Look up

The ‘cloud’ is on the horizon

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Introduction

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Times are changing

There is little doubt that technology is the agent of change and a force that in fact accelerates developments in our world every day. Another reality we face is that technology has become so ubiquitous that our expectation is that it is always available, much like the expectation we have with electricity. Technology has become so integral to not only the way that we work but also the way we live our lives.

Yet the opportunity that technology provides is also laced with the burden of maintenance. Every day people are faced with technology decisions about what products and versions to buy, which updates and patches should be installed and how to keep their systems secure. Such a burden places significant dependence on the technical ability of the individual but many are no longer willing or able to shoulder such loads.

As with the distribution of electricity, the commercial advantages of supply lie with extremely large providers who simply offer their customers a single bill for all the services they use. If customers don't use a service or feature they are not billed for it. This is the way that technology is developing through what is now generally being termed as 'cloud computing'.

'Cloud computing' is going to cause significant change to an industry that has become set in its ways of purchasing and supplying software off the shelf and delivering it in shrink wrapped packages to customers. No more. The Internet has created a medium where that model no will only diminish.

The Internet provides the power to have many software products available directly via download or remote access. The Internet also provides the ability to utilize products and services from outside any geographic region. The Internet provides the ability to sell information to a worldwide audience. The Internet has changed the rules and changed them forever.

So where does that leave the average person whose job it is to provide technology to customers? It means they need to also start changing the way that their business operates or they run the risk of becoming obsolete. Luckily, we are still in the early stages of these developments, yet change will continue to accelerate as profitability in the arena increases thereby attracting more players. The opportunity exists now to firstly

understand the impending changes and secondly to get out in front of the wave and take advantage of the momentum that will happen as 'cloud computing' begins to take hold.

This document will take you through some of the most important factors that are and will be driving this change. It will also examine some of the issues and challenges that 'cloud computing' will face and how these maybe over come. It will provide you with examples of applications that are utilizing some aspect of 'cloud computing' and potentially what these applications may morph into. In the end it is hoped that this document will demonstrate to you why 'cloud computing' is an increasingly important aspect of technology and why it cannot afford to be neglected by anyone involved with technology.

For those that wish to get out in front of the wave this document is also designed to provide you with some suggestions of opportunities that are available today in 'cloud computing' that can be taken advantage of for your business or those of the people you serve. In many ways it is better to start looking and understanding these opportunities now before being forced to by the people you serve, because there is no doubt they will start asking.

There are many more additional strategies about dealing with these challenges that unfortunately this document can't hope to cover. More information about these can be found in the ***Where to go from here*** section at the end of the document.

If you are ready to 'look up' and embrace 'cloud computing' read on.

The first application to go

The most common technological requirement of businesses today is email. Email has grown in importance inside every business, large and small, and will continue to do so. Many businesses now host their own email server and yet the question is increasingly being asked, why?

Maintaining an internal email system requires a significant amount of resources. Firstly, there is the application software. Secondly, there are the hardware requirements including disk space. Next, there is a need to have in place some form of screening technology to filter out spam and viruses. Further, there

is the constant ongoing requirement to ensure all the systems are secure and protected against intrusion. For any business, large or small, this is a significant burden.

What 'cloud computing' can offer as an alternative is alleviation of many of these onerous requirements while still retaining all of the functionality. However, the biggest impact for the customer is that they will typically be paying for this on a per user per month basis. This is completely contrary to the existing economic model where they need to make significant investments up front prior in equipment prior to any actual utilisation of the technology. So, if you have 20 users one month you pay for 20 users. If however in the next month you only have 19 users then that is all you pay for.

It is important to understand at this point that 'cloud computing' is not only a technological change but it is also bringing a different economic model to the industry. It is bringing the concept of 'utility payments' where there is little investment in up front infrastructure just a 'pay as you go' model which is already so familiar with other utilities such as electricity, gas and water. Discounting this new economic model's appeal to business owners will only result in a loss of business since in the end, technology is merely a tool for business.

