BY JAY ATKINSON, CEO, AIS NETWORK

A CLOUD PRIMER: Understanding the Cloud and Its Uses

The most disruptive technology to have transformed the modern business market within the last decade is undoubtedly cloud computing.

A paradigm shift is occurring on a global scale as businesses become more and more comfortable with the idea of shifting their computing to the cloud in an effort to streamline operations and accommodate an ever-growing mobile workforce's need to access their applications and data anywhere, anytime.

According to industry analyst IDC, cloud growth rates are "undisputedly stellar." IDC estimates that global spending on public IT cloud services alone will reach $98 billion in 2016. To put that in perspective, the compound annual growth rate is five times the growth of the IT industry overall.

As recently as two years ago, there were only a few workloads such as collaboration and email that compelled customers to think seriously about moving to the cloud.

Today, businesses are increasingly choosing to move from in-house ("on-premise") hosting to outsourced, cloud hosting services in an effort to handle other workloads, particularly those that increase collaboration and enhance customer relationship management (CRM). Not only are general business applications, email and device management part of the equation but interest is swelling in migrating to the cloud applications such as those used for conferencing, CRM/ sales force automation, supply chain and logistics, productivity (SharePoint), design and engineering, finance and accounting, disaster recovery and more.

But why the shift in thought about migrating to the cloud? Why not just keep it all on-premise? The answer lies in both economics and technology.

Economics & Technology

On the economic front, the protracted economic downturn forced many IT departments to take a hard look at belt-tightening measures.

Reduce staff? Postpone hires? Turn to IT providers who can offer a better value? Evaluate alternative IT delivery models? Many companies chose to lengthen their server refresh cycles to avoid big capital expenses when they could least afford it.

Concurrently, rapid advances were occurring in virtualization, provisioning, and automation technology, and more and more apps were being developed specifically for the cloud. Both of these developments made the cloud a more viable alternative as companies considered their options.

If you are already talking about migrating at least some of your business applications and data to the cloud, you are in good company. An IDG study released this month examined key trends in cloud computing based on interviews with 1,358 executive-level readers of their publications, which include Computerworld, Network World, CIO and others. Key findings revealed that about half of executive-level management see cloud computing as transformational to their business strategies and nearly half have asked their IT staff to investigate the potential of cloud computing.

According to the survey, enabling business continuity, greater flexibility to react to changing market conditions, speed of deployment and improving customer support or services make up the top four drivers of investment in cloud computing technology.

For those still on the fence, the question is not if you will move to the cloud, but when and what you will move to the cloud.

Business applications that have traditionally been server-based are being redeveloped for the cloud (e.g., Microsoft Office 365), and new apps that are being developed today are created with cloud delivery in mind. While there will probably always be a need for some on-premise infrastructure and capability, you can expect that to shrink while your presence in the cloud grows.

"The cloud model will complement more-established, traditional IT architecture."

But how do you make sense of the cloud landscape and its multiple options?

If you are like most companies, your IT staff is still working to pinpoint which IT operations are cloud hosting candidates. Here's a brief primer to help you understand some of the fundamentals of cloud computing and get your conversation about the cloud started within your own business – and potentially, with your customers too.

What is meant by on-premise hosting? In the traditional, on-premise model, your company buys servers and software licenses (e.g., Microsoft Office), sticks them in a closet, and hires someone to keep it all running. Your staff manages and patches the servers, licenses all of the applications, buys and replaces all of the hardware, and makes sure there is power to the building, UPS units, and the like. Typically, if you wanted to roll out a new application for your employees' use, it would require the purchase of a new server and software, which could result in tens of thousands of dollars of upfront costs.

The cloud, in all its variations, moves away from this traditional on-premise model to some degree or another.

What is a cloud? Whether it is public or private, on premise or hosted by a cloud hosting provider, a cloud consists of a collection of hardware (servers, storage devices, networking equipment, firewalls, etc.) and virtualization software that transforms those independent hardware elements into a cohesive cloud.

Jay Atkinson is the CEO of AIS Network, a pioneer in the hosting industry. AISN is the premier provider of data and applications hosting to the Commonwealth of Virginia, as well as numerous large enterprises throughout North America.

What types of clouds are there?

Public cloud. If you have ever used Facebook, Twitter or LinkedIn, or posted photos on a photo sharing site, then you have already used a public cloud. In this cloud, all customers (either the general public or a large industry group) share the resources of the cloud infrastructure, and it is typically owned by an organization that sells cloud services. Some of the large public cloud providers are Amazon Web Services (AWS), Microsoft Azure and Google Cloud, however most other cloud hosting providers offer a public cloud option. Common uses for a public cloud include document management, corporate portals and intrawnets, messaging and collaboration applications, marketing websites, testing and staging (pre-production) environments, and ecommerce websites.

While some Software-as-a-Service (SaaS) offerings exist in a private cloud, the most common ones (e.g., Salesforce.com, Microsoft Office 365) exist in a public cloud and are accessed by the user through a web browser or other thin client. Increasingly, these apps have been specifically developed for cloud delivery rather than an on-premise environment. Rather than buying a server and a license, you typically just pay a per user fee.

Private cloud. A private cloud can either be on-premise or hosted by a third party provider. The primary advantage an on-premise private cloud has over the traditional on-premise model is that of virtualization, which should allow you to get much higher utilization rates out of your servers. At its simplest, rather than having one dedicated server for each application, you may be able to put multiple applications on the same physical server by creating multiple virtual machines on that server.

A hosted private cloud gives you the same advantages of virtualization and scalability, while also outsourcing the capex, hardware, and software management to a third party.

The private cloud has some distinct advantages over the public cloud. Typically:

- There are more stringent Service Level Agreements (SLAs)
- You have a higher degree of control
- You are allowed a higher degree of customization and flexibility
- There is more accountability for the service provider
- You can achieve higher levels of security and compliance (particularly critical with the increased scrutiny surrounding PHI and the recent ruling on HIPAA/HITECH)

Common uses for a private cloud are mission-critical applications that are either proprietary in nature or handling very sensitive data and customer records. Businesses that handle health or financial data would be good candidates for a private cloud.

Hybrid cloud. Often, a business will deploy hybrid clouds because they want the flexibility of in-house applications with the fault tolerance and scalability of cloud-based services. In this cloud infrastructure, two or more public or private clouds remain unique but are bound together by a standard technology that enables the data and applications in both to function together.

An example may be a document scanning company that uses a private cloud for storage of its mission-critical applications and sensitive data and a public cloud for its customer relationship management needs.

These three cloud types are not an exhaustive list, but they are the cloud deployment models that are most appropriate for businesses.

As the next several years unfold, we can expect to see more businesses educating themselves about the cloud and its impact on the way we work, communicate and collaborate. And they will be asking many questions. How will it alter the landscape of traditional IT architecture? How will it dovetail with our legacy IT? How will it drive down costs?

If you are following cloud computing trends, you might wonder if cloud computing has the potential to usurp existing server, desktop and mobile technologies altogether. Instead, the cloud model will complement more-established, traditional IT architecture.

Expect to see more discussion around private clouds and hybrid cloud-based implementations as well as responses to a wide range of policy questions on privacy and security, technology standards, intellectual property and more.