

Forecast Clouds with a Chance of Revenue

*Eric Shuster, CEO, and Alex Kalamarides, Ph.D.,
Managing Director, IntelliClear, Inc.*

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Abstract

With a throng of articles and blogs written about cloud computing since the term acquired its present meaning after being publicly mentioned by Google's Eric Schmidt in 2006, IntelliClear has stayed away from the noise and instead focused on tracking the technology's viability and progress. While IntelliClear is not prepared to call 2010 the year of the cloud, it is clear that this first year of the new decade will produce a serious inflection point for cloud computing: 2010 will be the year when cloud computing begins its mainstream ascent. This rosy, yet calculated assessment is built upon a number of triangulated factors from several related communities, factors signaling a major shift in awareness, consideration and investment. The purpose of this paper is to provide a substantive review of this anticipated industry shift for 2010 towards a broader understanding and adoption of cloud computing.

Background on the Cloud

For those unfamiliar, cloud computing is a model in which providers offer a variety of applications, storage, and services to businesses and consumers via the internet (i.e. "the cloud"). In a pure cloud computing model the traditional IT architecture of onsite storage, servers, and PC-based data is entirely transferred to the cloud, allowing users to simply plug into the cloud with an access device where all of their required applications and data are stored. In this model the entire data center becomes virtual, or "in the cloud." Figure 1 depicts the conceptual cloud computing model where entities (Amazon, Microsoft, etc.) operate within the cloud providing services to end user consumers and corporations.

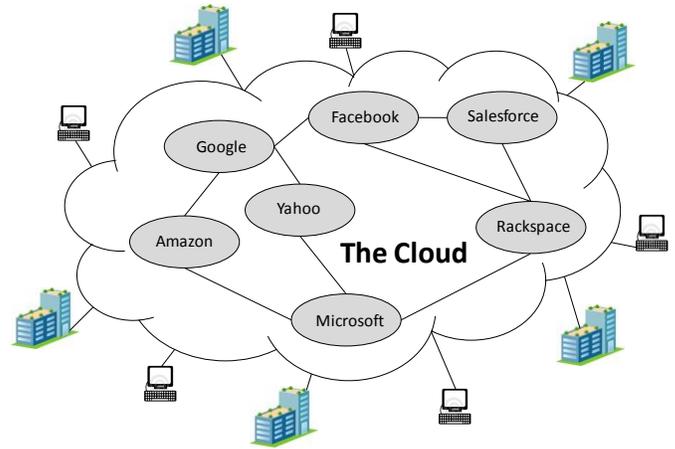


Figure 1

The variety of services being offered in the cloud to consumers and commercial businesses include:

- **Software as a service (SaaS)**, where applications are licensed to the end user for use as a fee-based service (e.g. Salesforce.com) or for free (e.g. Google Docs) online (in the cloud)
- **Utility computing**, sometimes also called **infrastructure as a service (IaaS)**, where computation and storage are offered as a metered service much like a public utility online (in the cloud)
- **Web services**, where web-based applications are integrated and operate over an internet protocol (IP) backbone (in the cloud)
- **Platform as a service (PaaS)**, where developers can utilize state of the art application development tools online (in the cloud)
- **Managed services**, where a defined set of IT services are provided by managed service providers (MSPs), usually at a fixed rate, providing predictable IT support and support costs primarily rendered online (in the cloud)
- **Commerce services**, where online stores to buy and sell are managed (in the cloud)

Benefits of the Cloud

From the largest to smallest commercial enterprise the obvious benefit of cloud computing is lower IT costs, driven by substantially reduced capital expenditures. Not having to purchase servers and all of the maintenance, power, cooling, and other hardware and software that go along with those servers is a strong allure to offload the data center offsite. This approach goes hand in hand with virtualization, so that the virtual data center in the cloud – especially a public cloud – benefits through the better utilization of the underlying physical servers and storage devices.

