

Partly Cloudy

The Business Owners Guide to
Cloud Computing

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BUSINESS OWNER'S GUIDE TO
CLOUD COMPUTING**

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**HELPING SMALL-BUSINESS OWNERS ELIMINATE
TECHNOLOGY HEADACHES FINALLY AND FOREVER**

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Introduction

PARTLY CLOUDY

A Small Business Owner's Guide to Cloud Computing

I wrote this book as an effort to help business owners sort through all the hype they may be hearing about “Cloud Computing” or “moving to the cloud”. I would like to give you answers to key questions and provide you with a guide through all the hype so that you can clearly see if any or all of this new technology can actually help you run your business better.

I will not present you with lots of technical detail or jargon. I will assume that you are interested in using technology to get things done faster and more efficiently in your business. By the time you are done reading this book you will have the knowledge you need to evaluate cloud proposals and be able to determine if this new technology is right for you.

I will answer the following questions in each chapter.

1. What is “The Cloud” and why is it called that?
2. What type of services can be provided via the cloud?
 - a. Web Hosting
 - b. Cloud based Email Services
 - c. Cloud based Backup services
 - d. Cloud Disk Drives
 - e. Cloud Based Applications – Word, Excel, Quickbooks, Sales Force etc.
 - f. Remote support via the cloud
3. Full Cloud PCs and Servers
4. How does cloud based support work – do I still need my IT guy?
5. What about the cost, is it less expensive than having local computers.

6. Is it safe to actually store my data in the cloud?

7. Is the computer industry really going this way?

8. Conclusion

As I go through each of these chapters I will describe the current state of the industry and I will give you my current opinion about the plusses and minuses of each area. I will not shy away from making conclusions and recommendations, but keep in mind, many of the decisions you make will depend on your own personality, your own philosophy regarding new technology and your own business situation. What I might recommend for one business will not always be the same for another. Also, because the industry changes so quickly, this information will become dated quickly. So I will update this regularly, for now, April 2012 – this is where we are.

CHAPTER ONE

WHAT IS “THE CLOUD” ?

There has been quite a bit of advertising lately about “the cloud”. You will hear phrases like...”to the cloud” or “moving applications into the cloud” or “moving everything into the cloud” Most of the advertising does not bother to explain what this means, they just say it in such a way as to make it sound exciting.



This type of advertising is designed to create “buzz” which means that the company creating the advertising simply wants to get people talking about the idea. You can see this in the Microsoft ads that say “to the cloud”. They keep showing different situations and then some lady says, “to the cloud”. The worst one has her saying “Windows gives me the family that nature never could...” Another horrible ad that mocks the father, but you are left thinking, that you don’t quite know what they are talking about but you feel like you should know. This lady is going to fix her whole family with this product – what the heck is it?

So what is the cloud? The simplest answer is that the cloud is the internet. It refers to the idea of accessing applications, data and services from one location, across the internet to another. That is all it means. The history of the word is also quite simple. As you can see in the example below, when network designers are documenting computer systems graphically, the symbol used to represent the mass of computers and telecommunications networks of the internet, they simply drew a cloud and pointed arrows in and arrows out. This meant that the data would travel on the internet from one location to another. As the use of this idea grew, someone coined the phrase “the cloud”,

The phrase is also used to refer to the resources and services themselves that are accessed via the internet. You will hear about “cloud drives” which refers to the disk drives that reside in some company’s data center and you can access them remotely via the internet and some software on both systems. You may hear about “cloud applications” such as SalesForce.com – which is simply a CRM package that runs on their server in their datacenters and you access it from your Internet Browser. The internet or “the cloud” provides the connection.

This concept is not actually new at all, it has been around since the beginning of the computer industry, in fact the industry started out this way. It was very common in the sixties and seventies to have many companies sharing the resources of one mainframe computer. The clients would access one large computer using slow modems and character based terminals. This was done to save money and fully utilize the power of these expensive machines.

Large companies could utilize all the resources of a computer but smaller ones could not afford to have expensive computing resources idle, but they still needed the efficiencies it could deliver to their business.

Eventually minicomputers were invented and midsized companies could purchase their own computers and eliminate the cost and the inconvenience of the slow communications lines. They also found that they could get programs done faster and for less money if they brought this smaller computer in house.

When the PC was invented in late 1970s, the power of computers finally came to small businesses and the cost of software creation could be spread out over the entire small business community. This allowed small business to start to benefit from all the efficiencies that computers could

deliver. In the beginning the PC was used as a standalone device that maybe one or two people in the company could use. With the advent of local area networking, the PCs could be tied together to form a company wide network with shared data files and databases. This gave small businesses all the power of the mini and mainframe computers that previously only larger enterprises could use.

I remember being in a small meeting room at the University of Pennsylvania in 1985 hearing Bill Joy, the president of Sun Microsystems tell us that “the network is the computer” What he meant was the networking was going to enable us to use the resources of all of the computers at the same time. Users on PCs could tap into each other’s resources and to data on servers and other devices throughout the network. At first we only used local networks, but I am sure that Bill Joy could see the time when the telecommunications network would become so fast as to allow this to be done worldwide.

