



## Module - Cloud Computing

On completion of this lesson you should be able to:

- Define 'cloud' computing
- List the types of activities able to be conducted 'in the cloud'
- Outline the benefits and risks of cloud computing to your business
- Identify cloud computing solutions suitable for your business
- Identify some strategies for choosing the right solution/s for your business
- Identify risk management and security issues associated with cloud computing
- Identify strategies to stay informed about the latest cloud computing technology that may benefit your business

As with any learning of this nature, you will get out what you put in - that is, the more you involve yourself, the more you will achieve. By participating you can obtain a distinct advantage in the competitive world of business.

A practical approach has been emphasised throughout for you to take away actions and plans to put into practice immediately in your own business.

### Introduction

Cloud computing provides a cost-effective way of delivering your ICT requirements online. Documents, emails, customer details and applications can all be stored remotely by your cloud computing service provider and accessed over the internet through a web browser.

Essentially cloud computing takes all the major components of computing – hardware, software, storage, networking, data, and expertise and makes them available virtually, globally and on-demand, allowing you to access them anywhere at anytime you have access to the internet.

'The cloud' is a metaphor for the Internet, and cloud computing solutions therefore refers to systems which are located 'in the cloud' - on the Internet.

Given the growing number of devices which are able to connect to the internet, the reality of running your business from anywhere, anytime, is now a real possibility.

In the event of a disaster, all you need is a web-enabled device - which includes your smart phone - and an internet connection to access your data.

As your business grows and your business needs change cloud computing can help your business scale up or down accordingly.

Having your business applications provided over the internet means you may no longer need to purchase, install and set up software yourself. You may also reduce your ongoing costs - maintenance and other upgrades can be managed off-site by your cloud computing service provider. Further cost savings may be made to your staffing requirements. By outsourcing your ICT needs your business may no longer need the same level of in-house or sub-contracted technical expertise.

Downturns in global and local economies as well as the occurrence of natural disasters has seen savvy individuals and organisations seek to rethink their business models, workflow processes, decrease their expenses, improve their efficiency and also guard against future disaster impacts. Cloud computing helps many businesses address these issues.

Whilst cloud computing presents some exciting opportunities, there are some important considerations to make before jumping into 'the cloud'. This guide is intended to provide you with information to examine current cloud opportunities, review potential issues, consider where and how specific information could be processed in your organisation, so you can make an educated decision on whether operating 'in the cloud' is for you and your business.

## **Cloud Computing and your Business**

Transitioning to cloud services may offer the following business benefits for small business owners, however, how much of a benefit it will be to your business will depend upon the nature of your business, which cloud model is adopted, how it is implemented and how well it is accepted in the work place.

### **Benefit 1 – Reduced costs**

Cloud computing can reduce your hardware, software, networking management and overall IT expenses. It is possible with cloud computing, to enjoy free trials to test software solutions, low monthly fees if your requirements are minimal and to go up in a scalable fee-model as your requirements grow.

This can reduce operating costs through:

- Reduced energy consumption
- Lower management costs for your ICT systems
- More effective processing of both routine computing tasks and computationally-intensive problems
- Fewer time delays
- Reduced support and maintenance costs
- Reduced resources wastage, for example unused server space
- Reduced staffing requirements as some systems can automate or reduce the time required to perform key business activities (for example some cloud computing accounts systems automatically send out notifications of bills being overdue without the need for a staff member to write an email, send a letter or phone the client to chase payment).

### **Benefit 2 – Scalability**

You can scale-up your business' operation and storage needs relatively quickly, rather than having to go out and purchase expensive software or hardware and hire

professionals to manage this growth, your cloud computer provider can handle your upgrades and installations for you. This allows your business to become a more agile enterprise that is flexible and responsive to change.

### **Benefit 3 – Automatic updates**

With a cloud computing solution that is constantly upgrading and improving the system, there is no need to worry about paying for your future software and hardware updates – this is usually factored into your monthly fee. Depending on your provider, the system will be regularly updated at no additional cost, and in most cases, with no disruption to your system. Often these upgrades are 'community driven' meaning you and other users can suggest updates and improvements in the system that you would like to see made in the future.

