Everything-as-a-Service: A blue sky view of the cloud

Shane Robison | Executive Viewpoint

When it comes to the cloud, there is no shortage of opinions, predictions and even definitions. The result: no shortage of confusion. One thing is clear: we are on the cusp of a revolution many years in the making that began with the internet and that will take us into a future of information and experiences beyond anything we have yet achieved. Computing capacity has become efficient, affordable and is redefining the way people interact with technology.

High-speed, broadband connectivity has combined the forces of globalization and the power of human creativity on a massive scale. It is estimated that the total amount of data in the world will double in the next five years. The amount of digitized data doubles every 18 months. That is a staggering amount of information that needs to be stored, processed, analyzed, shared, and acted upon — a daunting challenge.

The good news: a wave of innovation is rising to meet the challenge head on. The internet is evolving into the cloud: the vast computing resources through which everything can be delivered as a service, on demand. From computing power to business processes to personal interactions, the cloud will be the means through which the information explosion is tamed and put to use in a meaningful way.

Through the cloud, we can foster the information economy, address issues like the information explosion, globalization and environmental sustainability, and drive growth deep into the 21st century.

The impact of the cloud

As information is steadily liberated from devices and stored in the cloud, we will increasingly connect to services that are aware of our preferences, context and location. Search will be done for you, not by you.

More intuitive technology that anticipates our needs is an enormous opportunity, not only for the end-user experience, but also for those who provide it. Businesses can reach mass markets on a one-to-one basis with services delivered in a pay-per-use model. The economics of the cloud are such that expensive infrastructure can be shared and flexed to meet the demand of 1 or 1,000 or 1 million users.

For example, a cloud service could provide sophisticated supply chain information to a small manufacturer in India. He alone may not be able to afford such a service, but if we

use the underlying infrastructure for thousands like him, it becomes not only economically viable, but a significant growth opportunity for both the service provider and the entrepreneurs they serve.

Over time, we will witness the displacement of traditional industries by cloud services. Ecosystems will form that are anchored in our personal and business needs, yielding a far richer experience with technology. When the broadband generation fully enters the workforce, they will expect all of those resources at their disposal, and the way we use technology in businesses will change dramatically. Like the PC and the internet before it, ten years from now, we won't be able to imagine working without the cloud.

Through innovation and a culture increasingly accepting of pervasive technologies, the cloud will help us address some of the biggest issues we face as a society:

§   Expanding the reach of technology will help level the playing field in a global marketplace and enable more innovation from every corner of the world.

§   Intuitive technology will help ensure that access to an unprecedented amount of information can be harnessed for our advantage.

§   The displacement of traditional business models will result in more productive industries with dramatically lighter carbon footprints.

Moving up the stack

Although the cloud has extraordinary potential, the industry has a lot of work to do before we fully realize these benefits. At HP, we have defined our perspective on cloud as Everything-as-a-Service and we have been methodically executing a strategy to position our company as a leader in the cloud, from infrastructure to software to services. In doing so, we are preparing HP to address the biggest challenges and opportunities our customers face through what will be the next dominant IT platform.

Over the past six years, we have made a series of acquisitions to move up the data center stack. We began with Compaq to establish ourselves as the leader in hardware, as that segment steadily moves toward open systems and architectures and thin, always connected devices. To differentiate our hardware, we expanded our software portfolio and acquired 11 software companies in 4 years, including Mercury, Opsware and Peregrine. This year, HP acquired EDS and put a services arm with global scale and expertise at the head of our enterprise business. In short, we have laid the

groundwork to offer an integrated cloud ecosystem and to help all of our customers — from consumers to enterprises — take advantage of the benefits it offers.

At the same time, we have developed cloud services adjacent to our core businesses. From digital photography to IT infrastructure itself, we have offerings as broad and varied as HP's portfolio. One of these services, called MagCloud, is going to reshape the publishing industry.

MagCloud makes it possible for anyone to publish a professional-quality magazine and print, promote, sell and deliver it, on demand. Printing on demand means no large press runs, no pre-publication expense, no waste. In the U.S. alone, 62% of magazines sent to newsstands are never sold. That's 2 billion wasted magazines, enough to circle the earth 18 times. By effectively transforming the supply chain from physical to virtual inventory, we can offer professional quality print to a mass audience and reduce our impact on the environment.

Looking ahead

So we have a lot of work underway at HP, but how are we preparing for the future? With only 1.3 of the world's 6.6 billion people online today, the information explosion is set for exponential growth. We will need to continue to develop the infrastructure to manage it.

Incredibly small, inexpensive and interconnected processors will deliver reams of information to the cloud on everything from electrical usage to traffic patterns. The cloud will need to connect to an intelligent, scalable, energy-efficient infrastructure that has computing power orders of magnitude beyond what we have today. A dynamic layer of software will process, analyze and contextualize the data and deliver it back as actionable information.

HP Labs is aligned to advance the state of the art in each of these areas. We are working to develop and commercialize advancements in nanoscale technology, massively parallel computing and photonic connections. Our investments in high-impact research are funding the innovations that will make HP the leader in cloud-scale infrastructure, software and services.

Information will be the key to economic leadership in the 21st century just as surely as manufacturing was to the last. With all of the humility that the current economic climate calls for, I believe that we should marshal our energy and resources to innovate our way out of it.