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**Good Morning. Thank you for inviting me to join you and speak on one of my favorite topics.**

**Convergence is not a new concept. What has changed is our understanding of WHAT convergence means and more important HOW we react to convergence in our business decisions and the TIMING of these decisions is critical.**

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**This cartoonist posed the question of what convergence meant a number years ago and Convergence may not equate to a vast wasteland but we are certainly seeing shifts in how people get *or make* their news, communicate with their friends or strangers.**

**As humans we have an insatiable desire to communicate - even if we don't have anything to say!**

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**Let's start with a prediction and see if a reasonable analysis of the facts will support the premise.**

**We will also try to answer the really important questions of what, why, and how. Convergence affects all markets but to emphasize we are talking about only the US Consumer Market in this talk.**

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**At the beginning of the electronic age, everyone in the industry believed convergence was imminent. The question was how to take advantage of this major social and economic shift. We know now that the actions taken by the largest players in each category (AT&T and IBM) were either wrong, poorly executed, or badly timed and the result was Billions of \$ of lost stockholder wealth.**

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**For the younger folks in the audience let's quickly recap what the world looked like in the early '80's - only 25 years ago.**

**For most consumers the "Carterphone" decision that opened the phone equipment market had a greater impact than "Divestiture". Once consumers had multiple choices they moved rapidly to portable devices even though the voice quality was poor.**

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**The concept of Cellular had been around for a few decades but first the technology wasn't up to the task and then the FCC wasn't in any hurry to tackle the tough issues of spectrum allocation and licensing.**

**But IMTS was there for the rich and the CB radio craze proved that the mass market wanted to *talk and drive at the same time even if it was with strangers.***

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**Computing was also at a major crossroads. Mainframes dominated the market but minicomputers were the darling of the industry and personal computers were emerging as a new segment.**

**The ARPANET which preceded the internet was run by the National Science Foundation and they upgraded the network to an unprecedented T1 backbone (1.5Mb).**

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**Entertainment in the '80s had evolved out of the dark ages and we had finally passed 50% color TVs in the home but it was certainly a simpler life by today's standard.**

**Consumers again demonstrated their willingness to pay for convenience and control when Beta and VHS recorders gave them the ability to shift time by recording their favorite shows. Of course there weren't many choices of what to record but that didn't seem to slow the adoption rate.**

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**Let's jump forward to the Dawn of the Millennium. Convergence now includes content and the internet is totally redefining reality as the "NEW" economy. When you are in the middle of a major economic shift it is easy to misinterpret the cause and effect. It wasn't so much that there was a "New" economy as we were seeing the emergence of an alternative supply chain and distribution channel. Consumers still wanted the same things - just more convenient at a lower cost.**

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**The communications networks were in the throes of conversion from a network designed to carry voice that also carried data to a network designed for data that could also carry voice.**

**By this time the areas of the business that have been totally opened to competition (e.g., Long Distance) have gone through the business cycle of expansion and consolidation and prices are rapidly approaching cost.**

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**In 2000 wireless is the darling of the economy. While there is competition, the market is no where near saturation and consumers love to have the freedom to carry their communications with them anywhere they go.**

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**Computing has also evolved rapidly. The devices are faster and smaller but it is clear to most that the real value lies in getting computers to communicate (Network) and modems have moved from 300 Baud to 56Kb but broadband is just emerging. Convergence as it was originally envisioned is becoming a reality. Smart devices (computers) can be used to communicate in new and innovative ways.**

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**In 2000 entertainment has also changed dramatically. Satellite is providing the first real competition to cable systems but a duopoly is not an effective mechanism for changing price structures. While there is some leveling of prices you need 3 participants to have effective market competition (rule of three).**

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**We now jump to a current view. In only 5 years convergence has morphed again to be more service centric (multimedia) and truly portable. The technology to make this possible is either available or on the way but will the economy support another major infusion of capital. The average family is still spending about the same amount in real \$. Can we afford to make the investment? Or maybe more important can we afford not to?**

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**Competition has flattened the price structure for voice communications and flat rate pricing is now the norm. There are 3 competitors in every market with the LEC and Cable (VoIP) going at it head to head and Cellular offering portable voice with nationwide calling as an alternative.**

**The big question for the incumbents is whether they can replace their lost market share and revenue fast enough with new services like broadband which is growing rapidly and IPTV which is on the drawing boards.**

