Security concerns cast shadow over cloud's bright future

June 22 2011, By Scott Canon

Chances are you've already got your head in the clouds. If Google has its way, you'll trust even more of your life to the digital cumulus.

The next-generation Internet speeds that Google promises for the Kansas City market could tempt people to store more of their virtual lives - music collections, family photo albums, software applications - on the "cloud" rather than in their own computers.

"Google wants your Internet experience to be through one of its products, so you'll see more of its ads," said Josh Olson, a technology industry analyst at Edward Jones & Co. "For those ads to work, they need to have traffic. They want you in their cloud."

That's a good part of the reason Google plans to string fiber-optic cable to nearly every home and business in Kansas City and the neighboring Kansas City, Kan. It's an express elevator to the Internet cloud.

And what's the cloud? It's anything that's kept on the Internet rather than on your computer's hard drive.

Like anything that has to do with technology, the cloud brings all the possibilities of convenience and worries about security.

Technologists regularly say the cloud is to your data what the bank is to your money. Keep the cash in a safe in your basement, and it's probably secure. Put it in the bank, and you surrender security to somebody else in

return for interest and the convenience that comes with checking and credit cards and ATMs.

Lock your data up on a hard drive, and it's hard for anyone to steal your secrets. Put them in an Internet vault on the cloud, and there's a risk that some thief might hack your stuff.

But for convenience, the cloud backs up your virtual goodies in case your home computer breaks down. As long as you've got the Internet, you've got access to all your digital stuff wherever you are.

Cloud computing stores your digital belongings on remote computer servers rather than on your own hardware. That means you don't have to buy as much physical storage. In the end, because the servers are shared and used to fuller capacity, it's a cheaper way to store things.

For years the cloud has been a tech industry buzzword, implying some cyber trend that might alter how we put the Internet to work. We've gradually shifted our electronic valuables to the cloud. Gartner Research estimates worldwide spending on cloud computing neared $70 billion last year, almost two-thirds of that in North America. The trend has been gradual and, at least from the consumer's view, not quite revolutionary.

Apple recently announced plans for its iCloud, a way to use the Internet to sync your iPod with your MacBook and your iPhone and the rest of your iStuff. If you have a song or a photo on one device, it will automatically show up on them all.

That comes as more and more of what we do online has already migrated to the cloud.

Google, for instance, offers an entire suite of free programs from spreadsheets (think Microsoft Excel), to word processing (think

Microsoft Word), to slide show presentations (think Microsoft PowerPoint) available to anyone with an Internet connection. In 2010, Microsoft responded with its own free set of online Office programs.

Without trying very hard, you've probably been floating on the cloud for a while. If you've used an email account from Gmail or Yahoo or Hotmail, you've trusted part of your life to the cloud. Likewise, if you listen to music on Pandora, you've tapped into its possibilities. What is YouTube (another Google property) if not a cloud depository of video?

Now the jump to the clouds is about to become more profound. The Google Fiber project could shift use of the cloud to another gear.

Consider the fledgling Google Music program. It offers the possibility of delivering all your music and playlists to any gadget, anywhere that can connect to the Internet. But here's the bummer: First you must upload all of your music to Google's cloud. For somebody with several thousand songs in a library, shifting all those files to the cloud could take days on a typical Internet connection. But with the 1 gigabit-per-second upload speeds that Google says it will bring to town, a day's chore takes less than an hour.

"That faster connection is going to get rid of the 'that's-a-pain' factor," said Olson, the technology analyst.

Consider streaming video. It's essentially cloud computing, because the movies are stored on remote computer servers and delivered to your desktop or television only when you need them. Netflix traffic already accounts for 22 percent of all Internet traffic and 30 percent during the Web's busiest hours. With the connections Google hopes to bring to town, as one analyst put it, your movie "will start instantly and never stutter or burp."

Suddenly, watching video over the Internet looks far more attractive. And it might be only the start.

Gamers are in for a special treat. No longer will their soldier or wizard fantasies be limited by the graphics card or the computing power of the machinery on their desktop. Instead, they'll be able to play in virtual worlds powered by always improving hardware and software kept on servers at some distant location. All they'll need is a monitor and the meekest of computers that can pass along their actions on a mouse or keyboard.

"What you need in your home is just a screen showing all the bits on its pixels. The real work is done somewhere else," said Dan Andresen, a computer scientist at Kansas State University.

As a bonus, he points out, because all that computing work is done somewhere else, your desktop will be sucking down significantly less electricity.

More than two-thirds of us have multiple computers or smartphones, which could benefit from a faster path to a cloud that might store all the things we want to access through all of our gadgets.

That might mean that for the first time, the next computer you buy might need less processing power and less storage. Why buy that stuff, after all, if the cloud takes care of you?

"It doesn't need much storage or memory. All it is doing is sending and receiving data," said Jeff Melcher, the chief executive of NetStandard in Kansas City, Kan.

His firm already hosts offsite data storage for businesses and has begun storing software programs and data for consumers. He expects more of

that with warp-speed connections of Google's fiber optics.

"The device you'll need now is going to rely on the cloud as the home base for all its thinking," he said. So, Melcher added, your hardware can afford to be relatively "dumb."

Or consider voice recognition. Google has just added voice search to its Chrome Web browser, much like what it builds in to the company's smartphone Android operating system. It's not your computer or your phone that makes sense of your voice - it requires a much larger database and more computing muscle than you could dream of affording. Rather, it's Google's data centers, more than two dozen billion-dollar-plus server farms spread around the world.

"We have an advantage because we're a company that was born of the Web that has never done anything else," Dave Girouard, a Google executive overseeing the company's cloud-based software, said in Steven Levy's book about Google, "In the Plex."

Life on the cloud will pose some complications. Forrester Research issued a report earlier this month suggesting that people tap into so many online services they end up confused: Where are my photos, my online bank accounts, my employer's health benefit management page? Forrester says 29 percent of Americans can't keep track of all their usernames and passwords.

That may be why people are scared of the cloud. Nearly a third don't back up their files outside their home, leaving them vulnerable to theft or fire or computer breakdown. One in five don't send around the files they'd like to because they worry about hitting size limits - a situation that would practically disappear with the Internet connections Google is promising to Kansas City.

Of course, the cloud has its limits.

Take your computer somewhere the Internet can't reach, and the upside vanishes. A downside rests in the risk that someone might tap into whatever information you've stored with others. Think again of the bank analogy, but without the FDIC. If your data get exposed, nothing is secret again. Just this year there have been sizable data breaches at Sony and Citi, at Lockheed Martin and the New York Yankees, at the International Monetary Fund.

Yet the world has been voting with its bits, and sending them to remote locations. Frank Gillett, a technology analyst at Forrester Research, said the prospect of any time, any place access and multiple backups had lured people to the cloud despite remote security risks.

"In general," he said, "consumers trade privacy for convenience."