

## Traffic jam slows down 3G wireless communications

*Kevin J. O'Brien*

For Vodafone Hungary, Swisscom, Telecom Italia and Vodacom of South Africa, the long-awaited arrival of the mobile Internet and wireless video - so-called third-generation technologies - could not have come sooner. Rising use is helping the operators finally repay the millions they invested in high-speed networks and licenses, money spent in some cases nearly a decade ago.

But success, according to network equipment makers, is bringing strains on many operators, who are being required to invest more to soup up their networks and unclog the data bottlenecks caused by the high-volume Internet surfing and streaming video.

"There is so much data moving now, the infrastructure is not up to speed," said Kaj Relander, a partner in London at Accel Partners, a venture capital company owns a stake in Cambridge Broadband Networks, a wireless equipment maker in Britain.

The volume of data on wireless networks is surging 50 to 1,500 percent a year, said Carl-Henric Svanberg, the chief executive of Ericsson, the world's largest maker of wireless networks. In May 2007, the volume of data for the first time exceeded voice information on the hundreds of wireless networks that Ericsson manages for operators, Svanberg said last week at the Mobile World Congress at Barcelona.

Paul Dolan, a vice president of Tellabs, said, "This has become a major issue for every operator over the past 12 months." Tellabs, based in Naperville, Illinois, is a maker of so-called backhaul networks - the part of a wireless network that links cellphone base stations to an operators core network.

Operators have already begun the reinvestment needed for 3G to deliver on its promise. Within the last year, Vodafone, Swisscom, Telecom Italia and Vodacom hired Tellabs to expand their microwave and fiber optic backhaul networks to relieve bottlenecks, Dolan said. He said traffic typically backs up in urban areas where many cellphone users send large packets of data through a single base station.

At Telstra, the Australian operator, the volume of data traffic excluding text messages nearly doubled, rising 95 percent, in the past year, said Sol Trujillo, its chief executive.

"The first two versions of 3G networks were not really fast enough for real-time data services," Trujillo said at the Mobile World Congress. "But now, they finally are. This is an industry that is poised for growth."

The explosion in wireless data is coming at a time when many operators are being required to cut the prices they charge customers for downloading data. In Europe, Vodafone, Telefónica of Spain, Hutchison Whampoa's 3 network and T-Mobile have all lowered data prices by up to 45 percent in the past month to stave off price caps threatened by the European telecommunications regulator.

"The issue for operators is their business model," said Paul Jacobs, the chief executive of Qualcomm, based in San Diego, the maker of microprocessors for wireless phones and base stations. "As operators sell more data, they are having to cut prices. That is driving the need for inexpensive, effective solutions."

Arun Sarin, the chief executive of Vodafone, the largest mobile operator in Europe, said rising consumer use of broadband Internet would fundamentally change the company, which owns networks in 25 countries.

"Five years from now, Vodafone will be a mobile phone company but look more and more like a broadband Internet company," Sarin said in Barcelona. "We have been talking about this for

a while, but things are happening now which will allow this business to have legs for many, many years."

But faster wireless networks, while enabling Internet services, are also bringing new costs. The current 3G networks can transmit data at commercial speeds of up to 3.6 megabits a second, but the technology requires a cellphone to remain in a continuous data conversation with the network, increasing the traffic load, said Nigel Wright, a vice president at Spirent Technologies, a company based in Crawley, England, that tests cellphones for operators.

AT&T Wireless, the biggest mobile carrier in the United States, hired Spirent to test the cellphones it sold customers to make sure the devices transmitted data efficiently and did not clog the network, said Wright, who is based in Eatontown, New Jersey. "The more that wireless data traffic increases, the more operators are starting to look for efficient handsets."

Christoph Caselitz, the chief market operations officer of Nokia Siemens Networks, a 50-50 venture of Nokia and Siemens, said his company had just installed a new backhaul network for a large European mobile operator, whom he declined to identify, which paid about €100 million, or \$146 million, for more than 3,000 microwave transmitters to handle the load.

"Operators are definitely surprised by the surge in data," Caselitz said. "For operators, the increase in data traffic is hard to plan for because it is the customers and their behavior that are generating the traffic."

Even in Pakistan, which despite its political unrest is going through an economic boom, the biggest operator, Mobilink, just spent \$60 million on a new backhaul network. The carrier, a unit of the Orascom Group, based in Egypt, has 31 million customers in Pakistan, 47 percent of the market.

In 2002, Mobilink had only one million customers.

"We are one of the fastest-growing markets in this part of the world," said Zouhair Khaliq, the Mobilink chief executive. The country's five wireless operators invested \$8 billion in their networks in 2007, Khaliq said, to handle surging traffic. This year, the economy in Pakistan is forecast to grow by more than 7 percent, he said.

"Wireless traffic of all kinds is increasing, and we are building out our networks as fast as we can," Khaliq said.

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