Technology Trends: Cloud Computing

On schematic diagrams of computing architecture, the Internet is often represented as a nebulous cloud. Cloud computing allows users to work on files housed on the Internet without having to know where they are or even what program they are using.

In cloud computing, information is permanently stored in servers on the Internet, and occasionally downloaded for manipulation, then uploaded to its permanent home somewhere in the cloud. Rather than buying a software program to do the work, users just use the programs provided in the cloud.

Cloud computing offers many benefits. Among them are low cost, amplified computing power, the ability to collaborate without worrying about location, and the ability to work from anywhere without carrying a computer or files around.

Cost

- With cloud computing, there is no need to buy software because it lives in the cloud.
- Cloud computing also eliminates the need to locate server space or, for larger projects, computing power. Some universities have begun leveraging the flexible use of cloud computing rather than buying supercomputers for research. Peak demand periods are not an issue because the amount of server space and computing power is elastic, not fixed.

Collaboration

Cloud computing is especially well suited for scholarly writing, such as articles with multiple authors, because multiple users have access to the same document. Instead of e-mailing around copies of a document, which then must be incorporated into the original, with cloud
computing, the ?original? document is housed online and periodically revised by any authorized user. Authorized users can also post meetings to a calendar, develop budgets, contribute to grant proposals, and build websites.

**Cloud computing providers**

Google has aggressively gone after university business and is the best known clouding computing provider. Google Docs offers word processing, presentation-building, and spreadsheet tools that mirror Microsoft?s Office suite of software. To use Google Docs, you will first need a Gmail account. It is the basis of everything you will do on Google Apps and will enable you to easily communicate with collaborative team members on your project.

Microsoft has its own group of cloud computing tools, also free. This in theory makes it possible to avoid buying Microsoft Office software, but most PCs come loaded with it anyway. Other cloud computing providers include Zoho and Amazon.

**Security and privacy**

There are two ways to look at the security and privacy of cloud computing. On one hand, the keepers of the servers, being in the business of providing server space, will have well-maintained firewalls and virus detection in place. They will most likely have multiple copies of users? data, so disaster recovery is not a big worry. On the other hand, these providers, the location of the servers, and the laws governing data are usually unknown to the user, so don?t trust them with the keys to your palace.

If you use any of these applications, be aware there are a few issues associated with it, and take precautions. Keep backup copies so that you can reconstitute the data if your provider should lose it. This is very unlikely but a sensible precaution nonetheless.

If your data are highly sensitive, be aware that the laws on privacy and security of these files are still being written. Who owns the data? Who has the right to use them? The answer depends not on the law but on the user agreement you accept when creating a username and password. There is no bill of rights for cloud computing users as of yet and certainly no international understanding on this issue. As of now, files stored on servers belonging to others in the US are more easily issued subpoenas, for example, than your own.

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