

4G cellular networks might not live up to hype

November 18 2010, By David Sarno

If today's fastest smart phones deliver e-mails and Web pages with the speed of a thoroughbred racehorse, then the next generation of phones - now rolling onto the runway - may feel like jet planes.

Powered by souped-up [4G](#) networks (that's fourth generation), new smart phones will be more like [mobile entertainment](#) centers, allowing users to watch live, high-definition TV broadcasts, download entire movies in seconds and make smooth, uninterrupted video phone calls from street corners and hilltops alike.

But don't burst into song quite yet: For all their high-flying potential, 4G networks are still a long way from taking off.

All four major cellular providers have been touting the speed and possibility of 4G, but the number of consumers these embryonic networks now reach is limited, and only a few early handsets are on the market. It could be a year or more before the technology is widely available.

[Sprint Nextel](#) Corp. has an early lead in the 4G race, having turned on its new networks in a few dozen smaller cities this year. The company plans to bring 4G capability to parts of Los Angeles on Dec. 1, and San Francisco a few weeks after.

Sprint's network, based on a technology called WiMax, will offer users average download speeds of about 3 to 6 megabits per second - roughly

four times what most 3G users get now. At those speeds, users could download an entire song in about 10 seconds.

But Sprint's 4G network will cover only a fraction of the users that it serves with its current 3G system. The company says if you're looking to upgrade, you should first consult [online maps](#) to see whether your home or office is covered. If it isn't, you might end up with a flashy 4G phone that's getting the same old 3G speeds.

Building the networks has been slow and costly for all of the major providers, which have spent billions retrofitting cell towers across the country, replacing older copper wiring with fiber-optic cable capable of carrying thousands of times more data.

"I've never seen a network undertaking that's as intensive as this, including the building of the original cellular network," said Andy Shibley, AT&T's vice president and general manager for the Los Angeles area, noting that the company has spent close to \$40 billion building its network over the past two years - including upgrading tens of thousands of cell sites across the U.S.

"When you start dealing with that many zeros, that's a giant undertaking," Shibley said.

At a new Verizon Wireless switching center in Los Angeles last month, Jim Harper, a senior technician, walked down rows lined with dozens of black metal cabinets containing hundreds of circuit boards that process millions of calls and data requests every day.

Harper stopped at a lone white cabinet, about the size of a gym locker. It was a 4G server that could handle as much call traffic as fifty of the black 3G cabinets. Verizon's version of 4G, it says, will allow speeds of 5 to 12 megabits per second - more than twice as fast as Sprint's on the

high end.

"The pace that the technology moves is just exploding," Harper said.

Yet as powerful as the forthcoming technology may be, the white cabinet was still the only one in the room - a sign that Verizon is still in the early days of building its network.

Verizon Wireless hasn't turned on 4G yet. It will begin to flip the switch in about 30 U.S. cities this year, initially offering 4G service only to wireless accessories for laptops. Its 4G smart phones won't come out until sometime in the middle of 2011 (Verizon declined to say if whether that would include Apple Inc.'s iPhone), and as far as size, its 4G network won't catch up to its existing 3G footprint until 2013.

In the meantime, if you are wondering exactly what 4G means, you're not alone.

The technical definition of 4G is set by a United Nations standards body. It has to do with the specific way data are moved around and was created to achieve mobile broadband close to 100 times faster than what is available today.

The carriers have jumped out in front of that definition, however, adopting the 4G label even when their networks do not fit the technical specifications.

T-Mobile, which as recently as March was calling its grid the "nation's fastest 3G wireless network," recently began referring to itself as "America's largest 4G network" - though its technology has not changed.

T-Mobile uses a technology called HSPA+, an extension of 3G networking that delivers much faster speeds. The company contends that

the technical definition doesn't much matter to consumers, as long as they're getting faster service.

"Consumers don't care about how many G's are attached to the underlying technology," said David Gallacher, T-Mobile's regional vice president of engineering, noting that T-Mobile's HSPA+ network is faster than Sprint's 4G offering. "They care about the speed and quality of the experience."

AT&T, the iPhone's exclusive carrier, has endured frequent criticism about the performance of its wireless network, which has sometimes creaked under increasing demands of data-hungry [smart phones](#).

Perhaps understandably, the company has taken a more cautious approach to the 4G debates. AT&T, like T-Mobile, has highlighted its faster new HSPA+ network - but unlike T-Mobile, it has not called it 4G.

AT&T has said its HSPA+ networks, which have just begun rolling out, will be two or three times faster than other companies' 3G offerings.

As for 4G, the company said, it will begin rolling it out toward the middle of next year.

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