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## The Small Business Guide to Cloud Computing

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You've undoubtedly heard the term "cloud computing" being used over the past couple of years, and you may be wondering what all of the buzz is about.

In this brief guide, we'll explain the concept of cloud computing, the benefits and potential risks of using cloud computing, and things you should consider when evaluating cloud computing for your business.

## WHAT IS CLOUD COMPUTING?

First, let's make sure we're talking about the same thing when we say "cloud computing," as there is a good amount of confusion as to what exactly it is.

The National Institute of Standards and Technology ([NIST](#)) provides the following definition:

Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

That's a mouthful.

The key characteristic of cloud computing is that the processing and storage of data is "in the cloud"; that is, the processing and storage of data is not in a specified, known or static location. This is in contrast to a more traditional model in which the processing takes place on a server in your office closet or the data center down the street.

Parallels to this concept can be drawn – and have been, in such books as *The Big Switch* by Nicholas Carr – with the electricity grid. You purchase the electricity to power your house and your office,

most likely without any knowledge of where it is produced and what infrastructure is required to produce it.

This is the concept behind “*cloud computing*.”

You want the “electricity” (computing power, applications, etc.), but you don’t need to know how the power plant (network, servers, etc.) works, and you certainly don’t want to buy a power plant of your own.

You may laugh at that last statement, but photographs of businesses in the early 1900s show that most businesses did have generators (power plants) of their own because the public electrical grid was not what it is today. It’s incomprehensible to us today that we would need to generate our own power each day to work, and the argument is that it will be equally incomprehensible in another ten years that you once had to run your own technology infrastructure.

Most cloud computing infrastructures consist of services delivered through large, shared data centers. You are probably already taking advantage of cloud computing in some area of your business or life (like iTunes), but may not realize it.

## HISTORY OF CLOUD COMPUTING

The term “cloud” refers to the Internet. In network diagrams, engineers used an image of a cloud to represent the Internet. Since the Internet is made up of so many different network points and connections, it is no longer represented by drawing a straight line from one point to another.

The underlying concept of cloud computing dates back to the 1960s, when John McCarthy suggested that “computation may someday be organized as a public utility.”

Starting in the mid-1990s, companies such as IBM, Google, Amazon, and Microsoft starting making huge investments in cloud computing and the infrastructure necessary to support it. This has led to an

incredible race by these and other companies to create massive data centers around the world.

Obviously these large, smart companies are making a very big bet that you'll soon be using cloud computing in your business and life!

## CLOUD COMPUTING FEATURES & BENEFITS

The promise of cloud computing is that you'll be able to easily "turn on" the services and capacity that you need without having to have the technical knowledge or financial investment typically required in using information technology.

The result is that businesses can now use technology with greater agility, security, scalability, performance, and reliability – all while almost completely eliminating maintenance requirements and lowering cost.

It sounds too good to be true, but then again, try to imagine how much money, time, and resources were spent when everyone was running their own power generator and how much more reliable and cost-effective today's electrical grid is.

Specific cloud computing benefits your business could enjoy include:

- **Less equipment** in your office/your data center means freed up real estate and associated costs
- **Dynamic, flexible capacity** means the ability to scale up or down quickly as business needs and budget require
- **Dynamic, flexible billing** means billing matches your use of the service and reduces large, up-front capital expenditures
- **Hosted software and services** means it's easier to set up new employees, and you don't have to hang onto copies of software or license keys
- **Nearly maintenance free**, since software updates are done automatically with no downtime or interruption to your business
- **Data is automatically backed up** across multiple physical and logical environments, which means greatly reduced chance of losing data
- **Military-grade security** of facilities means greatly reduced risk of hacking, theft of data and equipment, and losses from viruses or malware
- **24/7 tech support and ongoing monitoring of critical systems included** means fewer service availability or budget surprises

## CONCERNS AND RISKS OF CLOUD COMPUTING

There are, of course, risks and concerns to consider with any new technology development, particularly in its earliest days. The following are the main concerns that critics mention about cloud computing:

### Privacy

The cloud model has been criticized by privacy advocates for the greater ease in which the companies hosting the cloud services can monitor user activity. It seems that each month there is a new, public dispute about Facebook's privacy policies or the fact that Google now knows just about everything you do every day. This is a very sensitive subject for many, and one that cloud computing companies will have to proactively and publicly address.

### Security

It's human nature that if you can't see or touch something, it feels like you are less in control. This is often the experience of those considering moving their computing infrastructure to the cloud.

There is a sense of security in knowing that your critical data is in the closet down the hall where you can easily get to it, but the reality for most small businesses is that the security of their office environment is much less than that of a professionally-run data center.

That being said, cloud computing companies realize they must remove the sense of fear associated with giving up control. Organizations have been formed in order to provide security standards. One organization in particular, the Cloud Security Alliance, is a non-profit organization formed to promote the use of best practices for providing security assurance within cloud computing.

## Availability and performance

Availability and performance is certainly a hot-button issue for small businesses and cloud computing. Many small businesses still have pretty low-quality Internet connections, so the thought of doing everything in the cloud sounds about as fun as sitting down to use a ten-year-old computer every day – painfully slow!

Or perhaps the concern is about integration with other traditional, local technologies that your business relies on. Will the cloud services you are taking advantage of work with that critical application you have that can only be run from your office?

In addition, there has been no shortage of cloud-related companies and hosting companies that have gone out of business in recent years. What happens to all of your data and services if a provider quickly shuts down operations? Are you left dangling?

These are very legitimate concerns that must be addressed before cloud computing will reach critical mass. That being said, cloud computing has a momentum to it that we don't believe will be stopped – there is just too much investment being made to solve the problems mentioned above, and the benefits to most cloud computing providers and their customers are just too great to ignore, as the following statistics seem to suggest: According to a recent study conducted by AMI-Partners,

“Small and medium business (SMB) spending in the U.S. on software-as-a-service (SaaS) will increase exponentially over the next five years, eclipsing growth in investments in on-premise software by a significant margin. AMI forecasts a 25% CAGR in hosted business application services spending through 2014.”

## Hybrid cloud computing – a better solution for small businesses?

As the challenges with cloud computing present themselves, so do various solutions from the industry. One of the solutions that has many benefits for small businesses is known as hybrid cloud computing.

Hybrid cloud computing uses a combination of local (in your office) service delivery and storage and the cloud to deliver the best of both worlds to small businesses.

By having local storage and service delivery of certain aspects of the information technology equation, small businesses get more responsive, reliable performance while still getting the scalability and redundancy of cloud computing.

### Is (hybrid) cloud computing right for your business?

For a number of reasons mentioned in this paper, a quickly growing number of small businesses are deciding to move some or nearly all of their information technology services to cloud or hybrid cloud solutions.

Contact us if you are interested in an evaluation of your current and future business information technology needs; we'll help you determine if cloud computing would be a good fit.