### **Benefit 4 – Remote Access**

You, your employees, partners and clients can access and update information wherever they are, rather than having to run back to the office. This presents an excellent opportunity for business owners or key personnel wanting to travel for work or pleasure to still remain in contact with business activities.

Additionally it allows employers to offer flexible working arrangements, for instance you may have a staff member who needs or wants to work from home. Cloud computing allows you to accommodate this request and thus retain valuable staff.

Additionally it can afford business owners more lifestyle benefits (provided they exercise discipline and a careful work-life balance as they become more contactable and connected!)

### **Benefit 5 – Disaster response and recovery (resilience)**

With your company's data safely stored in secure data centres off site, losing power or experiencing loss or damage to hardware due to cyclones, floods or other disasters means you will not lose vital data. Benefits are also seen in the ability to resume work from alternative locations such as home, a different city or country. As long as you have an internet connection you can access the key data stored on these servers, quickly and easily, minimising business downtime and therefore the impacts on the business.

### **Benefit 6 – Ease of implementation**

In many cases you may be able to establish cloud services yourself without the need to go through procurement and testing processes or employ or contract an IT professional. Most service providers also have a huge selection of tools, services and features which will allow you to get your systems up and running quickly and efficiently.

However, this will depend on the system in question and your experience and skill in the area. In some cases it is recommended that you do engage an IT professional for all or part of the process to ensure you choose the right solution for your business needs and are using it in the most appropriate manner for your business.

### **Benefit 7 – Customise and innovate**

Businesses can save time at set-up, as cloud computing solutions often become functional faster than other systems.

Many cloud computing providers allow you to customise their already existing software and hardware to cater to the unique needs of your business. Whilst this may require some programming, starting with a system which is 'half way there' will save you time and give you the ability to innovate your business systems.

### **Benefit 8 – Increased efficiency and collaboration**

Many cloud computing solutions will afford your business increased efficiencies in core business areas which in turn could help you perform better. For instance the ability to 'suck in' your bank transactions to your cloud computing accounts solution could save you time in manually entering each item.

Additionally some cloud computing solutions allow you to work on the same file at the same time as employees, contractors and other third parties. This means you can complete the production of key documents quicker and easier, without version control issues.

## **The risks of cloud computing**

There is, however, a downside. You can become dependent on your cloud computing providers and your business success will be intertwined with theirs.

There may also be legal and privacy issues. In terms of security, the big providers such as Microsoft and Google have some of the best security staff on the planet and their backup procedures are likely to be better than yours too.

The Australian Government's Department of Defence, Intelligence and Security, Defence Signals Directorate (DSD) has published a comprehensive guide to risks Australian Government agencies must take into account when considering the use of cloud computing services. Significantly, the DSD advises agencies to use cloud service providers based in Australia for any data that isn't already publicly available.

DSD strongly encourages agencies to choose either a locally owned vendor or a foreign owned vendor that is located in Australia and stores, processes and manages sensitive data only within Australian borders. Note that foreign owned vendors operating in Australia may be subject to foreign laws such as a foreign government's lawful access to data held by the vendor.

Whilst this is aimed at Government departments, it contains useful guidelines and information for businesses.

This publication can be accessed at the following web site

[http://etherealmind.com/wp-content/uploads/2011/04/Cloud\\_Computing\\_Security\\_Considerations-1.pdf](http://etherealmind.com/wp-content/uploads/2011/04/Cloud_Computing_Security_Considerations-1.pdf)

## **Defining your cloud computing needs**

Before you consider moving some or all of your business operations to the 'cloud' it is a good idea to think about the way you currently do business and therefore where potential efficiencies, cost savings or reduced risk could be enjoyed.

## EXERCISE

Take a moment to go through the example below of some common business activities and identify:

1. What systems you currently use
2. Whether there is potential to improve these systems.

## EXERCISE

Identify your core business activities and areas where you may be able to improve performance and efficiency, reduce costs or reduce risk. Some suggested business activities are listed for you. You may like to add your own at the end of the list.

