

## Editorial

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## METRO CONNECT USA 2010

26 & 27 January 2010, The Ritz-Carlton Coconut Grove, Miami

**David Dunphy** will be chairing a Strategic Roundtable Breakout Session on the topic **Access to the Tower: Fiber vs. Wireless vs. Cable** on Tuesday 26 January 2010 in Miami



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## Upcoming Events

\* Contact [info@telstratpartners.com](mailto:info@telstratpartners.com) to meet us at those events.

- **Telecom Business Customer Summit\***  
25<sup>th</sup>-28<sup>th</sup> January, London, UK
- **Metro Connect USA 2010\***  
26<sup>th</sup> -27<sup>th</sup> January, Miami, Florida
- **Mobile World Congress\***  
15<sup>th</sup>-18<sup>th</sup> February, Barcelona, Spain
- **Packet Transport Network**  
19<sup>th</sup>-22<sup>nd</sup> April, Milan, Italy
- **LTE Forum 2010**  
27<sup>th</sup> – 28<sup>th</sup> April, Stockholm, Sweden
- **LTE Latin America**  
27<sup>th</sup> – 28<sup>th</sup> April, Rio de Janeiro, Brazil



**Lorenza Brescia** will talk about: "**Examining the benefits of using data analytics to interpret relational data to help service providers to increase their revenues**" on Tuesday 26th January 2010 in London

## Packet Transport Networks

Telecom Strategy Partners is Analyst Sponsor

## Editorial

### **Out with the old, in with the new:**

#### **One Tenth of the Way Through The 21st Century: A Decade Closes, A New Era Emerges**

The 1st decade of the twenty-first century is now behind us. Some centuries start quietly, a mere flip of the calendar to a new month and year. But as it relates to the telecom and IT industries and to national economies, the year 2000 was truly the beginning of the end of one era, and the start of another.

For thirty years at the end of the 20th century, microchips and personal computing, the most important and least foreseen byproducts of two superpowers looking to reinforce their dominance on earth with dominance in space, had major economic impact and helped lay the groundwork for the technology revolution that was to come. But although the contributions to society made by technologies commercialized in the last 3rd of the 20th century were significant, the real potential of these advances could never be fully realized until computing applications and data storage could be extended beyond the silos of the individual, group, or corporation, could be shared collaboratively, and could be acted upon.

The degree to which the full promise of technology could be realized was further gated by the amount and cost of processing, storage, and bandwidth. The ability to do new things is not important until there is a solid business case for doing them.

The first decade of the 21st century saw many of the barriers to using networking and IT in new and more valuable ways start to fall by the wayside. Not since the industrial revolution has this dramatic a leap forward in technology had such sweeping impact on commerce, economies, society and culture. During the past 10 years, advances in networking and IT resulted in the beginning of a technology revolution powered by information rather than by steam, and fueled by low cost bandwidth, storage, and processors rather than coal. The availability of cost effective processing, networking, storage, and increasingly powerful software applications has allowed us to examine and interpret facts, learn from the past, model the natural world, collaboratively compute, and even predict future behaviors or events is beginning to revolutionize everything from manufacturing to marketing.

We have so far seen only a fraction of the changes that are to come in future as a result of the advances in IT and networking gained over the past decade, even if further advances in these technologies were to come to a standstill now (which of course they will not). New technology is like an expansion of an artist's pallet; it can take awhile before creative genius can fully absorb the new possibilities enabled by the introduction of all the new colors. It will take society 20 years or more to take full advantage of all the new possibilities that have been created in the past 10, not to mention those to come.

But the changes of the past decade have not been isolated to advances in IT and Telecom technology and the systems that support them. There are other sweeping changes afoot, changes in transportation, globalization, demographics, and the environment. These changes will help shape the outcome of the next two decades every bit as much as will advances in IT and networking technology. In fact, they will impact the way in which these technologies are used.

### **Where We Were a Decade Ago**

Of course, we are all interested in the changes to come, as these will for the economic opportunities of the future. But before doing that, sometimes we need to take a look over your shoulder at the recent past to see just how far we have come, and how quickly we made the journey. It can also be an interesting way to gauge our forward momentum toward greater progress, and our direction.