On top of reducing the costs of IT, cloud computing can dramatically increase the velocity of operations. Instead of waiting months for IT infrastructure to be put into place for a new company initiative, a cloud computing model can be put into place within hours—taking IT outside of the critical path to which it is typically accustomed to being. Using cloud computing also eliminates the need for large IT staffs, reduces or eliminates costs and downtime due to maintenance, and re-focuses operations on business-related initiatives and away from IT limitations.

Targets of the Cloud

The targets of cloud computing include both consumers and commercial enterprises. Hundreds of millions of consumers are regularly operating in the cloud and likely don't even know it. Facebook, gmail, Google Docs, Flickr, Netflix, music sites, and many other consumer services operate in a cloud computing model where the data is stored on the internet and the PC is simply an access device. Although consumers will readily admit uneasiness about their data being "in the cloud" and not on their PC, the same dynamic existed many years ago with online banking: hordes of consumers vowed to never bank online—now most cannot conceive banking without it.

Large enterprises are being heavily courted by cloud providers with the promise of multi-million dollar cost savings and operational simplification. Medium sized businesses are being targeted with the pledge of predictable IT costs and staff reduction. Small businesses are being tempted with web-based office suites, employee collaboration, and the promise of leveling the playing field

with larger businesses. Despite the potential for small businesses, a 2009 study conducted by Rackspace revealed that over two-thirds of small businesses were still unaware of cloud computing and its associated services (particularly hosting).

While many consumers are oblivious to the fact their toes are already in the proverbial pond of cloud computing, commercial businesses are flocking to the pond to dip their own toes in and give it a try. As more and more organizations adopt cloud computing models, more and more users will be operating in the cloud.

Analysts are Increasingly Bullish on the Cloud

The analyst community is often at the forefront of spotting leading indicators of key technology trends. Although analysts have been reporting on cloud computing for several years, in 2010 this reporting has taken a much more substantive tone from analysts and analyst firms.

Gartner Incorporated placed cloud computing as #1 on their list of the top 10 Strategic Technologies for 2010. This endorsement is tempered by the fact that Gartner also reported cloud computing as one of the technologies at the peak of inflated expectations in 2009 saying: "The levels of hype around cloud computing in the IT industry are deafening, with every vendor expounding its cloud strategy and variations" (Gartner, August 2009). Despite the resounding propaganda, Gartner is signaling a shift for cloud computing from hype to a must-consider technology given its burgeoning critical mass.

Last March Gartner projected cloud computing revenues of over \$56.3 billion for 2009 worldwide, a 21.3% increase from 2008. The staggering revenue number includes business process services (cloud-based advertising, e-commerce, human resources and payment processing), SaaS, and systems infrastructure delivered as a service (IaaS). Gartner estimates SaaS revenues alone including digital content creation (DCC), customer relationship management (CRM), enterprise resource management (ERP), and supply chain management (SCM), could reach \$14 billion by 2013.

New York based ABI Research estimates by 2015 cloud computing services through mobile devices will reach \$5.2 billion spread across more than 240 million business customers. Dan Shey, a practice director for the firm says "Mobile operators have the most to gain through offers of cloud services to the enterprise leveraging their networks, application enablement, and data centers."

In 2009 Forrester Research reported that 5% of enterprises are already using some form of cloud computing services, with another 3% planning to adopt in the next 12 months. In the same study 2% of SMBs were running a cloud-based service with another 2% planning to adopt in the next year (Forrester Research, March 2009). While these numbers may appear small, one must keep in mind that the 5% was zero only a few years ago, so just a 3% increase represents 60% year over year growth. Even more encouraging is the fact the same study revealed enterprises have virtualized 31% of their operating systems and plan to be at 54% virtualization in the next 24 months. The same study reported SMBs have virtualized 36% and plan to virtualize 61% in the next 24 months. Virtualization is strongly correlated with a willingness to consider cloud computing, and therefore it is a fairly reliable leading indicator: increasing numbers of IT decision makers see a stepping-stone progression for their businesses from data center virtualization to a private cloud (where the physical locations and characteristics of a company's data centers are no longer relevant) and then on to cloud computing.

