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# Is Your Community Up To Speed?

By Rita R. Stull

In thirty years, the nation transitioned from the Industrial to the Information Age. Now Daniel Pink describes “a seismic ... shift ... moving from an economy and a society built on the logical, linear, computer-like capabilities of the Information Age to [one] built on the inventive, empathetic, big-picture capabilities of what’s rising in its place, the Conceptual Age.”<sup>1</sup> WOW. Isn’t it logical to expect that a graphics based Conceptual Age will require transporting more video intensive information than today’s Internet can handle? What kind of telecommunications infrastructure is needed in the Conceptual Age? Who’s planning to build it? Tom Friedman says “... America’s ... Internet bandwidth [has] fallen behind other industrial powers, including China.”<sup>2</sup> How far behind are we? What can local governments do to compete in a rapidly evolving broadband communications dependent world economy?

Since 1996, the U.S. lead in technologic superiority slipped from first to seventeenth place as other countries deployed the fiber-to-the-premise networks needed to sustain 21st Century economies. With Internet downstream speeds of 1-3 megabits per second (Mbps), the U.S. lags behind many European and Asian countries where people buy residential Internet at 40-100 Mbps. You don't have to know what mega-bits-per-second means to understand that America's version of *high speed Internet* is appallingly deficient when compared to the world standard. Even worse, in an information-dependent economy, rural areas with no available high speed Internet can't sustain existing businesses, much less attract new jobs.

Costs for Internet speeds comparable to those offered overseas are exorbitant. A phone company T-1 phone line guaranteeing bidirectional Internet speed of only 1.5 Mbps costs an average of \$500 per month. In Japan, residential *bidirectional high speed Internet* service of 100 Mbps costs \$40 per month.<sup>3</sup> Japan, South Korea, China and India are upgrading bidirectional Internet capacity to 200 Mbps. While America's broadband upgrades inch up to 10 Mbps downstream bandwidth, Asian countries deploy backbone networks with bidirectional speeds of gigabits per second. A gigabit (Gbit/s or Gbps) is a unit of data transfer rate equal to 1,000 megabits per second or 1,000,000 kilobits or 1,000,000,000 gigabits per second. This kila, mega and giga bit talk translates into local governments', educational institutions' and businesses' inability to affordably send and receive voice, data, videos and graphics files in seconds, instead of minutes, hours or days. Could a

contributing factor to U.S. jobs migrating overseas be the high cost and unavailability of 100 Mbps bidirectional Internet?

### What Happened in the U.S.?

In 1993, Time Magazine's cover story, The Info Highway, stated: "A new world of video entertainment and interactive services is coming to your home ... imagine a medium that combines the switching and routing capabilities of phones with the video and information offerings of the most advanced cable systems and data banks."<sup>4</sup> Hasn't this new world arrived? Yes, hardware and software—those smart phones—are available. *But the broadband highway isn't.* Cable and phone companies haven't upgraded to the fiber-to-the-premise (FTTP) networks needed to transport 100 Mbps high speed Internet that carries video intensive applications. In order to compete globally, America's copper-based wire line infrastructure must be upgraded to FTTP networks as soon as possible.<sup>5</sup>

The missing link is '*last mile*' land-line infrastructure called FTTP networks that connect the backbone to the door of every town or city hall, school, business and home. Telecom infrastructure consists of three links: 'long distance,' 'backbone' and 'last-mile.' Telecom's long distance and backbone infrastructure is comprised of fiber. But, the local last mile remains predominantly copper twisted-pair and coaxial cable. Phone and cable copper-based wire plants, those '*last mile*' networks connecting hubs to homes, must be replaced with fiber in order to carry 100 Mbps Internet service to customers. Broadband technologies such as wireless, WiFi, WiMax and satellite offer near term options for

communities with no wired high speed Internet service, but these alternatives are also limited to 10 Mbps Internet speeds. Even at&t's U-verse technology is obsolete before it's installed.<sup>6</sup>

Advances in technology created demand for 100 Mbps high-speed Internet networks capable of carrying virtually unlimited multimedia applications. FTTP networks support working from home, video teleconferencing, transporting in seconds, to anywhere in the world, broadband intensive files such as schematics, books, medical records and high definition videos. Unfortunately, U.S. policy, designed to let free market competition drive 'last mile' fiber upgrades, has not produced universal service deployment in a phone/cable duopoly environment.

Instead of upgrading obsolete last-mile infrastructure to meet increased broadband demand, phone and cable operators chose instead to launch a two-pronged strategic initiative:

(1) Maximize profits by charging more for the same or slower Internet service tiers and restricting content through anti net-neutrality schemes—practices that constrain innovation and local economic development initiatives,

(2) Design and lobby for legislation that keeps competitors off upgraded networks and restricts payments for use of public right-of-way, especially in the form of franchise fees, public, education and government access (PEG) channels, facilities and equipment and institutional networks (I-Nets).

### Big Spenders

Public sector agencies are the nation's largest telecom customers. A community with a population of

<sup>1</sup> *A Whole New Mind*, by Daniel Pink, Penquin Group, New York, March 2005. Mr. Pink is contributing Editor to "Wired."