Given such benefits, it appears most logical that email servers will typically be the first things that will be moved into the 'cloud'. After a minor reconfiguration on the desktop most users will see no difference in their day to day operations. They will still typically use Outlook. They will still send and receive emails and if the 'cloud' based server is unavailable, Outlook will simply hold a copy of the mailbox on the local workstation and automatically reconnect in the background when the 'cloud' based server once again becomes available. As will be discussed later, a key component of any current migration to the 'cloud' will involve a local cached copy of the information on the user's workstation.

What other advantages does 'cloud' based email services provide? It automatically allows users the ability to access their email anywhere they have access to the Internet. Whether at home, on the road or in the office, no longer is their email geographically based. Many organizations have already taken steps to permit remote access to their in house email servers but that is not typically the default upon installation. With 'cloud computing' it will be. Not only that, you'll automatically be able to access email through client applications like Outlook as well as a web browser and on your mobile phone. The business will have to perform no configuration other

than a simple setup for each device that needs access. Once that is initially completed, access to email will be available where ever there is Internet connectivity.

In many ways, the thin edge of the wedge is most likely to be the migration of email servers into the 'cloud'. This ability has been confirmed by the successful growth of web based email services such as Gmail and Hotmail. For in the end, it is going to give users more functionality, greater capacity without any noticeable change in the way they work now. That is the secret to successful technology change and adoption, when there is little negative impact for users.

Little changes, except location

As mentioned previously, the reality is that the technology services available are not changing. All that is really changing is where these services are being delivered from. They are still applications on servers, but with 'cloud computing' these servers are no longer on site they are located in a secure data centre. In reality, it more likely that the adoption of 'cloud computing' will mean a greater number of services become available to customers because it allows solution providers to deliver their products beyond their normal geographic regions since the Internet has now removed the tyranny of distance.

It is not to say that this relocation is without issues and challenges. There is always a great deal of comfort and satisfaction with actually being able to see and touch the equipment on which your data resides but the benefits of 'cloud computing' will continue to challenge that premise. Many are concerned with issues around security and privacy of data when it is located in remote locations, yet the solution to this is very simple. Encryption will provide the mechanism that renders data totally unreadable to anyone who does not hold the key. Today's publically available encryption is so powerful that it is realistically unbreakable. Compare this argument to the fact that most businesses allow a full time external connection from the Internet which could potentially allow remote access to their existing data. Of course they have firewalls and other methods of restricting this access but few go to the lengths of encrypting their local data. If you however turn the argument on its head and ask whether business had unbreakable encryption on their existing in house information would there be the same need for screening from the Internet?

So imagine that you not only install all the best filtering technology such as firewalls, that are already in existence, but also encrypt the data. Does it now make any difference where that information is stored provided you have the only key? Not really it would seem. So one of the key technologies that needs to be in place for any 'cloud computing' solution be a success is the implementation of robust encryption. This encryption technology is mature, well known and not a stumbling block for the implementation with 'cloud computing'. In fact an excellent example of one such solution is the open source project TrueCrypt. This free product allows you to create encrypted files, volumes and drives quickly and easily. You could then take any TrueCrypt file and store it anywhere in the knowledge that even it was obtained by an insecure third party it would not be compromised. So using an application like TrueCrypt now should provide confidence to utilize some of the many existing online storage providers in the knowledge that you information is totally secure.

Access speeds are too low

There is certainly no question that broadband speeds (especially in Australia) need to be raised to facilitate the growth of 'cloud computing' but the reality is they are. At the moment there is still much to be improved yet the bottom line is that speeds are never going to decrease. It is unlikely, for many reasons, that businesses will move to a totally 'cloud' based solution initially but there is certainly enough bandwidth for them to start testing the water and potentially outsource some of their technology.

Another aspect in the topic of broadband access is the growth in coverage and speed of wireless technology. Yet another driver is the growth in cheap Netbook computers that have only the bare minimum applications. The combination of both of these factors will be a key driver in adoption of 'cloud computing'. In many respects the portability of technology is more important than the ability to be connected at high speed. As mentioned previously, many 'cloud' based applications will come with the ability to have local copies of data and then synchronize in the background whenever a connection and the bandwidth is available or not.

As people's lives become more and more dependant on Internet connectivity they will demand improved access. This is already being recognized by many governments,

including Australia's, who have committed to not only providing greater access but also wider access of the services. Although it still maybe many years away, imagine what 'cloud' computing would be like after the completion of the Australian National Broadband Network.

