What is “Cloud Computing”?

“Cloud Computing” has become a new buzzword in recent years. But, what exactly does it mean? In general, “the cloud” refers to the internet, and logically “cloud computing” means computing through the internet. In all instances of the term’s usage, “Cloud Computing” has been used to refer to pay-as-you-go services over the internet, used to replace personal hardware and software. With cloud computing, a user does not have to spend money on a large hard drive to store his files. Instead, he can store his files on a remote server, and replace some of his personal hard drive with storage in the server. Whenever the user would like to access his file, he could download it, and when done, send it back to the server, and not need to hold it on his hard drive. Email is a primitive example of the cloud-user system that cloud computing is based on. Emails live on a server, and can be called down from the server to read on your computer. In fact, email attachments work in the exact same way as cloud computing. A file attached to an email is simply an alias to the file on the email server. When the user wants the file, he can download it. When he no longer needs it on his computer, he can delete it, and it will still be saved “in the cloud.” Some people even send themselves documents through email, which is essentially cloud computing.

There are three main advantages to cloud computing. The first two are closely related: conservation of personal storage, and cost efficiency. By using a remote server to hold a user’s files, the user no longer needs to use his personal hard drive for storage of those files. Furthermore, not needing to save one’s files on their own hard drive means they do not need to invest in a large hard drive. In some ways, the concept of cloud computing is similar to that of socialism. As in socialism, the advantage to cloud computing is that the cost is shared by all the users. For the individual user - - the “citizen” in our analogy – the cost of a subscription is significantly cheaper than the cost of owning personal storage on a hard drive. In addition, the users’ subscription fees allow the company to keep their servers up to date and in maintenance – something the average user may not be able to allow himself monetarily.

The third and final main advantage to cloud computing is very similar to that of email: the ability for users to work together, sharing files, over the cloud. Suppose two students were working on a research project together, and they had to share documents that contain their sources, their notes, and their paper. Without the internet and cloud computing, the students would have to share a flash drive, or give each other a flash drive every time they made a change to the document. This would be tedious and close to impossible unless the students saw each other often and lived close to each other. In the corporate world, often people have to coordinate work on a document across not only from far distances, but across multiple time-zones. Cloud computing solutions are getting better and better as time goes on to make multi-person cooperation easier than ever before. Traditional cloud computing techniques had users emailing documents to each other, but now users can automatically refresh documents in an online, shared folder. Relatively recently, Google introduced a new cloud computing concept in which a user could edit a word processing, spreadsheet, or presentation document live with other uses at the same time. This way would allow other collaborators to see the edits you are making, in live time, on the screen, preventing the possibility of two users making the same corrections at the same time, or the document merging into two different versions at the same time.

Most concerns involving cloud computing, on the on the other hand, have to do with security concerns. Cloud computing security concerns fall on two fronts: physical and virtual. “Physical” security concerns have to do with the security of the data center, and preventing somebody from getting physical access to the servers containing user data. “Virtual” security has to do with protecting the user’s connection (over the internet) to the data center, including virtual aliases to the files on the server. It is in the interest of the cloud computing service provider to ensure the safety of its users. Most cloud computing companies implement physical security in the usual way: by locking and guarding their servers, in addition to requiring background checks on their workers. The implementation of virtual security is also fairly standard such as password protection and encrypting data. In addition, cloud computing companies have taken measure that will alert them in case of a security breach, and they have set up their data storage in such a way that in case of a security breach, data loss will be minimal. Cloud computing companies have put great effort into protecting the security of their users’ data.

The term “Cloud computing” refers to a computing method in which the user saves files on a remote server. Advantages to this method include the conservation of personal memory space, cost efficiency, and cross-user collaboration. Disadvantages include security concerns that could potentially compromise user data. As long there will continue to be multiple service providers for cloud computing, the viability of security concerns will be prevented by market completion in our capitalist society. Users must continue to insist on secure solutions in the greatly expanding field of cloud computing.

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