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# Google's 'chief Internet evangelist' Cerf sees bigger, faster Web

By **Troy Wolverton**  
Mercury News

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Widely known as one of the fathers of the Internet, Cerf 30 years ago helped develop the system by which data is still sent through the network. Since then, he has done everything from connecting the first commercial service to the Internet to serving as chairman of a key Internet governing body to helping promote an update to the Internet's underlying technology.

Now, as Google's chief Internet evangelist, Cerf's job is to keep up with the latest Internet technologies so his company can use them to build new services.

His role at Google comes as the company is under growing scrutiny and controversy. Among other issues, Internet service providers have complained that Google is essentially getting a free ride on their networks, since data going to and from the company's servers accounts for a substantial portion of all Internet traffic.

Slated to speak at San Jose's Temple Emanu-El on Tuesday night, Cerf spoke with the Mercury News this week about the evolution of the network, security on the Internet and Google's battle with the service providers. Here is an edited transcript of the interview:

Q What's surprised you about how the Internet has changed over the past 30 years?

A The first thing is that the system has actually been able to scale up to where it is. We're at a billion and a half users, hundreds of millions of computers online on a more or less permanent basis, to say nothing of the laptops and

desktops and mobiles that are episodically connected.

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It's also managed to scale up in terms of bandwidths and speed. We're talking 10 gigabits, 40 gigabits a second, when the original backbone of the Arpanet was only 50 kilobits a second. That's not too shabby for a set of protocols designed 35 years ago.

The application space, of course, has been equally stunning. The enormous appetite people have, not only to look for information but to share information, is just amazing. It's just become such a remarkably adaptable system.

Q How do you think the Net will evolve in coming years?

A Wherever you are, it will be faster. I would love to see normal access speeds ranging from 100 megabits a second to a gigabit per second.

I'm also expecting to see a very substantial fraction of all the mobiles in use being fully Internet enabled. I'm expecting to see literally billions of devices on the network, appliances and things like that that you find around the office or in the car or that you carry around on your body.

I'm expecting to see people interacting with the Net (with) multi-touch mechanisms like the ones that you see on the iPhone. And also I expect to see much improved spoken interaction with the network.

Q As I understand it, security wasn't built into the original Internet protocols. To what extent can the Internet be made more secure, and if so, how?

A It's true that we didn't focus very heavily on the security side at the time that we were finalizing the current protocols that you're using. We were much more concerned about whether it worked at all, as opposed to, "does it work securely?"

If I had to do it all over again, I would go back and re-specify a requirement for strong authenticity of the devices on the Net, strong authenticity of the users and the applications that are running.

Click photo to enlarge



Vint Cerf, Google's Chief Internet Evangelist ( Google )

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And it's not too late to do that "... by (using) existing, known technologies. You just have to assemble them in a reasonable way in order to maintain security.

Q What would be the trade-offs for having a more secure Internet? Do we lose some of our anonymity the Net provides?

A No, no you don't. It doesn't mean that whenever you use the Net, you're required to identify yourself. But if it is asked of you, you should be able to respond. And, if you decide not to respond, the party on the other end could reasonably say, "Then I'm not going to transact this business with you."

Q How is Google approaching the net neutrality issue?

A We wanted a network where anyone who wanted to get access to it could reasonably get access to it. What we objected to was the possibility that a supplier of the basic underlying transport would say, "I'm going to tell other service companies that they have to pay me extra to reach you with a certain degree of speed."

That kind of discriminatory regime would utterly inhibit innovation. Take Larry Page and Sergey Brin: If they had had to pay every ISP in the world for their traffic to be reachable by subscribers, they never would have gotten off the ground.

Q But isn't there a difference between Sergey and Larry starting up a company and Google today, which has massive traffic and is demanding a lot of resources on the part of ISPs?

A Google not only builds a network of its own, which it pays for so that it can link its data centers, but it also purchases or bargains for enormous amounts of capacity on the Internet in order to offer its services to the general public.

We pay money for our access to the Internet. And so does the consumer who gets access to our products and services. The Internet has (always had) the model that each party pays to get access to the Net and then uses it any way they want to. Google has no special powers.

Q As part of its economic stimulus package, the Obama administration is proposing spending money to help build out broadband networks. Does that do enough for broadband access?

A We absolutely have to provide incentives for broadband implementation, but the thing I worry about is that we may not, even with that legislation, create competition.

We might have two (broadband) competitors largely in the U.S. today. But I don't think that two competitors necessarily (are) enough to discipline the market in ways that protect consumers.

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Contact Troy Wolverton at [twolverton@mercurynews.com](mailto:twolverton@mercurynews.com) or (408) 920-5021.

## Vint Cerf

Age: 65

Birthplace: New Haven, Conn.

Position: Vice President, Chief Internet Evangelist at Google

Previous jobs: Senior Vice President, Technology Strategy at MCI; Chairman of the Internet Corporation for Assigned Names and Numbers

Education: Bachelor of Science in Mathematics from Stanford; Master of Science and Ph.D. in Computer Science from UCLA

Family: Married with two sons

Residence: McLean, Va.

Other interests: Fine wine, gourmet cooking, science fiction

## Five Things To Know

### About Vint Cerf

1. He's a classical music fan, especially of Wagner, Beethoven, Smetana, Grieg and Strauss.
2. He's grown increasingly interested in reading biography and history books.
3. He considers a weeklong stay at the Ahwahnee Hotel in Yosemite to be "roughing it."
4. He is a big fan of the three-piece suit.
5. His favorite foods are macadamia nuts, carrot and raisin salad, Waldorf salad, Caesar salad, barbecue beef and pumpkin chiffon pie.

Source: Vint Cerf

## Cerf in San Jose

**What:** One of the fathers of the Internet will discuss the past, present and future of the network

**When:** Tues., Feb. 10

**What time:** 8 p.m. to 10 p.m.

**Where:** Temple Emanu-El

**Address:** 1010 University Avenue, San Jose, CA

**Cost:** \$5 at the door

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