Portrait of a mere decade ago:

- In 2000, the broadband bandwidth bottleneck was still not broken. Vendors raced to achieve greater capacity and data rates, but many telecom subscribers - both residential and business - were limited as to their contribution to capacity requirements.
- Billions in venture capital was lost around the start of the decade, due to funding wireless CLECs that had promised for the past five years to uncork the access bottleneck with low cost microwave and millimeter wave. It was not to come.
- The incredible shortage of qualified carrier personnel, caused by the tremendous funding that poured into the telecom industry resulting in too many CLECs adding to the competition for experienced employees, came to an end.
- Most residential Internet access ten years ago occurred over a modem running at 28 or 56 Kbps, and the percentage of bytes on the Internet dedicated to email and the viewing of static content was significantly higher than it is today. A T1 of Internet access for a mid-sized business, far less than what we have in many homes today, was considered nirvana.
- The most massive over-build of telecom infrastructure inventory in history led to "The Bubble" - a period of speculative and mutually reinforcing hype which the realities of the broadband bottleneck and associated lack of service opportunities was to bring to a devastating end.
- Most vendors viewed CapEx as being king, focusing far more attention on reducing the price of hardware and on reducing the entry point cost of deploying new hardware than on the impact which they could have on OpEx. That attitude was encouraged by service operators, who thought they could save even more on vendor CapEx concessions than on OpEx efficiencies.
- Relatively few if any adults had ever bought anything over the Internet 10 years ago, and some early ecommerce sites quoted online pricing that applied if you went to a store to pick up the merchandise.

- Data storage continued to expand rapidly, but much of that data seemed to go into a "black hole" from which its value was not always fully realized.
- "Islands" of storage area networks were built, storing a lot of data locally.
- Speed of information, and the ability to do online trades, helped create the stock market bubble in the late 1990s and the subsequent crash early in 2001/2002.
- Mobile phone usage in established markets continued to increase as subscription prices fell and cell phones evolved to smaller, more convenient, and less battery intensive models.
- In 2000, Kyocera offered mobile phones with an astounding 8 MB of memory for under \$500.
- Internet service providers in the U.S., mindful that ISDN failed due to high usage charges, remain confident that the best pricing model for Internet access would be "all you can eat." After all, with sub 56 Kbps residential access, far less data throughput in practice, and painfully slow downloads of any sizable file, how much damage could subscribers really do?
- Frame Relay L2 transport was king, supplemented by ATM. Ethernet was a cost effective LAN technology that provided local networking of personal computing.
- The biggest competitive threats that most telecom vendors faced came from within region, or from international competition from Europe or North America.
- Cable operators were primarily providers of cable TV.
- WiFi is a leading mobile data technology, and attracts a rush of entrepreneurs
- IT departments built local server farms and storage area networks because it was more cost effective to maintain multiple local IT staffs than it was to network applications and resources
- Software loads, upgrades, and maintenance on individual PCs is carried out in most cases by separate groups of IT professionals serving each of the major offices in the Enterprise, creating licensing issues and repetitive costs - and no apparent end is on the horizon.
- Most research facilities either rely on their own data, or share large volumes of data by mailing it back and forth.
- Telecom services are sold on a bit per basis and site connectivity basis, with "innovation" on that model being the introduction of bursting beyond the committed information rate when additional network bandwidth is available.
- Startups were so numerous that venture capital firms had a hard time analyzing their prospects.
- Most companies had a majority of operations in the region(s) where they did the most business
- Commercial opportunities centered around established, first-world markets.
- "Vendor financing" seemed like a really great idea
- Telecom, the Internet, and related IT technologies were largely responsible for the economic crash of 2001

- Financial advisors in mature markets explained as though they were laws of nature that fact that the housing market always goes up, and the stock market is the place anyone under 50 should put their money to be assured of a comfortable requirement
- Enterprise use of the Internet outstrips residential use
- The primary wireless technology most frequently used in the home is the television remote, and the television is wired directly to various media players that use local content based on physical media

Where has all the time gone? The market environment we just described seems to be more like 30 years distant than a mere 10!

### **Some of the interesting changes that have happened in the last 10 years:**

- The Apple iPhone with 8 GB of memory was offered in 2007, providing 1000 times the storage Kyocera had offered a mere 7 years previously for a roughly similar (inflation adjusted) price.
- The broadband bottleneck has been shattered, thanks not just to fiber build outs, but to cost declines in private lines and by cost effective advances in DSL technologies, passive optical networks, cable, low cost WDM, and bonded copper solutions.
- Residential subscribers now frequently enjoy Internet access at 5 Mbps, 20 Mbps or more.
- Mobile phones have not only become smaller, cheaper, higher in quality and capable of far better battery life, but they've added significant mobile broadband capabilities, higher resolution color screens, and usable keyboards and touch screens as well as GPS capabilities.
- Fixed Internet access speeds in residential markets have increased on average by a factor of over 100 over the past decade, while the cost has remained roughly stable (adjusted by inflation).
- Service operators have a strong focus on OpEx cost reduction now, pursuing it as the best way to achieve the much needed reduction in total cost of ownership.
- Telecom vendors from China are now among the top revenue producers in the industry
- Telecom vendors are targeting emerging markets as major sources of future growth
- Residential subscribers use more data than do the employees of businesses that are subscribers
- Availability of startup funding is a small fraction of what once was available
- Internet access has moved from email and static web sites to interactive video
- E-commerce has bloomed into a \$200 billion industry and enjoys fast growth rates; people are buying computers, cars, clothes, audio and sports equipment, music, books, and the contents of the garages of ordinary people thousands of miles away over the Internet
- Social media have become a major component of people's lives, with people actively engaged in interest groups, helping strangers shop for the best deals, and even getting married through online activity