BUSINESS ACTIVITY	CURRENT SYSTEM USED	COMMENTS
<i>Invoicing</i>	<i>Microsoft Word</i>	<i>Software needs to be upgraded every 1-2 years</i> <i>Invoices would look more professional.</i> <i>Retrieval of past invoices can sometimes be difficult.</i>
<i>Website management</i>	<i>Dreamweaver &amp; FTP software</i>	<i>There is only one person in our office that can administrate our website.</i> <i>Buying Dreamweaver software is expensive.</i>
<i>Back up of critical data</i>	<i>weekly back up on an external hard drive</i>	<i>Hard drive is on site and therefore at risk in a disaster.</i>

BUSINESS ACTIVITY	CURRENT SYSTEM USED	COMMENTS
Estimating/quoting		
Invoicing		
Debt collection		
Email communications		
Project management		
Information technology		
Back up of critical data		
Client management		
Prospect management		
Collaboration		
Website management		
Networking		
Marketing		
Customer Support		
Expenses		
Time tracking		
Document sharing		
Electronic signatures		

# Types of cloud computing service models

The Australian Government has adopted the US Government's National Institute of Standards and Technology (NIST) definition for cloud computing which provides for three types of cloud service offerings. The cloud service model offerings are:

- Software as a service
- Platform as a service
- Infrastructure as a service

Cloud models	Description
Software as a Service (SaaS)	<p>Involves the vendor using their cloud infrastructure and cloud platforms to provide customers with software applications.</p> <p>Example applications include email and an environment for users to collaboratively develop and share files such as documents and spreadsheets. .</p>
Platform as a Service (PaaS)	<p>Involves the vendor providing Infrastructure as a Service plus operating systems and server applications such as web servers.</p> <p>Examples include Google App Engine, Force.com and Microsoft Windows Azure Platform.</p>
Infrastructure as a Service (IaaS)	<p>Involves the vendor providing physical computer hardware including CPU processing, memory, data storage and network connectivity.</p> <p>Examples include Rackspace and Amazon EC2.</p>

Source:

[http://www.dsd.gov.au/publications/Cloud\\_Computing\\_Security\\_Considerations.pdf](http://www.dsd.gov.au/publications/Cloud_Computing_Security_Considerations.pdf)

## Google Apps (Applications)

Many people use Google on a daily basis to search for all types of things. What many people don't realise is that Google also boasts a range of free applications which can help business owners save time and money. Importantly all of these applications are offered 'in the cloud'.

Google Apps is a service from Google providing independently customisable versions of several Google products. It features several web applications with similar functionality to traditional office suites, including: Gmail, Google Groups, Google Calendar, Talk, Docs and Sites.

Whilst it is possible to sign up for free for Google Apps higher versions including Google Apps for Business, offers additional e-mail storage and is available for an annual fee of \$50 per user as of April 2011. For more details see ([http://www.google.com/intx/en\\_au/enterprise/apps/business/](http://www.google.com/intx/en_au/enterprise/apps/business/) )

### **Google Mail (Gmail)**

Gmail is a free, advertising-supported webmail, POP3, and IMAP search-based webmail service that combines features of traditional email with Google's search technology.

It also offers advanced filters that keep spam from your inbox, and interoperability syncing with Microsoft Outlook and most mobile platforms so you can check, compose and respond to emails anywhere, anytime, so long as you have access to the internet.

It is possible to receive emails addressed to both @gmail.com addresses as well yourname@yourcustomurl.com within the same Gmail account.

For more information on how to get started with Gmail see:

<http://mail.google.com/support/bin/topic.py?hl=en&topic=12774>

### **Google Calendar**

Google Calendar is a free time-management web application. The interface of Google Calendar is similar to other desktop calendar applications such as Microsoft Outlook or iCal on Mac OS X. The system allows you to view, add, and drag-and-drop events from one date to another. It supports view modes such as weekly, monthly, and agenda. Users can "quick add" calendar events by typing standard English phrases, such as "Dinner with Michael 7pm tomorrow". In the case of a user experiencing a hard drive failure, it also means that no data is lost.

Multiple calendars can be added and shared, allowing various levels of permissions for the users. This enables collaboration and sharing of schedules between your colleagues, clients or even family and friends.

For more information on how to get started with Google Calendar see:

<http://www.google.com/support/calendar/>.

