Carriers Try Software for Data Flood

Start-Ups Devise Ways to Track Cellphone Usage, Better Manage Videos That Tax Wireless Networks

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Facing a deluge of Web and video traffic that is pushing the limits of their networks, big wireless carriers are resorting to software shortcuts and other tricks to streamline data traffic until they install more cellular towers and roll out next-generation networks.

Armed with advanced devices like BlackBerrys, iPhones and **Apple** Inc.'s coming iPad, more customers are using cellular networks to surf the Web, watch video clips and run apps. While the data traffic means a new and growing source of revenue, managing that rapid growth has been challenging.

"The networks weren't designed with this in mind," says Fabricio Martinez, a director at telecommunications consultancy **Aircom International** Ltd.

In the U.S., **AT&T** Inc. has been at the forefront of the data explosion, primarily because it offers the popular iPhone, which can surf the Web and run applications. In the last three years, the carrier says its data traffic has grown nearly 50-fold.

In markets like New York and San Francisco, the congestion has prompted a wave of complaints about dropped calls and slow speeds. The iPad, which has a larger screen for Web browsing and videos, will further tax AT&T's network when it is released this year.

AT&T says it is working on adding more bandwidth in New York and San Francisco and it expects the iPad will be used a "substantial" amount of time via Wi-Fi Internet connections.

Start-ups in the U.S. and abroad are trying to help AT&T and other carriers manage the surge in data traffic by tracking how people use cellphones and coming up with more-efficient ways to download videos and Web sites. Analysts say video accounts for more than 75% of mobile data traffic.

Carriers generally download video files to connected phones as quickly as possible. But engineers at **Bytemobile** Inc., Santa Clara, Calif., found most cellphone users don't watch video clips all the way through. That means carriers are wasting bandwidth downloading more video than is watched, says Joel Brand, Bytemobile's vice president of product management.

The start-up devised a way to download video as the customer watches, but with less stalling than usual. The tactic can cut the volume of data transferred in half, Mr. Brand says.

The company, which already works with AT&T and **Sprint Nextel** Corp. to minimize the data that phones download when they visit Web sites, is in trials for its video software. Mr. Brand declined to discuss pricing.

Rival **Flash Networks** Ltd. of Herzlia, Israel, has another trick up its sleeve. Some video-file formats are more efficient than others, and some formats work better with certain phones than others. Matching optimal file formats with phones cuts the amount of bandwidth needed to download videos by as much as 50%, the company says.

Liam Galin, Flash Networks' CEO, also says data demand peaks between 3 p.m. and 9 p.m., which means a lot of people are using a cellular network at home, when a carrier could divert traffic to less-encumbered Wi-Fi connections.

In the U.S., the company says its customers include **Deutsche Telekom** AG's T-Mobile USA and Verizon Wireless, a joint venture between **Verizon Communications** Inc. and **Vodafone Group** PLC. T-Mobile and Verizon Wireless declined to comment.

Dealing with the boom in data usage is only set to get harder as more customers buy smart phones. As of the third quarter last year, only 25% of U.S. customers had smart phones, but at peak times in major markets, carriers are already running at over 80% of capacity, according to a report from Morgan Stanley.

Carriers are scrambling to build out next-generation networks that promise higher bandwidth and faster speeds. But putting up new radio boxes on cellphone towers and laying down faster cables to connect them takes years and billions of dollars to finish, analysts say. It's quicker and cheaper to install software.

Some in the industry are skeptical that such software can be a long-term solution for handling wireless data. Large telecommunications-equipment makers, which sell radio boxes to wireless operators, say carriers need to take bigger steps.

"You cannot optimize your way to success," says Arun Bhikshesvaran, senior vice president for **L. M. Ericsson Telephone** Co.'s multimedia and infrastructure solutions. Instead, they should reconfigure how they route data through the network and install higher-bandwidth cables to connect their cell towers, he says.

France's **Alcatel-Lucent** developed software that plugs into a carrier's network and, within an hour, can report on the quality of the network, down to the real-time experience of individual customers. If carriers see a high level of traffic, they can tweak how their towers are being used.

"Many of the challenges facing wireless networks today are not necessarily the amount of volume," says Mike Schabel, who oversees the Alcatel-Lucent software. Rather, today's networks weren't designed with the right equipment to handle heavy data traffic, he adds.