In the past, when people started to roll out in house networks they were limited to speeds of less than 10MB/s. Now most networks are 100MB/s and many 1,000MB/s. Greater capacity is simply a factor of life with technology. Likewise, with wireless broadband access which Telstra is able to provide at up to 21MB/s. Any judgement that you make cannot be based solely on the conditions that we currently experience, it has to be based on the growth in demand and as more services get delivered from the 'cloud' so too will access speeds increase.

New business models

If companies like Google and Microsoft are changing their business plan in response to 'cloud computing' it should certainly be taken as a sign that 'cloud computing' shouldn't be ignored. In a 'chicken and egg' scenario, are these companies driving business into 'cloud computing' or are they just responding to demand? In the end it doesn't matter what the reason, the important things is that is becoming an established trend that anyone involved in technology needs to pay close attention to.

Google's focus has been on the 'cloud' much more than most businesses, not having come from a legacy desktop business like Microsoft. They have many offering in this space but probably the most important application to technology providers is Google Apps. Typically, as with most 'cloud' offerings, there is a free and premium product available. Basically it provides hosted email, document sharing, calendaring and more. For around $50 per user per year you can obtain the premium service that provides extra functionality, storage and branding.

For many smaller organizations Google Apps would probably provide them with everything that an internal server currently provides. Google however are now targeting far larger organizations because the 'cloud' solution scales so easily. As mentioned previously, there is a lot of appeal for customers migrating an email server out of an organization and Google is making that very easy with a growing number of tools. Once again, it would be foolish to discount the economic model of effectively 'unlimited' use for only $50 per year because the economics of this offer is far more appealing to businesses than traditional in house technology. Unfortunately, this is a mistake many technology providers overlook. Technology

has become a utility, how it gets delivered is immaterial to having it delivered as cheaply, quickly and easily as possible.

Microsoft has invested significant amounts of resources in its own business 'cloud' offering which is know as Microsoft Business Online Productivity Suite (BPOS). Don't overlook the fact that it already provides many 'cloud' solutions free via Windows Live. Some of these include Office Live, SkyDrive, Hotmail and so on. Many of these Live offerings, like similar free offerings from Google, can be implemented as effective 'cloud' solutions for customers yet the real challenge to the status quo resides with BPOS.

Microsoft BPOS will offer hosted Exchange (email), SharePoint (documents), Communications Server(Chat) and Live Meeting (video conferencing) all for a monthly price per user. One advantage that Microsoft does possess is that the applications it is utilizing in its backend (i.e. Exchange and SharePoint) are identical to the applications that many businesses are already utilizing internally. This positions it well as a hybrid solution during the migration from in house to online. There is also the impact of Microsoft being a business that many are already familiar and trust with their technology.

One reason people cite for retaining in house applications is that they 'own' the software. The reality is that such software is actually only licensed to the business, ownership is retained by Microsoft. Given that, there is not much difference from hosted Microsoft software and that installed in house.

An important factor to consider with these 'cloud' based applications is their ability to be activated almost immediately. In many cases customers can receive full functionality for a 30 day trial period after which the product reverts back to the 'free' offering. Traditional selling models have required the provision of pricing and quotes which all take time, now a solution can be provided almost instantaneously from the 'cloud'. This immediate delivery will mean that those providing traditional in house solutions will struggle to compete effectively.

Both Google and Microsoft offerings provide the ability to receive trailing commissions based on the number of online users signed up. Yet the majority of the revenue to be derived by existing resellers is going to be via the provision of consulting services especially in the migration and implementation of such products. Also consider the fact that because such services can now be delivered from the 'cloud' it is possible to provide consulting services beyond any existing geographic region as much as it allows foreign competitors to provide similar services in traditional markets. Thus, it is important to exploit any such presented

opportunity early to take advantage of early adopters and build experience and service recognition in the space before other have a chance. No longer is your competitor across the street, they could be from any location in the world.

