

Cloud Computing The View from the Cloud

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INTRODUCTION

The business case for Cloud Computing has never been stronger. Even as the economy emerges from recession, the need for fiscal prudence remains. Attitudes have hardened as a result of the global economic crisis and it's likely that the 'more for less' mantra of recent times has become the new reality.

Against that backdrop, the business case for any ICT investment is being examined with greater rigour. According to the results of research firm Gartner's CIO Survey 2010, IT budgets will remain essentially flat for 2010. That's an improvement on the decline reported in 2009, but it does mean that money is tight. Cloud Computing needs to be on every organisation's agenda today.

In the private sector, IT budgets are being allocated to the most strategic projects or to the necessary spend on storage and support and the like. In the public sector, ICT is set to be at the forefront of the planned cuts, which will range from between 25% to as much as 40% in some areas. In both private and public sectors, the focus is on ICT to deliver both cost-cutting efficiencies and value-adding productivity gains.

That places Cloud Computing firmly on the corporate agenda as CIOs seek out technologies that can be implemented quickly and without significant upfront expense, turning ICT into an enabler for fiscal recovery and productivity improvement rather than the costly overhead it has all too often been regarded as.

THE BENEFITS OF CLOUD COMPUTING

The Cloud Computing model is still evolving, but it's clear that there are a number of substantial benefits that it offers to organisations in the areas of cost, flexibility and productivity.

THE COST FACTOR

Cloud Computing is simply a more cost-effective delivery model for computing. That's the bottom line and it's a particularly compelling one given the current economic backdrop against which organisations must operate. According to the most recent Gartner CIO study, cost reduction is ranked as the number two priority for organisations, just behind improving business processes, while consolidating existing operations and investments is also a major priority.

With the Cloud Computing model, there's no need to buy servers, networking equipment, software licenses and all the other elements that come with the traditional in-house data centre approach. Instead the infrastructure is delivered as a service by a third party provider and accessed by a client organisation. Cloud applications – such as CRM, ERP and HR systems – are tapped into via a commodity browser running on a PC or a SmartPhone, or whatever platform is most appropriate.

Most importantly this is all paid for 'by the drink'. There's no need to pay up front for servers and software licenses based on an estimate of what you think your needs will be, plus that bit extra just to err on the side of caution. The end result of that approach has been the all too familiar situation where organisations have servers running at 40% capacity and where the shelves of the IT department are lined with unused copies of on-premise software.

With Cloud Computing, you pay for what you use. If you use more one period than another, then you pay for more; if you need to use less, you pay for less. The pricing is transparent: you know just how much it will cost to run a server per hour so there should be no surprises. If you decide to change something, you can calculate what the new pricing will be without getting into contractual renegotiations as is often the case with traditional outsourcing deals. And you choose how you pay: per user, by usage or on a subscription basis – whichever model suits your needs the best.

There are also the indirect cost savings associated with not running your own data centre. As well as the direct spend on ICT infrastructure, there are the related costs of real estate to house it, power consumption, general maintenance, personnel costs and so on.

Overall, Cloud Computing shifts the budgetary balance away from upfront CapEx to on ongoing OpEx. That's a CFO-friendly message that spells a timely end to the CIO coming along every few months with a request to spend yet more money on yet more servers.

THE FLEXIBILITY FACTOR

No-one can predict the ebbs and flows of the business markets with 100% accuracy, especially given the volatility of the global economy in recent times. Much of the business world remains in flux, with considerable uncertainty leading to an understandable mood of caution when it comes to making long term forecasts for any business and, by extension, its needs.

As noted above, traditional models of computing are based on deciding upfront on your functional needs and making investments accordingly. That typically means, for example, buying software on the basis of which grouping you fit into – e.g.: 50-100 seats, 100-250 seats and so on. If you need 60 seats and the only option you have is to buy into the 100 seats bracket, then you're paying for licenses that you don't need and which will sit idle.

Similarly server capacity goes unused. No organisation ever runs all its servers at 100% usage 100% of the time. Rather there is a wasteful under-utilisation that is backed up by a philosophy of adding another server every time there's any uptick in demand. As more and more business is conducted online, this ability to scale up and down and optimise server utilisation is of vital importance. The sheer unpredictability of demand peaks and troughs can cripple an organisation's ability to service its customers using traditional computing delivery models or can lead to organisations over-compensating and investing in server infrastructure that far outstrips their needs.