- The biggest challenge has moved from bandwidth and scalability needed for existing services and applications, to achieving a radical new cost model that will enable a stronger business case for transporting high definition multimedia content and for collaborative computing
- Collaborative computing across research networks co-funded by research centers around the world is enabling problems more complex than ever before to be solved by breaking problems into parts that are solved in parallel
- Cloud computing potentially threatens the structure of the historic IT department, and the established models for software licensing
- People are backing up residential computers and data such as family photos hundreds or thousands of miles away over the Internet
- Security and privacy are becoming key concerns
- We have moved from backing up and protecting data, to mining data and increasingly to targeted advertising.
- Going "green" and offering savings in power consumption, materials, and waste creation has become a major theme in the industry.
- New standards of high definition video quality have arrived, and new standards of high definition audio quality are on the way.
- Quick electronic payment, customer loyalty programs offering real-time discounts, and targeted promotions have become commonplace

The past and the present are interesting, but the real question is where are we going in the future, and how soon? No one knows for sure. But we will venture forth with a few predictions:

### **Changes we expect for the decade ahead**

- **Telepresence and collaborative computing solutions will find greater success (at last!)** Affordable high definition video, audio, computer monitors and bandwidth, coupled with the economic environment and increasing terrorist threats, are going to make the next generation of telepresence and collaborative computing solutions a success despite a third of a century of fairly marginal and niche market penetration in the past.
- **HD video and audio standards will stabilize:** upgrades in the recent past and near term future will remain standards at least 25 years into the future, not because technical enhancements will not be possible, but because the quality we have will be so high that incremental improvements will not provide the perceived increase in value needed to justify the price premium for content that is needed to justify development of further incremental improvements.
- **"All you can eat" bandwidth services** will gradually fade from the telecom scene over the next five years, with a combination of tiered service levels and metered services slowly giving way to cross-subsidization of bandwidth by applications
- **In the short term, policy management and enforcement will become increasingly critical.** "All you can eat" is less painful if the abusing subscribers are only eating the

"leftovers" of excess network capacity. We expect a continuation in the trend toward more actively defining and implementing usage policies and in the effective policing

- **Effective partnering will become the hallmark of success.** Neither service providers or OTT players will "get it all right," and success for the vast majority will not be a "winner take all" scenario, it will be all about successful partnering. The ability to effectively partner and co-market will become increasingly important metrics on which companies will be rated by financial analysts in future.
- **3DTV will be a phase** that the market soon gets over, as it is driven by a vendor "push" to avoid commoditization of HDTV rather than by an inherent user demand to sit around the house watching television while wearing 3D glasses
- **True holographic projection will become commercially viable for select commercial applications around 2050**, but its relative cost will always be high enough to confine its use to niche applications where the value of the experience potentially justifies the relatively higher cost
- **Mobile TV will remain a niche opportunity.** Some things are simply better experienced when done at home. Watching TV is one of them. And some things are better not done in public. Being simultaneously distracted by the simultaneous combination of personal video and audio is frequently not one of them.
- **Tablets will gain a niche opportunity, but will not displace a sizable amount of the smartphone market.** There will be some interest in an enhance multimedia experience afforded by tablets, and some execs will want the ability to read email and place a call at the same time. We think that a 5x7 inch table that can be easily balanced in the hand, carried easily in a portfolio, briefcase, or purse, will have the best chance of succeeding as a form factor.
- **Security will become one of the most important revenue opportunities** in professional services in the next few years. Now that open source operating systems are hitting the mobile market and the numbers of subscribers using them are increasing, mobile as well as fixed networks can be expected to be under attack.
- **Breaching security will become a key focus of espionage**, and attempting to disrupt commerce by breaching security will increasingly be viewed by malcontent governments and political groups as a relatively low cost, low risk means of destabilizing economies and societies.
- **"State of the art" encryption techniques will become a yet higher art form.** If a code can be invented, it can be cracked. Let's not forget the lessons of the past: the breaking of the "unbreakable" code of the Enigma machine had a significant impact on the outcome of World War II. As e-commerce continues to grow, the importance of encryption will continue to escalate - as will the payoff for cracking it.
- **The "technology generation gap" will evaporate.** Today, every Marketing person knows that early adoption rates for new technologies are largely driven by the "under 30 generation." But those people in this group have grown up eagerly awaiting and embracing enhancements in technology, and that will be a hallmark of their generation they will take throughout life.