Cloud computing is among a group of technologies Forrester Research refers to as "smart computing" along with service oriented architecture (SOA), server and storage virtualization, and unified communications. Forrester principal analyst Andrew Bartels says of smart computing: "2010 marks the beginning of this next phase of technology advancement" (McDougall, P., 2010). Of one additional worthy note—IT leading magazine *InformationWeek* announced cloud computing to be the number one technology on their Global CIO's list of the Top 10 CIO issues for 2010.

Venture Capitalists are Investing in the Cloud

In days past if a venture capitalist (VC) invested in a technology or company it was considered speculation. With the shortage of capital in the financial markets today if a VC invests in a concept or company it is considered to be for real. VC Jeremy Liew, managing director at Lightspeed Ventures, shared in a recent SeekingAlpha.com interview the four reasons why 2010 may be a crucial year for cloud computing:

- IT professionals will use "production cloud stacks" to "test the benefits of creating and managing internal, elastic virtual datacenters," moving them from experimenting to implementing cloud computing
- Management software will emerge to help make virtual datacenters (e.g. cloud computing) a reality
- Enterprise policy for enabling public clouds will begin (with a cautious approach due to security and compliance)
- A variety of public clouds will become available including Amazon and other cloud providers, presenting a rich set of alternatives to CIOs

Liew added that, in light of the aforementioned, VMware may need to rethink its business model due to the technological and business potential of cloud computing.

In November of 2009 Emergence Capital led a \$10 million capital infusion in SupportSpace, a company that provides remote tech support services (in the cloud) to consumers and SMBs. Noteworthy is the fact that Salesforce.com was the fund's first investment. Venture firm Sigma Partners has also been investing in cloud computing entities including Nasuni, a startup that plans to deliver a gateway to cloud storage. These investments by VC firms act as a set of leading indicators that cloud computing is headed for the mainstream.

Technology Vendors are Growing Their Commitment to the Cloud

In the last 12 months a number of large corporations have made significant commitments to cloud computing, fueling further speculation the concept is poised for accelerated implementation.

In January of 2010 HP and Microsoft inked a \$250 million deal to collectively develop and integrate technologies that support cloud computing such as virtualization, systems management and storage. In the same week IBM announced it was extending its cloud computing offerings in Malaysia. Other companies who have announced cloud computing strategies for products, services, platforms, integration, and infrastructures in the last 12 months include Oracle, Informatica, Wipro, and Capgemini.

Amazon, a pioneer in cloud computing, has heavily invested in a robust cloud computing infrastructure called the Elastic Compute Cloud (Amazon EC2). Companies such as the New York Times, Nasdaq, ESPN, Hasbro, Ativision, and Business Objects (an SAP company) utilize Amazon web-services to power a significant portion of their enterprise operations in the cloud. Joyent, another cloud service provider is enabling CNN, Visa, the Gap, Major League Baseball, Facebook and NASA to host applications in the cloud. British Telecom (BT) is using 3Tera's AppLogic grid operating system as part of a cloud computing initiative.

Autonomy Corporation of Cambridge, England, serves a large number of global Fortune 500 and Fortune 1,000 companies with over 6,500 servers across seven data centers capable of handling 3 million new files per hour. IT infrastructure provider Riverbed saw its revenues increase 18% in 2009 by offering cloud computing services focused on performance. Riverbed reached its first \$100-million quarter with a strong potential for another record fiscal year in 2010. In a recent *InformationWeek* interview, Eric Wolford, senior vice president of marketing and business development at Riverbed, said: "The fundamental premise of cloud computing for CIOs and for CEOs is very powerful: the cloud lets you improve the yield on IT investments. Period. It lets you move faster, do more, and spend less."

Microsoft's Azure has gained substantial traction as a cloud-enabling platform. Azure allows developers to easily create cloud applications and services over a flexible platform. Unlike Amazon EC2 and Rackspace's CloudServers which are infrastructure-as-a-service offerings (IaaS), Azure "attempts to handle more of the actual management and provisioning of virtual machines for a user" (Higginbotham, 2009).