Breaking free of this inhibitor enables organisations to target new customers more easily and with the confidence that they can service their needs more effectively as well as bring new products and services to market more quickly, top priorities according to Gartner's CIO study.

With Cloud Computing, you're tapping into Infrastructure as a Service. You don't own the servers, you pay to use them for as much – or as little – of the time that you need. If you need to ramp up your use, you pay for more. You don't stick another server in the data centre to cope. That's not your problem. Allocation and optimisation of compute resource becomes a headache for your chosen Cloud services provider. You decide to scale your IT requirements based on your dynamic business demands and then scale down if and when the demand reduces. This means the end of having to stock up on storage, hardware or software.

THE PRODUCTIVITY FACTOR

What does your organisation actually do? Is it in retail? Is it manufacturing? Is it in the public sector? Does it provide services or products or consultancy? Whatever it does, it almost certainly doesn't run data centres for a living. So why is so much time and effort poured into something that is typically not a core competency, but a necessary and resource hungry support function? ICT is undoubtedly a powerful enabler of efficiency and productivity and the idea of any successful organisation operating without computers in today's world is unthinkable. But all too often ICT becomes a bottleneck, an inhibitor rather than an enabler.

Cloud Computing allows organisations to tap into the enabling power of ICT with greater speed and flexibility, improving the time to market for both existing and new products or services which in turn leads to greater commercial and operational advantage in markets where competition is increasingly tougher or where there is urgent need, in the case of the public sector.

Again this plays to the needs of today's organisations. In Gartner's CIO study, respondents cited the need to revise business processes, improve workforce effectiveness and manage change initiatives as among their top ten challenges for 2010. All of those challenges are made easier by breaking free of the often inflexible structures and processes that traditional approaches to IT can lock organisation into.

With traditional on premise models of computing, time and effort goes into installing systems and software that are then rigid and inflexible. Changes to the infrastructure take time and money and are subject to the vagaries of procurement cycles and budget approvals. If you want to pilot a new product or service, you are held back until the ICT team have made the necessary changes to the infrastructure. Often the business is ready to move forward, but the ICT holds it back.

This is wrong. The ICT should propel the business forward, not hold it back. The self provisioning capabilities of Cloud Computing enable organisations to set up new pilots or testing environments on the fly. If the pilot works, things progress; if the pilot fails, the new users and systems added are scaled down. In a traditional on-premise computing model, a failed pilot will most likely result in investment in ultimately unwanted infrastructure; with Cloud Computing, a failed project means no longer paying for some functionality. This empowers organisations to move quicker and to explore new opportunities without fear of being left with a costly hangover if things don't work as planned.

Cloud Computing enables organisations to get on with what they know and what they're good at and frees them up from having to divert time, attention and resources onto running data centres. It empowers them to explore new market opportunities in a more timely and responsive fashion, opening up new competitive advantage.

THE CHALLENGES

As noted above, the potential benefits of Cloud Computing are significant and compelling. But it's not a completely straightforward path to the Cloud. While the most evangelical of Cloud enthusiasts will talk in terms of a revolution, the reality for the overwhelming majority of organisations will be an evolutionary one.

With the exception of a handful of green field sites, most organisations have an existing ICT investment in house in the shape of servers or PCs or licenses for Oracle, SAP or Microsoft software. Many mission critical systems are built around such on-premise existing investments and organisations are unlikely to wish - or indeed be able - to simply to throw that away. Instead they will use Cloud Computing to enhance and complement and extend existing in-house capabilities. Where new opportunities arise or new channels to market emerge, Cloud-based alternatives will be used instead of the traditional options used previously. As existing technology comes to the end of its cycle and needs upgrading, it will be replaced by Cloud technologies. In other words, the move to Cloud Computing will be an ongoing journey, not a sudden flurry of activity. Organisations need to plan that journey with care and ensure that they have the best guides to help them along it. In the hype hungry technology industry there is an excess of vapourware marketing around the Cloud. Vendors who previously were positioned in a different space entirely are now making Cloud Computing claims. Some of these are legitimate; some stretch a point; some are entirely bogus.

