

# Cloud Computing: Is “Going Green” the Way to Go?

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Many businesses are producing green technology in an effort to protect the environment. Cloud computing is promptly emerging as a reduction in energy resources and conserving our natural surroundings (Khurana, 2011). A study done by the Carbon Disclosure Project (CDP) predicts that American companies using cloud computing will be able to save \$12.3 billion in energy bills by 2020. Several cost savings can be made by using cloud computing and reducing energy resources ("Cloud Computing Hailed," 2011). Security continues to be a major issue with the usage of the internet, especially with the growing popularity of social networking being used in business marketing and media outlets. As data security and privacy concerns increase with the usage of the internet, is cloud computing the right choice in conserving our natural environment? These concerns will need to be weighed heavily with each individual or business as the usage of cloud computing continues to grow.

What is cloud computing? Cloud computing in simple terms is nothing more than having a computer type device (i.e., laptop, phone, television, desktop computer, server, etc.) that has the capability of being connected to the internet to access any type of data. The definition stated by *searchCloudComputing.com* is anything that involves delivering hosted services over the internet. Cloud computing is different from conventional internet hosting. This means that cloud computing is shared by many users, whereas conventional hosting is on a dedicated or single server. Cloud computing is considered a service that is provided by another party and not a product. "Cloud computing is sold on demand by the minute or the hour; it is elastic which means a user can have as much or as little of a service as they want at any given time; and the service is fully managed by the provider" ("What Is Cloud," 2007). With elasticity, the user has the ability to be on the cloud whenever or wherever he or she wants with no

constraints as long as internet is accessible. The elasticity allows for easier management of your data with access at your fingertips.

The cloud service can be public, private or hybrid. A public cloud, such as Amazon, sells services to anyone on the internet. This type of cloud is available to anyone with access to the internet. With a private cloud, access is limited either to a specific business managed in-house or by another party. "A private cloud is a proprietary network or a data center that supplies hosted services to a limited number of people" ("What Is Ccloud," 2007). Hybrid is the combination of two or more clouds, private or public. A hybrid cloud allows data to be moved between systems or clouds. This means that the hybrid cloud consists of at least one of the mentioned clouds, i.e., public and private which a partnership has been formed among two or more businesses. Whether private or public, cloud's goal is to offer simple, balanced access to computer resources and information technology services ("What Is Cloud," 2007).