In the January 2010 issue of *CRN* magazine 100 companies offering cloud computing products and services were identified as potential revenue partnerships for value added resellers (VAR). The companies included those offering cloud computing platforms, infrastructure, productivity applications, security, and storage. While the list includes some of the largest IT vendors in the world, it also includes promising newcomers who have proved their value and staying power in this emerging space. In October of 2009 the *Cloud Computing Journal* reported its "Top 150 Players in Cloud Computing," an impressive list of companies on the forefront of cloud computing.

Perhaps the most forceful commitment to cloud computing is being demonstrated by Salesforce.com which reportedly supports 70,000 customers (multiple customers with more than 50,000 users), driving \$1.3 billion in revenue, with 15 billion quarterly database transactions—all on 1,500 PCs in the cloud. Backing their commitment to walk the walk in cloud computing, Salesforce CEO Mark Benioff asked CIOs at the Google Atmosphere event in London: "Are we riding this technology continuum, or are we not riding it? Because if you're not, your competitors are. And they're riding it because they have to do things at a lower cost, they have to do things that are easier to use, and they have to be more competitive than you are. . . . So we have to grab that technology brass ring and run with it, and today that brass ring is cloud computing."

Challenges in the Cloud

While cloud computing is geared up for its most promising year ever, there are still major obstacles to mainstream implementation. Those challenges are focused around education, security, availability, over-hyped expectations, and perhaps even its name.

Education: Cloud computing has its own set of limitations and dependencies that must be understood and comprehended. Unfortunately some solution providers are often quick to toss around cloud solutions and may not entirely understand the details of integration and operationalization. For example, cloud computing can be mingled in conversations regarding virtualization and SOA without detailing the nuances. Few vendors are likely to be able to articulate that "SOA is all about the process of defining an IT solution or architecture, while cloud computing is an architectural alternative" (Linthicum, 2009).

Security: Despite the extraordinary technology and conceptual framework applied to the present cloud computing infrastructure, there are still lingering security risks. In January of 2010 Google announced that its "corporate infrastructure" had been penetrated by hackers leading to loss of intellectual property and the compromising of several G-mail accounts in China, Europe, and the United States. This is neither the first, nor will it be the last incident of a security breach in the cloud. Providers will continue to look for new ways to boost the firewall and hackers will continue look for new ways to break through. It is an age-old game of cat and mouse.

Availability: Cloud computing is enabled by uninterrupted and secure broadband internet connections. Therefore, it depends on highly available (e.g., 99.999%+ of the time) internet connections, a potential challenge when implemented across remote company locations or in places with less-than-perfect internet infrastructure.

Hype: The quickest way to kill a new technology is to overpromise and under deliver. The hype surrounding cloud computing is off the charts (see Gartner's hype cycle with respect to cloud computing). Staying on top of the hype cycle can set unrealistic expectations and lead to failed (or unsatisfying) implementations. The best remedy for hype is education.

The Name: Reacting to the term "cloud computing," Mark Hurd, CEO of Hewlett Packard said in a 2009 interview "I don't like the term." Hurd lamented about speaking earlier to a group of CEOs where he got the feeling their view was "Can you guys ever come up with

terminology that sounds a little more business-friendly than 'cloud computing?'" Eric Wolford of Riverbed suggests telling executives "The cloud isn't the cloud; it's a data center... tell them it's a virtual data center."

IntelliClear Perspectives on the Cloud

IntelliClear studies reveal IT is a strategic asset to some companies and a necessary evil to others. In both cases IT is a critical component to company success and requires a constant stream of resources and attention. Cloud computing is not a new concept: it's a repackaged computing approach that has existed in the IT industry since the early 90's when broadband was a twinkle in the eyes of ISPs. Remember the ASP model?

