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What is Cloud Computing and what can it do for me?

"Cloud computing to double by 2012"

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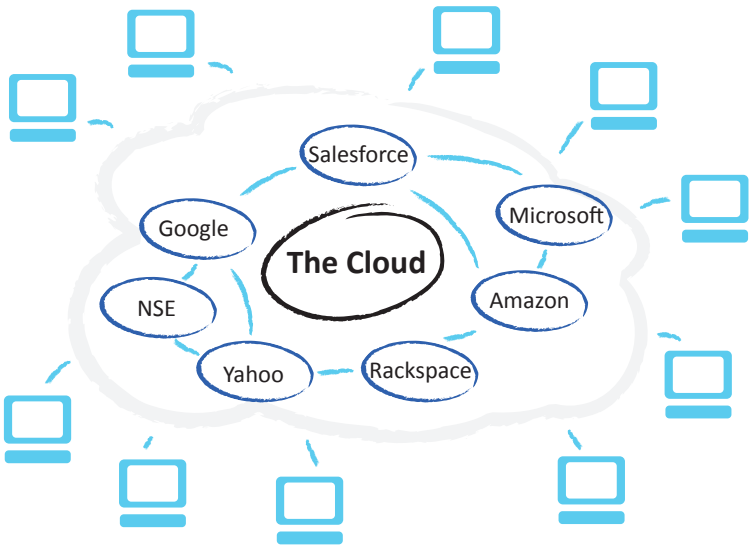
What is Cloud Computing and what can it do for me?

Cloud Computing is the delivery of applications (such as email or CRM – Customer Relationship Management software) over the internet or a dedicated private connection. It is allows businesses to quickly scale their technology requirements to meet business requirements and demand.

So, Cloud Computing is internet based computing. The software applications are accessed over the internet, or through a private leased line to the datacentre. Therefore no servers are required in-house, just a good internet connection and PC or Mac terminals. What makes Cloud Computing possible is the revolution in communications technology over the past 20 years which has evolved from expensive analogue telephony to cheap digital internet-based networking.



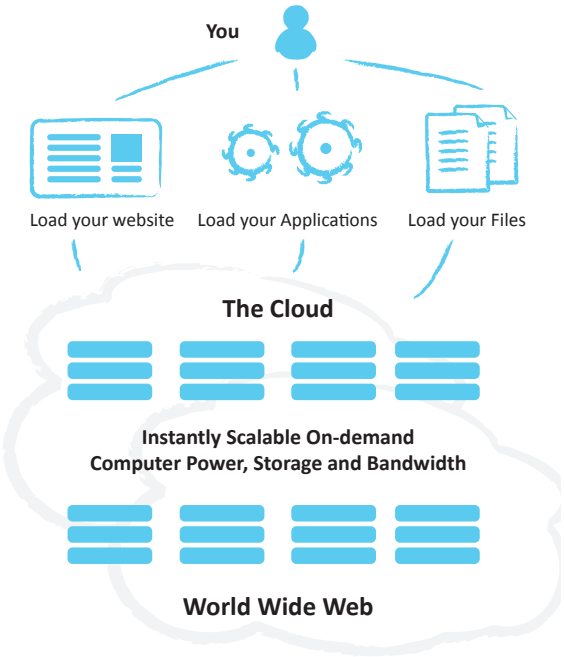
The applications are run on servers hosted in a datacentre, so they are managed by your hosting provider. This means you have none of the worry of purchasing the servers, managing them, backing up or keeping them up to date. The services are purchased on a per user basis and your Cloud Services provider is responsible for making sure demand is met.

Cloud Computing has evolved into tailored implementations where the applications are accessed over the internet or a private dedicated leased line to servers in the datacentre. The servers can be 'private', only used by one client, or 'public' used by multiple clients, or a mixture of both – where servers are split into dedicated areas.

If Cloud Computing offers huge benefits to enterprise IT departments, it is an incredible advantage for small and mid-sized companies. Instead of making do with small, under resourced IT staff trying to emulate the productivity of IT outfits with multi-million pound budgets, smaller companies can now access enterprise-class technology with low up-front costs and easy scalability.

