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The No-Longer-Hypothetical Case for Jumping on the Cloud

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Tata Consultancy Services has watched with great interest the ongoing development of cloud computing. We have advocated the opportunities in multiple Innovation Forums and through different media since 2004. We have sought out the best practices in using this new technology by bringing our clients, venture capital firms, startup companies, professors, industry analysts and other technology companies together to talk about the implications of this on major business and technology issues of the day.

We see cloud computing as an ecosystem play – an opportunity that requires us to work deeply with a range of entities from academia and start-ups to corporations, and technology providers --to bring world-class solutions to market. Cloud has become a key focus of our Co-Innovation Network (or COIN), which is our mechanism for collaborating with these entities.

We have invested in building capabilities of our engineers to create a suite of cloud-based solutions to help our clients capitalize on the cloud. We have been redesigning their business processes and shifting on-premises applications to the cloud; developing, testing and maintaining whole new applications for the cloud; and in some cases hosting and supporting their cloud applications.

We have developed new business models using the cloud paradigm. One year ago TCS launched iON, a cloud-based holistic IT offering for small and medium-sized businesses in India – services that can give the country's 35 million SMBs enterprise-quality IT services on a pay-as-you-grow model. This requires no capital investments in technology and eliminates technology redundancy, thereby addressing two key concerns for capital-constrained SMBs.

We have used the cloud platform to drive financial inclusion in India and aided the expansion of rural banking services by offering the latest core banking solution engines that run on the cloud. And we have created special cloud offerings for insurance companies and banks, as well as offerings that provide certain business processes from the cloud.

There is no question that we are excited about its potential to be all over the cloud. But last fall, the question for us about the cloud was this: Does the world of large enterprises view cloud computing the same way? Are they as bullish on the cloud as we are? Are they making big bets on the cloud too?

As a result, we decided to conduct a major study to understand the expectations and the potential of this new paradigm in computing. We fielded an extensive survey that was completed by 606 companies around the world in 16 industries (most organizations came from a corporate group had more than $1 billion in annual revenue). We also engaged in in-depth interviews with six enterprises to dive well below the surface of these issues. Executives at a large bank in Australia, a leading educational assessment testing company, a large technology manufacturer, an online media company, a $5 billion consumer products company, and a major telco talked to us about their cloud activities.

We wanted to shed light on the extent to which large enterprises had adopted cloud applications and their cloud plans in the next two years. Has enterprise adoption of cloud reached an inflection point? What business applications have companies shifted from on-premises technology to the cloud? And what new opportunities is cloud opening up for IT functions that may view their role as "keeping the lights on" – of running data centers? Do they see opportunities from the cloud to create new value to their organizations?

What We Thought We'd Find

Going into the study, TCS viewed cloud computing as critical piece of a big, emerging puzzle: how companies can use it as a platform in combination with other technologies to create great experiences for customers who increasingly do their shopping on the mobile devices they carry in their pockets, backpacks and purses. We saw cloud computing as a key building block for bringing the "digital consumer" to life – as important as social media, mobile technology (and apps) and "big data." We believe cloud makes it possible for companies to experiment with high-potential new online marketing, sales, customer service and other business processes, as well as promising new online products – all without having to make huge, fixed-cost technology investments. But were companies around the world viewing cloud applications the same way – as a tool to dramatically scale up their operations at variable costs, especially in emerging markets that had yet to prove out?

So what did we learn from our research? Our key takeaway is that as lofty as our vision may be for the long-term impact of cloud computing, we have, in fact, underestimated its potential. The research is moving us to believe that by 2020, when executives at large global companies reflect back on the major trends that shaped their businesses this decade, they will see cloud computing as one of the biggest.

The net of our findings is this: Cloud applications are an already-substantial piece of the large corporate IT infrastructure, one that is having significant impacts and is viewed to be even more important going forward. The views and activities of the companies that we surveyed and interviewed suggest there is no turning back from the cloud. The early benefits achieved are too substantial to revert to days of yore, when companies hosted all their application software on computers in their data centers and on their employees' digital devices.