- **Personal device form factors will stabilize and frequently become more practical.** As the tech savvy generation gets a bit older and their eyesight decreases, you'll see a smaller market share go to miniature devices with screens so small that no one over 30 can read them decrease. And some of the "wow" factor accompanying miniaturization will go away. Small footprint (barring the need for more screen real estate) will always be popular, but more devices will begin to be made a bit larger than they need be from a technical standpoint so that they are easier to hold and avoid losing. So we do not anticipate release of an "iPod pico" or "iPod femto." We need a magnifying glass just to find our iPod nano.
- **I/O and processing power will be decoupled.** You will be able to take your keyboard(s) and monitor(s) anywhere in your home, and communicate wirelessly with your home computer.
- **The femtocell will find its greatest success in commercial environments** such as a mall or office building, and the practical operational challenges of roll outs in the home will make their adoption in residential markets less tempting for many service providers for now.
- **The "smart appliance" will arrive, but not always the way we were told.** We think the smart refrigerator will receive a chilly response from consumers. No one wants a microprocessor telling them what they should eat based on what they ate or the number of people in their home last week, and the cost of the scales and sensors needed to read labels and weigh contents will make this "vision" of the future both silly and impractical forever. But a stove that turns off if you unintentionally leave it on and unattended could have real value, a coffee machine or toaster that brews coffee to a different strength or toasts bread to a different degree based on the historical preferences of individual family members might be welcome.
- **"Smart cars" that decelerate and will not restart are already helping police nab car thieves.** Although it will be possible in future to build cars that drive themselves to a destination and proactively avoid accidents, the investment in infrastructure required to make it possible will make that impractical in the next 50 years. But expect cars that will set off an alarm when the driver starts to fall asleep or let their car start to drift out of their lane by the end of the next decade.
- **Robots that provide assisted living will radically change elder care.** Robots that can help people into or out of a chair, remember when it is time to take their medicine, provider some basic diagnostics, and alert help when needed will revolutionize elderly care in the next ten years.
- **Telecom operators will begin, but not finish, re-architecting of the access network.** Operators in pursuit of a radical new business model will begin to embark on a re-architecting of the access network to a more cost effective model that requires fewer end offices and less maintenance of the outside plant by the end of the next decade. But this very major initiative will not be completed during this timeframe.
- **40G transport will enjoy another 2.5 years of market opportunity** in Long Haul networks. 100G will start to be deployed, but will not displace 40G as quickly as some would have you believe.
- **Investment capital for startups will slowly begin to increase,** but never return to the insane levels of 2000. The need for the start up has always and will always be there.

But in a smaller industry no longer assumed by the investment community to be an automatic money machine, the hurdles start ups will have to clear to get substantive funding will continue to be greater than in the past.

- **Cloud computing will succeed in both public and private clouds;** but we think the private cloud will have greater short-term success. Software as a Service is a concept whose time has come. The CCIE (or its equivalent) will not have the value in many Enterprises at the end of the next decade. Having IT departments load, configure, and diagnose software issues on a local basis would never have been adopted if it were not for the bandwidth constraints in place when the PC was invented.
- **Software as a Service adoption will be gradual.** The 800 pound gorilla in the room is security. And those industries with the greatest security needs will be the least likely to be among the early adopters.
- **The Data Center will continue to gain prominence.** The building of Increasingly massive data centers with state of the art cooling, redundancy, physical security, and the expected cost synergies in storage and interconnection with multiple carriers and peering will continue well into the future. the collocation and hosting models that failed in the 1990s due to lack of bandwidth are back.
- **Privacy will not completely disappear, it will be redefined.** Complete anonymity has already become a thing of the past. But as the Internet matures, savvy consumers are becoming increasingly concerned over who is collecting information about their online habits, where it is going, and how it is being used. Eventually, the regulatory environment will catch up with the Internet in this regard, and consumers will have an online profile and more control over how this information can be used.
- **Net neutrality is essential,** but that does not translate into the subscriber's right to go to any destination, use any application, and consume any amount of bandwidth at a flat rate fee.

## **Business, Fate, and the Economy**

### **Why The Industry Was Not Better Prepared For Change**

This past decade was destined from the start to be a "sea change" in the economic and competitive environment of the IT and telecom industries. But few clearly saw the full ramifications of the changes about to come. That is characteristic of the end of an era. In the year 2000, the market had enjoyed a relatively stable 25 year period of cycles of growth and increasing maturation. In those times, companies and managers tend to align themselves with what succeeds in the current market environment, exploiting that environment to the greatest degree possible. Those that can best exploit opportunities in such a market are not necessarily those that should be at the helm during a sea change. In a stable or growing market that has yet to fully mature, relatively incremental change within the current paradigms of established

commercial models and operations may have been all that was required to adapt successfully to incremental changes in the market, and vision was easier as the environment was more clear.

But no one could have predicted ten years ago the full degree to which the Internet would soon change our lives, how much consumers would dominate the market, the future role of the mobile network, or how much the competitive playing field would change. Although a few "visionaries" foresaw some of the key elements of technology change and globalization ahead, a decade ago, few if any people really understood what was about to happen in practical terms.

