



VIEW*S* & VISIONS

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Communications: Where Are We Going?

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Gale Given was named by Governor Earl Ray Tomblin as the chief technology officer for the state of West Virginia in June 2012. She leads the state's Office of Technology, which is charged with providing secure and cost effective oversight, leadership and direction for activities related to information technology to agencies across state government, and enabling those agencies to better serve the citizens, businesses and other interested parties in West Virginia.

Ms. Given previously held the position of president of Verizon Pennsylvania, where she was responsible for corporate interests in the state of Pennsylvania. She held similar positions in Verizon's Great Lakes Region and in the state of West Virginia.

She began her career in 1979 at C&P Telephone of West Virginia. In 1987, she began working for the research division of the regional Bell operating companies. She returned to C&P Telephone in the West Virginia regulatory organization in 1990 as executive director and was named state president in 2000.

She has served on numerous boards in several states, including the Discover the Real West Virginia Foundation and the West Virginia State Chamber of Commerce, and sits on the advisory council for the Marshall University School of Business. A native of West Virginia, she earned a bachelor's degree in mathematics and a master's degree in business administration from Marshall University.

From the 1970s, the Internet and related communications infrastructure has been referred to as the information superhighway. Given the subsequent advances in technology, it's amazing the term is still remotely relevant. And if you Google, you'll find many complaints that the metaphor is misplaced. Misplaced or not, it still illustrates the fact that access to high-quality, high-speed communications has joined the presence of roadways, railways and waterways as key requirements for economic development.

Today's information superhighway has outgrown the vision of the 1970s. Certainly today's mobility has outreached most people's expectations at that time. And if a television commercial had told us we could keep our music and pictures in a cloud, it would have been gibberish.

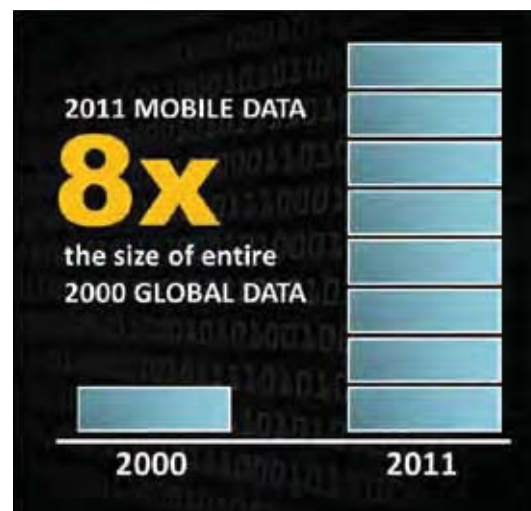
Trends in communications that will affect our business and personal lives are dominated by social media and wireless data use. By the end of this year, Facebook is predicted to have one **billion** active users.¹ While many of us use it to keep in touch with family and friends, the power of such a network for commercial and political purposes becomes more apparent every day. Barack Obama revolutionized campaigning and

fundraising using social media. More recently, we've seen social media used as a tool in uprisings against governments.

Twitter seems to be a bit harder for some to warm up to, with a mere 250 million active subscribers predicted by year end,² but it also is being used for much more than following a celebrity like Ashton Kutcher. A company can respond instantly to customer demands and advertise how a particular product can fulfill those needs. Since Twitter's 140-character limit doesn't allow much discussion, one major use is to refer tweet readers to a website for more in-depth information. Many companies monitor Twitter to keep an eye on what their customers are saying about their products. My son angrily tweeted that a relatively new electronic device had quit working. Shortly thereafter, he was contacted by the company, which provided him with a free replacement. He is probably a customer for life.

Social TV integration is on the upswing, with companies polling customers or tweeting to fans of a particular show, sending them to a website to learn more, interact with the show, or order products they saw while watching. Some are creating the ability for viewers to chat with others who are watching the same program. This is an area that is expected to experience major growth.

A key point to notice with all of these innovations is that they also are available on mobile devices. Mobile data usage has exploded. Last year's mobile data traffic was eight times the size of the entire global internet in 2000.³ Mobile video traffic made up more than 50 percent of all video traffic in 2011. (Please don't watch YouTube and drive!) Smartphone use nearly tripled in 2011. And, surprisingly, smartphones made up only 12 percent of handsets in 2010.



The next big trend in wireless data usage is expected to be machine-to-machine applications. That is, wireless devices talking to each other for a multitude of purposes. Think about wireless alarm monitoring, measurement of energy use consumption sent to a thermostat, or medical devices monitoring a patient's health and communicating directly with the physician's database for analysis. The combined traffic generated by these devices is expected to someday exceed all wireless voice communications.

Implications of these changes to business and government begin with the need for handheld devices to greatly improve efficiency and customer service. Remember when you had to go inside the car rental agency to return your car? It is probably easier to list businesses that *wouldn't* improve by the use of such devices than to list those that *would* improve.

With the proliferation of devices comes the proliferation of data. In addition to the means to effectively use that data, it must be stored and secured. Data centers with redundancy of power and data communications become critical for the operation. The recent storm in West Virginia undoubtedly educated many of us on shortcomings in our backup system design. Security of data also becomes of paramount importance.

There are perhaps no greater areas for us to pursue in this brave new world than using advanced communications for education and health care. Some schools already have replaced text books with tablets. Imagine studying WWII with the ability to instantly watch Roosevelt and Churchill; or studying Mandarin with a live two-way video connection at your desk to a teacher anywhere in the world. We are raising children who are fascinated with technology – and for good reason. We need to seize that interest and use it to enhance the learning experience and eliminate the gap between our graduates and those of other countries with whom we compete.



The driving force behind many of the state budget shortfalls across the country is the rise in health care costs. Perhaps the only way to significantly reduce these costs is the utilization of communications technology to provide less costly ways to diagnose and monitor patients and to provide more efficient ways to share patient information, leading to fewer medical errors. According to one study, electronic health record systems could save hospitals \$371 billion and physicians \$142 billion over 15 years from gains in safety and efficiency.

For these reasons, and many more, the broadband grant received by West Virginia was designed to place devices with great capacity out into the schools, libraries and health centers. To hamstring those entities with devices designed to manage today's needs would be like building one lane bridges on new interstate highways. It would be a travesty to predetermine which schools, counties or hospitals will have an opportunity to fully participate in this amazing future – and which ones would not.

Where are we going on this highway? Five years ago when speaking on this subject, I would use, as an example of far future broadband capability, the vision of

being able to see your distant grandchild with a holographic visit. Turns out that Smartphones with holographic capabilities for images are already in the labs. I have to update my vision of the future. Teleportation anyone? ♪

footnotes:

¹ <http://technorati.com/technology/article/1-billion-facebook-users-now-or/>

² http://www.mediabistro.com/alltwitter/twitter-active-total-users_b17655

³ <http://www.plugged.in/global-mobile-data-traffic-growth-trends-projections-297/>