The world has changed forever

Many people denigrate the 'cloud' pointing to the lack of physical connectivity with devices such as digital cameras which traditionally need to be tethered to a local workstation before their contents could be uploaded. Forward thinkers will realize that future generations of products, like digital cameras, will include the ability to connect wirelessly to the Internet. They will include the ability to automatically upload images to online storage. They will include the ability to access the Internet to catalogue and distribute such images. Thus, devices like digital camera will merely become another way to access the 'cloud'.

With the move to the 'cloud' more and more devices will become 'cloud' aware. Failing to appreciate this fact is simply dwelling on the past and if history is any indicator it will demonstrate how those that only think of the here and now are doomed to be consigned to the scrap heap.

Yet another example is the upcoming release of Microsoft Office 2010 which will include online components of its most popular desktop software such as Word and Excel. This means that most users of these applications will no longer need the software installed on their local workstation, they will simply access it across the Internet. Currently, Microsoft also appears to be going to offer this web based access for free.

What will be the impact of this on the majority of people who make their living selling and supporting traditional Office software? Any freely available Internet based version is certainly going to reduce the total sales and failing to take the necessary steps to accommodate this change is going to result in significant hardship. Bemoaning the change or ignoring it will not by any means prevent these changes from materializing.

Less is more

The 'cloud' technology model is about more technology at the back end while more about form factor in the actual hands of consumers. This has never been clearer that with the proliferation of smart phone devices and Netbooks. The penetration of the Apple iPhone into the consumer market now means that many people carry a computer in their pocket. They think nothing of going online to download music, applications, post updates and read emails. The tethering of such devices to almost always on Internet through a variety of wireless options provides further confirmation of the future success of 'cloud computing'.

No longer are the big ticket workstations the items of demand. The reality is actually the complete opposite now. Netbooks, with their reduced size and capacity are flying out of stores because via 'cloud computing' and wireless connectivity they can offer the same if not better functionality that a tradition PC sitting on a desk. What sets these devices apart from normal desktop PCs in consumers' minds is their portability, they have been created because people want to be able to take them anywhere because they need to be connected everywhere they are. The important thing is not the capacity of these devices traditionally measures in megabytes and gigahertz but connectivity measured in kilo and megabits per second. They have become simply a window into the 'cloud'.

An important consideration in any argument about 'cloud computing' is always the economic factor. Here again, economics plays a large part in the decision making process of the consumer. Devices such as Netbooks and mobile devices are cheap, many are also available via some form of extended payment plan from a provider who charges $40 or $50 a month for voice and data access. Even though the total price over the life of these plans may add up to more than the cost of purchasing the devices out right, all the consumers sees a small monthly charge. Once again, the economic model is now so much per user per month rather than the traditional large up front charge.

Left behind

When times change the ones that normally find it most difficult to make the transition are those who have a vested interest in the status quo. For many years the traditional technology model has relied on experienced IT

professionals providing skill to those without knowledge. The investment required to maintain that skill was significant and as such was generally well rewarded. However, the power of tools like Google has dramatically eroded that advantage. Most users, especially younger ones, are far more technology savvy than they ever used to be. If they don't know the answer to something they know exactly where to turn to find it. They can utilize the power of Google to solve just about any problems that arises.

These same people are now also posting more and more information to the Internet. Web information is moving to an almost instantaneous, especially when you look at technologies like Google Wave. No longer is knowledge a privileged resource. It is available to all provided they can find it. So where does this all leave the traditional IT professional? There seems little choice but to accept that times are changing and embrace what certainly appears to be inevitable.

What is important is a willingness to examine the options that any change brings because it provides as much opportunity as threat. Success is all about how change is embraced. It is not the situation where any existing business model will be made obsolete immediately, however there needs to be an appreciation that the certainty of traditional business models are decreasing rapidly.

As with any technology change it means letting go some of the old ways and incorporating some of the new. This means examining ways and solutions that can be added into a business to ensure its viability going forward. It will no doubt mean additional learning but this has never been anything new for IT professionals. In some ways it will relieve the burden of trivial and uneconomic tasks and free then up to focus on the higher level and more profitable.

It is clear that the landscape is changing but the fundamental product that any IT provider contributes is knowledge. Opportunities still abound to receive remuneration for such knowledge but it is for knowledge of 'cloud computing' not the traditional IT model. This means that successful IT providers will need to increase their awareness and skills with 'cloud computing' and at the genesis is the best time to gain these.

