Cloud Computing

This house believes that the cloud can't be entirely trusted.

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How an Economist debate works

Rebuttal statements

Defending the motion

Stephen Elop

President, Microsoft Business Division

"Even Microsoft ... has embraced the cloud, vowing to introduce cloud-based services."

Let us focus on the facts. Microsoft is already leading the industry with the breadth, depth and success of its cloud-based offerings and vision for the evolution of the cloud.

Against the motion

Marc Benioff

Chairman & CEO, salesforce.com

I am pleased to find that my opponent and I are in mostly violent agreement about cloud computing. That is good news for customers, who are eager to leave behind the high costs and punishing complexity of client server systems.

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The moderator's rebuttal remarks

Nov 13th 2009 | Ludwig Siegele

After the first round of this debate I worried a bit that it might turn into an over-polite exercise. But such doubts have proved unfounded. For one, the debate has already spilled over into the Twittersphere. After the first day's voting went heavily in favour of not trusting the cloud (71% versus 29%), some started a campaign on Twitter calling on people to vote "no" and "show support for trust in the cloud", to quote one of the many tweets (some of which seemed to have been

Audience participation

Comments from the floor.

Featured guest

George Gilbert

Computing is going through a transition as profound as the rise of the web. But as Bill Gates used to say, participants overestimate what can be accomplished in two years and underestimate what can be accomplished in 10 years. At this stage, the transition is about recentralising and sharing the computing infrastructure (computer servers, storage, networking) within both IT-owned and external data centres owned by service providers. At a high level, it looks like a return to something similar to the mainframe era. The next major step is for more software vendors to centralise some part of their applications and operate them as shared services delivered over the web. Salesforce.com pioneered this approach 10 years ago, although the company is still only mid-sized. The motivation for this hardware and software transition is twofold: first, to shrink radically the operations cost that has engulfed IT as a result of the application and infrastructure sprawl that followed mainframes; second, to deliver applications with adjustable levels of performance, availability and security.

The industry has been talking about the transition, using various terms including utility computing, for 10 years. What made it take off this time is something called virtualisation technology. VMware pioneered it on PCs and what made it so disruptive was precisely because it was not disruptive. It makes existing software think it is running on its own machine no matter who or what else is sharing it.

In spite of the explosive growth of investment in building both shared applications and infrastructure, it is not yet clear how far the transition will go in the next few years. There are some hard problems to solve before mainstream customers will be able to trust shared, mission-critical applications. And the problems are not all technical. The scope of the challenges requires a pretty fundamental reinvention of the industry:
rethinking security in a world without walls;
giving up a degree of management control when servers, storage and

sent by Salesforce employees: see: http://twitter.com/search?q=cloud%20economist). This is the most likely explanation why, on the second day, 69% had voted "no" and only 31% "yes". So much for the argument that our motion is a "straw man" that produces "skewed" responses, in the words of one commenter. Would those with their doubts about the cloud now please whip out their smart phones and start tweeting.

Second, and more important the protagonists of this debate are at each other's throats, as they should be. "Let's focus on the facts", says Mr Elop, opening his rebuttal statement, in reaction to his opponent questioning Microsoft's cloud credentials. Mr Benioff, for his part, begins by saying, somewhat tongue in cheek: "I am pleased to find that my opponent and I are in mostly violent agreement about cloud computing. That's good news for customers, who are eager to leave behind the high costs and punishing complexity of client server systems."

Both are also making their points more forcefully. "Can the cloud be all things to all businesses?", asks Mr Benioff, and adds: "That's certainly the direction in which we are headed. One thing that astonishes me on an almost daily basis is the expanding universe of applications available in the cloud." Mr Elop comes to a different conclusion: "The issue is about trust in the cloud, and whether or not all data and applications make sense in the cloud. The reality is that some scenarios are ideal for the cloud, and some are not, while others still are best served by a hybrid environment."

At this point in the debate it might be a good idea if the opponents agree to disagree. What still hasn't been sufficiently discussed is the other side of the trust issue. It is certainly true that, as Mr Benioff argues, "security and privacy of data are more robust in environments in which there is prioritisation, expertise and resources fuelled by economies of scale—conditions that do not exist in most companies". But many seem to have their doubts, if the comments in this forum are any guide. Perhaps it might help to rephrase the motion in a way proposed by another commenter: "How does the cloud reach a level of trustworthiness?" Therefore, in his contribution as guest speaker, George Gilbert of TechAlpha, IT consultancy, addresses some of the issues, which makes it a good starting point for further debate.