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**The Mobile Space has continued its rapid evolution. Market saturation is on the horizon and consolidation is in full swing while the technology matures to provide the mobile broadband solution to serve data needs and eventually full multimedia. Unfortunately for the cellular carriers, the Laws of Physics and Economics have not changed. Spectrum is still a scarce resource and they really want their customers to buy data services as long as they don't use them too much.**

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**The computing space is mature enough that we are starting to see devices that differentiate themselves from the norm and we have seen the full cycle to market consolidation. Companies like IBM no longer make or sell PCs but they are a leader in computer services.**

**Many portable computers are starting to look like cell phones and vice versa.**

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**The entertainment space is also starting to show signs of change enabled by technology evolution. Devices and products blend as flat panel displays displace the CRT and content is converted to digital formats to take advantage of new storage media.**

**The TV delivery duopoly of CATV and Satellite is about to be threatened by the entry of the LECs with broadband to the home and IPTV.**

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As George Burns said while he was in his 90's, "I look to the future because that's where I'm going to spend the rest of my life."

We are well on the way to achieving convergence but the meaning will be a little different than we think now by 2012. Customers will have *real* choices and competition for each aspect of their converged services. This will give them the economic power to demand individual control.

The most drastic result of competition will be the drop in Family Spending driven by competition and bundled packages.

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The technologies will continue to evolve as we rush into the future but because it takes at least 7 years for a new technology to break into the market, it is unlikely that we will see any *significant* impact from technology that we don't already know about. We *will* continue to see an evolution of devices and existing technology at an increasing rate!

Probably the *MOST* important existing technology is IMS.

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The IP Multimedia Subsystem Control Layer will be a major shift in how our networks work. It changes everything by inserting a control layer that horizontally spans all of our data, voice, and video communications networks.

This new architecture not only enables Fixed Mobile Convergence it also *enables* true multimedia services. While the access networks will continue to be important and the applications/services interesting the magic happens here!

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Throughout the talk I've shown what a typical family was spending on Communications and entertainment. In this graph I've added content which includes video rental, games and music.

As we move toward 2012 this core spend will decrease due to macro-economic competitive pressures. You will have 3 real competitors in each market offering a full suite of services. The average spend on content will increase even though the cost of individual elements will go down in real \$s and the delivery channel will change. The average consumer will have more money to spend on content but they will buy selectively (ad hoc) and competitive pressure will drive the price of individual buys down.

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This graph shows the annual industry revenue. The impact of all of the markets reaching saturation and having real competition is profound. The cellular market reached saturation around 2008 and there is not a major new segment (like cellular) to boost the total industry. The new revenue from broadband and attacking your competitors' market position is not sufficient to make up for competitive losses. These numbers can swing significantly based on being #1 or #2 so taking market share and timing become critical!

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**You ask - How did you come up with those numbers? Do you have a magic dart board? No, we have something far better! We have a modeling tool that allows us to accurately develop very complex influences with a large number of unknowns and predict with a high level of confidence the probable outcomes. The model shown here is fairly simple but the tool has been used to create some extremely complex models with very accurate results.**

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**So let's go back to the prediction. Yes we believe that convergence will be widely available by 2012, only 5 ½ years from now. It is certainly *enabled* by the rapid evolution of technology but it is driven by the macroeconomic forces of competition in a mature market.**

**We also believe that convergence will look different than we envisioned in the '80s or for that matter at the beginning of the century. I cannot predict specifically what type of communication will be most important to the US consumer, but I am confident that we will be communicating in new and different ways using the multimedia devices and networks that are widely available.**

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**The future economic picture does not look very rosy for the carriers if they fail to capture significant market share. But if they bundle the right mix of fixed and mobile access with useful services and content, they have the opportunity to evolve into a true powerhouse. A 21<sup>st</sup> Century economic leader as we enter the age of the "Digital Conglomerate".**

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**The suppliers to the carriers are in for an even rockier ride. We had the "golden age" while the incumbents converted their networks, their competitors were rapidly expanding, and the new entrant cellular carriers grew at a phenomenal rate. This was followed by the "ice age" that started after 2000 as the market started to rationalize. But it won't get much better than it is now. There are specific and selected opportunities but the period of massive expansion will not return.**

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**Again our conclusions stated a slightly different way, as a consumer I won't focus on your network. It is just there and I buy it as a part of a bundle. I care about my devices and how they work together the way I want, whether they are in my home or I am carrying them with me. Inter-working and ease of use will drive my buying decisions and customer satisfaction.**

**I will expect ALL content to be available the way I want to buy it.**

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**This is a test. What will your device look like?**