graduate school, he worked for [AT&T Bell Laboratories](http://en.wikipedia.org/wiki/AT%26T_Bell_Laboratories), and then became an [assistant professor](http://en.wikipedia.org/wiki/Assistant_professor) at [MIT](http://en.wikipedia.org/wiki/MIT). He then worked at [Bolt, Beranek and Newman](http://en.wikipedia.org/wiki/BBN_Technologies) (BBN), where he helped develop the [IMP](http://en.wikipedia.org/wiki/Interface_Message_Processor). - p

The Internet – h2

While working on a satellite [packet](http://en.wikipedia.org/wiki/Packet_(information_technology)) network project, he came up with the initial ideas for what later became the [Transmission Control Protocol](http://en.wikipedia.org/wiki/Transmission_Control_Protocol) (TCP), which was intended as a replacement for an earlier network protocol, [NCP](http://en.wikipedia.org/wiki/Network_Control_Program), used in the ARPANET. While working on this, he played a major role in forming the basis of open-architecture networking, which would allow computers and networks all over the world to communicate with each other, regardless of what hardware or software the computers on each network used. To reach this goal, TCP was designed to have the following features: - p

Ul

* Small sub-sections of the whole network would be able to talk to each other through a specialized computer that only forwarded packets (first called a gateway, and now called a [router](http://en.wikipedia.org/wiki/Router_(computing))).
* No portion of the network would be the single point of failure, or would be able to control the whole network.
* Each piece of information sent through the network would be given a [sequence number](http://en.wikipedia.org/wiki/Sequence_number), to ensure that they were dealt with in the right order at the destination computer, and to detect the loss of any of them.
* A computer which sent information to another computer would know that it was successfully received when the destination computer sent back a special packet, called an *acknowledgement* ([ACK](http://en.wikipedia.org/wiki/Packet_(information_technology))), for that particular piece of information.
* If information sent from one computer to another was lost, the information would be *retransmitted*, after the loss was detected by a *timeout*, which would recognize that the expected acknowledgement had not been received.
* Each piece of information sent through the network would be accompanied by a [checksum](http://en.wikipedia.org/wiki/Checksum), calculated by the original sender, and checked by the ultimate receiver, to ensure that it was not damaged in any way en route.

[Vint Cerf](http://en.wikipedia.org/wiki/Vint_Cerf) joined him on the project in the spring of 1973, and together they completed an early version of TCP. Later, it was separated into two separate layers, with the more basic functionsbeing moved to the [Internet Protocol](http://en.wikipedia.org/wiki/Internet_Protocol) (IP). The two together are usually referred to as TCP/IP, and form part of the basis for the modern Internet.

In 1992 he co-founded with [Vint Cerf](http://en.wikipedia.org/wiki/Vint_Cerf) the [Internet Society](http://en.wikipedia.org/wiki/Internet_Society), to provide leadership in Internet related standards, education, and policy.

Awards – h2

He was awarded the [SIGCOMM Award](http://en.wikipedia.org/wiki/SIGCOMM_Award) in **1993** for "visionary technical contributions and leadership in the development of [information systems](http://en.wikipedia.org/wiki/Information_systems) technology", and shared the **2004** [Turing Award](http://en.wikipedia.org/wiki/Turing_Award) with Vint Cerf, for "pioneering work on [internetworking](http://en.wikipedia.org/wiki/Internetworking), including .. the Internet's basic [communications protocols](http://en.wikipedia.org/wiki/Communications_protocols) .. and for inspired leadership in networking."

Vint Cerf and Robert Kahn being awarded the Presidential Medal Of Freedom by President Bush

He is a recipient of the AFIPS Harry Goode Memorial Award, the Marconi Award, the ACM SIGCOMM Award, the President's Award from ACM, the IEEE Koji Kobayashi Computer and Communications Award, the [IEEE Alexander Graham Bell Medal](http://en.wikipedia.org/wiki/IEEE_Alexander_Graham_Bell_Medal), the IEEE Third Millennium Medal, the ACM Software Systems Award, the Computerworld/Smithsonian Award, the ASIS Special Award and the Public Service Award from the Computing Research Board. He has twice received the Secretary of Defense Civilian Service Award.

He was honorary degreed at [University of Pavia](http://en.wikipedia.org/wiki/University_of_Pavia) in 1998.

He is a recipient of the **1997** [National Medal of Technology](http://en.wikipedia.org/wiki/National_Medal_of_Technology), the **2001** [Charles Stark Draper Prize](http://en.wikipedia.org/wiki/Charles_Stark_Draper_Prize) from the National Academy of Engineering, the **2002** Prince of Asturias Award, and the **2004** [A. M. Turing Award](http://en.wikipedia.org/wiki/Turing_Award) from the Association for Computing Machinery.[[6]](http://en.wikipedia.org/wiki/Bob_Kahn#cite_note-turingAward-6) Kahn received the **2003** Digital ID World award for the [Digital Object Architecture](http://en.wikipedia.org/wiki/Digital_identity#Digital_Object_Architecture) as a significant contribution (technology, policy or social) to the digital identity industry.

In **2005** he was awarded the Townsend Harris Medal from the Alumni Association of the City College of New York, the [Presidential Medal of Freedom](http://en.wikipedia.org/wiki/Presidential_Medal_of_Freedom), and the C & C Prize in Tokyo, Japan.

Honorary Degrees – h2

Kahn has received honorary degrees from Princeton University, University of Pavia, ETH Zurich, University of Maryland, George Mason University, the University of Central Florida and the University of Pisa, and an honorary fellowship from University College, London.

In 2012 he was also recognized as honorary doctor of [Saint Petersburg National Research University of Information Technologies, Mechanics and Optics](http://en.wikipedia.org/wiki/Saint_Petersburg_State_University_of_Information_Technologies,_Mechanics_and_Optics).[[12]](http://en.wikipedia.org/wiki/Bob_Kahn#cite_note-12)