Cloud Computing began as large internet focused companies such as Google and Amazon built up their infrastructure to cope with increased demand and provide reliability and redundancy. The architecture that emerged - huge multi-location server farms - were built to scale horizontally and to withstand failures of individual bits of network or computer hardware. As connectivity got faster and cheaper, they realised that they could be used to run any web application – not just their own web applications and services, so the concept of 'renting' internet-based computer resources became reality. In network topology diagrams the internet had historically been depicted as a cloud, and it is this word that became the term for these new online services.

Cloud Computing was born.



So what's new about Cloud Computing?

Historically, if a company needed to upgrade their IT, they had to purchase and install servers for deployment in-house, often a lengthy and costly process taking several months. These had to be maintained and monitored internally. After a few years, the hardware would become redundant and need to be replaced, and new software licenses purchased. On top of that, there would often be downtime while new servers were installed.

With Cloud Services, the equipment is owned and managed by the hosting company and they are responsible for any upgrades, repairs or replacement of obsolete equipment.

For example, if a company expanded by 50 users, their mailboxes, file storage and CRM access could be created within minutes. The extra cost of each user simply gets added to the monthly charge.

Ingo Elfering, VP of IT Strategy, GlaxoSmithKline:
'With Cloud Computing, we are able to reduce our IT operational costs by roughly 30%, introducing a subscription model for these technologies. It allows us to more rapidly scale as necessary as we undergo a transformational change in the pharmaceutical industry.'

What benefits are businesses getting from Cloud Computing already?

Reduced cost
Costs are reduced in a number of ways - up-front capital expenditures are reduced because there is no need to replace expensive server hardware or storage. There is also no need to purchase expensive software as it becomes part of the monthly cost.

Know exactly what your IT spend will be every month
Using the pay-per-user methodology you will know exactly how much your IT spend will be, and how much it will be if you increase the amount of users.

Simplified and 'hands off' disaster recovery
As part of your SLA (Service Level Agreement) all backup and recovery can be handled by your service provider.

Portability and accessibility
One the huge advantages to Cloud Computing is the availability of files and software anywhere that there is an active internet connection. This means greater accessibility and productivity for those that are on the road and require access to emails, files and software. In the unlikely event that your building was inaccessible, your users could still work from home as if they were in the office.

No need to worry about upgrades or maintenance
Again, upgrades and maintenance are the responsibility of your service provider.

Increased business flexibility and agility
Opening a new office with 20 new users? Running out of disk storage space for your document archive? In a Cloud Computing environment, storage is not an issue. Service providers need only to allocate more resources from their pool of space, or shift load from one server to another to accommodate the additional use of space. The same goes for additional users – instead of having to buy additional servers all you have to do is contact the service provider to purchase additional computing power.

Ease of deployment
Deployment of new servers and hardware is entirely the responsibility of your service provider. They should ensure that you can scale your requirements quickly.

Environmentally friendly
Another great and relevant advantage of Cloud Computing is the increased longevity and use of older hardware used by datacentres. When businesses use current assets instead of purchasing additional hardware they reduce the size of their carbon footprint because it is one less server that is put into service, and one less server that is consuming electricity. Also Cloud Service providers tend to maximise the usage of each physical machine - less servers use less power.

Better use of internal IT staff
High level IT staff time can be spent on business critical tasks and strategy rather than fixing server and application problems.

Brad Jefferson, CEO of Animoto Productions:
'Cloud Computing is really a no-brainer for any start-up company 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'

Jim Swartz, CIO, Sybase:
'A private cloud of virtual servers inside our data centre has saved nearly $US2 million annually since 2006, because our company can share computing power and storage resources across servers.'

What about security and other concerns with Cloud Computing?

There are several security and other considerations when choosing a Cloud Computing partner.

Regulatory compliance
Traditional service providers are subjected to external audits and security certifications, and Cloud Computing services are no different. Make sure that you ask if your supplier is prepared to undergo an audit.

