CLOUD COMPUTING: THE NEW FRONTIER FOR IT

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Most people familiar with computer technology have heard the term “cloud computing,” although there is no one standardized definition for what it is. The basic idea involves linking a large group of servers via high-speed networks, resulting in a massive server complex where companies can store applications and data. Cloud computing enables convenient, on-demand access to a pool of computing resources that can be quickly provisioned. The advantages of this technology are impressive and vary depending upon what companies are trying to accomplish.

Although it was once the exclusive domain of research facilities, universities, and government agencies, cloud computing is now a hot Internet trend making its way into the mainstream. The primary reason for its popularity is simple. Companies can essentially reach into a cloud of servers for resources to add capabilities or boost storage capacity, rather than having to invest in new infrastructure, additional manpower, or software licenses. The resulting savings in cost, space, time, and manpower can be significant.
For decades, traditional IT solutions for most businesses consisted of desktop computers that communicated with each other through wired or wireless connections.

Software was installed on each employee’s computer, and data was stored on individual PCs or servers or siloed in data centers. Capital expenditures were necessary whenever a company needed to increase storage capacity, add new software, or upgrade systems with newer hardware technology. Forecasting IT expenses could be difficult or impossible, collaboration was awkward or nonexistent, and assembling or reallocating project teams was time-consuming and inefficient. But the new technologies offered by cloud computing have revolutionized today’s IT landscape.

A CLOUD COMPUTING SOLUTION OFFERS MANY COMPELLING BENEFITS:

1. Organizations can leverage cloud computing to enable a common platform—either to span disparate people, locations, or legacy systems, or to link previously incompatible IT systems.

2. Users can access information in real time, from any location that has an Internet connection.

3. Capital expenditures are not necessary for software licenses, hardware, or implementation.

4. A pay-as-you-go model makes operating expenses predictable.

5. Companies can keep their data in a storage system that is maintained off-site by a third party, so there are no ongoing costs associated with maintaining and upgrading storage system hardware and software. Data storage capacity can be added and removed quickly based on actual storage needs rather than projected needs.
Decision makers have improved visibility and functionality across formerly incongruous systems or employees.

Cloud-based projects increase the agility and flexibility of project teams, speed deployment, ensure secure and reliable data, and allow companies to shift resources to other project goals and priorities.

In addition to calculable benefits, companies can enable better governance by using cloud computing. Because most cloud-based projects require careful coordination across an organization, companies are compelled to dedicate more resources to pure project management. Efficiently balancing project requirements for time, scope, and budget helps drive better outcomes. And handing off storage and server maintenance to an outsourcer shifts the burden placed on in-house IT teams to a third party. As a result, in-house IT departments can focus on business-critical tasks without the additional time and expense of manpower and training.
A company that leverages the full potential of cloud computing within the context of an internal or external project management office (PMO) can bring innovative techniques and skill sets to its technical activities.

An organization can also use cloud computing through a PMO or outsourced project model to customize, develop, or adapt previously incompatible IT resources and systems to work together more effectively. The resulting cost reduction, speed, and flexibility gained by combining cloud computing with a PMO can help enable significant competitive advantage.

But the greatest IT value an organization can realize from this new technology is by fully integrating the potential of cloud computing into evolving business goals and plans. There is profound power in transforming the way IT delivers value to every business via the cloud. Before cloud computing, companies had to commit budgets and resources to a full solution ahead of time. Today, functionality can be combined or added piece by piece, without the need to commit to a full solution. The result is better integration and alignment of cloud computing projects with the business processes and goals of the organization.
An increasing number of vendors are providing cloud computing services, and large and small organizations alike are taking advantage of their offerings.

In fact, technology research firm Gartner Inc.® predicts that by the end of 2012, 30% of all Fortune 1000™ companies will pay for a cloud computing infrastructure, and 80% will pay for some type of cloud computing service.

One of the earliest big names in the cloud universe was the IBM® Blue Cloud, which is based on open standards and open source software. Google® has made a commitment to help students learn about the underlying software and hardware technologies in cloud computing by giving schools including Stanford and MIT access to hundreds of processors in its datacenters. Yahoo® recently announced that it will let researchers at Carnegie Mellon University work with a 4,000-processor supercomputer as part of the company’s new open-source program designed to advance the development of software for distributed computing.

Even the world’s largest e-retailer Amazon.com® has entered the cloud arena with its EC2™ service. A follow-up to Amazon’s S3™ (Simple Storage Service), EC2 is an Internet-based service that lets companies control their computing resources by accessing applications stored on Amazon’s servers, allowing them to scale capacity quickly as their computing requirements change.

The presence of industry titans entering the cloud arena is bolstering the profile of the new technology, especially among large organizations. But the perks of size and brand name don’t amount to much if a vendor isn’t able to deliver quality service. For example, a few years ago when Amazon S3 experienced an outage for about three hours, companies around the world were suddenly and unexpectedly left without access to their stored data. Organizations considering a move to the cloud should carefully examine their options and do their own research before signing on the dotted line.
BARRIERS, MYTHS, AND CHALLENGES

Despite the obvious benefits of moving to a low-cost, no maintenance approach to data management, there are drawbacks and concerns to be considered. For example, many organizations have serious privacy and security concerns about handing over confidential information to a third party. Some issues are valid reasons for exercising caution, but questions and misconceptions abound.

The cloud is primarily for small companies, not large enterprises.