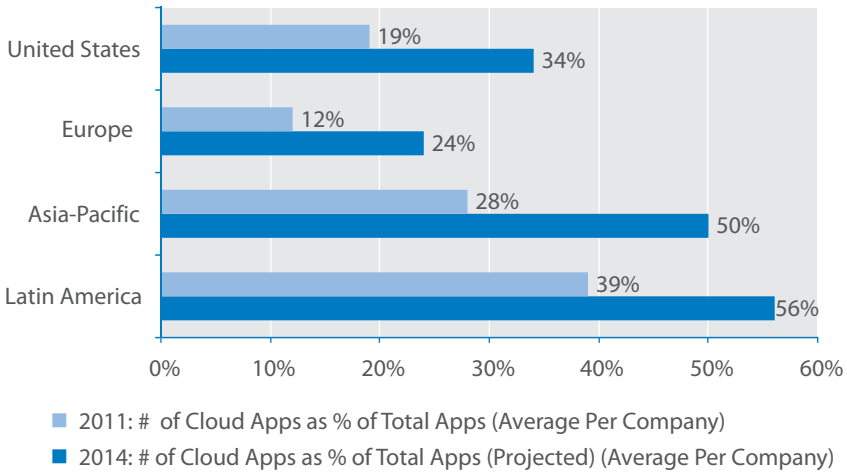
The Findings: We've Reached an Inflection Point with Cloud Applications

Every calculus lover knows that the inflection point on a curve is the place at which the curvature changes. The term "strategic inflection point" connotes a major change in the market – a point on which companies must change their offerings and/or the way they do business in order to keep up with the market. So is cloud computing at an inflection point – the moment in which companies have embraced it as a critical technology strategy? Our study tells us the answer is a strong yes.

We asked IT executives what percent of their total applications were cloud applications. The answer: an average 12% in European firms, 19% in U.S. firms, 28% in Asia-Pacific firms and a surprising 39% in Latin American firms. In light of that, saying cloud applications have gained a toehold in large enterprises would be a gross understatement. (See Exhibit 1.)

What's more, these same companies projected those percentages to grow significantly by 2014. For example, in European companies cloud applications are projected to double to becoming 24% of all applications. U.S. firms see cloud applications being about a third (34%) of total applications by then, when Asia-Pacific companies project them to be a full half of all their applications and Latin American companies see them becoming 56% of total applications. That's quite a change from the last 30 years, when the vast majority of companies ran their applications from computers located on their premises.

Exhibit -1
Cloud Applications as % of Total
Corporate Applications -- 2011 and 2014 (Projected)



Why Companies are Rushing to the Cloud, and the Returns They're Getting

Why are companies embracing the cloud? Among U.S. and Asia-Pacific companies, the most important driver is not the one that many think it would be (to reduce technology costs). To be sure, cutting IT costs is a big driver. But more important was the need to standardize applications and the business operations those applications support – a critical need in an increasing number of global companies that want to establish common policies and procedures in the ways they hire people, take orders, serve customers, manage the books, and conduct other critical business activities. A major telco that we spoke to said standard cloud applications are helping business units cut IT costs and reduce its data center footprint.

Another big driver of cloud applications (especially in the U.S. and Asia-Pacific) was increasing the flexibility of applications – the ability to ramp up or down applications quickly. Online media firms are using the cloud to respond to huge variations in the demand for online services by online customers. One online media firm last year implemented its first private cloud in a new data center. It can get a new server running in minutes vs. the 6-12 weeks it took a decade ago. That's critical when in a business where online viewers can increase in the millions from day to day or week to week.

The need to process "big data" – huge volumes of transactional and other digitized data – is also a big driver of cloud applications. About two-thirds of the U.S. companies surveyed said improving the way they gathered and analyzed data was a key factor in shifting to cloud applications.

Perhaps the most important piece of evidence that companies will embrace cloud applications in a big way is the value they have achieved to date from such applications. By shifting on-premises applications to the cloud, the companies we surveyed reduced their IT costs an average 31% in U.S. firms and 28% in European companies. (See Exhibit 2.) To us, this is not surprising. Such savings come from such sources as the ability to purchase network capacity and storage far less expensively, locate data centers in areas with lower post costs, and institute more highly automated data centers. By using public clouds (Internet services provided from data centers that host many companies' applications), companies are able to tap into powerful application software that would have been cost-prohibitive for many.

But cost reduction is by no means the only benefit companies had generated from cloud applications. Those that launched whole new applications in the cloud -- applications that might have been economically infeasible had they required costly new computer hardware -- reported 13% (U.S.) to 32% (Latin America) average revenue gains from their new, cloud-based products and services. Whether they are replacing on-premises applications or representing whole new applications, the cloud is generating substantial business value in many companies.