Think back to the year 1999. At that time, In the IT world the fear that "Y2K" could potentially bring global commerce and productivity to a halt gripped the industry. In telecom, the biggest concern was that it was difficult to scale operations fast enough to meet the unlimited growth in bandwidth demand, and the focus seemed to be on creating enough hype to gain a disproportionate share of the surplus of venture capital being poured into the industry to enable doing so. Internet access was primarily for email or a bit of web surfing. For its part, the financial community collectively declared a "new economy" in which company valuations need not be tied to revenues or working product.

In hindsight, in the IT industry the Y2K issue was a "paper tiger." In telecom, the speculative "bubble" was based on bandwidth projections created in a mutually reinforcing spiral of unsubstantiated hype that ignored the very real constraint of the "bandwidth bottleneck" in the access network of the times. And financial "analysis" that led to the telecom bubble was based on mutually reinforced hype and the most often repeated rumors about bandwidth demand that were simply not possible given the limitations imposed by the "broadband bottleneck" of the time. It was a time when people outsourced the task of gambling with their retirement portfolios, or engaged in it themselves via online trading.

With everyone watching these sizable distractions, the inevitable onset of globalization, the maturation of the industry and the commoditization of bandwidth and the future impact on business models received less proactive attention than it should. The fact was that we were fast approaching a cost basis for bandwidth that was going to fundamentally change the business case for how we communicated in our professional and personal lives, and which would determine those applications we would be able to network in the future, how collect and store data, and how that data would be accessed and used.

Following decades of upward growth, mildly interrupted by minor cycles, the telecom market got used to being a growth market. It was not ready for the speed with which the onset of its maturation would progress.

Now that telecom has matured in established markets, the majority of new service opportunities require a completely new business case. In other words, if service providers can cut costs and offer subscribers new services at prices never before possible, they might embrace those new services. If you cannot, they will not. And that is why a transformation of the business model of carriers is so very much needed now that the market has matured, creating both major

service opportunities and new challenges for the telecom vendors and IT players competing for them.

The problem is that this challenging new market environment hit service providers fast and hard, before they were prepared. And the complexity of helping them meet this challenge hit telecom vendors and IT players equally fast and hard, making it difficult for any of them to single-handedly address the complexities of their services business as IT and networking increasingly converged. It will now take a full five years for service providers to catch up fully with the rapid evolution in the nature of the market opportunity that they address. Over the next two years, there will be a competitive shake-out amongst the IT consulting firms and telecom vendor services groups that help them on this journey. We expect two developments to result. Those in the professional services organizations will either have to partner and program manage very effectively to succeed, or they will have to try and focus and see if they can dominate selective niches.

### **Double Trouble: The Role of Denial and the Impact on The Financial Market**

There has been a general failure of governments and economists in established markets to cope with the short-term reality of the impact of globalization. The transition in established economies from manufacturing and innovation complemented by services to a service-driven model and competitive capitulation in the form of abandoning manufacturing and off shoring production is a concern.

One of the common factors driving both the telecom bubble of a decade ago and the more recent crisis in the housing market is that mature economies with populations used to a high standard of living but faced with the competitive impact of globalization sought to substitute speculative gains for the increasingly elusive rewards of value-based economic growth. Speculation seemed to complement television as the "opiate of the masses." Why create value when you could start a portal, become a middleman, and earn money by paying a search engine company to ensure that subscribers were directed to your site rather than being pointed directly to someone else's web site where the desired products or services being searched for were actually offered? And if the housing market will always go up, why not buy the largest house the bank will let you whether you need it or not, and then take out a home equity loan so that you can spend all those never-ending gains immediately?

How many people are trying to make a living off of eBay - reselling existing value rather than creating value anew? And we have people crashing White House parties and pretending to launch their children into the stratosphere in balloons because "reality TV" has begun to be considered a viable career option.

Speculation can never long be a substitute for innovation, quality production, and real value add. And services cannot exist in a vacuum in an economy devoid of production. After the crash of 1929, the lesson in speculation was learned so hard and so well that it would not need

repeated again until everyone who remembered learning it the hard way was retired and no longer influencing the financial community or government regulatory agencies. Sadly, once those having lived through it were not running things any more, we managed to manufacture two completely unnecessary market crashes during the past decade - the telecom bubble and what has been termed "the subprime crisis".

Business and government in mature markets need to abandon reckless greed, stop ignoring the time proven law of supply and demand, and confront the arbitrage aspects of globalization head on rather than try to avoid that confrontation by self administering the opiate of speculation as a substitute for real economic revitalization.