With Internet access speeds now exceeding the speeds that we used for local networks back then, this is what we have today and Cloud Computing is what we call it.

CHAPTER TWO

CLOUD BASED SERVICES

In keeping with our definition of “The Cloud”, Cloud Based Services are any services that are provided by a centralized computer system that is available to end users by means of the Internet. Some of the most popular cloud based services today are, web site



hosting, hosted email, cloud based offsite backup, cloud based disk drives, cloud based line of business or office applications, remote support services and full cloud based servers and PC.

Since these are the types of services you will be considering when thinking about whether or not the cloud is right for your business, let's consider each one in some more detail.

WEB SITE HOSTING

This is perhaps the simplest and oldest example of a cloud based service. In fact these cloud based services were the beginning of the internet and our first experience at seeing the power of programs running on remote hosts that can be accessed from anywhere in the world through one standard interface – Internet Explorer.

When most companies create a website, they first find a company that has servers available to store and run their site related programs so that anyone in the world can run them. The services typically only cost about \$ 150 per year and you get a portion of the processing power and disk space of a web server.

The hosting company typically takes care of all the details of making sure the host is up and available on the network. The owner of the site does not have to worry about any hardware or networking issues. He just puts up the programs to run the site and the hosting company takes care of the rest.

HOSTED EMAIL

Hosted email has also been around for a long time, but only recently has it become practical for fully functional, feature rich email systems to be hosted on the web. In the beginning these services were simply email addresses from companies like yahoo, aol, gmail or any web hosting company.

Users would go to a website, login with a username and password and use the browser to read and send mail. Features like calendar sharing, contact sharing were typically not available and moving around was a bit slow awkward, therefore most businesses did not find these low end email systems useful.

HOSTED MICROSOFT EXCHANGE

Businesses typically require fast access, lots of data storage and full calendar and contact sharing. Until very recently if you wanted all of

these features, you had to use a local email server and Outlook clients on windows based machines. Microsoft Exchange has been the leader in this type of system for many years.

A big change in this software is now making cloud based Exchange very practical. The new versions of Microsoft Exchange were written with remote access in mind. It not only works remotely with the new versions of Outlook, but it also provides a full featured – “Outlook like” web based system.

So now, whether you are on your PC with your local copy of Outlook , on the web with just a browser or on the road with your iPad or iPhone, you can get seamless access to an Exchange server located anywhere in the world.

Small and medium sized business no longer need to own and manage their own Microsoft Exchange Server to get the full benefits of business class email features. They can pay a provider a monthly fee and get everything they need.

GOOGLE MAIL FOR BUSINESS

Gmail for business is also a fairly new service. This is mostly offered as an email service that is best accessed through the web browser and no other email client like Outlook is needed. In fact it works best when used this way and is not well supported when trying to use mail clients like Outlook.

Now you can get lots of email storage, shared calendars, shared contact lists and your own domain name though Google’s commercial Gmail accounts. Gmail is typically less expensive than hosted Exchange but I think it is also not quite as fast and not quite as fully featured as Outlook and hosted Exchange. I also find it slower and more cumbersome to do everything through the browser, but not everyone feels that way and we are starting to see more businesses giving it a try.

CLOUD BASED OFFSITE BACKUP SERVICES

As internet speeds have been steadily increasing, another fairly new service that has become available is a system that relies on transferring

data across the internet for backup. In the past this was simply not possible because the transfer speeds were too slow.

Now, thanks to faster upload speeds and some innovative software, this is becoming common place. We always recommend some form of this service to all of our customers. We feel that any system that does not include some form of automatic offsite backup is not properly protected. If you are not using something like this, your data is at risk.

There are two types of services available – pure offsite systems and hybrid on/offsite systems. The pure offsite systems take an initial copy of a protected directory and then send changed files offsite to a centralized data storage facility each night. The hybrid system takes a copy to a local system every hour or so and stores it locally, then each night sends a second copy of the changes to an offsite data center or two.

Since this is such an important part of any business computer system I want to explain it in a little bit more detail so you can understand how each type of system works and why you need the Hybrid system in place. The pricing of the two systems vary wildly and I want to explain why.

OFFSITE ONLY BACKUP SYSTEMS

Offsite only backup systems are backup services that run on your workstation or server and simply copy an initial copy of your chosen directories and then take copies of changed files each night. The most advertised and therefore the most well-known of these services are Carbonite and Mozy.

These services are mostly for protecting documents, pictures and music files. They offer a simple solution for keeping an up to date snapshot of your import files. The websites and most of their marketing are clearly targeting the home users. This is because they are not setup to handle full server system restores or large amounts of data transfers.

Although you can use these services for protecting key documents and the prices are very inexpensive, between \$75 and \$ 150 per year for between 50 and 200 gigabytes or so, they are not a good solution for backing up a business server. This is because you need to be able to quickly restore not only key files, but the entire operating environment if

necessary. Of course it is better than no offsite protection, but it is not suited for your only method of backup.

BUSINESS CLASS HYBRID ON/OFFSITE BACKUP SYSTEMS

These systems, often called BDR systems – Backup and Disaster Recovery systems, are the best way to use the cloud to insure full on-site and offsite data protection of your onsite servers and business data. They will protect your operation from user errors, hardware failure as well as total facility loss from fires or natural disasters.