Thoughts?
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The proposer's rebuttal remarks

Nov 13th 2009 | Stephen Elop

"Even Microsoft ... has embraced the cloud, vowing to introduce cloud-based services."

Let us focus on the facts. Microsoft is already leading the industry with the breadth, depth and success of its cloud-based offerings and vision for the evolution of the cloud. The first-generation cloud principles adopted by Salesforce.com may have served 63,000 customers well, but Microsoft has 10m customers on Office Live Workspace, 1m users on Microsoft Dynamics CRM and nearly 500m customers who will get the familiar Microsoft Office experience across PCs, phones and browsers when we deliver Office Web Apps with Microsoft Office 2010 in the first half of next year. On top of that, Microsoft's breadth of experience is on a large scale—a critical requirement for cloud computing—well demonstrated through the 350m active Windows Live Hotmail accounts worldwide. Microsoft believes in the opportunities presented by the cloud, and has been in the game for a long time.

networks become deeply integrated, shared infrastructure;
new vendor business models to match a more utility-like consumption model.
All this takes time.

Rethinking security may be the most challenging issue. CIOs continue to worry that sensitive data related to customers or financials, for example, may be exposed to compromise on external shared infrastructure. Some public-sector CIOs actually face mandatory jail sentences for breaches. A few highlights show how vendors and customers need to solve a new class of security problems.

Traditionally, a core tenet of security has been physically isolating data from other applications or even other parts of the organisation. Since each customer owned and ran their applications on dedicated infrastructure, that helped ensure that data remained confidential and that nobody tampered with it. If multiple corporate customers use a shared application like Salesforce.com, however, their data are commingled. The data can be encrypted for confidentiality when it is just sitting in the application's database. But it has to be decrypted when the shared application has to work on it, like updating an individual customer's sales funnel. At that point, rather than relying on the decades of "hardening" that databases have gone through, the much less mature application assumes responsibility for data security. Some software vendors offering applications over the web reportedly accommodate their largest customers by giving them their own, private copy of the system. But this is unlikely to work in the long term because it ultimately creates many of the management sprawl problems shared applications were meant to solve.

Entrusting to the cloud entire applications, or even just the infrastructure that runs them, means that IT gives up a degree of control over how things operate today.

Traditionally, applications were "fused" with their own dedicated servers, storage and (sometimes) networks when everything was deployed. That was how quality of service (QoS) was guaranteed, and basically nobody made any real changes to the system because it was so delicately held together. With the shared infrastructure in clouds, administrators need to automate in advance how the infrastructure will grab and release resources while balancing the needs of multiple applications. Making this operate across a pool of infrastructure, rather than just the storage system, for example, works far more seamlessly if everything comes from a single vendor. Cisco and EMC announced their entry last week and everyone is waiting for IBM, HP and Oracle/Sun to respond.

Orchestrating the new applications and infrastructure requires rethinking yet another key element of the IT landscape. VMware describes it best as a "data centre operating system", a next-generation version of today's IT management software. Traditionally, this category of software has consumed vendors as if it were the La Brea Tar Pit. Trying to manage the immense variety of evolving product categories, vendors and versions always promised more than it delivered.

By contrast, this new management layer has to be able to make the entire infrastructure look to the applications like one big machine that provides resources on demand. The new layer also has to standardise how developers and potentially applications themselves can tune themselves to maintain health and performance.

If the data centre operating system is going to be cracked any time soon, it will be by partners, because its scope is so big. The only vendor who could probably stake a credible claim on its own is Microsoft, and then only in small and mid-sized companies. Delivering on this is going to take at least five years, and probably much more.

Much work remains to be done.

Adding to the challenges of the industry transition, some vendors just don't want it to happen—and none with more intransigence than Oracle. The implications for business models are cautionary.

In an on-demand world, customers will be able to buy and deploy capacity "just in time" instead of "just in case". This has potentially profound effects on both hardware infrastructure vendors and server software vendors such as IBM, Microsoft and Oracle. In essence, even when customers choose to own their hardware infrastructure and software in the future, there will be tremendous pressure on vendors to price in the same on-demand way that customers will consume it.

Today, infrastructure hardware and server software capacity is

There is a larger issue at stake beyond the comparisons between competitors. The issue is about trust in the cloud, and whether or not all data and applications make sense in the cloud. The reality is that some scenarios are ideal for the cloud and some are not, while others still are best served by a hybrid environment. This happens for any number of reasons, not just security. People are focusing on the core technologies that will lead their business forward over the next five years and want to know how to manage varying degrees of risk wisely. They are wary of making a complete jump in computing ideology in one fell swoop. In short, they do not appreciate the technology ultimatum proselytised by Salesforce or other cloud services providers that do not want to deal with the full range of real-world business challenges and requirements.