## **Economy watch**

Is it over yet? No. But more people seem to be cautiously optimistic that perhaps the end of the recession is in sight. Is that reasonable? Sadly, not yet. The reason is that the cause of the economic debacle has yet to be relieved, and the signs being suggested as indicative that the worst may be behind us are false. Consider the following:

Although the U.S. Consumer Confidence Index, based on a survey of 5000 households by the Consumer Confidence Board, rose for the second straight month in December, it still indicates pervasive pessimism for the short-term. The index stands at 52.9 as of December, up from 50.6 in November, but far short of indicating consumers feel good enough about the economy to start spending. And more consumers in the December survey indicated conditions were "bad" - 46.6% as compared to 44.5% the previous month. And while there was more than an 8% increase between November and December in the number of consumers anticipating business conditions will improve over the next six months, only 21.3% of the population surveyed now feel that way. The "good news" is that survey participants expecting economic conditions to get worse over the next six months dropped from 14.6% in November to 11.9 percent in December.

We did an informal survey of retail chains in the U.S., and found shelves relatively bare compared to better years as major retailers such as Macy's and Sears seem to be managing their inventories very carefully these days.

So are things getting better, or are we in for a "double-dip" recession? We think the U.S. is in a protected recession bordering on a depression. But consumers at least feel like we are at the bottom of it now, and that is at least the first step to recovery. The recent rises in the Consumer Confidence Index are in our opinion probably more due to the fact that one of the questions asked is whether consumers feel better off financially now than they did. So if consumers think the economy is bad and is not changing for the better but know that the value of their stock portfolio has gone up, that tends to contribute to an increase in the index.

Other "indicators" in the tangled web of economic reporting include real GDP calculations, which is the official measure of economic output issued by the Bureau of Economic Analysis, supposedly increased by 2.2% on an annual basis between the second and third quarter of 2009. That third estimate was not as good as the first two, particularly not as good as the first estimate of 3.5%. But nonetheless, 2.2% growth seemed like good news compared to the 0.7% decrease in annual GDP between the first and second quarter of 2009. Unless of course you dig just a bit deeper.

The problem with GDP estimates was that it was not real growth. It was artificial growth, non-replicable growth bought and paid for at the expense of the U.S. taxpayer. According to the Bureau of Economic Analysis, motor vehicle output fueled by government incentives to buy cars contributed a major portion of the gain in GDP (1.66%). Paying people to accelerate a purchase they will eventually have to make anyway may result in additional short-term production, but not in replicable or sustainable economic strength. In fact, it will likely reduce auto sales in future periods, as it in no way increases long-term demand.

Next, factor in the housing tax credits. Once again, any increase in home sales influenced by these credits is nothing more than a taxpayer funded short-term spike that will result in reduced future sales in the wake of the artificial acceleration in demand. Extension of those credits through June simply means we can expect that any increase in home sales gained between now and then will be at the expense of sales in the following period. Last but not least, factor in the economic output necessary for ongoing military expenditures in Iraq and Afghanistan. That spending accounted for approximately \$185 billion in 2008, and \$150 billion in 2009 - and has been estimated to total upwards of \$165 billion in 2010.

Add it all together, and what you have is not an economic surge and potential for a double-dip recession. You have a single, protracted recession that has not yet ended. And GDP that is driven less and less by real economic strength, and more and more by short-term, artificial growth due to an increasing component of government spending.

Over a year ago, we predicted that unemployment would not peak in the U.S. before Q1 2010. We still think we will not be far off. At the time, the U.S. government was predicting that unemployment would stabilize in Q1 or Q2 2009, and not rise above 7.5%. Why were we more accurate than the army of statisticians employed by the U.S. government?

Because we looked at their data from the standpoint of trying to objectively interpret the situation based on the data points, rather than from the standpoint of trying to use data points as part of political positioning of what we wish was happening in case that might positively influence the market.

With businesses dependent on forecasting sales and aligning inventories in line with the real economic situation if they are to maximize profitability in this difficult market environment, all governments have a responsibility to report the facts straight. But as we surmised in our FiberSystems Europe article in Q4 2007, the desire on the part of governments not to report bad news, or to downplay such news, stems from the desire to use the way that economic facts

are reported to try to influence the course of the market. Invariably, the attempts seem to fail. But that does not seem to decrease their popularity.

The key factors that will determine how long this very severe recession will last in the U.S. are

- 1) The unemployment rate and its impact on consumer ability and willingness to spend;
- 2) Consumer confidence in the stability of their employment and the availability of jobs;
- 3) The housing market.

Here's where we stand on these three key factors at present:

The current unemployment rate is supposedly 10% in December, relatively unchanged. Sounds like things are stabilizing, right? Not so fast. Another net 84,000 U.S. jobs were lost in December 2009. So how could the unemployment rate stay stable? The real unemployment rate did not stay stable, more people were unemployed. The reason the official unemployment rate increased was because the size of the labor pool in the U.S. decreased by 661,000 in December.