Before describing these systems, we should list the requirements of a good business backup system so you will see how this solution fits.

7 KEY REQUIREMENTS FOR COMPLETE BACKUP SYSTEM

- 1** Must have full restore capability of data and Operating System and settings.
- 2** Must have multiple versions available – to restore old copies of existing files – in case an infrequently used file is discovered to have a problem
- 3** Must be able to restore the entire system quickly
- 4** Must be able to allow you to operate quickly in a Virtual Environment while the main system is being restored.
- 5** Must provide multiple copies of data, you need multiple copies in case your backup does not work for some reason. You should never rely on only one backup because when your main system goes down, you will not have any backup – you should never be in that situation.
- 6** Must provide offsite backup storage in case of a total site loss.
- 7** Must be verified and monitored regularly – if it is not - you may find your backup is not working when you need it most.

Keeping these 7 key requirements in mind, let me describe a typical BDR Solution. These systems include a server grade computer that has redundant disk drives and special backup software. The software runs a full backup of each server it protects and the initial backup is sent offsite to a data storage facility. This initial backup is called a “seed” backup or sometimes a “base” backup.

Once the base backup is run, the software will run an incremental backup as often as every 15 minutes. This method will make sure that the system and the files can be restored to any point in time necessary. These incremental backup files are transferred via the cloud (internet) offsite each night. Once the data is offsite it is stored in a SAS70 secure, redundant data center.

The other key aspect of a BDR is that it allows for easy monitoring of backup progress and outcome. As stated earlier it is very important to know the status of each attempted backup and to be able to regularly monitor this each day.

The following are key features of a typical BDR solution that help it meet the requirements above :

TYPICAL BDR SYSTEM FEATURES

- 1** Server Class Computer
- 2** Redundant Power Supplies
- 3** Redundant Disk Drives
- 4** Backup Software for Multiple Servers
- 5** Virtualization Software
- 6** Fast File Transfer to Offsite
- 7** Remote Monitoring Software
- 8** Integration with Remote Monitoring Tools

As you can see, if you are going to have an onsite data server, this is, by far, the best way to back it up. These systems are available through IT Services vendors at prices from \$ 195 per month and up, depending on the amount of data storage required. These systems are a great example of using onsite systems combined with cloud services to fully meet the needs of protecting your key business systems and data.

CLOUD DISK DRIVE

A Cloud Disk Drive is a simple service that can be very helpful to companies that have a lot of employees that need to regularly access data from remote locations. It involves creating a storage account on a cloud provider's system and then utilizing software that will create a logical disk drive on the user's computer. Most services like this will also allow for synchronization of a local folder to the cloud drive.

The most well-known of these services is Drop Box. Drop Box is inexpensive and is good for individuals to save files and make them available from anywhere and on multiple devices. Another service that we sell to businesses is Egnyte. This company provides cloud drives and multiuser capability for businesses.

These types of services are great for smaller companies where a large portion of the employees do not report in regularly to an office but need to share files on the road and from multiple devices such as PCs, laptops, home computers, phones and iPads. Depending on the situation you can even use these services to replace a server.

One of the good features of Egnyte is that it will also allow you to integrate a Network Attached Storage (NAS) device so you can store data locally at the office and also synchronize to the cloud storage drive for remote availability and backup. This way you still have a local copy for speed and backup but you also have the convenience and simplicity of the cloud drive.

Cloud Disk Services range in price from free to about \$20 per month per user at the most. It all depends on what services you need and how much data you are storing. Drop Box will let you store up to a gigabyte or so for free.

CLOUD BASED APPLICATIONS

Cloud based applications are what we call any application where the program and the data are not stored on your local PC or Server. Cloud applications are stored on remote servers and users access them through the internet, using locally installed client software or via a web browser.

Back in the late 1990s when we first started to see applications delivered like this they were called ASP based applications. That stood for Application Service Providers. The ASP had large computers in a central location that ran web based programs and databases and their customers accessed the program via the web browser.

One of the first ones that I used back in 1999 was a web based payroll service. With this service I was able to login to a web site, enter employees, their pay rates, tax information etc. The payroll company's server processed the payroll, filed the taxes, transferred the money and gave me the reports I needed. They even filed all the tax returns. I did not even have to store any data or install any programs.

Salesforce.com was another early provider of ASP services. They offered and still do, web based Customer Relationship Management systems (CRM) via the web. Their customers found that it was very convenient to access this key company data from any location.

Google Apps is one of the first offerings of this kind for word processing and spreadsheets. Once you logged on to your Google account you could access your documents and use the software. In the beginning they were offering this for free but as it becomes more feature rich it costs some money. This is a typical strategy to give it away for a while and as more and more people start using it, turn it into a commercial product.

Microsoft now offers its Office Suite fully hosted in the cloud, they call it Office 365. It gives you a place where you can access the latest copy of Office and type documents, create spreadsheets etc. all online. You just need to have access to the Internet.

