

What Is 4G?

A Paranoid Parent's Quest for Clarity in a World of Semantic Chaos

By *Ed Finegold*

As parents of an infant during winter in Chicago, my wife and I are always looking for places to walk around indoors. The stroller is napping place, restraint system, and entertainment chariot all in one. Aquarium and zoo visits can become expensive, so sometimes we opt for the shopping mall. Parking and admission are free. Of course, wandering a mall means my wife is going to seek cute new clothes for the little one. While she's cooing over pink overalls in the Children's Place, I'm noticing there's a retail store for every wireless provider – and a new kiosk selling Clear's WiMAX services. Sprint resells these services, so both operators are advertising their "4G" offerings. Suddenly, the panic sets in. Is 4G just the next, fatter pipe? What happened to watching Hulu on my mobile while Skypeing with my friends back in New York?



If 4G is just a higher capacity connection, isn't our industry marching down the path to commoditization? Is that a sign of the end of days, or am I just sleep deprived? I desperately needed the answers to these questions, so I reached out to some old pals in the industry for reassurance.

Policy control means a smarter network, and that is what I want to believe 4G is all about.

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An advertisement for Infodirections. It features a large sunflower in the foreground on the left, with a field of sunflowers in the background under a clear blue sky. The text "Rise above the rest." is written in a yellow font, and "infodirections" is written in a white, lowercase, sans-serif font. A white diamond-shaped logo is positioned above the word "infodirections".

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Thank Goodness for Old Friends

Shira Levine, Directing Analyst Next Gen OSS and Policy for Infonetics Research, is an OSS/BSS celebrity.

We became friends 1000 years ago when I was a rookie reporter and she was writing for America's Network. Turns out we both have roots in Michigan, are members of the same tribe, and have a sibling like bond that's resulted in her exchanging baby pics with my wife through Facebook. So I asked her, "What does 4G mean to you?" I hoped we'd share a perspective. "4G could mean one of two things," she wrote. "It could mean having the bandwidth to do truly innovative, convergent services that are rich in content and can be personalized to create a unique customer experience." Oh, thank goodness. As an analyst she has to talk to everyone, so if we share this point of view, there has to be some truth to it. Except..."On the other hand," she added, "it could just mean a repeat of 3G, as more and more bandwidth sucking traffic clogs up the network." And that's what I fear. That instead of 4G delivering

Expect lots of data-only devices that are driven by machines, not humans. - David Sharpley

the big bang we've all been waiting for, we'll be hoping for 5G to make our dreams come true. Fearing the worst I read on, and find that there is hope for us yet. "I'm seeing operators implementing capabilities such as policy control as they build out their 4G networks, not as afterthoughts as they've done in the past." Whew. Policy control means a smarter network, and that gets us closer to what I want to believe 4G is all about.

George Orwell and the Smart Network Business Case

Next in my inbox is a note from David Sharpley, Senior VP of Marketing and Product Management for Bridgewater Systems. Bridgewater lives and breathes this policy management and personalization stuff, so I'm pretty sure David has something encouraging to add. He writes that to



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him “4G is an entirely IPbased network” where “not all packets can or should be treated the same.” How Orwellian; some pigs are more equal than others. I can live with that, but I don’t always buy the personalization and customer experience arguments because we’ve been talking about them for years with very little movement.

David doesn’t disappoint though. He says the business case is really about “mass introduction of machine to machine communications...we expect lots of data only devices that are driven by machines, not humans.”

I buy this. When a good friend helped build UPS’ automated air hub in Louisville, Kentucky, he told me this was coming. Automated package routers communicate autonomously. This model extends to ATM machines that manage our financial transactions, red light cameras that issue citations automatically, security cameras logging our every move, GPS devices that report trucks’ locations on their own, and of course robotic drones that chase terrorists in Afghanistan. Orwellian indeed. Well,

“The promise of 4G is keeping us connected to the people, applications and information that matter most in our daily lives.”

