Monday, June 27, 2011

THE DAILY RECORD

WESTERN NEW YORK'S SOURCE FOR LAW, REAL ESTATE, FINANCE AND GENERAL INTELLIGENCE SINCE 1908

LegalCURRENTS

The Internet Revolution — Part 3

This is Part 3 of a series of articles in which I discuss the technologies and the historical context that led to the mass adoption of cloud computing. In the first article, our exploration began in 1995. Last week, in Part 2 of this series, we learned about how the technology changed, making the Internet revolution, and life as we now know it, possible. This week, we'll examine how the rapid increase in the speed of broadband access paved the way for cloud computing.

By NICOLE BLACK
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As we discussed last week, the speed of broadband access — one of the most important factors behind the rise of the Internet — has increased dramatically in recent years.

Increased Internet bandwidth and speed has effectively erased the barriers that prevented us from fully realizing the potential of networked computers and the rapid exchange of data via the Internet. In other words, we've entered the next stage of the Internet and cloud computing is a finally a feasible alternative for businesses.

In his book, "The Big Switch: Rewiring the World from Edison to Google," Nicholas Carr compares cloud computing to the electrical grid and suggest that just as businesses that once produced electricity in-house later outsourced electrical production to utility companies, so too will businesses ultimately outsource computing to the cloud.

Carr explains this option has only become a possibility in recent years, in large part due to faster Internet connections that are becoming increasingly affordable:

"The network barrier has, in just the last few years, begun to collapse. Thanks to all the fiber-optic cable laid by communications companies during the dot-com boom — enough, according to one estimate, to circle the globe more than 11,000 times — Internet bandwidth has become abundant and abundantly cheap. … Now that data can stream through the Internet at the speed of light, the full power of computers can finally be delivered to users from afar."

Without this rapid increase in available Internet bandwidth, combined with the ever-increasing processing power and reduced costs for bandwidth and data storage, cloud computing and the advantages it offers businesses would not now be possible.

The opening of the Internet floodgates that we're now seeing is occurring, in large part, due to the operation of Moore's Law. Moore's Law, an important and pivotal theory, predicts that every two years the price of a unit of computer processing power will be reduced by half.

In "Free: The Future of a Radical Price," Chris Anderson, the editor of Wired magazine, describes the effect of Moore's Law, in combination with other "flattening" factors, upon Internet-based technologies:

"Just as Moore's Law dictates that a unit of computer processing power halves in price every two years, the price of bandwidth and storage is dropping even faster. What the Internet does is combine all three, compounding the price declines with a triple play of technology: processors, bandwidth and storage."

In other words, we're in the midst of a seismic shift. This conclusion is, I think, indisputable. The changes wrought by the Internet are broad and far reaching, affecting every aspect of our lives, from how we conduct business to how we connect and communicate with friends and family, how we obtain information, how we shop, and how we learn. This is an important shift — some might say it's revolutionary.

I would argue that this shift is on par with other fairly recent and significant events that fundamentally altered our culture, including the invention of the automobile, the creation of the U.S. highway system, and the wide-scale adoption of air conditioning. Each of these events radically altered the landscape of our country, our cities, and our lives.

At this point, there's no turning back — these changes are here to stay and our lives will never be the same.

Cloud computing promises to have this same effect upon our day-to-day lives and will no doubt be a force to be reckoned with in the coming years, as we'll discuss next week, when we conclude this series by discussing another theory, Grove's Law. We'll then examine how recent events have made the large-scale availability of cloud computing a reality, effectively ushering in a new age of computing.

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