Some benefits to accessing applications this way are :

- 1 Faster deployment – application is already installed, you just connect to it.
- 2 Usually hosted in a data center that is secure and provides power, disk storage and Internet redundancy
- 3 Usually meets SAS 70 and ISO certifications for data centers.
- 4 Usually, have redundant data centers in different parts of the country or world.
- 5 Up time is therefore very good
- 6 Professional Staff on site to manage maintenance and problems that occur.
- 7 24/7 365 Support
- 8 Contains the latest versions
- 9 Can scale up and down depending on your employee count.
- 10 Easy to budget
- 11 Easy to share files and services with coworkers
- 12 Access the system from anywhere and any device
- 13 Mobile Device integration.

Potential Problems with this method :

- 1 Price – Includes the latest versions and full redundancy and support. – if you are not doing this now, the price will be higher.
- 2 Application Speed – Screen movement is still not quite the same as on site – locally run systems – it will be dependent on your internet speed.
- 3 Makes you very dependent on your own internet connection. You will most likely want redundant highspeed connections with automatic failover.
- 4 Forced to pay for the latest versions of the software. Now, many customers put this off and skip a version upgrade or two if they are happy with the features and the product is still supported. Because the version often changes without your control, you may experience unplanned training issues as new versions are deployed according to the vendor's schedule.

As you can see, there is a lot to think about when considering these services, there are still pluses and minuses to Cloud based applications. Some of these services will work for some businesses better than others. If you evaluate the service and your situation by the criteria above it will help. You will also want to look at Chapter 4 where we fully discuss the cost comparisons.

CLOUD BASED REMOTE SUPPORT

These are simple services that have been in full use for several years now. These services allow companies like ours to monitor servers and workstations for problems without actually being on site. Once we install a small program on each computer we can get information like, disk errors, memory problems, patch levels, event log entries, backup reports etc.

Our servers – accessed via the cloud, report to us any problems that occur as soon as they occur. This allows us to proactively solve problems before they actually interrupt your business.

We also use this service to push out updates, install updates, run disk defragmentation programs and other maintenance tasks. Remote control services like Logmein.com and Go-To-My-PC are also in this category and you have probably already used them to give access to your machine to have a problem resolved or you have seen a demo from a sales person using them.

We will discuss the next service in its own chapter because it is a completely new environment. Whereas these services described above can easily be added to you current computing environment, Full Cloud Computing is a wholesale change and will require full commitment to the idea of Cloud Computing.

CHAPTER THREE

FULL CLOUD COMPUTING

Full Cloud Computing is one of the newest uses of the cloud computing concept. It is so new in fact that it will probably get a different name by the time it becomes a popular solution.



Let's start with my definition :

Full Cloud Computing refers to the technology that utilizes Virtual PCs connecting to Virtual Servers all running on large, redundant systems that are located in large, redundant data centers. These virtual machines are accessed via the internet from browsers, thin clients, laptops, PCs or any other mobile device. To understand that definition you also have to understand what a Virtual machine is.

A Virtual Machine is a computer operating system (PC or Server) that runs from a file that is running inside another computer. It is not hardware at all, it is simply an operating system running as a process inside of another operating system. You can have many virtual PCs and Servers running on 1 large computer. You can move the entire computing environment from one piece of hardware to another simply by moving the files from one machine to another.

This is the technology that makes full cloud computing possible. Since the PC desktop that you are used to interacting with everyday can now easily run as a program inside of another large computer, anywhere in the world, you can see your familiar desktop and programs just like normal without actually having a physical PC in your building. All you need is a screen, a keyboard and just enough processing power to connect to the internet and run the connection program.

By using this technology you can get to your desktop from anywhere you have an internet connection, from any device such as a PC, Mac, laptop, thin client, iPad, iPhone or any other smart device.

Let's think about what this means for you as a business owner who currently has about 25 PCs and 2 servers. Usually a business of this size might have 1 server for data files and an accounting system and maybe another for Email. Let's figure that you are looking at replacing both servers and about 1/3 of the PCs because they are out of warranty, out of date and really slow.

If you switched to a full cloud computing environment you could get rid of the 2 servers and keep all the old PCs. You and your staff would use the old PCs to connect to "virtual" PCs and "virtual" servers. Since you are only using the PC as a terminal, you can use it for a few more years without a problem with performance. Once you connected to these virtual machines (VMs) it would feel like you were connected to a whole new PC and Server. The processing speed would be better than your old one and you would have all the new programs that you would get with a new PC and server.

Once your old PCs began to break, you could replace them with thin clients. Thin clients are really just terminals that have monitors, keyboards and mice as well as a small processor and some minimal

software just to connect you to the internet and your virtual machine. They are typically ½ or 1/3 of the price of a PC and do not require any real maintenance.

Do you see how this is really going back to the original computing model that we talked about in the beginning when small businesses used terminals to connect to large computers running in large data centers run by teams of data processing and computer professionals? One big difference this time is that the connection is much faster and now we have all of these new high speed mobile devices to help us connect.

OK, now it is time for some more tables, let's see what the benefits and possible problems with using this new, or maybe I should say old, approach.