Data location
When you use the cloud, you probably won't know exactly where your data is hosted. In fact, you might not even know what country it will be stored in. It is important to find out this information.

Recovery
A cloud provider should tell you what will happen to your data and service in case of a disaster, as part of your SLA (Service Level Agreement.) Ask your provider if it has the ability to do a complete restoration, and how long it will take.

Privileged user access
Sensitive data processed outside the enterprise brings with it an inherent level of risk. It's important to get as much information as possible about the people who manage your data.

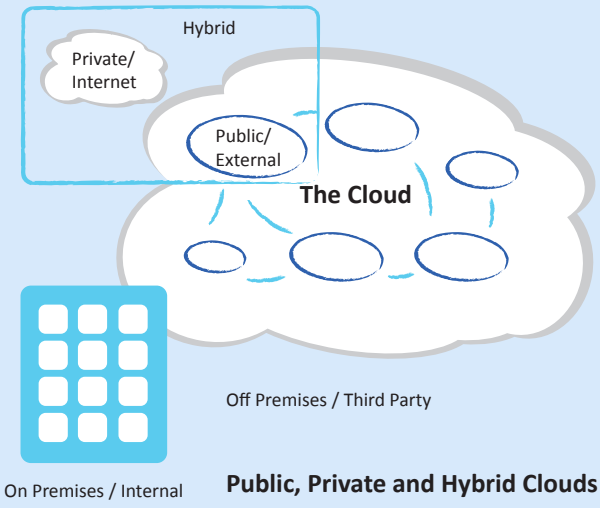
Gartner:
"Any offering that does not replicate the data and application infrastructure across multiple sites is vulnerable to a total failure"

There are many terms surrounding Cloud Computing - it can get very confusing. Some of them describe essentially the same thing.

Virtualisation
In Cloud Computing, the term 'Virtualisation' refers to the abstraction of physical computers from the people and applications using them. Again, in practice it is all part of the same thing – if you move to a Virtualised solution, you are using the Cloud - virtual computers, physically housed elsewhere, accessible over the internet or a private leased line. It is the same as having servers in your building, except that they are located somewhere else and you access them over the internet.

Platform as a Service (PaaS)
Cloud Computing has evolved to include platforms for building and running custom applications, a concept known as 'platform as a service'. It facilitates deployment of applications without the cost and complexity of buying and managing the underlying hardware and software layers.

Software as a Service (SaaS)
A specific part of Cloud Computing. Users pay a per month subscription to use a software service, such as email. Also known as "software on demand," the SaaS model allows vendors to develop, host and operate software for customer use. Rather than purchase the hardware and software to run an application, customers need only a computer or a server to download the application and internet access to run the software.



Public, Private and Hybrid Clouds

Public, private and Hybrid Clouds
Public clouds are server farms where customers may be mixed together on the servers, storage systems and other infrastructure. Private clouds are on-demand infrastructure owned by a single customer who controls which applications run and where. Hybrid clouds combine the public and private cloud models.

NSE's vision of Cloud Computing

What services do NSE provide?

NSE provides on-demand computing and communication services to Worldwide businesses. Utilising an advanced Cloud Computing platform spread across 8 datacentres around the world we currently offer the following services:

- Email and collaboration
- Customer Relationship Management (CRM)
- Virtual Desktop
- Microsoft Office applications
- Document Management (DM) and storage
- Data backup, storage, archiving and replication
- Business continuity
- Voice (telephony)
- Email and web security
- Managed infrastructure
- Virtualised and dedicated firewalls
- Home and remote working
- Virtualisation
- Platform as a Service (PaaS)
- Web application hosting
- Colocation
- Unified communications
- Wide Area Networking and connectivity
- Design of fully custom Cloud Computing solutions

Vivek Kundra, Obama Administration CIO:
'Cloud Computing is a major feature of the President's initiative to modernise IT ; it will improve data sharing and promote collaboration among government agencies. Using a traditional approach to add scalability and flexibility to the General Services Administration's USA.gov site, it would have taken six months and cost the government $2.5 million a year. But by turning to a Cloud Computing approach, the upgrade took just a day and cost only $800,000 a year.'

