

## Vint Cerf talks Google

By Jim Hedger, StepForth News Editor, [StepForth Placement Inc.](#)

Last week Google hired a net-god, Vinton Cerf, as its "chief Internet evangelist". Google's hiring of Cerf has set off a wide range of speculation among Internet watchers. Vint Cerf is not what many would consider a "normal" person and is no where near a "normal" employee. Cerf has been called the Father of the Internet and the most important person alive.

Do you ever wonder how so much data can cross the global network every second? In 1972 and 1973, Cerf who is now 62, co-invented the Internet's primary data-transfer protocol known as TCP/IP. Cerf and fellow TCP/IP developer Robert Kahn figured out how to make the Internet work efficiently. TCP/IP is based on the simple concept of breaking large chunks of data into byte-sized packets, directing those packets from computer to computer through a scalable network, and reconstituting the individual packets to replicate the original document.

Since he was hired, Cerf has given two interviews, one to [TechWeb News](#) last week and the other to [CNet news](#) earlier this week. Both articles offer comprehensive glimpses of what interests one of the world's most significant geeks and how he sees his role at Google. Cerf's tenure as Google's chief Internet evangelist officially begins October 3<sup>rd</sup> but, being the Father of the Internet, nearly anything Cerf says about the 'net is by nature evangelical. Quotes used in this article are lifted directly from the CNet and TechWeb pieces. In some cases, quotes from each article are used in the same paragraph to paint what I believe is a clearer picture of how Cerf is thinking.

Cerf admits his job description is currently undefined but likened his role to that of a bumblebee in transporting and cross pollinating ideas among Google engineers around the world. While he won't be working directly on writing code or managing programmers, he will be working to "... probe deeply into design philosophy, parameters and constraints", of Google's systems. "This is a place that's just full of creative energy, and I like places like that," Cerf said. "I want to have the opportunity to challenge people in the labs with problems that need solving."

Google's [stated mission](#) is to "organize the world's information and make it universally accessible and useful." Cerf's view of this mission extends to include all possible information infrastructures such as appliances, interactive advertising, movies and any other form of digital data. "I see Google creating information infrastructure, literally, as it goes about adding applications to the things it can do. And that's what's exciting, because that information infrastructure has all kind of possibilities," Cerf said.

The Internet, as seen by Cerf, is comprised of layers of technology stacked upon one another starting with the basic connectivity protocols TCP/IP. As the layers of technology grow upwards from one computer or server to an entire network, the model grows outwards, sort of an inverse pyramid. Google has already inserted itself into several of these layers with its core search tool and supporting applications such as GMail, Google Earth, Local Search, Blogger, and Google Talk. Cerf sees Google working towards forming what he calls an "Upper-Level Infrastructure" of products, services and applications.

"While it presents itself as a web interface to most people, Google could just as well present itself as a programmable interface, which means that you can start writing software that gets information through the eyes, sort of speak, of Google," Cerf said in the TechWeb interview. "That creates a vocabulary, if you like, that programmable systems can use in order to take advantage of what Google is capable of doing with its gigantic database."

CNet cites an example Cert offered while speaking at a conference on broadband connectivity in Washington on Tuesday. The article quotes Cert speculating on what he sees developing when the next-generation Internet, [IPv6](#), is universally adopted. "Wouldn't it be great," he suggested, "to order that bottle of champagne that James Bond is now opening simply by mousing over on the same screen where a movie is playing?"

Over the years, the Internet has become far more than Cert and his partner Kahn could have imagined. It was originally designed to allow researchers at academic institutions to share information and as a nuclear-war proof communications backbone for US national security. Just over a decade after it was opened for commercial use, the Internet is now the primary means of global communications and data transfer.

For Cert, the biggest change in the three decades he's known the Internet is its exponential growth. The "avalanche of information that's out there," is, for the most part, accessible only through the use of search applications such as Google. "Having the world's knowledge at your fingertips is amazing," he said in the TechWeb interview. "The second [biggest] thing is the flexibility and richness of communications among people and between computers."

It is difficult to imagine a wired world without the TCP/IP protocol. One of the many ways TCP/IP can be used is to create and connect micro-networks or grids of computers. Grid computing utilizes the power of multiple CPUs to create a networked super-computer. The [SETI@home](#) project is a popular early example of the power of grid-computing.

Google currently uses grid-networks in its array of data centers but Cert hints at a larger Internet based grid-system. In the TechWeb article, he speaks of an evolving computational platform based on grid-computing and peer-to-peer interactions between systems. These comments will undoubtedly unleash more speculation on future plans to create a new form of online operating and storage system. It can also be seen as an indication of future Google-branded, Internet-based software, information, and entertainment platforms.

In the CNet article, Cerf mentions approaching movie makers to discuss the Internet as a distribution outlet. "Some are responding positively, but some legal departments are still having trouble swallowing the idea," he said.

He also sees great value in local search providing what he calls "spacely" information. "I think what's very clear, based on the excitement associated with [Google Earth](#), is the exploitation of geographically indexed information is clearly ripe for more development," he said. Google is currently seen as the leader in local search applications, being the first to merge local search and mapping for PC users and more importantly, for handheld devices.

In hiring Vint Cerf, Google has acquired one of the most nimble IT minds on the planet. Even though he invented the basic routing protocols that allowed the commercial expansion of the Internet, he is still striving to understand exactly what it is he created. An evangelical urgency around the Internet's

development has always been associated with Cert whose career accomplishments include work with MCI and NASA. What makes him, quite literally, one in a billion, is the depth of knowledge and experience underpinning an articulate and reputedly highly-personable scientist. Cert is an engineer, a lobbyist, and an industry pioneer. He is as significant as Thomas Edison, Frank Lloyd Wright, Tim Berners-Lee, and Bill Gates. His hiring is bound to spur Google and its competitors on to bigger and much more interesting things.