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Cloud Computing: Do the Dangers Outweigh the Benefits?

Cloud computing has become a beacon of popularity as many consumers are making the move from local storage to online server storage throughout the world. Recent advancements in technology have allowed the mass to store personal files on a “cloud,” which is essentially a server that allows a user to access their data anywhere they are in the world from any device. With the move from basic storage to cloud storage, people, as expected, have a tendency to be skeptical on the security of their files, as they should be.

Before discussing the dangers and benefits of cloud computing, defining what the “cloud” is seems appropriate. As previously mentioned, data can now be accessed from anywhere anytime there is a network connection. The main purpose is for a sole user (plus selected collaborators) to keep their files private while having access, yet some developers and hackers have found ways to gather the files and view the private data within.

Storage on your computer or phone is technically what developer’s call “Secondary Storage” because of the way storage works. Every device has at least one type of storage, while computers need two. Primary storage is what is referred to as RAM (Random-Access Memory) and is used when programs are currently running. Every program needs some type of information to run, and the data is stored in the primary storage because it can be disposed of once the application is finished running. This information includes the classes’ variables. RAM storage is only temporary or not stored over long periods of times, does not need to be re-accessed, and therefore is deleted. Secondary storage is what remains after the program is completed, also known as “permanent storage”. Secondary storage holds the information that the user creates and downloads, such as text files and pictures.

Users store many things on their hard drives, in response to the high demand for storage, and its lowering cost in production, advancements in the amount of space provided on computers has increased. Less then ten years ago, computers were shipping with less than 50 GB (gigabytes) of storage standard. With today’s technology, many PC’s come with at least 500 GB or more. As consumer storage demands increase, companies consistently look for ways to satisfy those increased needs. Cloud storage is one of the more popular solutions for that demand.

The cloud has two ends, the user side and the server side. When a user accesses the data from the server, they are usually accessing that information from their network (usually the internet) in a web browser. This factor has allowed computers to be more powerful without putting all the stress on the processor. Since the user is only accessing the information from a web page, the server side of the cloud handles most of the pressure of the day-to-day computing. (Strickland 2014)

The shift from local ‘power’ to network power can be a great tool for consumers. If the user is constantly connected by phone or wireless Internet, the devices they carry will not need the large amount of speeds or storage. Consumers no longer need to purchase computers that cost thousands of dollars with many features enhancing user’s ability and storage; costs are driven down because of this change in technology. Some companies took note of this and released even lighter versions of computers, which they call tablets. Devices like the Chrome Book or iPad are examples of increasing user portability and reliance on the cloud.

The benefits of cloud computing are really substantial from a business and consumer perspective. Users may access their data at any time without the need to be on the same machine each time they wish to access that one file they need. With the mobile productivity in many businesses increasing, employers are looking for ways to allow their employees access to the information they need when they need it.

Virtual Private Network’s (VPN) were an initial solution, but may have proved to be less effective then cloud storage. VPN’s are another way of accessing data through the network, but they connect one machine to another, potentially resulting in slower data transfer times and reliability. This operation generally requires both machines to on (usually having the machine with the stored files powered on constantly). This operation could cause long wait times if both machines do not have sufficient network speeds and slow processors.

Cloud computing has allowed users to have access to the data on their hard drive anywhere, at anytime without the need for a VPN. The data is stored on a company server that with more-than-proficient resources allowing users access without most limitations of speed and reliability. With cloud storage suppliers such as Google Drive, DropBox, and OneDrive reliability is no longer a question, but an expectation. With anytime access, employees and consumers don’t worry about server-side access to their personal data and files.

There’s always a flaw in the system. No matter the system or the provider a client chooses, there is always a catch. All systems share the same vulnerability. Though some may protect it better than others, the threat still exists. When information is stored on a server that is not owned by the user, the information is easier to steal en masse.

The threat of hacking and the reclamation of personal data are very prevalent in the world of cloud computing, but not many are aware of the dangers. Target Inc. had their servers hacked, compromising the personal information of Target customers and employees alike. This fiasco was a real eye opener to many businesses, and the reality of storing financial information finally became known. 40 million people had to renew their financial information because of this hack (Riley 2014). Many news sources mentioned how online stores should tighten their security to prevent future attacks; however, people are still looking at file storage the same way as before. The potential for users to become victims and hacked is directly linked to users increased dependence of online storage.