BENEFITS TO FULL CLOUD COMPUTING

- 1** Eliminates the cost of new Servers
- 2** Reduces the cost of new PCs
- 3** Reduces the need for onsite service
- 4** Removes the need for hardware warranties
- 5** Provides you with full redundancy of data and power
- 6** Allows you to access your desktop from anywhere on any device – see the same desktop everywhere.
- 7** Provides for professional support for hardware and software.
- 8** Allows for easy per user budgeting
- 9** Allows for changes up or down in user count without any capital purchases.
- 10** Lowers the onsite energy usage
- 11** Lowers the amount of air conditioning needed

POSSIBLE PROBLEMS WITH FULL CLOUD COMPUTING

- 1 Cost – includes all of the redundancy and professional care as part of the nature of the service – if you were not paying for this before, you will be with full cloud computing. Prices reflect this.
- 2 Totally dependent on Internet connections – you will need redundancy for your connections
- 3 Slow internet connections will make the service appear slow. Only video and keyboard data is moving, but if you have a lot of graphics or a slow internet you may have problems.
- 4 Still need network equipment and thin clients or PCs
- 5 Need for support still remains – much of it just gets transferred offsite, but you will still need some onsite application and system support.
- 6 Less control over environment – changes in system environment and programs will need to be done by the cloud provider or reseller.
- 7 Total dependency on cloud provider and reseller.
- 8 Still have needs to backup data locally if you are concerned about having your data if your cloud provider is not around

SOME MORE HISTORY

When discussing possible problems with the Full Cloud computing model it is helpful to go back a bit and remember why PCs and local area networks became popular in the first place. This is something that I actually remember in my early days working in the industry. I watched the transformation in large and medium sized businesses from mainframe and mini computers to PCs.

These changes did not simply come about because the companies could not afford to use larger computers. In the early 1980s many companies

that I visited were migrating from mini computers to networks of PCs. They had the resources for the larger systems and in fact were using them.

One of the big reasons the migration was taking place was because it was slow and difficult to get any changes in the mainframe and mini-computer environment. If you wanted a change in software or hardware you had to put a request in and then wait for it to wind its way through the IT department. Any change you requested could affect the entire company so changes had to be slow and deliberate.

Companies were also very tightly tied to the computer hardware vendor because everything went through them. Typically the hardware vendor also provided the operating system and much of the software. This was good in the sense that the IT department had one vendor to go to when problems occurred. This made it easier because there was less finger pointing. But the managers were often frustrated because the timing for everything was tied to the IT department and the vendor.

PCs solved this problem for departmental and individual needs. PCs and packaged software could be purchased outside of this tightly controlled environment and changes could be made quickly. People were not tied to one hardware vendor or one software manufacture or even their own IT department. As the market responded with more and more software, PCs became dominate in the office and IT departments were forced to deal with them.

The movement to PCs and local area networks was part of the larger trend in the 1980s toward decentralization. Full Cloud computing is an attempt by large companies and techies to pull it all back in and recentralize it. Techies don't really like coming out of the office that much anyway. The more they can stay back in the computer room, the more they like it.

The big risk here is that this new recentralization will go too far and centralize to only a few vendors where computing is exactly like a utility. I have had the misfortune to deal with a lot of utility companies in my work the last few years, and it can be very difficult to get things done. The best ones make you go through a very well defined procedure and eventually, get you the service you need. If you do everything the way they want you

to, you can get your service on time and on budget. The worst utility companies totally ignore you and do whatever they want, whenever they want.

The promise of full cloud computing is to gain all the efficiencies of utility computing yet keep the flexibility of the PC and the customer service of the smaller service organizations. I think it will all depend on how it is delivered and who delivers it. I may be biased, but if local or regional IT Services Companies provide the configuration and support services, using larger company's datacenters it could be very good for small and medium sized businesses. If Google, Amazon, IBM and Microsoft try to do it all, it will be back to the 1960s for all of us.

As you can see, there are many benefits to this approach and some potential problems to consider. In the next chapter we will consider how moving to a full cloud service will change the job of your in house or out sourced IT Support Staff.

CHAPTER FOUR

HOW DOES CLOUD BASED SUPPORT WORK? DO I STILL NEED MY IT GUY?

With the Full Cloud Solution, all of the servers and workstations are now residing offsite at a data center. Almost all of the maintenance normally



associated with your Servers and PCs will be able to be done remotely. This does not, however mean that it will not need to be done at all. You just won't see anyone working. All of the software installations,

updates, patches, anti-virus issues, backup tasks, log checks, hardware repairs etc. will still need to be done.

This change will mean that if you have a full time IT support person on site, there will be less for that person to do. If he is your employee, the only thing left for him to do is to support the application software and make sure the network itself is running. If your company has more than around 150 people, you may still have enough work for an in house IT professional, but he will not need to be as skilled as before. If you have a company with less than 150 people, a decision to go with full cloud computing is a decision to outsource your entire IT operation, since a full time IT support person will not have enough work to do.

If you already outsource your IT support, it is very likely that you will continue to use their services for this work, you just won't see them as much. In fact it is very likely that they will be the ones selling the cloud services and they will bundle their support in with the price.

As I have said before, the full cloud computing model has all of the best practices and top of the line support included in the one monthly price. The IT Support company who provides this to you is a very important part of the success of the project. What you will typically see in the next few years is that the same companies that now provide standard networking support contracts will also be reselling cloud computing services.