Security systems

We are serious about security, resilience and data recovery. Because of our experience with disaster recovery we are able to offer counter measures to protect your business in case of failure.

A recent study discovered that, of companies experiencing a 'major loss' of computer records, 43 percent never reopened, 51 percent closed within two years of the loss and a mere 6 percent survived over the long-term[1].

Is your organisation ready for disaster?

NSE Cloud Services run on several load-managed server farms for resilience. We currently have 8 datacentres – 6 in central London, 1 in Manchester and 1 in New York.

NSE's data centres provide ISO specified separation for Disaster Recover sites. NSE is therefore ideally positioned to provide mirroring and fail-over hosting services for business critical web based applications. Underpinned by fully resilient and secure networks, these data centres enable both multiple location and disaster recovery options for our clients running business critical web applications on our Cloud.

1. University of Texas Center for Research on Information Systems, as cited in Datamation, June 14, 1994

Case Study: A Cloud Computing solution

Our client case study are a venture capital funded investment company based in West London.

When this client first approached NSE, they were a completely new start-up, with 20 users and absolutely no IT provision. They required a full IT solution – email, Microsoft Office applications and file storage - and their remote workers needed full access to their applications wherever they were.

More specifically, as a financial services company, they were concerned with security. NSE's servers, security, hosting environment and network were independently audited and verified by their funder. Another major requirement was huge amounts of storage space for their document archive - their business model projected major growth over 3 years – requiring disk space of 54 terabytes.

NSE designed a tailoured solution using a dedicated private cloud comprising of 20 servers. For security, they connect to their cloud using a private leased line from their office in West London into one of our central London data centres.

Their environment includes hosted Microsoft Exchange for email with locally installed Microsoft Office on their PCs. All files are stored on their servers in the cloud. They have VPN (Virtual Private Network) access to their applications from any internet access point, anywhere in the world. All email and files are backed up overnight to a second NSE datacentre (in a different physical location) over a private leased line across the NSE backbone.

Telephony is also part of the NSE implementation. The client have desk phones providing full business telephony – and employees can be anywhere with an internet connection and their laptop and make and receive calls as if they were at their desk.

Their Service Level Agreement with NSE provides guarantees for server uptime, and disaster recovery. They also have a satellite office in Italy, connecting into the Cloud, using the same telephony with local Italian phone numbers.

Stephen Fry, writing in The Guardian:
'The advantage of the cloud is that files can be created, stored and accessed from any online computer in the world. The network holds not only your files, but the applications that create them, while your computer is little more than a dumb terminal.'

Dave Powers, Eli Lilly and Company:
'A new server can be up and running in three minutes - it used to take Eli Lilly seven and a half weeks to deploy a server internally. The deployment time is really what impressed us'

Migrating to Cloud Computing with NSE

NSE will help you at every step of the way to migrate your current IT to the Cloud. Our specialist engineers will design your move to minimize downtime. We will work closely with your internal IT staff to ensure your users' working time is uninterrupted.

NSE's highly trained engineers will provide a road map for your migration.

Simon Talbot, MD, NSE:
'At NSE we are passionate at delivering tailoured Cloud Solutions matching the client's requirements and budget. We specialise in security, redundancy and business continuity'

What shall I do now?

So now you know the important stuff about Cloud Computing. If you would like to talk to someone about the possibilities then call or email NSE now. We are ready to help you move your business forward.

Call +44 (0)20 3161 6000 or email sales@nse.co.uk now.

Capgemini, 'Why the cloud matters':
'The cloud has emerged in the Infrastructure space, enabling real-time IT resource provisioning. You want 10 servers for a peak on your e-Commerce site? You have them. 20 more? OK. You're in the financial services and you want 100 less servers? No problem. That's the promise. You provision what you need, for the duration you need. And you are billed for that, and only that.'