A commonly used analogy in the technology world is, “there is sometimes rain in the cloud” meaning storage is not always reliable. The benefits are clearly helpful to the users, but we should not always depend on it. Many things can happen where the data may “suddenly” not be there. Not only due to hacking, but also the threat of an error on the server side that can cause the accidental deletion of important files past all the redundancies. When there is “rain in the cloud”, access may be difficult. In a sense, many more things can go wrong when the owner does not have the files on local storage. The user may not have a network connection; the server may be undergoing maintenance, or a plethora of other reasons why the server could not be working. People are not perfect, thus the machines they create are not perfect either.

Do the benefits outweigh the threats? With a few exceptions, the benefits are helpful, but at the time of this writing, cloud storage should be used as sparingly as a portable Universal Serial Bus (USB) memory chip. The server should only be used as a backup for information instead of a dependency for a persons’ every file. If the user needs the files remotely, they should still maintain a backup anyways on local storage.

There are a few reasons why cloud storage should not be adopted quickly. Online storage provided by companies is usually not cheap and require a monthly fee. For most users, when money is involved they turn the other way. When a service is free, however, more customers are likely to initiate a trial of the capability. Google offers their Drive system for free with the users Google account. With the account, every person gets 15GB of free storage. From there, users have the option to increase the storage with a monthly fee.

In an attempt to gain more users, Google lowered the prices on their monthly upgrades quite substantially. This decrease is partly in response to DropBox, but the competitive market is very beneficial for consumers. According to the Wall Street Journal, the war is just a game. The game is summarized in a quote by the writer of a related article: “The company that can build the largest, most efficient data centers the quickest will be able to offer the best cloud services at the lowest prices to consumers, developers and companies” (Barr 2014). The issue with these large servers, however, remains the same. Once a hacker gets access, everyone is potentially compromised.

In an effort to expand protection for their servers, as well as introducing application program interfaces (API) to guide 3rd party developers, cloud companies such as Google are perpetually creating new products for their market. To maintain the ‘household name’ that the company has, they have kept up to date on offering cool tools to keep the publics’ mind fresh. Many productivity apps on both Google Play and the App Store use Google Drive for users to access their documents. Also, Google released their Cloud mySQL program that allows for SQL databases to be stored on their servers with minimal code following suit to Amazons related server release (YeguLalp 2014).

As the business of cloud computing increases, so does the protection of the consumers that plan to use it. The aforementioned Target incident was not the first, nor last, hack attempt on a large network. There is almost always a way to gain access into systems because no system is perfect. Dropbox, for example, looks at online security as their “highest priority . . . using the best tools and engineering practices available” to protect their customers (How Secure Is DropBox).

With the increase in security for these providers, I see a great opportunity for cloud services in start up businesses. With the tools that providers offer, businesses can buy only what they need to and when they need to. Upgrade options are available at any time for a small monthly fee (depending on how much they need). The service has such a great scalability due to the ability to expand for a very small amount. As mentioned before, Google offers 15GB free, and then charges only a few dollars for the first 100GB - the perfect amount for some startups with a necessity for accounting and asset keeping records.

With rates offered, the cloud-computing concept should go viral in the small business community. Every company should use it, because even though there is a slight chance of a hacker gaining access, the server the information is stored on is much harder to get into than a personal computer. With all of the business documents on a computer, if anything were to happen to that computer (hard drive gets stolen, coffee gets spilled into motherboard, etc.) no backups would be readily available. With many providers, they offer the ability to locally cache all documents in a file on the computer, as well as update the file in the cloud: ensuring the most up to date version is kept.

MiraCosta would benefit from incorporating the cloud. The cloud should be embraced now, because the idea will only evolve despite our feelings of security. As a student, we forget to print things out, we are not home to access our files, and even, we forget pages at school. Implementing the cloud would benefit not only the students, but the teachers as well. The school would save money from printing costs, as will the students. If everything was done online (document wise) we can save more trees than exist on the school property (by far).

The cloud benefits for the school does not just stop at file collaboration, but even remote file transfers and live video conversations used with software that can be found on 3rd party servers. I personally think that TeamViewer should be a registered asset of MiraCosta’s computing department so students can collaborate on group projects while they are not at school. This would save faculty and students alike gas money, and travel time. With some software, students can all be in the same room although they are across town, or even, across the country. Our consumerism is naturally driving down the path of cloud computing and the time to transfer is just around the corner anyway. Why not be the forefront leaders in the technology-school revolution and implement cloud storage next semester?

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