These services will usually be provided by a third party that specializes in running datacenters and supporting the virtual servers. Your IT Support firm will take the responsibility that they have always taken, namely the installation, maintenance and support of the servers and PCs. They will still be your main point of contact and will help you implement all of your software solutions and actually make it all work together. Let me show you in a list how the work will be split up.

FULL CLOUD — DATA CENTER RESPONSIBILITIES

- 1 Real Estate and Building for computer rooms
- 2 The secure room and rack space for equipment
- 3 Physical security for the computer room
- 4 Redundant air conditioning
- 5 Fire protection
- 6 Redundant power – generators etc.
- 7 Redundant high speed Internet lines
- 8 Hosting servers and the Virtualization software
- 9 Failover Servers
- 10 2nd Site Failover Servers
- 11 Onsite/offsite backup software and storage
- 12 24/7 365 support staff for the above services

If you look at the list closely, you will notice that most of the items listed for the Data Center are all things that small businesses typically do not have. If you are like most small businesses today, all of that is taken care of with a server computer in a closet.

If you purchase the cloud services directly from a large data center company, this is what you get. This part of the service basically takes the place of your Server and PC hardware. It is the part of your IT budget that you purchase every 3 to 5 years. In this scenario you are getting a major upgrade in quality, and you are renting it instead of buying it.

As is the case now, the responsibility for making all of this work for you, in your business fall to your local IT Support company. The big difference now is that he won't be selling you a bunch of hardware and software every 3 years, it will all be rented on a month to month basis.

FULL CLOUD - LOCAL IT SUPPORT COMPANY RESPONSIBILITIES

- 1 Install the Server Software and configure it
- 2 Install the PC software and configure it for each user
- 3 Install and configure each application
- 4 Design and configure the backup plan
- 5 Create the User database on the server
- 6 Set up the Anti-virus protection
- 7 Set up the Email services – configure users
- 8 Install and configure any custom software
- 9 Set up the local network and all it's components
- 10 Provide Redundant Internet access
- 11 Configure routers and firewalls for security
- 12 Setup, configure and monitor web filtering and security
- 13 Setup and support all remote users, including smart phones and iPad devices.
- 14 Make sure all PCs or thin client computers are setup to connect to the data center.
- 15 Set up all printing
- 16 Set up scanner and all other devices
- 17 Support all the software – make sure staff knows how to do everything

- 18 Monitor the servers and PCs
- 19 Patch the servers and PCs as necessary
- 20 Fix all problems as they occur, both on site and at the data center.
- 21 Provide a help desk service for the entire system.

As you can see from this list, your local IT Support Company will still have plenty to do and will still be an important part of making sure your IT operations run smoothly and help to make your office more efficient. Because all of these items in both lists will be covered by one monthly fee, it will be very easy to budget your entire IT program – this monthly price will be the lion's share of the budget. We will talk more about this in the next chapter where we compare the costs for traditional vs. full cloud computing.

CHAPTER FIVE

PREPARE AND COMPARE THE IT BUDGET

In this chapter we will try to compare the cost of a traditional on site computer network with servers and PCs to the new full cloud environment discussed in Chapter 4. As you will see from this analysis, right now full cloud computing is not less expensive, but it does not require any initial capital spending either.



In order to do this analysis we will have to make some assumptions, if you want to make other assumptions, you can download the spreadsheet from my website and change them and see what it does to the final numbers. Here are the assumptions we will make today.

TRADITIONAL ENVIRONMENT DESCRIPTION

For our example we will assume that you have an office with 25 PCs and 2 Servers. One is a file server and the other is an Exchange Email Server. You have standard Microsoft Office on each PC and one or two line of business applications such as an accounting package, a CRM or some other custom database.

We will assume that you have an outside IT Support vendor that is charging you \$ 2,000 per month for complete IT Support and monitoring. You also have a good onsite/offsite backup solution that you are paying \$ 250 per month.

You refresh your PCs and servers every 5 years and keep the servers under full manufacture's warranty the entire time that they are in service. We also will assume that you keep your systems protected with current anti-virus software and you protect your email from viruses and spam with email filtering.

The scenario described above shows a company who does all the things they are supposed to do to ensure a smooth running network. Companies who do these things typically do not have to worry about their IT needs, they pretty much rely on their IT vendor to take care of everything.

Here is a table showing the cost of all of these items that we will be including in our model of the traditional PC network.

TRADITIONAL PC/SERVER NETWORK ASSUMPTIONS

1	File Server Price – including software	\$6,500
2	Exchange Server Price –including software	8,500
3	PC Price – medium performance	700
4	Price per server per month for support	300
5	Price per PC per month for support	70
6	Monthly backup system price	250
7	Monthly email filtering per user	2
8	Yearly Anti-Virus subscription – 25 users	650
9	Life of a Server and a PC	5 years
10	Life of a dumb terminal or old PC	8 years
11	Price of a dumb terminal	\$ 300

COST COMPARISON ANALYSIS

TRADITIONAL SERVERS / WORKSTATIONS

<u>Monthly</u>	<u>Prices</u>
Managed IT Support Services - Servers	600
Managed IT Support Services - Workstations	1,750
Monthly Price of Server	404
Monthly Price of PCs	77
Office Space Cost - Servers	18
Power Costs Servers	30
UPS - Power	13
Monthly BDR	249
Microsoft Office Monthly	4
AVG Monthly	83
Totals	\$ 3,229
Monthly Per PC Price	\$ 129

