Convergence: Moving Toward the 'Perfect' Internet

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While the truly great minds are considering what the next-generation Internet should be like, I'll offer a few suggestions and observations. These are not all my own ideas, just a few things I think are important, things I've heard mentioned, and some that seem obvious.

Some of you might wonder why I'm not discussing 4G wireless or beyond—well, actually I am. My first suggestion (one of the obvious ones) is that wireless and wired networks will be completely intermingled. The perfect Internet will incorporate *all* methods of delivery. Wireless links will no longer "connect you to the Internet," they will be an integral part of it. It's not much of a reach, since the present Internet already has multiple pathways, including optical fiber, coaxial cable and point-to-point microwave relay.

The next observation is that the operation of the Internet (the part that is invisible to users) will become more complex. However, since we already have operating systems in place for all the pieces. I expect a logical evolution to a more comprehensive scheme.

The perfect Internet will not require a separate scaled-down version for wireless connections. Wireless connectivity will get faster, but Internet operations will detect the connection type and speed anyway, making the proper selection of transmission parameters. In addition, there may be new slow-speed (meter reading) or small-screen (vending or point-of-sale) applications that don't require full speed connections or data transfer rate.

Since the future Internet will become even more useful and important than it is now, security and reliability must be foremost among development goals. Identity confirmation, virus prevention, and enforcement of user rules (e.g. spam and denial-of-service attacks) must be performed at the network level. Users may continue to add local protection, but the basic data transport system must be as robust as possible.

The wireless portion of the new Internet has a tough assignment—become fast enough to be part of the main network, and expand coverage so that "full-power" untethered Internet access can be accomplished by a high percentage of the population. It's a tough assignment.

How Do We Get There?

These blue-sky musings are fun, and I doubt that many of you disagree with any substantial part of those lofty goals. However, disagreements on the proper evolution from today to that future vision will make the path very difficult.

First come the commercial interests versus government control—the classic free-market versus planned development. The balance is different in every country, and in the U.S., the pattern is schizophrenic at best. The smallest governmental entities decide what size signs should be in front of local businesses, but the federal government has almost completely gotten away from managing the development of our portion of worldwide wireless communications.

Who will will provide the leadership to create the new Internet in a timely manner, with consistent management to keep things on track to reach a clear goal? I sure don't know!

Perhaps the pendulum will swing away from the present "let the marketplace decide" approach. We all know that this is the least efficient and most unreliable way to decide matters on a national or global scale. The marketplace never sees anything to respond to until billions have been invested—and those investors expect the marketplace to simply accept whatever they have delivered, at least for a while. And it takes a long time for supply-and-demand forces to budge a financial mass of this size.

But maybe we're starting to learn that lesson. There are more industry-led development consortiums for various wireless technologies. They have provided a means of keeping focus on the goals in their niche markets. I hope an effective consortium of industry and government will be formed to direct development of the new Internet.

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