Customers speak for themselves, and customers want choice. Their key requirements necessitate choice. Customers will be suspect of cloud-only solutions because they may need the ability to either migrate from or interoperate with legacy applications; they want to use existing technology investments and skill sets; and their personal assessment of risk and operational preferences may include the need for some computing capacity within their own datacentres.

Even if a customer decides to fully migrate to the cloud, choice must continue to exist. The term "fogged in" has begun to circulate among some early cloud customers. People do not want to ditch their client and server investments, move all their information to the internet and find they have moved all their business data to the wrong cloud. Indeed, during a customer roundtable earlier this week, one customer was bemoaning the fact that he could not readily extract his data from salesforce.com in preparation for an upgrade to Microsoft Dynamics CRM, driven by the growth of his business.

Microsoft is approaching cloud computing with interoperability in mind. We are giving customers a solution that is agile, not closed behind an impenetrable cloud.

For example, GlaxoSmithKline is replacing IBM Lotus Notes and Google Postini with Microsoft Exchange Online, SharePoint Online, Office Communications Online and Office Live Meeting for more than 100,000 workers in more than 100 countries worldwide. GlaxoSmithKline joins other global companies that have chosen to use Microsoft Online Services including A.P. Moeller-Maersk Group, Autodesk Inc., Aviva plc, Blockbuster Inc., Coca-Cola Enterprises, Doosan Infracore Co. Ltd, Energizer Holdings Inc., Ingersoll-Rand Company Ltd and Philips. These companies all have one thing in common: They want the option to take their business wherever they see fit.

According to Marc Benioff's argument, the traditional computing model is taking its last breath, with companies removing specialised programs from PCs, scrapping software and servers, and moving all their information to cloud service providers that own the hardware and software, but will let customers use and plug into the internet on demand.

Things just aren't working out that way. A recent Avanade study also showed that there has been a whopping 320% increase in the last nine months of companies testing or planning to implement cloud technologies. But only 5% of these companies testing or planning to implement the cloud said that they will use only cloud computing. The vast majority of businesses plan to use a hybrid approach with on-premises and cloud solutions, where third parties will handle basic company information and data in the cloud, and vital company information will be kept on company-owned servers inside the firewall. Also revealing was that the study found the economic situation had a relatively small impact on cloud adoption, with only 13% suggesting it "helped" adoption plans and 58% reporting "no effect", suggesting cloud computing decisions are not being driven by cost-cutting needs.

I have seen recent industry analyst reports that estimate 80% of businesses will continue to run their email on their premises as late as 2015. Microsoft will continue to support our customers with our proven ability to deliver enterprise-grade capabilities, our flexibility, and by delivering the value that companies demand and require.

There is a little bit of irony in this debate. Despite what Mr Benioff might say, his company's actions show Salesforce believes it will be a hybrid world too, at least for now. Isn't Salesforce partnering with Dell to sell customers on the hybrid cloud idea? Doesn't Salesforce have an Offline Edition for connectivity in the event of a services outage or business scenarios where the internet isn't available? Could it be that the company begrudgingly recognises the relevance of on-premises and cloud computing—software plus services?

Software plus services is being validated by customers, partners, industry analysts, even competitors. Customers want value, the choice between on-premises and cloud solutions, and flexibility between internally managed software, or solutions hosted as a service by a partner or vendor. Even competitors that have backed the all-cloud model are adopting the software-plus-services approach and developing offline strategies (including the above-mentioned

consumed in a chunky manner because the software licences are typically allocated and bound to a physical box in perpetuity. To compensate for a lack of flexibility in provisioning, it is not uncommon for customers to purchase three years of capacity upfront. In IBM's published explanation of its cloud-friendly pricing for its database which enables the use of incremental capacity, it claims average database server utilisation in its customer base of 5-20%.

As one Fortune 100 CIO put it succinctly, "Buying minutes of capacity that can float across different physical machines fits the current economic constraints a lot better than buying perpetual capacity tied to a specific physical box." Software vendors are already adopting this pricing model on public clouds like Amazon Web Services.