CLOUD SERVICES MONTHLY

	<u>QTY</u>	<u>Monthly</u>	<u>Total Monthly</u>
Flat Monthly Fees	25 PCs @	\$ 200	5,000
Hosted Exchange	25 Users @	10	250
Redundant Internet Service	1	120	120
Price of Terminals/ old PCs	25	3	78
<hr/>			
Total Monthly		\$	5,448.13
Total Monthly per PC		\$	217.93
Difference Monthly		\$	2,219
Difference Monthly per PC		\$	89
<hr/>			

As you can see from the analyses above the cost of the traditional onsite Computer network including full support from an outside IT Support firm will cost about \$ 3,300 per month. And the Full Cloud model will cost about \$ 5,400. You of course can change any one of the variables and change these numbers. The biggest number that is open to change is the price per PC for the full cloud solutions. I have assumed \$ 200 because I have not heard anyone charging less for this for full support and all the virtual machines and software etc.

The other big conclusion, at least at this time, is that factors other than financial will be motivating the early adopters of cloud computing. Companies who want to jump in to full cloud computing now, will most likely be motivated by the need to tie everything together with easy access from multiple remote locations.

Companies who have a large percentage of their staff operating in remote locations and not working in the main office regularly will see the benefits right away. Everyone will be able to have their same desktop with access to share resources no matter where they are. It will function just like an office network where everyone is in the same place. They can have this access from home, from the road, at a diner, on the train, on vacation or anywhere else that the internet is available.

This will be particularly attractive to new startups or companies who are moving their offices. If you are in this situation, you are able to rethink the entire office model. The old model where every employee reports to the office is starting to become outdated. One of the original reasons that business were run this way is because all the resources could be gathered in one place and people could all work together with them. Now, with cloud computing, this is no longer necessary.

Once you drop the idea of creating a place for every employee in the office you can greatly reduce the monthly expenses to more than offset the added expense of full cloud computing. If you can make your new office 2,000 square feet instead of 4,000, you can save half on rent and utilities.

Our company is not even using full cloud computing just yet, but we are operating like this. Our office is about $\frac{1}{2}$ the size it would need to be if everyone worked there. As I am writing this book now, I am saving the work on my hard drive at home, which is automatically synched to the cloud drive. When I go the office, I can pick right up where I left off. Our full email capability is available from anywhere. I can access my own PC from anywhere, our telephone can also be located located anywhere.

I often have to travel to the Caribbean for business and I always bring my laptop and my Cisco IP phone to plug into the hotel internet. I have my office phone and full access to my programs, files, email and calendar right there in my hotel room overlooking the ocean. Of course at the end of my trip, I pack it all up and set it back up in my office in the basement of my Pennsylvania home with no view. If I get tired of that, I can take my ipad and phone out on the deck and work with a nice view of the farms. When I need to meet with the guys, I can always take the hour drive and go to the office and work on any open desk there as well.

In summary, you can see that this business of calculating the costs can be a bit tricky and you need to count all the costs. You may even need to rethink the whole setup of how you get things done and how you and your staff work together. Even if you don't go for full cloud computing you can still use this technology to radically change the way you and your staff live and work.

CHAPTER SIX

SECURITY

IS IT SAFE TO ACTUALLY STORE MY DATA IN THE CLOUD?

Security is a big concern for any form of cloud computing. You will be asked to take all of your files and records and store them in someone else's computer system. You will not own the computer system and you will not usually be able to see it. At some level you have to trust the



company who will store your data to protect it properly, but there are things you can do and questions you can and should ask.

There are 4 basic security risks you face in any computing environment:

- 1 Unauthorized people will see your company data
- 2 Unauthorized people will see your customer's data.
- 3 Your data will be lost or corrupted.
- 4 Unauthorized people will use your resources.

In cloud computing these risks increase for the following reasons :

- 1 Shared resources – your data is on the same hardware in the same building as many other companies. Because many companies data is at the one cloud provider's site this site is much more of a target of attack than your company alone. If someone can crack into this computer, they can get access to a lot more information.
- 2 Public networks – since all of your data will now be moving back and forth between you and your provider over different networks, some public and some private, your data is at risk of being compromised as it travels on the networks.
- 3 Loss of Control – once you move all or part of your systems to the cloud you will have to rely on many vendors to do their part in securing your data.

Even though you will be outsourcing operations to a cloud provider, you will still need to have policies and procedures in place to ensure security. You will need to work with your IT services company to choose password complexity, change of password policies and access permissions.

Ultimately security of your company data is your responsibility, you should not simply rely on a provider to do it. You should rely on them to do what they say they say that are going to do but you need to ask the right questions and get the right answers.

