For years now, we’ve all been bombarded with fragments of information on the topic of cloud computing. If you are like the majority of the business community, very few business professionals actually understand it, let alone recognize how it can benefit an organization. There are facts and then there are myths, but this white paper has been created to set the record straight and ultimately help you decide whether or not your organization is ready for cloud computing services.
What is cloud computing?

It may be difficult to accept, but an official definition for cloud computing has yet to be established. The truth is “the cloud” is actually just a metaphor for the internet. The cloud is simply a scalable computing resource that uses the internet for external information technology (IT) functions.

To better explain cloud computing, the US Government’s first CIO, Mr. Vivek Kundra, was quoted, saying, “There was a time when every household, town, farm or village had its own water well. Today, shared public utilities give us access to clean water by simply turning on the tap; cloud computing works in a similar fashion. Just like water from the tap in your kitchen, cloud computing services can be turned on or off as quickly as needed. Like at the water company, there is a team of dedicated professionals making sure the service provided is safe, secure and available on a 24/7 basis. When the tap isn’t on, not only are you saving water, but you aren’t paying for resources you don’t currently need.”

Cloud computing is the answer that many businesses and organizations have been waiting for. However, the concept is not entirely new. You are probably familiar with or have used websites like Shutterfly or YouTube. For years now, these services have allowed customers to store, access, and backup files, photos, music, and videos through the internet. Popular web-based email programs, like Gmail, Yahoo, or Hotmail, are all examples of today’s cloud-based applications.

So what’s changed, and why all the hype? Today, large-scale, web-based storage is feasible because it’s simply more affordable. For most of us, our internet connection speeds have dramatically improved. Not to mention, with this challenging economic environment, organizations are continuously looking for ways to reduce costs. With all these factors combined, the perfect recipe for cloud computing has been created, and it’s why the topic is the most talked about innovation in the IT industry.

What are cloud services?

Cloud computing offers three major services: Platform as a Service (PaaS), Software as a Service (SaaS), and Infrastructure as a Service (IaaS). Each of these services creates a concentrated, more organized method of computing.

The first service mentioned, PaaS, allows a company to generate and implement web-based applications without the purchase and use of hardware, software, and other supplies. Originally, PaaS was targeted at independent developers who wanted to maintain their own data centers but didn’t have the resources to do so. Hosting environments that are enterprise oriented are used for application storage, and PaaS now allows for the data centers, when in the past it wasn’t an option. Some examples of PaaS offerings include application development software, application server middleware, data access, data analysis, and data delivery.

The next service, SaaS, gives a company the opportunity to license applications while avoiding the extensive software installations. The software may be internal to a business, delivered by other means, or most commonly delivered over the internet. This is the most mature cloud-based service model. If your organization is looking to standardize multiple business functions, SaaS is an ideal cloud service. SaaS is a good option for your business applications that don’t require a great deal of customization.

Lastly, IaaS can provide your organization with the maximum computing capacity needed without the underlying infrastructure. IaaS provides basic computer networking, load balancing, content delivery networks, routing, commodity data

“With the cloud, individuals and small businesses can snap their fingers and instantly set up enterprise-class services.”

Roy Stephan
Director of IT Architecture and Engineering, Intelligent Decisions

“Cloud computing is really a no-brainer for any start-up, because it allows you to test your business plan very quickly for little money. Every start-up, or even a division within a company that has an idea for something new, should be figuring out how to use cloud computing in its plan.”

Brad Jefferson
CEO, Animoto
As the demand for computing increases, larger amounts of processing power and data storage are required to support important enterprise applications. The shared pool of resources that IaaS utilizes allows allocation on demand of any application. An attractive aspect about the IaaS service is that it utilizes the pay-per-use model. To sum it up, IaaS offerings include servers, storage, and networking.

Any form of cloud computing services mentioned above, if implemented correctly, can provide you with inventive, high-quality competencies that can help to grow your organization.

**What are the types of cloud?**

There are three structures of the cloud, and these include the public cloud, private cloud, and hybrid cloud. The appropriate structure of the cloud depends on the needs of your organization and desired capabilities.

**Public cloud** (also referred to as ‘external’ cloud) describes the conventional meaning of cloud computing: scalable, dynamically provisioned, often virtualized resources available over the internet from an off-site third-party provider. The third-party provider divides up resources and then bills its customers on a ‘utility’ basis. The public cloud has been designed for a market, not a single enterprise, and it is open to a largely unrestricted universe of potential organizations. In this model, vendors allocate hard drive space, RAM, processor power, and other resources on a per-user basis through web applications. As an example, Salesforce.com and ADP are two well-known vendors that offer public cloud computing services. With the public cloud, you can receive unlimited access and unlimited data capacity. As long as you have internet access and a compatible device such as a smart phone or laptop computer, you can access your data anywhere. Public cloud computing is flexible to meet your organization’s growing data storage and processing needs.