### **Google Docs**

Google Docs is a free, web-based word processor, spreadsheet, presentation, form, and data storage service. It allows users to create and edit documents online while collaborating in real-time with other users.

For many the transition to Google Docs is a relatively painless one as the menu structure, keyboard shortcuts, and dialog boxes are similar to what you may be used to with desktop word processor programs such as Microsoft Word or Open Office.

Some useful features of Google docs include:

- Opened documents are automatically saved to prevent data loss
- A revision history is automatically kept
- Documents can be tagged and archived for organisational purposes



- The service is officially supported on recent versions of Firefox, Internet Explorer, Safari and Chrome, Apple OSX, and Linux operating systems.

There is a limit on how much a user can store on their account. As of January 2010 individual documents may not exceed 1GB, embedded images must not exceed 2MB each, and spreadsheets are limited to 256 columns, 200,000 cells, and 99 sheets. For more information on how to get started with Google Docs see:

<http://docs.google.com/support/>.

## Storage, backup and file sharing cloud solutions

Every sensible business owner should have some kind of backup system. You may already make a copy of your important files to a USB, CD or DVD (DVD's hold more) or separate external hard drive on a regular basis.

Consider however what would happen to your business if you lost everything that was saved to your computer's hard drive? What if your back up file was also damaged, stolen or lost? What would this mean to your business? How long would it take to get up and operational again?

This is where cloud computing solutions really help.

A wide range of storage, back up and file sharing solutions are available. Below is a small selection to get you started:

### Box.net

Box.net is a cloud-based content management solution for individuals and businesses. Box.net allows you to:

- Organise and view all of your content online in a familiar file and folder structure
- Share content with direct links to files and folders
- Turn any folder into a public webpage in one click
- Create widgets to share files on a company web page or blog.

Box.net uses a 'freemium' service - basic services are free, while they charge a premium for advanced features.

Box.net provides 5GB of free storage for personal accounts. A mobile version of the service is available for iPhone, iPad, and Android devices.

See <http://www.box.net> for more.

### Dropbox

Dropbox is a web-based file hosting service that uses cloud computing to enable users to store and share files and folders with others across the Internet using file synchronization. There are both free and paid services, each with varying options.

Versions are available for Microsoft Windows, Mac OS X, and Linux, as well as for mobile devices, such as Android, iPhone, and BlackBerry.

Dropbox also uses the 'freemium' financial model and its free service provides 2 GB of free online storage.

For more information see: [www.dropbox.com](http://www.dropbox.com)

### **Sugar Sync**

SugarSync, is an application which syncs files, photos and media among multiple computers and backs them up on the Web.

It is also available for Mac, PC, or mobile devices. SugarSync users can sync files in ANY folder and access and share those files via the cloud, providing a Personal Cloud service that matches the way people currently organize their folders and manage their digital lives.

For more information see: [www.sugarsync.com](http://www.sugarsync.com)

### **Mozy**

Mozy is an online backup service for both Windows and Mac users.

Mozy allows users to back up data continuously, manually or schedule updates. In 2011, they changed to their current tiered pricing model. Originally released as a consumer product for end-users (MozyHome), Mozy later released a remote backup utility for businesses called MozyPro, with additional functionality and an administrative portal. For more information see: [www.mozy.com](http://www.mozy.com).

### **EXERCISE**

Identify where your data is currently being stored and consider whether you could use a cloud solution to store your files, whether it be your core business files, or even family photos. Sign up for a trial on one or more of the outlined solutions to see if it is helpful to you.

## **Finance and accounting cloud solutions**

Keeping accurate and up-to-date accounting and financial records is vital to the success of any business. It is also a requirement under taxation laws.

The benefits of using cloud computing for your financial records are many:

1. Secure data regardless of what happens to your home or computer – You and your accountant will always have a copy of your accounting records available.
2. Free and regular software updates – Every time they do a major or minor update, you always get the most up to date copy. You may find that with a traditional accounts package where you pay a one-off cost upfront, you have to pay for updates to the system.
3. Responsiveness – Cloud computing packages are very keen to respond to the needs of the market. This means they quickly put in new functionality that their customer's require.