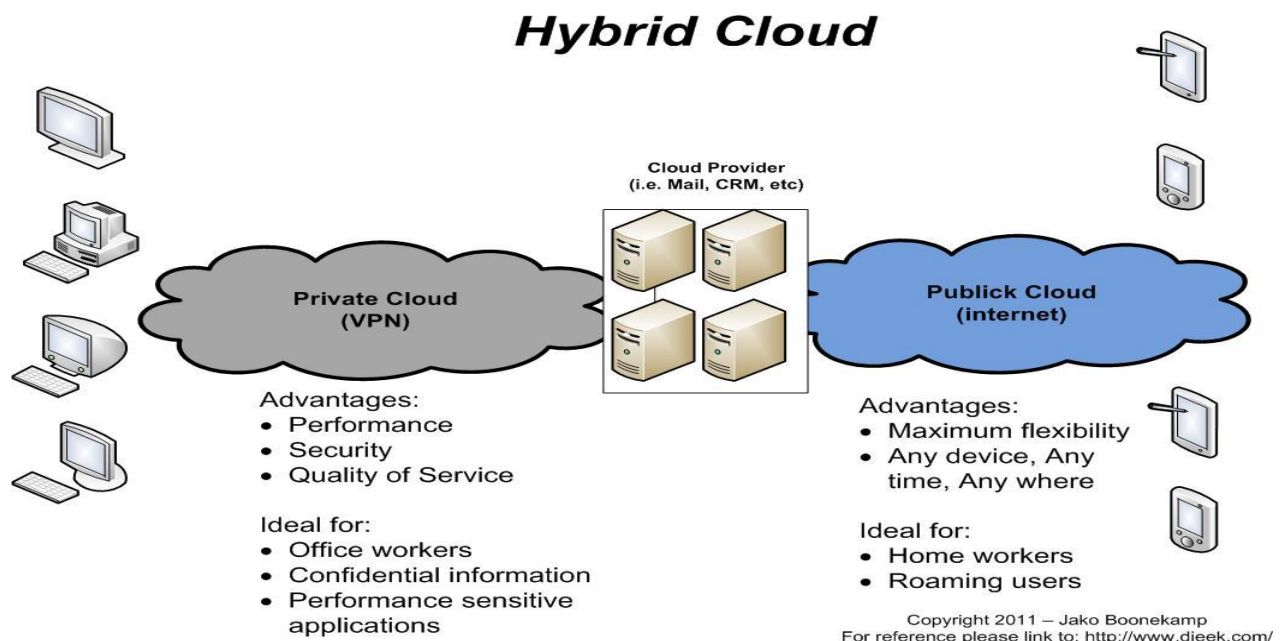


Fig. 1. Hybrid Cloud

Source: <http://www.djeek.com/wp-content/uploads/2011/02/Hybrid-Cloud.jpg>

There are many benefits with cloud computing. These benefits include accessibility, reduction in costs and space, and conserving natural resources. With cloud computing, clients have access to their data anywhere and at any time. This access includes any computer linked to the internet. The data is not limited to the hard drive on a user's computer or the network. In that cloud computing is virtual through the internet, this reduces the costs of upgrading systems with the fastest and newest technology available. Since there would be less need for upgrading, cloud also reduces the need for additional space for new computer systems. With less need for technological system upgrades for the business, this will in turn reduce the power consumption used.

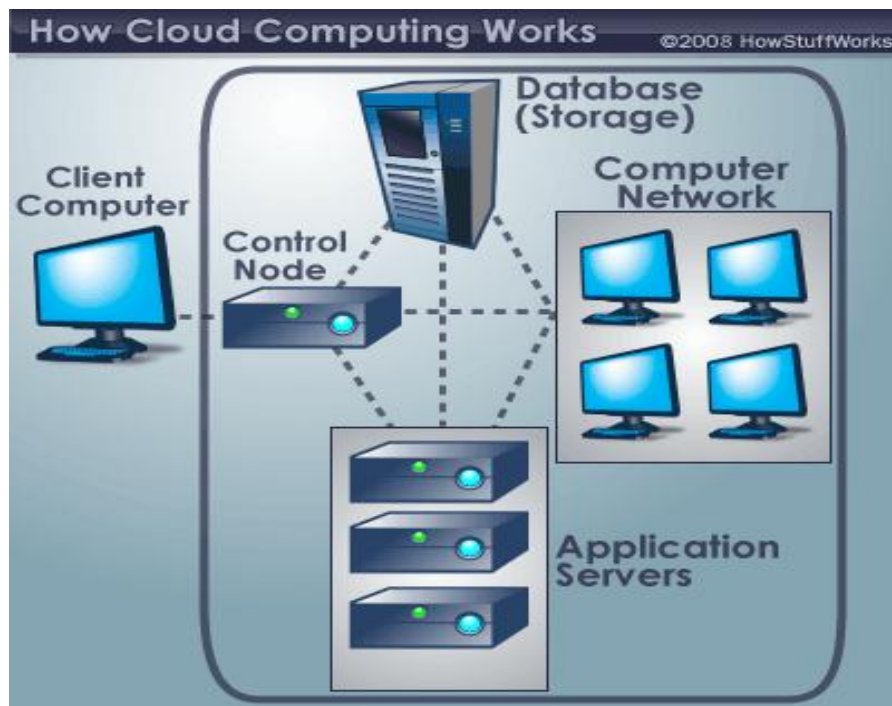


Fig. 2. How Cloud Computing Works

A typical cloud computing system includes a master control server and several storage servers.

Source: <http://static.howstuffworks.com/gif/cloud-computing-1.gif>

With the reduction in power consumption, costs and upgrades, does this mean that cloud computing is better for the environment? Obviously, the software and hardware that a client would normally purchase to upgrade the systems are no longer necessary with cloud computing, and this would reduce the impact on landfills. Even though the reduction in these resources are significant for landfills, cloud computing would still influence the environment due to the necessity for larger data centers. The data centers necessary for cloud computing use an excessive amount of energy. The amount of energy being used comes from the burning of coal, and this causes pollution to the environment (Khurana, 2011). “Since power is the primary cost associated with operating such data centers, businesses choose to locate these centers near cheap, plentiful, and reliable power. For example, *Google’s* data center is located in Portland, Oregon, where inexpensive hydroelectric power is drawn from the Columbia River” (Newton, 2010). Figure 2 below illustrates *Google’s* search in investing and learning about renewable resources, and protecting the environment through green technology.

