The End of Telecom as we Know It?

There are momentous changes taking place in the telecommunications industry today. There are telephone companies providing voice services at remarkably low prices without local facilities. End user connections to the telecommunications network are being provided by a variety of companies including some from other industries previously unrelated to telecommunications. Telephone numbers no longer need be related to their traditional geographic locations. Where are these changes taking us?

Those of us in the industry have long heard that the sky was falling, and most of the ILEC industry has not only survived but thrived. Is it different this time or is this more of the same? What's real and what's hype?

This paper will review the telecom industry changes from several view points and identify certain and likely changes. To be successful, telecom participants must plan for and take advantage of these changes.

Disruptive Technology

Technology will certainly continue to develop and new and more sophisticated products and services will continue to be introduced into the marketplace. It is also certain that the cost of transport and switching will continue to decrease.

Numerous fiber deployments have reduced the cost of transport for both long-haul and short-haul high capacity. And, the implementation of packet protocols has improved the efficiency of the available transport bandwidth.

According to Harvard Business School professor Clayton M. Christensen's definitions of technology development in his 1997 best-selling book, "The Innovator's Dilemma," these improvements can be classified as sustaining technology. Sustaining technology provides incremental improvements to an already established technology.

What may be different this time is that we have a real disruptive technology on our hands. Disruptive technology is the term coined by Professor Christensen to describe a new technology that unexpectedly displaces an established technology. Disruptive technology lacks refinement, often has performance problems because it is new, appeals to a limited audience, and may not yet have a proven practical application. However, once the value of the disruptive technology is recognized, it rapidly gains acceptance and completely penetrates the industry or market. It appears that VoIP may indeed be a disruptive technology that is about to overtake the telecommunications industry in a big way.

In his book, Christensen points out that incumbent corporations are organized to embrace sustaining technologies. On the other hand, they may have trouble capitalizing on the potential efficiencies, cost-savings, or new marketing opportunities created by low-margin disruptive technologies. It can be difficult for an incumbent corporation to

recognize the value of a disruptive technology because it does not reinforce current company goals. Companies are then often blindsided as the technology matures, gains a larger audience and market share, and threatens the status quo. It is often entirely rational for incumbent companies to ignore disruptive technologies, since they often compare poorly to their existing approaches, and the initial markets for a disruptive technology are often very small compared to the current market for the technology. Even if a disruptive technology is recognized, existing businesses are often reluctant to take advantage of it, since it would involve competing with their existing, and more profitable, technological approach.

The Threat

So what are the threats associated with this new disruptive technology? There are several and they reach into all parts of our industry.

It seems certain that the telecommunications network is being transformed from a circuit switched network to a broadband, packet-based grid network, i.e. the Internet. Both regulators and the federal administration favor broadband while opposing most forms of regulation on broadband business. This transformation makes several competing technologies viable alternatives for providing end user connections to the network. Additionally, the connections provided by these technologies are substitutable for each other; meaning that the characteristics and quality of the connections are very similar. Obviously, the cost characteristics of these new technologies are different from those of the legacy technologies employed by incumbent telecommunications carriers. Therefore, some of these technologies may be more economical in some situations. DSL, cable modem, Broadband over Power Line (BPL), and wireless (both wi-fi and wimax) can all provide adequate, quality end user connections, while others may be more economical in different situations.

Additionally, as the nation moves its television broadcast from analog to digital, the FCC may make the old analog spectrum available for high speed internet deployment. This spectrum has superior propagation characteristics for penetrating vegetation and buildings, which was why it was chosen for television initially.

As a result, many new entrants are providing telecommunications services. Some new entrants provide both transport and services. Some, however, provide only services and others only transport. The regulators are currently requiring transport providers to allow access to all services creating two separate markets in telecommunications, services and access. Furthermore, we are now seeing municipalities offering high-speed internet access; calling it a basic need like roads and bridges. This takes the analogy of the information super highway to a new level.

Perhaps the most visible threat is the decline in voice revenues. Whether the loss is measured in the number of subscribers moving to new VoIP providers or subscribers moving to our own VoIP products, it seems clear that there will be substantially less revenue available from voice services. Some have even predicted that voice revenues

will move toward zero and become a 'feature' of broadband access. Along with this is the continued attack of the subsidy systems supporting high cost rural networks.

As if this isn't enough, the traditional subscription revenue model for telecommunications access is also under attack. Skype provides a limited voice service with no charge to the end user, allowing advertisers to pay for the service through ads appearing during a call. The potential entrance of Google into the transport business promises free high speed access to the internet in return for viewing advertising and allowing reporting of your aggregated access patterns.

The Opportunity

Is this all doom and gloom? In a word, the answer is No. But, to be successful telecommunications companies must plan and adapt to the new paradigm.

There have been many technology disruptions unleashed on industries over time. In every case there have been winners and losers. And in each case, the advantages of the larger and incumbent companies are minimized or nullified. The reason for this is that a technology disruption presents a very large, and sometimes insurmountable, disadvantage for older, larger and more established companies. In this case we are talking about incumbent telephone companies, particularly the larger incumbents.

At the current time, rural ILEC's have many advantages. However, they need to act on those advantages to prosper. Rural ILEC's have experience, cash flow, and assets. The majority of their market opportunity is also outside of their traditional territory. Disruptive technologies, like VoIP, both reduce the costs for rural ILECs to expand outside of territory and increase the realistic market potential. These facts, coupled with the ILECs' competitive advantages, offer significant opportunities for companies willing to seize them.

Winners and Losers

We've heard this story before. There will be winners and losers. The winners will adapt and embrace the new technologies and business models. The losers will be those that fail to react. Hindsight is always perfect. Our industry has evolved through disruptive technologies before and ultimately been stronger. However, many powerful companies have dwindled over time when they couldn't effectively react. Western Union had the opportunity to adopt Alexander Graham Bell's innovative idea of voice telephone service and passed. It is now only a shadow of the huge company it was in the late 19th century). Similarly, who would have thought in 1983 that a mere 22 years later Ma Bell (nee AT&T) would be bought out by one of the Baby Bells?