4. Usability - Most cloud solutions are really simple to use. You don't need to pay for expensive training courses to be able to use them properly. By embracing new-breed financial software solutions, organisations of all sizes are achieving and enjoying the unprecedented flexibility of anytime/anywhere instant access to financial data, reports, transactions, and analysis.

As this data may be highly sensitive however, due diligence on which cloud computing solution, if any, is required. It is also important to consult with your chosen accounting professional to ensure they believe the solution will suit your business needs and meet your tax requirements.

A wide range of finance and accounting cloud solutions are available. On the pages to follow is a small selection to get you started:

### **MYOB**

MYOB is an accounts software already used by many Australian businesses. It's 2010 release of a web-based version of the software was highly anticipated but does still not currently have all the functionality of existing MYOB packages, so existing high-end users who already have online integration via the company's mPowered module might not be interested in LiveAccounts.

LiveAccounts™ can help you create your invoices, track your expenses and manage your GST, online. It also includes feeds from more than 100 banks and integrates payments with credit card companies, BPay, PayPal, eBay and government agencies.

LiveAccounts costs \$25 per month including GST. There are no minimum use contracts. You can cancel at any time by providing us written notification. Free 30 day trials are also available. The service is hosted by Macquarie Infrastructure in Sydney.

### **Saasu**

Saasu is a comprehensive online accounting software system for managing business financials and has been in the game for longer than many of the other online accounting systems. Saasu has capabilities in sales, purchasing, inventory, payroll, e-commerce, CRM, point of sale, document and workflow management. Saasu's strong online accounting API enables connection to hundreds of web applications, software products, payment services and banks. Saasu supports many countries and tax zones all from your web browser as either a free or paid subscription. It was formerly known as NETaccounts.

### **Freshbooks**

FreshBooks is an online invoicing software as a service targeted at freelancers, small businesses, agencies, and other business professionals. It is produced by the software company 2ndSite Inc. which is located in Toronto, Ontario, Canada. The product includes a myriad of other related features, such as time tracking, expense tracking, recurring billing, online payment collection, the ability to mail invoices through the U.S. Post for those who do not have email, and support tickets. Plans are free to get started and bill up to 3 clients.

### **XERO**

Xero is an online accounting-software product for small- and medium-sized businesses, as well as for personal finance. The product is sold by subscription (a distribution model commonly known as Software as a Service or SaaS) requiring the payment of a monthly fee. This charge is proportionate to the number (and type) of company entities managed by the subscriber.

The key features of Xero include importing bank accounts, invoicing, expense claims, fixed assets, standard business reporting and management reporting.

Xero can automatically import bank statements from ANZ, Commonwealth Bank and NAB. Xero is available globally, but it also provides localized versions for New Zealand, Australia, and the United Kingdom.

Xero has its headquarters in Wellington, New Zealand, with a branch in Auckland and operations in Australia and in the UK. A free trial is available and plans start from \$19US per month thereafter.

### **EXERCISE**

Identify what system your accounts are currently being completed on. Consider whether you could use a cloud solution to moving forwards. Sign up for a trial on one or more of the outlined solutions to see if it is helpful to you.

## **Important considerations before moving to cloud**

Whilst there are certainly some compelling benefits of considering a move to cloud, it is important to understand that there are also some risks associated with this relatively new ICT sourcing and delivery model.

In the case of small business owners, important issues to consider include:

Issue	Explanation	Possible mitigation
Location of data	<p>Cloud computing data is often stored offshore and as such may fall under the country in question's jurisdiction. For instance data stored on American servers is available for public access under the US Patriot Act. This means, if you utilise a US based server company, US law enforcement officials could get a court order to inspect your data without your knowledge.</p> <p>Consider what data you could be storing as this may cause privacy issues for you.</p>	Investigate the privacy and security laws of the location of the server. If you are not comfortable with the laws which govern it, consider alternative solutions.
Nothing is 100% secure	Nothing that is typed and saved online is ever 100% secure. On 27 February 2011, 0.02% of all Gmail users lost their accounts. On	Consider making backups of any data online to offline channels, and making a copy to store off site also.