Where to go from here?

The easiest way to gain more exposure to 'cloud computing' is to start using it. This means examining the offers of providers like Google and Microsoft. It means obtaining free and demonstration accounts and using them to get a feel of exactly what the pros and cons are of each. As with all testing, there is going to be frustrations, dead ends and wrong turns but experience is always the best teacher.

A major advantage with 'cloud computing' is that provided you have access to the Internet you can start immersing yourself in these systems almost immediately. In many cases most 'cloud' applications have a free component that allows you to get up and running for virtually nothing. If you like what you see and want more then generally you only need to pay a few bucks to get all the functionality.

I have already created a number of freely available documents that deal specifically with 'cloud computing' amongst other things. You can find many of these at http://www.slideshare.com/directorcia.

Other suggestions include:

- The list of resources that are provided at the end of the document.

- The blog http://supportweb.ciaops.net.au/blog also covers many aspects of working more with 'cloud computing'.

Further documents and information about 'cloud computing' can be found at http://www.ciaops.com/.

If you are interested in receiving information about any upcoming documents please send an email to director@ciaops.com asking to be added to our regular newsletter.

Conclusion

'Cloud computing' does represent a significant change in the technology landscape but this is nothing new. Success has always been about understanding and embracing change. Maintaining a dependence on the ways things are currently done is a recipe for disappointment and frustration going forward. As much as 'cloud computing' represents a threat to established business and economic models it also represents significant opportunity. We stand at the dawn of a rare revolution which will have significant impact for many years to come. Now is the best time to at least examine the opportunities that 'cloud computing' may offer. It doesn't mean a wholesale replacement of existing businesses models it simply means determining what components can be implemented to replace declining and out of date practices. More importantly, the timing is such that there is a potential to obtain an early mover advantage, benefiting as the demand grows over time.

Chances are that 'cloud computing' will be something most IT professionals will need to deal with in the future. It makes more sense to initiate that process now, on their own timetable rather than being forced to by customers or the competition.

If you have any feedback on the information provided here please contact director@ciaops.com.

Resources

True Crypt – http://www.truecrypt.org

Telstra wireless broadband - http://www.bigpond.com/internet/plans/wireless/wireless_devices/

Google Apps – http://www.google.com/apps

Microsoft Business Productivity Online Suite (BPOS) –

http://www.microsoft.com/online/en-au/default.mspx

Windows Live - http://home.live.com

Office Live – http://www.officelive.com

Skydrive – http://skydrive.live.com

Hotmail – http://www.hotmail.com

Australian National Broadband Network Information –

http://www.dbcde.gov.au/communications/national_broadband_network

Microsoft Office 2010 - http://www.microsoft.com/office/2010/

Google Wave – http://wave.google.com

Microsoft Gets FAMiliar with Cloud Strategy - http://www.winsupersite.com/server/fam_2009.asp

About

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Robert has a degree in Electrical Engineering as well as Masters of Business Administration. He is also a Small Business Specialist and Microsoft Certified SharePoint Professional. Robert has over 15 years of IT experience in a variety of fields and positions, including working on Wall St in New York. He was the co-founder of Saturn Alliance, an IT systems integration business in Sydney, Australia. He continues his involvement with information technology as the Principal of the Computer Information Agency. Apart from resolving client technical issues, Robert continues to present at seminars and write on a number for topics for the Computer Information Agency. Robert can be contacted via director@ciaops.com.

Company – Computer Information Agency (www.ciaops.com)

Founded in 1995, the Computer Information Agency is a specialized technology consultancy in Sydney, Australia that focuses on assisting businesses and individuals improve their productivity using technology and smart business practices. The Computer Information Agency has high levels of experience in technologies such as Windows Servers, including Small Business Server, and desktop applications such as Outlook, Word, Excel and OneNote.

With special emphasis placed on the business benefits of technology the Computer Information Agency is unique in its ability to work with companies to improve and streamline their processes utilizing the technology they already have in place. The focus is on providing an improved end result for the business which in the long run leads to greater productivity and profitability. More information about the Computer Information Agency can be found at http://www.ciaops.com.