No, this decrease in the labor pool was not due to a massive outbreak of the H1N1 virus. It was due to the fact that the government does not include those unemployed people who get so discouraged about their job prospects that they stop looking for work as being unemployed. So when another 600,000+ U.S. workers gave up looking, they were removed from the official rolls of the unemployed.

The average length of time that an officially unemployed person in the U.S. has now been unemployed has passed the six month mark; two weeks ago it was 29.1 weeks. It would no doubt be longer if we counted those people who have given up the search. It has never been this long in the 62 years during which this statistic has been tracked.

What is really worth watching is the "underemployment rate" - which includes the count of people who have given up looking for work, and those that want full time work but have had to accept part time work or much lower wages. That figure has rose from 17.2% in November to 17.3% in December.

Discounting the historical average unemployment rate is around 5%, this means an additional 1 in 8 people and their families do not feel nearly as able as usual to spend right now. And such a large percent of the population being in this situation undoubtedly exerts psychological influence on the willingness of a great many others to spend.

Let's hope for better economic news - and more accurate representations of the statistics - next month.

## Views on the News:

### **Dragonwave the dragon slayer**

If you read our analysis of the U.S. economy and feel depressed afterward, take heart. Despite the very challenging market environment, it is still possible for innovation to win out. Take packet microwave solutions vendor Dragonwave, for example. It's quite an accomplishment for an emerging competitor to become established and drive solid margins in this economic environment. But Dragonwave has done just that.

Dragonwave's revenue for the third quarter of fiscal 2010 increased 421% to \$55.8 million (Canadian dollars), up from \$10.7 million in the same period the previous year. GAAP net income for the third quarter of fiscal 2010 was \$12.6 million, twice that of the previous quarter. Dragonwave shipped products to 13 new customers in Q3 FY 2010, bringing its year to date total up to 32.

Of course Dragonwave has a large North American customer as a major benefactor, and that customer accounted for 82% of its Q3 FY 2010 revenues. Obviously in the long term a bit more substantive distribution of revenue sources would be great. But you have to start somewhere, and the good news is that despite having a very large customer driving a lot of the revenue and therefore also having a lot of negotiating power, Dragonwave still realized gross margins of 43% and operating margins of 23% for the Q3 FY 2010 quarter. And they've got cash, cash equivalents, and short-term investments of \$104 million behind them.

Not bad. Thanks to Dragonwave for proving there is still room for start ups to create innovation and help drive the market forward, even in times like these.

### **AT&T and 3G**

AT&T has done it again - they managed to make sure that there was not enough backhaul for the recent Consumer Electronic Show in Las Vegas. This came only a short while after it was widely reported that AT&T had temporarily refused to sell iPhones in New York City, purportedly over concerns of the impact the iPhones were creating on the network.

Marketing has a tendency to lead operations, and to a certain degree that makes sense. But not to the degree that it seems to be the case at AT&T these days. Did no one estimate the amount of traffic that the iPhone would create for the network before deciding to cut the deal with Apple and promote the heck out of it? We know there is a recession at the moment, but get serious!

AT&T has a number of alternatives at its disposal in terms of 3rd parties lined up to help expand its backhaul capacity, and needs to use them liberally and quickly if they are to avoid

having ongoing network performance issues for mobile broadband turn into a very effective Verizon commercial.

But regardless of what AT&T does to its own image, the really sad thing is that the widely reported 3G mobile data availability and performance issues on AT&T's network are giving 3G mobile broadband an undeservedly bad reputation and potentially helping "poison the well" of the market by example. And it's not likely to help AT&T's customer satisfaction or retention of the early adopters of mobile data, either.

### **Nortel scores a commercial win for production 100G**

Nortel had been working with Verizon on 100G for over a year, and full throttle since August. Verizon's deployment of a 100G wavelength on a fiber that was already carrying numerous 10G channels on the 893 km Paris to Frankfurt route of its ultra long haul network marks a bellweather commercial production implementation of 100G.

Nortel is using coherent optical FDM to squeeze two sub-carriers together and produce a 100G wavelength. That helps them use commercially available components that are proven, available, and have already progressed down the cost curve.

Nortel's DP-QPSK and coherent receiver detection development was a huge financial gamble when they did it, and may have ended up being bad from the standpoint of reducing its chances of surviving on its own but good from the perspective of helping entice the successful bid from Ciena.

But no matter how you look at that, Nortel has unquestionably had tremendous market impact in terms of setting the agenda for discussion of the value of coherent receiver detection and new transmission formats designed to overcome the problems of nonlinearities as transmission rates increase to 40G and beyond.

Nortel feels like they will have a significant 2 year lead time to market to try and exploit going forward as part of Ciena. How well the lead time to market, however long it might be, is aligned with cost competitive to that of 40G will be important.

We think Ciena bought Nortel because the only way it was going to repay the debt it was allowed to restructure during the telecom downturn was to expand its product lines and gain market penetration more quickly and effectively than it could hope to do on its own within the required timeframe.