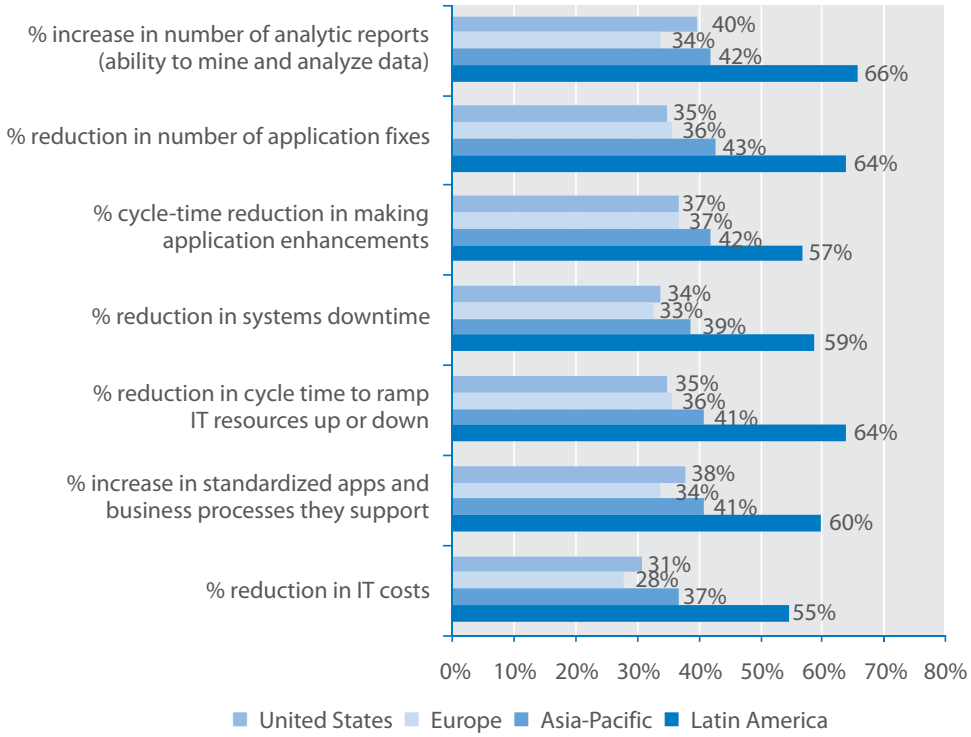
To examine the impact of cloud applications up close, we interviewed executives at six companies who shared their cloud experiences. As an example of the cost-reduction potential of cloud, the previously mentioned telecommunications firm moved all HR applications to the cloud last year, standardizing on enterprise software packages. The company believes cloud applications hosted in its own data centers (so-called "private clouds," which would eventually house 80% of its applications) could cut IT costs by $100 million to $200 million annually and its number of data centers 80%. Another example is a large financial institution based in Sydney, which reduced its cost of computer storage 40% by putting applications in the cloud.

But those stories just speak to the cost benefits of cloud applications. The companies we surveyed and interviewed said the business process improvement and revenue benefits were even more important. After beginning to shift on-premises applications to the cloud in 2007, the previously mentioned bank in Australia has been using the cost savings from the cloud to develop new banking services - apps that present offers on financial products to customers in real time – particularly on mobile devices, for instance.

Another example of a company that sees cloud applications to be critical to developing new products is one of the three largest U.S. suppliers of school assessment tests. The company has been shifting assessment testing of U.S. K-12 students from paper to online. Because many states are expected to require online assessment tests this decade, the company is experimenting with cloud-based solutions. It envisions having to deliver and score more than 40 million tests in a two-week period by 2014. The cost of building the technology infrastructure for such a short time would be enormous. That's why the company is all over the cloud.

Companies have big plans to shift many more applications across all their business functions to the cloud over the next two years, particularly in customer-facing business processes of marketing, sales and customer service. Firms like the technology manufacturer that we interviewed are using cloud systems aggressively in their marketing campaigns, starting with online games (so-called gamification applications) that appeal to customers.