With standard definitions for Cloud technologies far from locked down, it's very much a case of 'buyer beware' and essential that due diligence is done to ensure that your chosen provider's definition of Cloud Computing fits your organisation's particular needs.

Which Cloud model is best for you? Do you need a Private Cloud dedicated solely to you or are you able and willing to tap into a shared Public Cloud infrastructure? Or would your needs best be met with a combination Hybrid Cloud approach? How is your new generation of Cloud technology going to sit alongside your existing in-house systems? Can you integrate the new with the old? Can you optimise both without compromising one or the other?

Organisations need to find trusted partners who can assist them in their journey to the Cloud and help them to make the correct decisions to best meet their needs. There are choices that need to be made in order to get the best out of Cloud investment just as there are with on-premise ICT investment. Organisations moving to the Cloud will benefit from the assistance, innovation and experience of thought leaders and experienced practitioners in this field.

CLOUD COMPUTING IN ACTION: JOURNEYS IN THE CLOUD:

BUDGET AIRLINE TRIALS NEW CLOUD-BASED MOBILE CHECK-IN USING HANDHELD DEVICES

Queues at airport check-in desks are one of the worst parts of flying. Despite many airlines offering the opportunity to check-in online, this is not always possible especially if you're travelling with checked baggage or simply don't have internet access immediately before flying. A leading budget airline has begun trials of its new mobile check-in using handheld devices to reduce queuing at airports. The budget carrier is looking to replace some of its check-in desks with devices that process passenger details and print boarding passes. Queuing at departure gates could also be eliminated, with mobile scanning of boarding passes.

Many airlines are trying to overhaul the check-in process in an effort to reduce overhead expenses. In addition to increasing customer service, mobile-check in can also reduce staffing costs and the need for so many desks which have to be hired at significant cost from the airport operator. Airport operators charge airlines for each desk, such as the ticketing desk and the check-in desk, each of which requires a separate mainframe terminal. Each desk means a new queue.

More advanced check-in systems could allow carriers such to generate additional revenue by offering other services. The handheld check-in devices will process travellers' details, print boarding cards and also scan the boarding cards, which will also reduce queuing at departure gates.

FLYING INTO THE CLOUD

Hitachi Consulting UK has been working in close collaboration with airline's internal technical team on a number of projects, including its new cloud-based mobile check-in system. Based on the Microsoft Azure technology, Hitachi Consulting worked closely with internal staff to implement a virtual private network based on 3G or Wi-Fi to plug mobile devices into the Azure cloud on the internet.

The new solution is deployed via a smart client .NET Compact Framework application geared to support many types of mobile devices, such as the Motorola MC75 and Casio IT800, which support both GSM and Wi-Fi and have Bluetooth capability. The devices enable ground staff to take payments using a credit card, print receipts, scan 1D and 2D barcodes and print boarding passes using a Bluetooth printer. They also have secure penetration into the heavily firewalled corporate nested network in order access common services and perform check-in, boarding etc processes using either GSM or Wi-Fi over public internet.

The airline is testing online check-in as part of a trial that would supplement and complement fixed check-in desks, stating there would always be a need for desks to process passengers and that it had no plans to charge for check-in at airports. With 72 devices currently in use, each device maintains two open connections to the Azure Service making approximately 60 ACS requests and sends/receives 100 MB of data per day. Following full production roll out, it is anticipated that there will be 6,500 devices in operation.

Azure gives users a choice by providing a common programming model which allows them to run systems in-house or in the cloud. It is made up of a cloud database service, SQL Azure and Windows Azure, an application development platform.

LANDING THE SAVINGS

Azure provides the link from the internet into the airline's data centre, providing a thin but important tier in the overall architecture that will make services visible to devices scattered across Europe in a secure, reliable and cost-effective way.

The airline is creating a private cloud for some of its operations, and using a public cloud for others. The new system is enabling the airline to extend its enterprise both operationally and commercially, move its departure control system onto a .NET service bus with universal access to run third-party applications, and help drive down costs.

Hitachi Consulting UK has enabled the airline to exploit Microsoft technologies to realise a business vision in delivering an enhanced customer experience whilst driving commercial efficiencies. The new system has the potential to save the budget airline millions of pounds a year in efficiency gains and operational savings.

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