Issue	Explanation	Possible mitigation
	<p>March 1, 2009, Google reported that a bug in Google Docs had allowed unintended access to some private documents. Whilst Google claims these issues were rectified quickly, what could this mean to your business if you were using the system that went down?</p>	<p>Consider syncing technologies which may allow you to have two sets of simultaneous information which is updated at regular intervals i.e. a Google Calendar and an Outlook Calendar which you can set to synch at a set time rotation.</p>
<p>Business continuity</p>	<p>Because the cloud is dependent on internet technologies, any internet service loss will interrupt cloud services.</p>	<p>Consider the purchase of a USB internet stick which will allow you to have internet access should your usual channel fail.</p> <p>Make arrangements to work from other premises should you experience internet issues at yours.</p>
<p>Data location and retrieval</p>	<p>The dynamic nature of the cloud may result in confusion as to where information actually resides (or is transitioning through) at a given point in time.</p> <p>When information retrieval is required, there may be delays impacting companies that frequently submit to audits and inspections.</p>	<p>Ensure an appropriate filing system is used to name and store key files and key personnel are trained in this.</p> <p>Consider accessibility to the proposed cloud computing solution and the likelihood of any delays.</p>
<p>Funding model</p>	<p>Due to the cloud's pay-per-use model, some part of ICT capital budgeting will need to be translated into operating expenses (OPEX), as opposed to capital expenditure (CAPEX), which may have different levels of authorisations to commit expenses and procure services.</p>	<p>Consult with your accountant or other financial adviser as to how any transition to cloud computing solutions may impact on your profitability and cash flow.</p>

Issue	Explanation	Possible mitigation
Legal & regulatory	<p>You need to be aware of Australian legislative and regulatory requirements including Archives Act, Privacy Act.</p> <p>You also need to be aware of legislative and regulatory requirements in other geographic regions if your cloud provider is not based in Australia.</p> <p>There is little legal precedent regarding liability in the cloud and because of this, service agreements need to specify those areas the cloud provider is responsible for.</p>	<p>Actively research and review cloud computer system providers before deciding on which company to go with.</p>
Performance and conformance	<p>You need to ensure that guaranteed service levels are achieved. This includes environments where multiple service providers are employed (e.g. combined agency and cloud environments). Examples include:</p> <ul style="list-style-type: none"> <li>- Instances of slower performance when delivered via internet technologies</li> <li>- Applications may require modification</li> <li>- Failure of service provider to perform to agreed-upon service levels.</li> </ul>	<p>Monitoring and reporting are required to ensure the performance is adequately delivered for the service period.</p> <p>Ensure you have implemented the fastest internet speed possible at your location, provided you can afford it and it is available.</p> <p>Review service agreements/terms &amp; conditions and consult with legal professionals where required.</p>
Privacy	<p>There is a risk of compromise to confidential information through third party access to sensitive information. This can pose a significant threat to ensuring the protection of intellectual property (IP), and personal information.</p>	<p>Check proposed systems privacy policies and ability to customise privacy settings.</p> <p>Ensure that service providers meet the requirements of the Privacy Act 1988.</p>

Issue	Explanation	Possible mitigation
Skills requirements	<p>A direct result of transitioning to a cloud environment means:</p> <ul style="list-style-type: none"> <li>- Less demand for hardware and system management software product-specific skills; and</li> <li>- More demand for business analysts, architects, portfolio and program and change managers, and of course, vendor/contract managers.</li> </ul>	Review your current IT HR requirements and make changes as required.
Security	While your business may have limited ability to prescribe the protective security of the cloud environment, they will remain ultimately responsible for the information that is stored and/or processed in the cloud.	Management must ensure that the security of the cloud service provider is adequate for their purpose.
Service provision	Companies should take into consideration that while cloud computing is a growing market; there is still a lack of major cloud vendors having data facilities based in Australia.	Reputation, history and sustainability should all be factors to consider when choosing a service provider.
Technical ability and support	Moving to a cloud environment will require emphasis on business design where cloud services will interface/impact business systems	<p>Training needs and solutions may need to be identified.</p> <p>Prior to making a decision to move to a cloud computing environment, business owners should address the impact on business processes and eliminate any technical barriers.</p>