For this reason, taking a "loss leader" approach with respect to pricing is not likely going to be an option. Market traction will be the best gauge of success.

## **Hatteras gains market presence thanks to the introduction of the HN6100**

Hatteras' HN6100 targets the Ethernet business services and mobile backhaul markets with new-found flexibility in access media that has expanded the utility of its technology and increased its addressable market.

The HN6100 supports Ethernet over Copper customer premises equipment (CPE) via Hatteras Networks' HN400 Series, Ethernet over Time Division Multiplexing (TDM) and Ethernet over NxT1/E1 via the new HN500 Series and TDM over Ethernet CPE via the new HN600 Series with PWE3. Ethernet over Fiber is on the way, which is what could propel the HN6100 into greater market opportunities ahead.

No matter the service provider, fiber will make sense part of the time, and not make sense at other times. Having the ability to enjoy the operational synergies of a single platform that supports fiber as well as Hatteras' Ethernet over Copper solutions makes sense.

## **ADVA tries E-Commerce in North America**

E-Commerce comes to Ethernet at ADVA. This vendor is now selling its FSP 150 family of Ethernet demarcation devices to North American customers over the Internet via credit card, complete with sales prices listed on the web site.

This illustrates just how much and how quickly Ethernet demarc devices became commoditized. ADVA was early to bring them out, and they offer significant value. But for fairly simple device that is being rapidly commoditized as many competitors responded and radically substantive differentiation proves difficult, why not sell them over the Internet? Particularly if it helps you keep Sales costs down outside of your home region.

Just another interesting sign of the times.

## **Alcatel-Lucent steps up its positioning on Cloud Computing**

Alcatel-Lucent is not a household name in cloud computing at this point, but its partnership with HP was no doubt part of its design to change that, and the company has been ramping up its positioning of service operator opportunities in cloud computing recently.

Alcatel-Lucent is recommending that network providers move hosted enterprise services onto private or virtual private clouds to reap the benefits of stronger margins and easier management, and recommending partnering with applications and content providers that will need differentiated network performance and carrier class networks to enhance their cloud-based services.

Network operators have not generally led the charge on cloud services, but the opportunities are there, even if they will require overcoming some of the cultural barriers in the Enterprise and concerns over security and privacy. Overcoming those security and privacy concerns is where private clouds should have an edge over public ones.

Will network operators be seen as credible providers of private clouds? They have a good level of subscriber trust upon which to build, and can also offer more substantive SLAs than some of their competitors. We think the route of partnering with applications and content providers may be the most frequent route to success by network providers already stressed by the rapid increase in the complexity of their business models.

### **Fujitsu continues to branch out and expand its addressable market**

Fujitsu has been one of the most successful foreign companies to enter the North American market, and over the past 25 years Fujitsu Network Communications has blended in so well as to be seen as being an integral part of the U.S. competitive landscape while having focused its efforts there. To date, FNC has over 400,000 network elements deployed in the U.S.

Fujitsu Network Communications has bucked one of the trends of globalization; it is a major optical vendor that is still manufacturing its own equipment in North America. The company needs to respond to increased competition being directed toward its traditional inroads in former RBOC customers in North America. They have expanded the breadth of their market presence in the past year to include more Tier 2 and 3 Providers, MSO, and Government and Research and Education customers. And Fujitsu Network Communications has been leveraging distribution channels in Europe and Asia (outside of Japan) to support the international expansion of key U.S. customers.

Key to its strategy this year will be leveraging channel partners more strongly to increase its Tier 2 and Tier 3 customer opportunities, expanding direct sales in Canada, foreign carriers, ICPs, and the oil and gas industry, and effectively targeting ARRA broadband stimulus funding. Fujitsu also is concentrating on growing its professional services business in managed services, network consolidation and modernization, and network integration, and by focusing on Connection-oriented Ethernet in its next-gen transport infrastructure. The win for packet ONP in Canadian provider TELUS' backbone was a key milestone for Fujitsu as it works to expand its addressable market.

### **Ciena launches Ethernet certification programs**

Ciena is not the leading name in Ethernet, but would like to be in future and hopes to leverage its acquisition of Nortel assets to that end. In preparation for those efforts, Ciena launched its Carrier Ethernet Certifications program, which incorporates four levels of certifications - the upper three of which include hands-on training in a traditional classroom setting.

Helping customers come up to speed with technology is always a good idea, but there is more to this than that. Ciena likely has ambitions to leverage the acquisition of Nortel assets and personnel to expand its Ethernet solutions beyond the extent to which its name has significant street credibility or strong recognition today.

One way for Ciena to build its reputation for Ethernet expertise is to demonstrate it in a classroom setting, which is just what they are doing. We believe that although the Carrier Ethernet Certifications program represents a good customer supportive investment, the better half of the impetus for them doing this may have been the Marketing value and ability to build a greater reputation in terms of their data capabilities.



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