- Clearwire

I won’t rest easier with these thoughts in mind, but I’ll believe carriers want to profit from these capabilities and are willing to invest in smarter 4G networks to make it happen. On that note, Sharpley says that “standards based PCRF Policy Control and Rating Function – is a mandatory piece...” I’m sure real 4G won’t happen without much smarter billing, so this makes sense to me.

**If Big Brother is Watching,
I Want to Smile on Camera**

As a libertarian who fears big government, I’m conflicted. Surveillance and tracking may be important drivers for the 4G service environment, but I still want my paranoid mind numbed by some awfully entertaining content. Manish Gupta, vice president of



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global marketing for Kabira puts my mind at ease. He writes, “4G should be about communications lifestyle enhancement for the end users.” I try to read these words with Manish’s refined, British educated accent in mind. It’s soothing, comforting, and confident. I like the idea of having my lifestyle enhanced.

Gupta adds, “We can expect consumption of services by the end user to be on many device types (net books, tablets, smart phones, game consoles, set top boxes), paid for in a multitude of pricing formats (location based, time based, volume based, value based).” A stroller mounted 4G device with an LCD screen would mean I could catch Samuel Eto’o leading Inter Milan on Saturday mornings without neglecting my family. Pay per view would mean I could purchase a quality stream when I want it, rather than relying on my guy in Africa who streams a choppy, blurry version for free, or subscribing to something for the whole season I’ll be lucky to watch two or three times.

As I ponder Gupta’s words, another message arrives, this from John Wilmes, chief technical architect – communications sector, for Progress Software. He appreciates the semantic nature of my original question, “What does 4G mean to you?” Inherent in this question is whether 4G and LTE are the same, or 4G is about a higher capacity network while LTE is about service layer integration, but still somewhere in the shadowy future.

“The popular usage of 4G is more general than LTE and refers to order of magnitude improvements in bandwidth (1Gb/s fixed and 100Mb/s mobile) whether achieved through LTE, WiMAX, or upgrades to existing technology,” Wilmes says. He adds that “QoS including performance management becomes a more real time concern” and that the new and very large investments in infrastructure necessary

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to make 4G happen are driving CSPs to “insist on interface standardization, e.g. MTOSI, and data standardization, e.g. SID, much more strongly than in past technology rollouts as evidenced in recent RFPs.” Now there’s something tangible. If the requirements are in the RFPs, then we are more likely to see smarter functions actually implemented in the network (rather than just discussed in conference sessions).

What Clear Says For Itself

While I trust the opinions of my esteemed colleagues, the influence that shoved me down this curious path was a simple advertisement on a Clear Communications kiosk in a shopping mall that included the term “4G.” So it only made sense for me to ask Clearwire, owner of Clear and provider of Sprint’s advertised 4G offerings, what it meant by 4G. What I saw at the kiosk – voice, video, and data – had me fearing it was just wireless triple play. Nothing new or unique that. Pinocchio set free, at best.

My assumption, I am glad to say, was wrong. “The promise of 4G,” says Susan Johnston, a spokesperson for Clearwire, “is keeping us connected to the people, applications and information that matter most in our daily lives. True mobile broadband will change the way we use and experience the Internet much like mobile phones did for voice communications making connectivity about the person and not about a place like home or the office. In our view, it will revolutionize communications in the years ahead.”

