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# Managing Complexity

By Tim Young, Editor-in-Chief

What's in a name?

As 2011 continues to pick up speed, it looks more and more like this generation is "the next generation", at least in the wireless realm. Of course, that's sort of a nonsensical cliché, like saying "the future is now" or "today is tomorrow," but if we look at everything that next gen networks promised a few short years ago, and how much of that is being delivered today, particularly to mobile customers, the rapidity of growth has been impressive.

Take LTE. I spoke to more than a few vendors and service providers in, say, 2007 or 2008 who predicted that LTE would slide into obscurity like many a predicted game-changer before it. However, it's clear

**"ABI predicts LTE infrastructure spend will reach almost $1billion in 2011."**



that this tech isn't going away.

TeliaSonera famously cracked open the LTE can-of-worms in Stockholm and Oslo (simultaneously) before 2009 was out, and NTT DoCoMo followed on before the end of 2010, as did Verizon Wireless in the US. The latter offers speeds of some 5-12 Mbps, though MSNBC.com clocked speeds of over 30 Mbps, down (according to Gizmodo, anyway).

However, DoCoMo promises, and generally delivers, speeds that exceed those, and may move into the 'Holy Crap!' arena before long.

One Computerworld writer was disappointed with speeds in the 5-7 Mbps range, while other reports had the DoCoMo network approaching its announced speeds in the high 30s. But that's just the tip of the iceberg. DoCoMo LTE-Advanced tests have hit 1 Gbps in the lab, and is due to begin field experiments on the technology as soon as possible.

**The Players**

And there are many more carriers out there pushing the LTE envelope. China Mobile's pending 2011 launch is of particular note. In fact, ABI Research estimates that wireless operators could spend billions in the next few years as they thunder towards the future of LTE. In fact, the research firm predicts that spend on LTE infrastructure will spike 120% in 2011 to reach almost $1 billion, a finding supported by some 185 deployments and trials underway, worldwide.

ABI specifically points to some of the deployments I've already mentioned, but also draws attention

to MetroPCS's plan to launch half a dozen LTE smartphones in 2011, and mentions AT&T's plans for LTE, as well as T-Mobile's. Granted, these carriers seem to still have a good deal of work ahead of them if they are to continue to propel towards the next generations of wireless.

AT&T, for example, announced at the Consumer Electronics Show in January that it was planning to have its LTE plans "largely complete" by 2013. Meanwhile, both AT&T and T-Mobile run campaigns freely using the term "4G", but that's a marketing topic, and something covered elsewhere this month, so I won't belabor the point. However, the idea of having an LTE network that won't be ready for primetime for several years runs counter to some of the extreme optimism we've been hearing from other providers. It's an arms race out there.

**FOUR!**

And how big are the numbers we're talking about? Well, Wireless Intelligence estimates that by 2015, LTE will account for some 4% of the world's mobile connections.

Wait. Did I type that correctly? 4%? As in four? The small number between the smaller "3" and the slightly larger "5"?

**"We predict that the introduction of VoLTE by 2012 will mark the 'tipping point' for mass-market LTE handset volume shipments…"**

Yes. But with the speeds that LTE networks could prove capable of providing, that 4% could prove staggering in terms of revenue and network demand to the providers on whom they depend. According to Finnish analysis firm asymco, iPhones account for roughly 4.2% of handsets, worldwide. And yet, how fully has that little handset dominated the way that consumers think about handset use, providers think about network planning, and developers think about software? 4% can be a very big number.

Furthermore, Wireless Intelligence's report underscores a big part of the LTE puzzle that remains, to date, on the drawing board or in the lab. "We predict that the introduction of voice over LTE (VoLTE) by around 2012 will mark the 'tipping point' for mass-market LTE handset volume shipments, which will accelerate LTE connections growth," said Joss Gillet, Senior Analyst for Wireless Intelligence, in a report

released in the last month of 2010.

Between blazing data speeds and the promise of VoLTE, LTE is certainly a quantity that needs consideration. But what are the real concerns about the complexity of the technology? And how can communications IT companies build the OSS and BSS support that LTE and other next gen network technologies demand?

**Knowing is Half the Battle**

While I won't suggest that LTE requires us to forget everything we know about running a network, there are a number of complexities that should be considered.

"The major challenge I see in LTE is going to be roaming," John Kim of Alepo Networks told Pipeline in an interview at Mobile World Congress. "You have just four bands on GSM, and quad-band phones used to be a big deal; there are trials going on with 12 bands, and LTE is possible across 40 different bands. That's definitely the biggest challenge in LTE," (read the full interview here.

In addition, the influx of new traffic that LTE speed facilitates requires a redoubling of backhaul efforts. The capacity crunch that has taken root during the period of rapid smartphone and netbook/dongle proliferation has done a great deal to prepare carriers for this, but there is more that can be done. Is your backhaul network prepared for LTE numbers?

Furthermore, LTE promises to introduce fixed broadband speeds into an environment not prepared to handle the sorts of device management challenges that fixed broadband providers have learned to deal with. A standard approach for troubleshooting, alone, is still largely absent from the mix.

In addition, what's the point of building a shiny new network if you can't monetize it? The monetization of LTE networks can be looked at as a real opportunity. All that data. All those potential partners. A great deal of money to be made and a million opportunities to screw it all up with overly ambitious rollouts that overlook the customer experience in favor of the cachet of being first.

**"It's not currently clear what vendors will run away with the smart LTE money."**

Which, of course, leads to the topic of CEM. These new network technologies represent a fantastic chance to use the wealth of customer data available to you, the provider, to maximize the positive nature of your interactions with the customer. Will providers handle CEM in the new generation better than they did CEM in the old? Time will tell.

**Winners?**

It's not currently clear what vendors will run away with the smart LTE money. Bridgewater Systems closed out 2010 with a nice deal with Verizon Wireless to provide "mobile control solutions as well as maintenance and support services for all current and future 3G solutions," according to the Bridgewater press release. Meanwhile, NetCracker is being deployed in Japan to speed along the NTT DoCoMo rollout of their solution (called Xi, for those keeping score at home), and the contract for the Vodafone LTE rollout went to Amdocs, it was just announced. However, as these are early days, yet, it is clear that the ultimate victor in the quest to manage these new networks hasn't emerged, by any stretch.

There's a long race yet to run. And at network speeds LTE can muster, that race promises to be a pretty exciting one.