Cloud Computing

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Is it fog or just a low hanging cloud?

The impetus to explore the three topics in this article arose out of the article on contract administration software recently issued by the CCAC. Some of the software packages mentioned in that article are Cloud based or rely on the Cloud for some, if not all, of their functionality. The concepts and issues raised in this article are not only applicable to the use of CA software, but to any software that uses the Cloud.

Software does not exist in a vacuum, it requires a certain operating system, specific hardware, and possibly a specific network or internet connection. Understanding the implications of choosing a software application that operates in the Cloud, an understanding of what the Cloud is, is essential. This article should be read in conjunction with the one on CA software, and the article on Collaboration software.

Is There a Cloud on Your Horizon?

More and more, the computer industry is promoting the Cloud. In the time since this article was first drafted, there has been a ten-fold increase in media references to the Cloud. What is this nebulous thing called the Cloud and what would you use it for?

This is not a technical nor a detailed explanation, but a very simplified overview. In its simplest form, the Cloud is storage space for your files that is accessed through the internet rather than through a local area network (LAN) or a part of your own computer. A more sophisticated form locates your software on a computer accessed through the internet. A third form locates not only your software, but your operating system on a remote computer.

Examples of Cloud storage include: Microsoft OneDrive, Google Drive, and Apple's iCloud. If you use Google Docs or Microsoft Office 360, you are using software in the Cloud. I am not aware of any operating systems in the Cloud yet, but Microsoft is apparently developing a version of Windows that will be there.

An advantage of putting your data in the Cloud is that anywhere you have an internet connection, you can access your data. You may have created a document on your office PC, but you or other authorized users can access it on any compatible device. E.g. PC, tablet, smartphone.

An advantage of using Cloud based software is that all your customizations, options, and settings are available wherever you use the software.

Another advantage is that someone else is responsible for buying, installing, and maintaining the hardware required and for backing up the data. There may be tax advantages to replacing capital investments with operating costs.

Using the Cloud could mean seamlessly preparing change orders or supplementary instructions and distributing them before you leave the construction site; electronically reviewing and marking up drawings in the field so someone in your office can make the changes by the time you get back; or using someone else's computer if your tablet's batteries die.

The Cloud is not going to dissipate any time soon, in fact it is getting bigger, more sophisticated and more capable. Developers are creating Cloud-based versions of all types of software. As positive as many aspects of the Cloud are, Adobe's recent server failure that took some of its' Cloud software offline for 24 hours preventing users from accessing their data shows that the Cloud is not without its problems.

The Cloud and Net Neutrality

The principal of net neutrality has been part of the Internet since its inception. Stated simply, net neutrality means that all packets of data transmitted over the Internet are treated the same; nothing is given priority over anything else. This principal is under attack in the US where the authorities are considering proposals from major Internet traffic generators want their data to be given priority.

A recent survey showed that in the 7 pm to 11 pm time slot, Netflix accounted for 34% of all Internet traffic in the US. Streaming audio and video data is time critical. If the stream is delayed, the music and movies stop until the buffer fills up again. This is annoying to listeners and viewers. Such is not the case for text files or still images. Obviously, the experience of consumers of streaming content would be improved if the packets carrying their content were given priority so delays and interruptions did not occur. Much of the rest of the internet would notice somewhat slower load times or would wait longer for downloads to complete.

Streaming content suppliers could be expected to pay more for priority access, so Internet service providers would expect to generate more revenue. Ultimately those paying the most money would get the fastest service.

The question is, what impact would the loss of net neutrality have on accessing large data files in the Cloud or on the responsiveness of Cloud based software? Productivity studies show little loss of productivity if delays are less than ½ second. If the delays are longer, the mind wanders, focus is lost and productivity drops. Each firm will have to weigh for itself the potential impact changes in net neutrality may have on the utility of the Cloud.

The Cloud: Rain or Shine?

No one had heard of the Cloud until just a few years ago. Now it seems that everyone wants us to trust the Cloud to access our programs and our data – anytime, anywhere. The Cloud is spoken of as though it was a single entity, something you could see if you just opened the right door in the right building. In reality, it is an apt reference to clouds in the sky, nebulous, discernable; but as hard to nail down or put in a nice box.

For many, Cloud based data and software programs offer an attractive proposition; others couldn't care less. Before you commit to or reject reliance on the Cloud for critical business activities, there are some issues that should be considered.

Pros

1. You can access your information anytime; if you don't mind working all the time.
2. You can access your information anywhere; that is, anywhere you have an internet connection.
3. You can access your information on computers, laptops, tablets and smartphones; that is, if the software you need is available for the hardware you have.
4. You don't have to buy or maintain the server hardware.
5. You don't have to install, configure or maintain server based software.
6. You don't have to purchase a really high speed internet connection.
7. You don't have to spend time backing up your data.

Cons

1. You don't/can't schedule maintenance downtime to occur when convenient to your projects.
2. You are dependent on your internet connection to access the software and data in the Cloud. If your internet connection goes down you can't work.
3. You may have to change hardware platforms to access the Cloud depending on what the software was written for (Windows or iOS or Android or Blackberry).
4. You don't/can't control the hardware/software upgrade cycle to occur when convenient to or required by your workload.
5. You don't have control over your data.

Issues

1. Depending on the bandwidth of available internet connections, performance may be glacial.
2. Where is the company providing the Cloud service located?
3. Are the servers owned/operated by the company providing the Cloud service or do they just rent capacity from someone else?
4. Where are the servers located? Are they in the same country? Are they on the same continent?
5. Are there backup servers that will take over automatically should the primary location be hit by fire, flood, earthquake, power failure, or civil unrest?
6. Are the backup servers in a different location so that they are not compromised by the same event that took the primary location off-line?
7. How long will it take for the backup servers to come on-line?
8. How current will the data on the backup servers be?

9 If the company providing the Cloud service closes its doors:

   A How do you get access to your data?

   B How long will it take to get access to your data?

   C Do you have a standalone version of the software that you can use with your data if the Cloud evaporates?

   D Is the data in a proprietary format or in a format you can import into a different application?

10 If the company providing the Cloud service doesn't pay its bills to the server operator:

   A How do you get access to your data?

   B Do you even have any effective rights to your data if you have no contractual relationship with the server operator or if they are in a different jurisdiction?

   C How long will it take to get access to your data?

   D How long before the server operator wipes the hard drives and overwrites the backup?

11 If the companies involved are in different jurisdictions can you afford a legal battle to retrieve your data?

12 If the companies involved are in a different country, do you speak the language?

13 Is the data accessible in a timely manner in order to defend a law suit?

14 Have you developed a workable plan to carry you through any period during which your data is unavailable.

15 Would loss of access to the data put you out of business?

16 How long is your agreement with your provider valid for? How are increases in storage and access fees determined?

17 If you stop paying to use the software what happens to the data you've put in the cloud? Can you pay for them to continue to store it? Do you want to?

18 If you decide to mirror all your data on your own server, what costs are involved and can you access your data in a meaningful way without using their software or do you only have access to PDFs of issued documents?

Conclusion

The Cloud is still in its infancy, and there are going to be teething pains. It is unlikely to go away with major players including Microsoft looking to the Cloud as a primary source of revenue in the future. As long as it works, the Cloud offers a number of enticing and valuable features. These features are front and center in the current advertising of Cloud enabled products. What is not often discussed and may be difficult to find are answers for are the issues noted above.

I am not recommending either the use of or the avoidance of the Cloud. I am recommending that you understand some of the risks involved and have a backup plan in place before deciding to trust the Cloud with what could be critical data. Only you can judge the risk/benefit equation for your business.