Despite the hype and sensationalism in recent years, cloud computing is a mature IT concept that has evolved naturally along the technology continuum. Cloud computing has been driven by the desire of IT professionals to get rid of the headaches of IT operations in order to focus on IT strategy, combined with the relentless pursuit of service providers to establish new streams of revenue. The sheer will of IT professionals and service providers working towards a common goal is enough to bring legitimacy to cloud computing alone.

What makes 2010 a pivotal year for these cloud computing services is the perfect storm of three key factors: economics, technology, and vendor critical mass. This storm has accelerated the timeline that makes ideas operational giving consideration to models that would otherwise be dismissed or take decades to realize. The scenario in the enterprise is clear:

- Companies are struggling economically and are considering any and every way to save money
- Technologies such as virtualization and SaaS have demonstrated the IT unthinkable can actually happen and make a positive impact
- Vendors on the demand and supply side of cloud computing have reached deployment critical mass

Despite these promising factors, one must come to terms with the reality of the billions of dollars already invested in IT assets that are sitting in data centers worldwide. These IT investments will be fully amortized, likely long beyond their intended lifecycle, before consideration is given to adopting a virtual data center model. Given this dynamic it is likely a hybrid approach will be the norm for a while. Data centers will naturally migrate in four ways:

1. Those who will maintain their own onsite data centers, often due to regulation and compliance
2. Those who will migrate their data center assets to a collocated offsite model to create their own cloud
3. Those who will establish a hybrid model with both onsite and cloud-based data center infrastructures
4. Those who will invest fully in the cloud into a virtual data center model

SaaS and IaaS, which are the “core” cloud market, represent a projected worldwide cloud computing revenue opportunity in 2010 of over \$13 billion: roughly two-thirds of that opportunity is expected to be driven by SaaS, i.e., the delivery of various enterprise applications, such as Enterprise Resource Planning (ERP), collaboration, Supply Chain Management (SCM), content creation, etc.; the remaining one-third represents the growing business confidence in cloud delivery of IaaS. Beyond this “core” cloud opportunity in applications and infrastructure, the cloud-fulfilled delivery of business processes, such as e-commerce, HR and payments processing, easily adds an additional \$15-20 billion to the mix in 2010. The confluence of factors described in this paper underlies IntelliClear’s expectation that cloud computing core services (SaaS and IaaS) will keep growing at an annual pace of ~22% in 2010, even though the world economy is forecasted (December 2009 United Nations forecast) to grow only 2.4% this year. In 2011 and beyond, IaaS will likely continue to grow faster than SaaS, possibly overtaking the SaaS market in monetary value by 2014.

Those who will benefit most from the emerging cloud computing model will be those manufacturers and providers who listen and comprehend the customer business requirement first and foremost. Those who rush

in with a technology solution before demonstrating understandings of the business are likely to be shown the door. Cloud computing is a substantial change in business and operations, requiring reliable and sustainable technology solutions—in that order. One cannot adequately execute the latter without soundly comprehending the former.

IntelliClear expects cloud computing to move from both the bottom up (consumers and small businesses adopting) and the top down (large enterprises migrating), creating a string of successes that will generate further consideration for the technology globally. Although cloud computing will not become the predominant IT model among commercial businesses in the next decade, it will establish itself as a legitimate augmentation to the traditional data center model and will be surgically adopted where the model makes sense. In doing so, there will be new opportunities for OEMs, technology suppliers, and service providers in selling, deploying, and servicing cloud computing solutions. Indeed, the 2010 Forecast appears to have clouds with a chance of revenue.

About IntelliClear (www.intelliclear.com)

IntelliClear is a market research and business consulting firm committed to the delivery of actionable market intelligence to the global IT community. IntelliClear brings clarity to IT market intelligence by delivering results-oriented research, responsive industry experience, and effective data synthesis — enabling our clients to confidently develop go-to-market plans. IntelliClear leverages the experiences of seasoned IT and market research professionals, while utilizing its global network of industry consultants and research partners to execute projects across a broad spectrum of disciplines and geographies.

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