I am comforted to know that Clear’s vision aligns

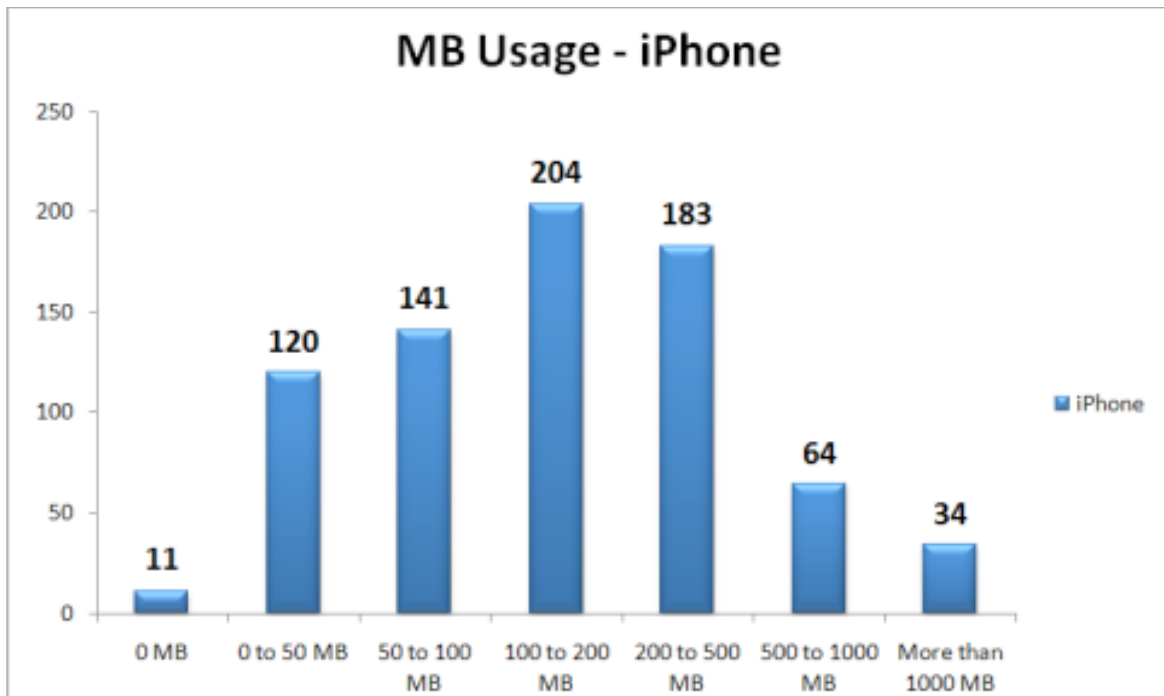
with what we've all been talking about – a new and better service experience. A sense of freedom and ubiquity. Enjoying Samuel Eto'o scoring goals for Inter while I push a stroller through the mall.

iPhones Showing the Path to...5G?

If you're a Blackberry user, you know that your mobile Internet experience leaves something to be desired. The "Berry" is a good phone, and a great

with about 5 percent using more than a gigabyte per month (see bar chart: MB Usage iPhone).

These users are pushing the limits of what 3G can do, as evidenced by the outcry from AT&T's data users regarding poor network performance and AT&T's request that iPhone users throttle it back a bit. Part of this phenomenon is due to the unlimited data plan to which all U.S. iPhone



Source: Validas (www.myvalidas.com) Drawn from a sample of consumer iPhone bills from January through November 2009.

email device, but it can't hold a candle to an iPhone in the Internet department. That's why it should come as no surprise that [Consumer Reports recently published statistics](#) from Validas that show on average, consumer iPhones use 5 times as many megabytes per month as do consumer Blackberrys.

Digging deeper, however, the numbers show that the largest number of U.S. consumer iPhone users are consuming 100 to 500 megabytes per month,

users must subscribe. But the real driver is the user experience. The iPhone already provides a 4G like experience because it supports desktop-like Internet; advanced voice and presence applications like Skype; location-based services like the app that tells you how long the lines at Disney World are and which one is closest to you; and a lot more.

It is arguable that 3G networks, having emerged from voice-centric GSM and CDMA technology platforms, were never designed to support this kind

of experience. Hence, they are beginning to break down under the demand from complex, data-hungry services. This suggests that the demand for 4G has arrived, and is growing. An important question to consider is how long it will take for 4G to be pushed to its limits, given the service experience envisioned, and how soon we'll be clamoring for 5G capabilities?

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