<sup>2</sup> "Intercepting Iran's Take On America," *NY Times*, Thomas L. Friedman, Published December 5, 2007.

<sup>3</sup> Satisfy Me, MSDN Blog, Internet Access in Japan, 100 Mbps FTTP for \$35 per month, 8-17-06. <http://blogs.msdn.com/mthree/archive/2006/08/19/708762.aspx> accessed Feb 07.

<sup>4</sup> *Time Magazine*, 4/12/93 Cover Story.

<sup>5</sup> Verizon is the exception in building FTTP networks—however Verizon serves a tiny population when compared to ATT's reach and it doesn't make upgraded FIOS infrastructure available to competitors.

<sup>6</sup> AT&T U-verse Doomed? <http://www.mobilevoipnews.com/2007/02/13/att-u-verse-doomed/> Accessed Feb 2007.

40,000 purchases an estimated \$1.1 million dollars annually in telecom services—costs offset by use of I-Nets.<sup>7</sup> Imagine the devastation on local budgets when state video franchising laws eliminate I-Nets as compensation for use of public right-of-way. It's rumored that a cable operator can charge a California community \$45,000 a month to use a thirty-drop I-Net that, prior to passage of the state video franchising law, had been part of payments for use of public rights-of-way.

Individually, each of us subsidizes the telecom industry. "By 2006, according to telecommunication companies' own documents, 86 million [U.S.] customers should have received 45 Mbps [bidirectional] Internet fiber optic service, replacing the [phone company's] copper wiring ... America paid over \$200 billion in excess fees as well as tax and other financial incentives to improve subscriber lines, and there is nothing to show for it."<sup>8</sup>

### What's Your Town's 'Telecom Worth?'

How can government halt the drain of local telecom dollars? Get proactive. Develop a telecom plan. Put a dollar value on your community's assets. Identify current and future needs which justify investment in telecom infrastructure. Think of buying telecom services collaboratively, in more affordable ways. Find out what you bring to the negotiating table when seeking partners.

Important questions to consider include defining public needs and assets—answers required to assess a community's value in the telecom market. Is value limited to public right-of-way land that citizens own collectively? How much does the public sector spend on telecom services? What forms can compensation take? How does telecom



### Telecom Planning Process Questions

- Annual Telecom Costs
- Current Needs
- Future Requirements
- Technology Advances
- Media Competency & Literacy Training
- Economic Development
- Emerging Business Needs
- Universal Access
- Locally Produced Programming
- Local Channels
- Workforce Training
- Affordable 100 Mbps High Speed Internet
- Economic Development
- Research & Development
- Grants
- Next Generation Networks

affect quality of life? What's the impact of next generation telecom networks on education, economic development, social services, and emerging businesses? How about producing programs for distribution on local PEG channels and the Internet, or incorporating Internet into school curricula, or competing in a world economy?

In San Francisco's Fiber-to-the-Premise Feasibility Study, consultants

discussed valuing public assets: "... the business case for FTTP is not limited to such easily-quantified matters as cash flow and capital investment—rather, ... it includes the less quantifiable financial factors, ... economic development, small business empowerment, job creation, livability, environment protection, education, increased sales and real estate tax revenues, increased property values and other factors that measure the

<sup>7</sup> Public sector telecom expenditures include schools, colleges, universities, hospitals, libraries, social service and government agencies.

<sup>8</sup> "Where's that broadband fiber-optic access?" Bruce Kushnick, *Harvard's Nieman Watchdog Project*, 3-14-06. [http://www.niemanwatchdog.org/index.cfm?fuseaction=ask\\_this.view&askthisid=186](http://www.niemanwatchdog.org/index.cfm?fuseaction=ask_this.view&askthisid=186)

overall benefit of a next generation communications infrastructure such as FTTP.”<sup>9</sup>

Today, both phone and cable companies use digital bits to transport voice, video and data communications—yet, with the exception of a few visionary municipalities and Verizon—at&t, Qwest and cable operators currently demonstrate no interest in investing in FTTP networks, even with government subsidies. Local governments can become proactive. Develop a telecom plan. Control your destiny. Shape your future. Find alternative solutions. Use assets wisely. We’re immersed in a

volatile new age whether it’s called Information or Conceptual. Let’s get up to speed! ■

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*restructuring delivery of public service. In the eighties, Ms. Stull acquired a telecom planning grant from the John and Mary Markle Foundation to develop the first Local Area Network Plan for a major city. As a result of her work in the regulatory arena, Ms. Stull testified on behalf of NATOA at the U.S. Senate Public Hearings opposing legislation leading up to passage of the 1984 Cable Act. Ms. Stull presents educational seminars and helps communities identify initiatives needed to compete in a 21st Century, Internet dependent, global economy.*

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<sup>9</sup> Fiber Optics for Government and Public Broadband: A Feasibility Study prepared for City & County of San Francisco, January 2007, Columbia Telecommunications Corporation, <http://www.ctcnet.us/>