Here are some questions you can ask any cloud services provider :

- 1 Who will have access to my data, how many different people will be able to access it? Are the administrators with access at your company or a third party or both? What about the third party? What access do they have?
- 2 What about regulatory and industry standards compliance? Does the provider's system comply with all of the things you need to comply with?
- 3 Encryption – what kind will be used? Has it been tested? Is the data encryption protecting the data all along the path to and from your provider and your end users? How?
- 4 Data Location – Where is your data actually located? How many different places? Are they in the US ? If not, what are the ramifications of that – do you lose or gain privacy from government or other access to your data?
- 5 Recovery – Is there redundancy in the system? Do not assume this – most will have it, some will not. Is the system backed up regularly? What is the exact procedure to restoring the system? How long will it take to restore service in the event of major crash?
- 6 What happens if the Cloud Provider goes out of business? - The cloud provider won't be of much help here, you have to walk yourself through this scenario and plan for it. This can happen to big companies and small companies and when it does, they won't care about you and your problems. This is why I always recommend that you have copies of your data on hand somewhere at all times – backup the backup. You should have your IT provider document this process and think about what will happen ahead of time. It may never happen, but you never want to put yourself in a position of relying solely on one resource.

There are many more issues and details that we could get into concerning security and backup, but this is a start. You will need to have your IT Provider explain all of these issues to you until you are comfortable that your data is secure.

CHAPTER SEVEN

IS THE COMPUTER INDUSTRY REALLY GOING THIS WAY ?

OK, this is a big question and at the risk of being completely wrong, I will weigh in on it. The answer is yes, it is going this way. I do think, however, that it is moving very slowly toward full cloud computing.



What I will call partial cloud computing, as discussed in chapter 2, is actually being adopted very quickly and I am already seeing many implementations of these services in small and medium sized business in our practice. In fact, we offer all of these services and feel that they are a good fit for many of our customers.

On the other hand I have not seen even one implementation of full cloud computing in our area. That does not mean that companies are not doing it, they probably are, I have just not run into any yet. I have proposed it to a couple of prospects but they have decided against it. That may be a result of my half-hearted proposal and my own belief that it was a higher priced solution.

All of the tools are available now for full cloud computing and there are companies who are specializing in providing these services. You can see that if a few things change it could take off. In my opinion it is the price that is holding things back. Right now, when you do the analysis for small and medium sized businesses, it is still more expensive. When you combine that with the loss of control, it is a pretty big road block to most small business owners.

One big change that will move things in this direction will be if smart phones, iPads and other tablets can be “docked” to devices with full keyboards, monitors and mice. If users can simply plug their smart phones or tablets into a docking station and then access a full virtual PC running somewhere else, I think that will make a big difference.

There may still be an interim step of companies having their own servers to host the virtual PCs, servers and data. In this scenario the businesses would still own the servers, software and databases, that the smart devices connect to, but the PC on each desk would be gone.

The products to accomplish this are just about all here now. A good docking station and some apps to attach to the virtual PC in a seamless way are all that we need. Even these probably exist in some fashion.

Once this happens, it won't even matter if some companies want to host their servers and some want to completely outsource it. It will work the same way. Price, the business owner's preference and the nature of their business will be the determining factors.

So, yes it is coming. It may be several years yet because of the installed base of traditional servers and PCs and the fact that people do not like to make large changes without a certain degree of comfort that it will all work as promised. We will need a few years of success by some early adopters before everyone jumps on.

I actually think that is good. There is no business purpose to change something just because it is possible. If making the change is not going to make business more efficient, save money or make money, going slow is OK. Once it becomes apparent that this is the better, faster cheaper way to go, of course everyone will be in. That may take over 5 years but I think it will happen.

CHAPTER EIGHT

CONCLUSION

As you have seen in the preceding chapters, Cloud Computing is a growing industry. It is an outgrowth of the new technologies that have been expanding as the speeds of the internet are increasing.



Things that were not possible when internet connection speeds were 256k are now very possible when speeds are in excess of 25 Mbits.

As software, hardware and services companies respond to these new possibilities, new choices for business owners are becoming available. Many new ways of meeting your IT needs are already ready for regular use. Some others are still a ways off, but things are changing very quickly.

For now, it is my opinion that Cloud based backup, hosted email services and cloud drive services are ready and economical for implementation by any business today. Full cloud computing is an answer for some but I am not quite ready to say it is a good economical answer for every business. It may get there soon, but for now I would say it is a good solution for companies with geographically scattered staff, but companies with most of the staff reporting to an office, I think the traditional approach of on site servers and PCs is still the best most economical way to go. Of course that may change in less than a year, making this part of the book ready for an update.

I hope you have enjoyed reading this short book about Cloud Computing and I hope it helped you to understand the various choices you have in meeting your business' IT needs. If you would like to talk to me or have us come out and evaluate your business IT needs please give me a call or drop me an email. I would be happy to meet you and see how we can help you.

**DON'T TRUST YOUR COMPANY'S
CRITICAL DATA AND BUSINESS
SYSTEMS TO JUST ANYONE!**

**THIS BOOK WILL HELP YOU
KNOW WHAT EVERY BUSINESS
OWNER NEEDS TO KNOW ABOUT
CLOUD COMPUTING.**



ABOUT THE AUTHOR

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- The 5 cloud based services you can implement right now
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- How to make sure that you get good support for whatever solution you choose
- How to compare the costs of cloud computing vs traditional on site computing
- How to make sure your data is protected and secure
- The 7 key requirements for complete backup system



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