

Broadband traffic gets into a jam on wireless expressway

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The Internet has become an ever more mobile beast. Through iPhones, netbooks, Kindles, BlackBerries, Skiffs and other freshly evolved hosts, its appetite for bandwidth grows by the minute.

Google's release into the wild of its homegrown <u>Nexus One</u> smartphone adds yet another data-hungry species to the mix and highlights how your pocket is the new desktop.

With such growth, however, comes a new scarcity.

"Smartphones have been so successful, they've created their own problem," said Michael Nelson, analyst for Soleil Securities Group Inc.

The radio frequency spectrum used for moving data to the fast-breeding digital fauna -- soon to include Twitter feeds to the dashboard of your Ford -- quickly is becoming overcrowded by an explosion of <u>wireless</u> <u>broadband</u>.

That endangers newfound luxuries like on-the-go driving directions and the ability of your boss to thud you with an e-mail just about anywhere.

Without more spectrums, wireless carriers warn of cellular gridlock just around the corner. AT&T, which holds exclusive rights to iPhone service, has said <u>smartphone</u> use in New York and San Francisco has pushed its network's performance "below our standards."



When people from New York ZIP codes were temporarily unable to buy iPhones from AT&T over the Christmas weekend, it prompted speculation that the devices had maxed out in the Big Apple. It has since been made available to New Yorkers.

Overland Park, Kan.,-based Sprint Nextel's loss of market share in recent years actually may put it in a stronger position moving forward -- giving it leverage to offer more bandwidth to customers or sell off some of its \$19.8 billion worth of spectrum.

But having invested early in network and spectrum, Todd Rowley, a Sprint vice president, said: "We don't want to be in a position of selling it off.

"We plan to be in a position of using it all."

Meantime, the broader cellular industry is calling on Washington to shift more airwaves toward <u>wireless carriers</u>.

The Obama administration may be a sympathetic ear. It has talked about using wireless technology to speed broadband to rural America and it is set to reveal a plan next month.

A pair of bills in Congress would make the Federal Communications Commission put up for auction spectrum now set aside for other traffic.

The FCC serves as traffic cop -- setting aside lanes for your cell phone, local TV or radio stations, and close-range Wi-Fi that gives you free Internet access at the library or McDonald's.

With investments in more towers or more sophisticated electronics, carriers such as Verizon, AT&T, Sprint or T-Mobile can cram more traffic into the lanes they've bought from the government. But only so



much more.

Today, cell traffic funnels into about 500 megahertz of frequency spectrum, with an additional 50 megahertz set aside for the business.

The industry wants an additional 800 megahertz.

Nowhere else in the world, carriers argue, does so much data stream over such narrow cellular pathways.

"It's not like landline Internet, where you can put down thicker wire or add more fiber," said Christopher Guttman-McCabe, a lobbyist for the wireless industry. "We need more spectrum.

"When carriers get more spectrum, they upgrade their systems, more users come, you get better handsets, better applications and more jobs are created."

That spectrum could be snatched away from other users -- the cellular industry wants it shifted away from satellite communications, sundry government agencies and broadcast television.

Just as most cellular carriers are on the verge of shifting their data traffic from 3G to 4G networks (moving to the fourth generation of cell phone service that will ship data at speeds so fast that streaming video becomes practical), the industry describes the looming shortage of wireless elbow room as a "crisis."

So it looks at broadcast television, for instance, and concludes that a disproportionate amount of spectrum is serving dwindling numbers of viewers who don't buy cable or satellite service.

Retool broadcast television -- with proceeds raised from selling off



spectrum -- and replace the tall towers with more, shorter towers, using far less spectrum, they suggest.

Broadcasters, predictably, aren't wild about the idea.

"We accept that creating more broadband is a worthy goal," said Kristopher Jones at the National Association of Broadcasters. "But we don't think the way to do it is to go after something (over-the-air television signals) that's used by 19 percent of households in this country."

He said there's no guarantee that existing viewers can get signals from a new system or that broadcast TV wouldn't have the same obstacles faced by wireless companies today -- especially community opposition to erecting new towers.

What's more, the TV industry wants in on the wireless world, too. It's experimenting with mobile digital television that it said could dramatically lighten the load on other wireless spectrums during times like the Super Bowl or dramatic news events.

Cell phones and, notably, carrier profits increasingly aim toward the bandwidth-gobbling smartphones. The sales of conventional cell phones grew steadily since their introduction as brick-sized status symbols in the mid-1980s. But the business from those talk-and-text models reached a plateau a few years ago.

Just in time came wondrous gadgets, such as the iPhone, the Blackberry, the Pre, the Droid and the <u>Google</u> phone -- pocket computers that can upload or download huge chunks of Internet data.

Although a voice call consumes more bandwidth than almost anything other than videos or certain online games, people don't tend to talk all



day on their cell phones. Rather, smorgasbord data service plans tempt them to constantly work the Internet with their phones, meaning they become bandwidth hogs.

At the same time, the same way many consumers are dumping landline phones for cell-only service, they're also unloading their home Internet service for netbooks that come with wireless subscriptions or for cards that plug their unplugged laptops into the Web.

Five million Americans had mobile broadband subscriptions in 2007. Last year, it was 48 million. Some predict 150 million in four years.

In some ways, the cellular business has lured customers into a budding data logjam.

"The industry did quickly adopt this all-you-can-eat plan, perhaps prematurely," said Rick Franklin, analyst at Edward Jones & Co. "What you might see is some metering on the wireless side" -- charging consumers for how much bandwidth they use.

For instance, AT&T has seen its networks tested most severely with its exclusive and wildly popular iPhone. The carrier said 3 percent of users tied up 40 percent of its network capacity and hinted at changing pricing to reflect, as one executive put it, that customers "understand what represents a megabyte of data."

Verizon, a leading carrier in the Kansas City market, spent more than \$9 billion in 2008 for spectrum it's bringing online. It expects that to be adequate for at least four more years.

"We feel like we're in good shape, even if others in the industry want more," said Verizon spokeswoman Brenda Hill.



Franklin said Sprint can benefit from AT&T's congestion by offering costumers an express lane for their data. Particularly, as it rolls out its 4G network -- in 27 markets now available to 120 million people by the end of this year -- he said the company was sitting on a surplus in an industry looking at a critical shortage.

"If they can't use it," he said, "it's valuable to sell to somebody else. Space is running out."

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