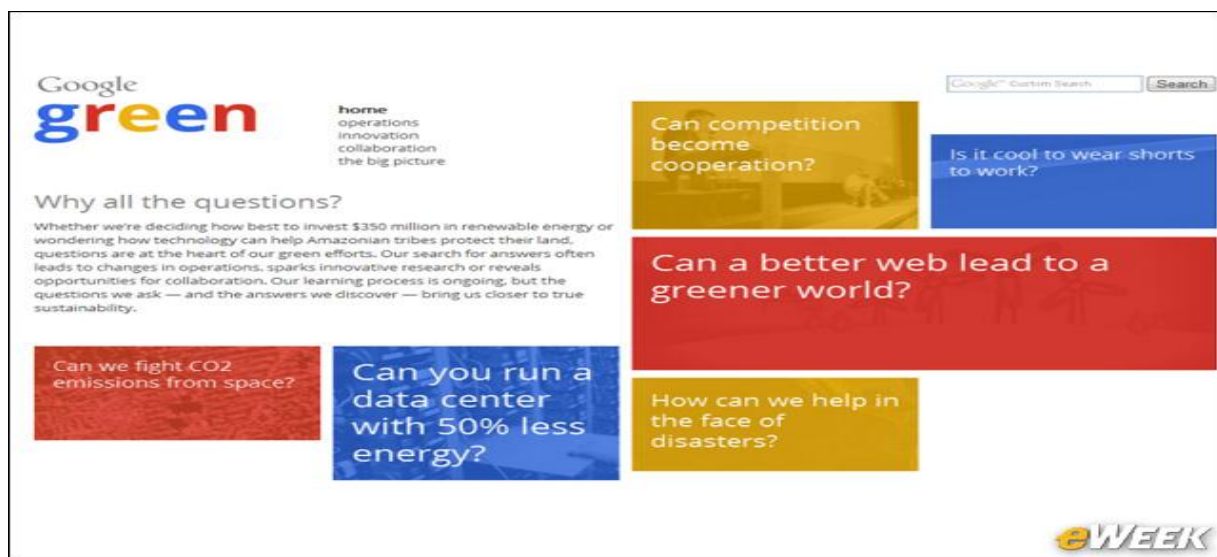


Fig. 3. Google green

Source: <http://www.google.com/green/>

The idea behind renewable energy resources to power cloud computing is straightforward as stated by Sourya Biswas, experienced writer and freelance journalist:

The logic behind sustainable energy resources to power cloud computing is simple: since data on the cloud can be easily moved around, it makes sense to shift it where electricity supply is ideal, or in this case, where maximum wind power is being produced but consumption is less. (2011)

If cloud computing is simple, then what is everyone waiting for? There are still many concerns with cloud computing, especially with data security and integrity.

Even with the benefits of cloud computing, the question most technology experts are concerned with is – “Is the cloud safe?” Data security and integrity are at the heart of all technology advances these days. The standards for the cloud provider’s environment are more likely to be higher than in your business. This is likely to be the case if the provider is accredited, with key industry standards, such as the International Organization for Standardization (Conlon, 2011). With the cloud provider being substantially and monetarily secure, this allows the provider to be in a better position to prevent data and security breaches by hackers or scammers, as necessary.

Unfortunately, there are lingering security issues with cloud computing. A few examples include your data being stored outside of your business network, which may not uphold “local data and protection laws and regulations, the internet connection is unstable and there may be issues accessing your data” (Conlon, 2011). In addition, automatic back-up and high-level

security is not guaranteed with the stored data. There are also several ways to ensure that your data is secure and the necessary precautions are considered in protecting your data.

Although there are security risks involved, there are ways to avoid pitfalls. Conlon suggests that you check into the location of your data being stored and the security measures that are in place from your cloud provider. “Invest in security software that leverages a cloud-based threat protection network, preventing most email and web-borne threats” (Conlon, 2011). In addition, encrypt your data as much as possible to reduce the risks related with any variety of data failure. As with any account, web site, social media or granted access on a computer, always make sure that you have a solid password. All passwords need to be different and difficult to decode from a hacker or scammer.

It is very important for individuals and businesses to do extensive homework before making a move to into the cloud. The decision to move in the cloud will vary for each person or business. All the pros and cons discussed should be greatly considered. “The question of whether cloud computing is good for the environment points to how serious global warming is for the environment. Cloud computing’s impact on the environment actually depends on the true severity of global warming” (Khurana, 2011). Data security is also a major concern in our fast-paced technology environment. Kristi Holland, the co-founder and CMO of *Beckon* states, “At the end of the day, moving to the cloud is a big decision that should not be taken lightly.”

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