It is true that many small companies have benefited from subscribing to Software as a Service (SaaS) to avoid buying expensive hardware and software applications. Forrester Research Inc.® has determined that “the main consumers of cloud computing are small companies and startups that don’t have a legacy of IT investments to manage.” But large enterprises are moving to the cloud for many of the same reasons that make the technology attractive to small companies. Companies of any size stand to benefit from availability, scalability, agility, speed of deployment, cost reductions, and the fact that 84% of all new software applications will be SaaS-based.

Cloud computing is always less expensive than traditional infrastructures.

According to the CDW® 2011 Cloud Computing Tracking Poll, 84% of the 1,200 IT professionals surveyed have reduced their overall annual costs by moving applications to the cloud. But only 36% say that cloud applications cost less than traditional applications. Although it can be less expensive to run some applications on the cloud than to run them in-house, companies should not make that general assumption. The nature of the application, as well as any special requirements for software, hardware, or bandwidth should all be considered. Also, when comparing the cost of cloud computing to the cost of on-premise approaches, companies often overlook the costs of ID and administration staffing, cooling and power for hardware, and the expense for maintaining data center space. Many smaller companies with modest data management requirements are waiting for more maturity in the cloud computing market before deciding on its cost effectiveness.
**Moving to the cloud will eliminate the need for in-house IT resources.**

It is true that the cloud can eliminate many repetitive maintenance-oriented tasks that do not add value to an organization. But the need for IT will never be eliminated, because cloud-based applications can enable IT resources to be redeployed to play a greater role in advancing the growth and success of an organization. A study by Gartner Research, Inc., showed that 91% of IT resources are dedicated to maintaining systems and data storage. With a cloud-based solution, those resources can be redeployed to making use of available in-house software that companies have not been able to use because they didn’t have resources to commit to it.

**The cloud isn’t reliable and data will not be secure.**

Companies may believe that if data is not physically stored on a computer they own, then it cannot be secure, and if the computer where it is stored is somewhere else, then they don’t have control over its reliability. Nearly half of the respondents in the CDW poll say that security concerns are holding them back from adopting or further implementing cloud computing. But the fact of the matter is that storing data on an off-site computer provides extremely high levels of disaster recovery and redundancy that would be too expensive for most companies to replicate. With the increasing adoption of the technology, the tide of public perception may be turning. A recent survey of 785 companies by North Ridge Venture Partners found that only 3% of companies think cloud computing is too risky.

**Everything should move to the cloud.**

Although advertisers position cloud computing as being an all-encompassing cure-all, companies don’t need to hand over their entire database to a third party. In the same way that an HR team may outsource recruiting but keep payroll processing in-house, companies can choose to move bits and pieces of their IT operations to the cloud. And although cloud computing can solve many server and storage problems, not all applications are good candidates for cloud experimentation. Sensitive data, particularly financial applications governed by strict compliance regulations, should be carefully considered before being shifted to the cloud. Forrester’s research has shown that most cloud vendors do not provide availability assurances, and service-level agreements are essentially nonexistent.
With the buzz growing quickly, companies may want to jump on the bandwagon to take advantage of the benefits of the cloud. But as with most business decisions, the more careful the planning, the greater the reward.

According to the CDW poll, 84% of organizations say they employ at least one cloud application. The most commonly used cloud services are commodity applications such as Gmail™, Google Docs™, WebEx™, and Microsoft LiveMeeting™. But although many organizations are using cloud-based applications, only 38% of the organizations surveyed say they have a strategic plan for adopting cloud computing.

Cloud computing is helping organizations consolidate IT infrastructures, reduce IT capital requirements, reduce IT energy/power consumption, and enable or improve location-independent access to data. To make progress toward achieving these key goals, it is essential for companies to design a formal adoption strategy for moving to the cloud.

There are a few important considerations to keep in mind:

1. Understand the vision of the organization and how the leadership wants to use the cloud to perpetuate that vision.
2. Evaluate IT skills and disaster readiness, establish a capacity planning discipline, and develop a validated enterprise architecture.
3. Design a plan that assigns staff to manage cloud applications, with regular password changes, intrusion detection, and structured information security training for all employees.
4. Develop an IT strategy, seek buy-in from executives, and commit to a timeline for implementation.
Organizations considering a private cloud should understand that IT governance is mandatory in order to ensure cloud stability and efficiency. Building a private cloud is essentially the same as becoming a cloud hosting provider, but it takes more time and costs more than an automated, integrated solution. There are various approaches that require specific software and middleware, from management tools to transaction processes and application development techniques. However, a private cloud can be more secure and more customized to specific business purposes.

Organizations considering a public cloud should get to know the providers they are comparing before deciding on one. The main questions to ask involve security and compliance, reporting and metrics, service level agreements, capacity planning, access to the architecture, and the total cost of operations. Understanding the “cost to serve” per application is key to determining the total ROI of a public cloud solution.

The main questions to ask involve security and compliance, reporting and metrics, service level agreements, capacity planning, access to the architecture, and the total cost of operations.
THE FUTURE IN THE CLOUD

Clearly, cloud computing is an exciting model for provisioning applications, processes, and services that can simplify IT management and increase business responsiveness.

Industry analysts are confident that cloud computing will be an increasingly important part of the IT strategy for many organizations, with both public and private cloud implementations growing in popularity.

One of the greatest advantages of cloud computing is its economy of scale, because you can start small and experiment to see what works best without capital investments or major changes to business operations. When you find what works best for you, then you can scale it up. Because cloud computing is a hot topic in the media these days, companies may be tempted to jump right in. But in order to leverage the cloud to get real business results, planning and preparation are the keys to success.

REFERENCES


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