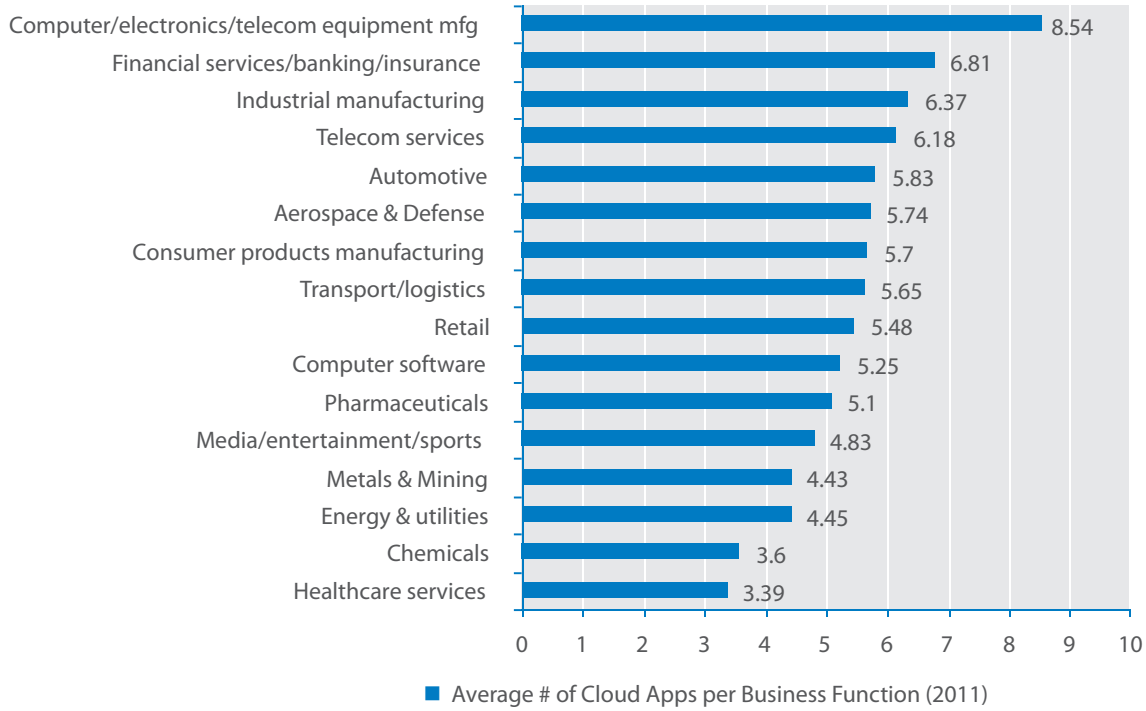
Exhibit 2
Comparing Regions of the World in Benefits to Date From Shifting On-Premises Applications to the Cloud



Certain Industries are in the Lead

Our survey found four industries have been much more aggressive in adopting cloud applications (in public or private clouds) than other industries. We asked companies to tell us how many cloud applications they were using in 10 core business functions: marketing, sales, R&D, manufacturing/operations, HR, finance, customer service, legal, distribution and procurement. At the top of the list were the computer/electronics, financial services, industrial manufacturing and telecom services industries (averaging with more than six cloud applications per function). At the bottom were healthcare services and chemicals companies, averaging less than four cloud applications per business function. (See Exhibit 3.)

Exhibit 3
Comparing Global Industries by Average Number of Cloud Applications Per Function Per Company/Industry (2011)



Yet despite the strong embrace of the cloud in many industries, most companies have remained somewhat conservative about what systems and data they put in public clouds – in the data centers of third parties that host many companies' applications and IT infrastructure. While our survey found that the majority of U.S., Asia-Pacific and Latin American companies would consider putting their core applications in private clouds, only a minority today would put core applications in public clouds. The reason is fear of data security and privacy. The companies we surveyed in all four regions said their biggest challenge to leveraging the cloud is overcoming their concerns about IT security.

Thus the challenge for companies and cloud vendors like TCS is clear: to greatly reduce the fear that most large companies have about putting mission-critical information systems and sensitive data in public clouds. Large companies now want to shift many applications to the cloud, and they realize that if they are to get the greatest cost savings, it will have to be to public clouds (where cloud vendors can spread their costs across hundreds or thousands of customers). But customers will need to be sold on cloud vendors' information security promises. That will require bringing industrial-strength practices to information security and maintaining systems availability. All this will separate the cloud-proficient vendors from the cloud pretenders.

Stories like these, and the responses of the 600+ companies that we surveyed, show that the cloud is beginning to have a profound impact on a number of industries. The benefits we've uncovered should remind business and IT executives that where there is smoke, there is fire. As an increasing number of companies publicly discuss the benefits of cloud computing, we expect many more enterprises will rush to adopt cloud applications in every facet of their business.

Now is the time for business and IT executives to look strongly at the cloud – both private clouds dedicated to the needs of one company or public clouds in which multiple companies can be served. Our research shows that companies have moved beyond the inflection point. The next few years will be ones in which market leaders are companies who quickly capitalized on the cloud to create true competitive advantage.