**Private cloud** (also referred to as ‘corporate’ or ‘internal’ cloud) is simply a term used to describe a computing architecture that provides hosted services on a private network. This type of cloud computing is generally used by larger organizations and allows their corporate network and data center administrators to effectively become in-house ‘service providers’ that cater to their ‘customers’ (employees) within the organization. With this type of private structure, organizations are still required to purchase, set up, and manage their own clouds. It is designed for and access can be restricted to your organization only, and it is an internal shared resource, not a commercial offering. Two examples of private cloud solutions are the VMware vCloud and the Citrix VDI. There are some nice benefits to a private cloud structure, and one of those is increased data security. You and your business are in complete control of your security, since the data never leaves your network. Your organization may also find it much easier to enforce compliance. In fact, depending upon your market, some government regulations may prohibit your business from using the traditional public or hybrid cloud. Therefore, the private structure allows you to take advantage of all the great cloud features while keeping all your data on site and secure.

**Hybrid cloud** environment combines resources from both internal and external providers. Your organization could choose to use a public cloud service for general computing, but store its business-critical data within its own data center. The security of a private cloud is attractive, and some organizations have already invested in this type of infrastructure. Some specific services are delivered through a combination of public and private models. This model combines your business’ hardware with cloud computing. An example of this is the Microsoft Exchange Server 2007, which provides email, calendar, and contacts.

“Cloud computing is empowering, as anyone in any part of world with Internet connection and a credit card can run and manage applications in the state-of-the-art global datacenters; companies leveraging cloud will be able to innovate cheaper and faster.”

Jamal Mazhar
Founder and CEO, Kaavo
on your PC, phone, and web browser. It’s important to note that some hardware is required. Hybrid cloud computing requires that you have or purchase hardware to interact with the hosted solution. In addition, there is also software required, as your organization will need to have or purchase the software to manipulate and store your data.

What are the risks and challenges?

You have probably come to the conclusion now that cloud computing has its obvious rewards and advantages to help any organization in some way or another. However, each reward is shackled with its own set of risks and challenges. As you consider cloud computing for your organization, keep in mind these three important risks.

**Security** of your data should be a major concern when evaluating whether or not to migrate to this new way of computing. How do you know if the cloud is secure enough for your business? The primary components of a secure cloud include those with tightly managed access, a centralized location for data, and the appropriate forms of protection. It’s important to understand that sound security capabilities such as these are in the hands of the service provider, so it’s critical that you have an established and trusted relationship with the vendor. Your organization must be prepared to ask the right questions so you clearly understand how your data will be handled and stored.

For cloud computing to be an ideal fit for your organization, the cloud provider must adhere to the same standards and controls that your organization enforces in-house. From our experience, reputable cloud vendors have no problem adhering to strict privacy policies and sophisticated security measures. In most cases, they have the certifications that prove their extensive security capabilities and expertise. As a best practice, however, it’s recommended you test cloud computing before completely committing. For example, using cloud services for projects with low data sensitivity is a great starting point to see how cloud computing fits with your organization, without taking on a substantial amount of risk.

**Privacy** within the cloud has been heavily debated. Just as the services offered by the cloud continue to evolve, so does the concept of privacy. Before your organization decides to work with a cloud service provider, it’s critical that you examine their terms of service and have a complete understanding of their privacy policy. For the majority, cloud providers recognize that the company using their services still retains ownership of the data once it is uploaded. But users should be cautious; the US Government still lacks comprehensive privacy laws and regulations when it comes to data stored in the cloud.

Finally, **compliance** in today’s public cloud environment is another major risk factor. Depending on the nature of your business and the customers you serve, there are likely standards or regulations to follow when it comes to data protection. Whether it’s HIPAA or SOX, the public cloud creates a real problem for your organization to comply with these regulations. Why? Regulations require your organization to fully understand what information is stored on your systems, where it’s stored, who has access to it, and what they have access to. Just the virtual nature of cloud computing makes answering these questions challenging, let alone being able to conduct an actual audit.

“If you have been trying to make changes in how your organization works, you need to find out how the existing culture aids or hinders you.”

Edgar Schein
Professor, MIT Sloan School of Management
Is your organization ready?

To answer this question, you must first look beyond the features, benefits, and overall hype of cloud computing. It’s vital that you consider the characteristics and culture of your organization. Ask this question and seek an honest answer:

“Is your organization’s culture one that will lend itself to the successful adoption of cloud computing?”

Here are three points to consider as you evaluate your organization’s culture:

- **Teamwork** is essential, and we have found that businesses that successfully migrate to the cloud have an already established culture where IT leaders and business units work in collaboration. In the ideal scenario, your IT and business unit leaders are already working well as a team developing and testing new technology. These important stakeholders enjoy creative collaboration and have had success in adopting new technology that has propelled your business to the next level. Can your organization’s leaders communicate effectively enough with your IT staff (or IT consultant) to uncover the unique features of the cloud that will positively impact your specific business?

