

What Dropbox can teach us about cloud computing

February 16 2012, By Chris O'Brien

Dropbox is the most deceptively simple of services. Place a Dropbox folder on each computer or gadget you own. Drag any file into that folder. A copy of that file automatically appears on every device where you put a Dropbox folder. It's idiot proof.

But don't let that simplicity fool you. [Dropbox](#) also epitomizes a revolutionary shift that is transforming our relationship to technology and turning the technology industry upside down: Cloud computing.

The "cloud" has been one of Silicon Valley's biggest buzz phrases for a couple of years now. In the past year, it's moved from the talk of tech [insiders](#) into the minds of mainstream users thanks to the launch of services like Apple's iCloud.

And in the coming decade, analysts are betting that cloud computing will be the defining trend in technology. Large companies like Oracle, Hewlett-Packard and Oracle are rushing to overhaul their business to sell the tools that enable cloud [computing services](#), while consumers are projected to spend \$16 billion annually on cloud services by 2016, according to [Gartner research](#).

But as important as this trend is, I find the concept can still be bewildering to non-techies. Answering the question, "What is cloud computing?" can lead to lots of rambling answers full of industry statistics. None of it really helps the average person understand what's different about the cloud, and why this is all happening now. And most

important, why they should care.

"The cloud is everywhere now in our personal lives," said Ray Wang, CEO of Constellation Research. "Because of cloud computing, we're basically assuming that everything you're doing digitally is available somewhere else through the Internet."

To understand why, I thought it would be helpful to put a single service under the microscope to see what it tells us about cloud computing. I couldn't think of a better company than Dropbox.

Founded in 2007, the rise of San Francisco-based Dropbox tracks almost perfectly with the cloud's move from the fringes of tech into its defining trend. Last September, Dropbox scored an astounding \$250 million in venture capital and currently has about 50 million users.

Just last month, Dropbox was voted "startup of the year" at the annual Crunchies Awards. But it also faces enormous competition in the file sharing space from other startups such as Box.net, CloudMe, SugarSync, Egnyte, and big players such as Apple and Google, which are both actively expanding the ability of users to share files.

The company was created by two MIT grads, Drew Houston and Arash Ferdowsi, who were frustrated about having to email each other's files.

Let's start right there. Once, the problem of how to move files between users or gadgets would have been an issue for only the highest end users. Maybe the business road warrior on the go, or the most sophisticated programmers.

But around 2007, this started to become a problem for the average person for several reasons. Many of us now had more than one computing device, compared to a decade earlier when most people had

one. As of 2010, 124 million adults in the United States had more than one device connected to the Internet, according to IDC, a technology research firm, which projected that number would climb to 184 million by 2016.

On top of that, these devices were coming in many different shapes and sizes. In the late 1990s, most of us probably just had one PC running Windows. But now we might have a PC at work, a Mac at home, and a smartphone running Android or iOS, and possibly a tablet. So moving a single file between all those devices, and changing it into different formats quickly, could be a pain.

"The cool thing about the Internet is that everything is going to be connected," said Sujay Jaswa, vice president of business development and sales for Dropbox. "But it's less interesting if all your stuff is not there and you're not able to share it. And all these individual pieces to technology are magical, but they're also incompatible."

All of these devices have also allowed us to become far more mobile with work. According to market research firm IDC, the number of workers worldwide who are considered mobile - that is, working in more than one location - has climbed from 758.6 million in 2006 to 1 billion in 2010 with a projection of 1.3 billion in 2013, about 37 percent of all workers. All that shuffling around means we need more help moving our digital stuff from gadget to gadget.

Suddenly, the problem encountered by Dropbox's founders wasn't just theirs. It was a problem for more than a billion people.

A service like Dropbox wouldn't have been as valuable a decade ago, said ChenLi Wang, team leader of business and sales operations at Dropbox. "Now people are working across many geographic regions and we're in a much different place than we were five or 10 years ago," he

said.

Before services like Dropbox, we were able to move files between computers using thumb drives for small files, or by logging into a server to transfer really big files. But those are both a pain when you have to do it constantly, especially for the increasingly large multimedia files we create.

Still, even just five years ago, Dropbox would have a limited market for another reason: Networks were too darn slow. Uploading stuff to the Internet, especially large files, could be a slow, agonizing process. But over the past several years, network speeds have dramatically increased.

Back in 2004, less than 30 percent of U.S. homes had broadband connections, according to the Pew Research Center's Internet & American Life Project. Now Pew says that percentage has jumped to 60 percent.

In addition, the number of people in North America using speedy 3G networks for their mobile devices has climbed from 20 percent in 2007 to 54 percent in 2011, according to Morgan Stanley research.

These three pieces - multiple gadgets, mobile workforce, faster networks - wouldn't have been enough for Dropbox if one other piece didn't fall into place: Over the past decade, the price of digital storage declined dramatically. By one estimate, from Clearwell Systems, an IT research firm, the price of storing 1 gigabyte of information fell from \$20 in 2000 to 10 cents in 2010.

That dramatic decline gave us more space to store our stuff. More importantly, it led companies like Amazon to sell space on their own servers to startups like Dropbox. That meant that Dropbox could start for very little money.

And that meant Dropbox can offer its basic service - 2GB of storage-for-free.

The trends that have given rise to [cloud computing](#) are projected to accelerate over the next decade. That's bad news if you sell disk drives or servers. But it's going to create a world where virtually every bit of our digital lives are available everywhere instantaneously.

And that, of course, is very good news for Dropbox.

HOW THE CLOUD BECAME HOT

Four major trends came together in the past several years to turn the cloud into one of tech's most important trends, and make services like Dropbox possible:

1. We have more devices (phones, laptops, tablets), so we have more reasons to access files on all those [gadgets](#).
2. People started working outside the office more, making it even more important to keep those files up to date.
3. Networks got faster, making it easier to share files.
4. Storage got much cheaper, making cloud-based services more economical.

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