The transition to a pricing model where customers are able to pay for smaller increments of capacity in smaller increments of time will be highly disruptive to current vendor business models. The change pushes vendors to move closer to a utility-like subscription pricing model. For software companies in particular, having upfront recognition of perpetual licences give way to subscriptions would have a material impact on recognised revenues and reported earnings. Even if vendors were able to bill one or two years upfront, the cash flow and reporting of non-GAAP earnings would still not make up the difference.

Is there any wonder why Oracle's CEO, Larry Ellison, dismisses cloud computing as nothing more than "water vapour"?

Consistent with the old prediction that the industry overestimates how much can change in two years, it is pretty easy to see utility products like Microsoft's Sharepoint and Exchange entrusted to the cloud very widely in the near future. It is harder to see the majority of mission-critical enterprise systems running in the cloud any time soon. Salesforce.com, for example, has had a lot of success partly because some of the more sensitive parts of customer-facing systems like the order to cash process remain primarily on traditional systems on customer premises. It is also hard to see the computer industry as mature. There are many opportunities for innovation even beyond the unsolved issues that include security, integrated infrastructure, management and even business models, not to mention everything happening in the mobile world that will be driving demand for new data centres.

Reader Comments

Salesforce Offline Edition, Google Gears for Gmail offline and multiple complete operating systems also being announced by Google).

It will be interesting to see how this all plays out.

Great companies thrive by serving the practical needs of customers while helping them through disruptive periods of change. That is the real definition of trust.

With customers' expectations for the cloud on the march, the gauntlet is now thrown before Mr Benioff to demonstrate the ability for his company to evolve as well: it is time to give his customers the power of choice.

Thoughts?
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The opposition's rebuttal remarks

Nov 13th 2009 | Marc Benioff

I am pleased to find that my opponent and I are in mostly violent agreement about cloud computing. That is good news for customers, who are eager to leave behind the high costs and punishing complexity of client server systems.

A full ten years into cloud computing, customers understand that cloud systems typically outshine their own in terms of reliability and security. In the final analysis, security and privacy of data are more robust in environments in which there is prioritisation, expertise, and resources fuelled by economies of scale, conditions that do not exist in most companies. Client-server systems are not inherently more secure than cloud services: ask any company who has had a disgruntled worker walk out with a thumb drive full of critical data, or suffered an attack by a hacker adept at "social engineering". There is no finish line in security, as the saying goes, and no one runs faster than someone whose entire business depends on it.

Can the cloud be all things to all businesses? That is certainly the direction in which we are headed. One thing that astonishes me on an almost daily basis is the expanding universe of applications available in the cloud. At the beginning, we were told that the cloud was good for lightweight contact management, but cloud systems could never compete with the full-throttle CRM offered by companies like Siebel. A few years later, Oracle put Siebel shareholders out of their misery, and we continue to do the same for Siebel customers by moving them to the cloud. New applications categories open up almost daily in the cloud. Even more exciting are emerging trends like social networking that are changing the way we work and connect with everything.

In the early 1990s the Google CEO, Eric Schmidt, said in an email to George Gilder, "When the network becomes as fast as the processor, the computer hollows out and spreads across the network." That is both an accurate description of what we are seeing today, and a dire prediction for the future of traditional software.

Ultimately, customers do not care that much about the delivery model. But they do care about the economic model of traditional software, which has shifted dramatically against them. Increasingly, they are coming to the realisation that they are duplicating the efforts of their competitors without innovating or adding business value. The real crisis of trust in this discussion is the rapidly eroding confidence that investing in traditional software will add real business value to the enterprise.

Recently, at Fortune's Brainstorm conference, several entertainment CIOs boiled over at a panel discussion with SAP. Traditional IT costs were onerous, and the lugubrious pace of executing change in these complex IT environments was particularly galling. They were still implementing changes ordered 18 months ago when the business climate was very different. For all of the effort and expense, there is little payoff: "None of it," the executive said, "helps us make better movies."

And that is how every business wants to spend their resources: making better movies, more efficient cars and new treatments for disease. Cloud computing gets them out of the business of running servers, patching software, tuning networks and the countless other thankless tasks that, according to Gartner, consume 80% of a typical CIO's budget. Customers are not giving up control over IT; they are shedding a burden. This is what drives customer decisions and customer trust in the cloud.

Forums like this one encourage us to look at the world in terms of absolutes. But that is not the way our customers see it. The reality is that in information technology, one paradigm on rarely ever completely replaces another. Many of our customers still run mainframes. But the hearts of minds of the industry's innovation culture do migrate to new paradigms, taking with them the best new ideas and applications. And every day, more customers join them in the cloud.

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