- **Change management** is critical as history has already proven that cloud computing will continue to evolve. Undoubtedly, your organization’s culture must accept change and move quickly in order to capitalize on the business opportunities that will develop as cloud services continue to grow. How well does your staff handle change, and how quick are they to adapt?

- **Vendor management** must also be taken seriously. An organization will not be able to migrate to the cloud without relying on and interacting with other product/service providers. If you are an organization that outsources all or a portion of your IT operations to a vendor, then your culture is already one step ahead. Your staff will find it much easier to manage your cloud provider if your organization has already experienced success and understands how to capitalize on external business relationships. Do you trust your team’s ability to ask the right questions, evaluate service offerings, and manage the overall relationship and performance of a cloud provider?

After some organizational soul searching and deep reflection, it’s now time to consider a few of the specific solutions and how these could impact your business. Below are just a few popular cloud solutions that we see organizations implementing today:

**Hosted Desktops:** Significant cost-savings can be found in the implementation of hosted desktops. This basically removes the need for your traditional desktop computers within your office environment. IT professionals agree this can significantly reduce costs and improve efficiency when it comes to updating, supporting, and maintaining these desktops as compared to the traditional method. Many users have concerns that a hosted desktop won’t function as their current desktop does today. However, most of the differences lie behind the scenes. The software and data on these desktops simply resides in an off-site, secure data center. What’s innovative about this concept is that you can access your desktop anywhere in the world, as long as you have a laptop or other device connected to the Internet.

**Hosted Email:** To avoid investing in a costly infrastructure to support email, many organizations today are looking to hosted plans. For example, some are relying on Microsoft Exchange® as one of the leaders in the market. With Microsoft-hosted email, your employees could access their mailboxes from wherever they...
go, with full support, a premium web browser experience, and access from a wide range of mobile phones. Users can enjoy large 25 GB mailboxes, seamless integration with Outlook, calendar sharing, email archiving, search capabilities, and retention policies.

Hosted Telephone Service (VOIP): VOIP has been designed for small- to medium-sized organizations. It can reduce your monthly phone bill while allowing you to enjoy powerful features. The hosted version (off-premise) VOIP is often a lower-cost solution and works well with organizations that have multiple offices, or have a growing need to support mobile/remote staff. Hosted services offer a number of business advantages, such as reliability. If call quality and availability are important to your organization, then a hosted service will likely meet those needs. Hosted services are generally easier for employees to use, offer more features and reporting, and are simpler to move, change, and scale up or down.

Cloud Storage: A cloud storage solution simply refers to saving data to an off-site storage system maintained by a third-party vendor. There are a variety of business advantages to this. Symantec recently released the results of its “2011 SMB Disaster Preparedness Survey,” and according to the survey, 50 percent of small businesses have no disaster recovery plan in place. Disaster recovery is just one of those great benefits of storing your valuable company data with an off-site cloud provider. This solution guards against disasters that may affect your place of business, such as flooding, fire, theft, virus, etc. Today, data storage costs have become more affordable, and a cloud storage provider will typically bill clients based on the capacity used during the month.

Cloud Servers: Cloud-based servers are delivered as a utility over the internet, and this creates a shared pool of resources that can then be allocated to any application by your organization. One of the main advantages of a cloud-based server is its reliability factor. If one server in the network is down, another server is there to pick up the pace and the workload of the downed server. Cloud-based servers are ideal for an organization of any size that doesn’t want to be in the business of managing their own hardware.

If these offerings above offer your business cost savings, efficiency, or an overall competitive advantage, then it may be time to test and begin a controlled transition to the cloud for some or all of your IT functions.

Conclusion

The hype is here to stay, and so too is this thing we call cloud computing. The services delivered through the cloud are new—they come with uncertainties, risks, and challenges—but the business advantages are paying off, as we see organizations from all different industries migrate away from the traditional IT model. The cloud allows your organization to increase capacity and add capabilities, all while reducing capital expenditures on new infrastructure. The cloud’s efficiency is remarkable as it streamlines operations and reduces administrative costs. It’s scalable, easy to implement, levels the playing field for smaller businesses, improves uptime, and can provide your employees on-demand access to your data anywhere in the world. We hope this white paper has provided you with some insight to help determine whether your organization is truly ready for the cloud. Finally, be sure to seek additional advice from a technology expert as your organization further investigates all the exciting possibilities with cloud computing.

How can American Structurepoint help?

As a true consultant, American Structurepoint can make your IT systems a priority. From an unbiased position, we can convert your challenges into competitive advantages. We don’t resell products; rather, our focus is on understanding your business needs to provide you with the best IT solutions and recommendations that contribute to the stability and growth of your organization.

If you would like to discuss cloud computing in more detail or want more information on how our IT team can help you manage your technology, contact Tony Valasek today.

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