

Cloud Computing White Paper

Cloud Computing the facts

Zed One Technology

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Introduction to Cloud Computing

The explosion in cloud computing over recent years has led to a state that is shared by many innovations and new technologies: most people have heard of cloud computing and some of the many variants it has become known as, but few actually comprehend what cloud computing is and indeed what the many benefits mean for them. In this whitepaper we will try to explain the subject by putting forward a detailed meaning of cloud computing, and the commercial business benefits they bring.

To acquire a competitive advantage, companies are progressively seeking out inventive and creative ways to reduce operating costs and maximising value and return on investment– especially now, during a global economic downturn. Business leaders and managers clearly see the need for growth, however on the other hand they also see saving money is vital to keeping their business competitive.

External pressures are often the catalyst for change and this creates the energy to consider different ways and means that will produce better results than the tried and tested models being used. The need for change is not new and none more so than in the challenging times we are currently operating in. New and pioneering technologies are often the way forward for businesses and cloud computing has become one of if not the largest changes in how businesses access IT.

But prior to any organisation making the transition to cloud computing, it is essential to appreciate and understand if it is the correct solution for their particular business. Cloud computing is a general term and the variety and quality of products and services available differs enormously, we recommend that you examine the marketplace carefully, with a clear list of your needs in mind.

What is Cloud Computing?

Some people are confused about what cloud computing actually is, as the term is used to describe many cloud based services. Cloud computing describes the scalable computing resources delivered from an external service provider over the internet on a pay-as-you-go business model. Referred to as the cloud which is in actual fact the internet, the graphic image of a “cloud” symbol is used to symbolize the worldwide network in diagrams. The key appeal of cloud computing is that you only use what you need, and only pay for what you physically use. A huge amount of resources are available from the cloud, and provide the flexibility to access the resources from anywhere with an internet connection. Everything is maintained by the service provider – you just purchase the services you want similar to your other utilities. The cloud based computing model uses servers located in secure data centres, so organisations have no need to purchase and manage in-house systems.

What does the Cloud comprise?

- **Application**

Your applications run from a web browser, hosted desktop or remote client. A key feature of cloud applications is that businesses never have to buy costly software applications licenses as the cost is combined into the subscription fee. Cloud applications eliminate the necessity to purchase and install applications on each individual computer, therefore eliminating the problem of software maintenance and support.

- **Cloud Platform**

A cloud computing platform provisions and configures servers as needed on demand enabling businesses to handle the growth or decline in demand. This is sometimes called a distributed computing model, as multiple services can be joined together to distribute applications and infrastructure requests.

- **Cloud Infrastructure**

The foundation of the cloud is the ability to deliver an IT infrastructure via virtualisation. Virtualisation permits splitting a physical piece of hardware into autonomous, self governed environments. These can then be scaled for CPU, RAM, Disk and other essentials. The infrastructure provides the servers, networks and other hardware equipment delivered as Infrastructure Web Services, farms or cloud centres. They are also linked to others for resilience and further capacity.

Types of Cloud Computing

- **Public Cloud**

Public cloud is the conventional meaning of cloud computing which is highly scalable, dynamically provisioned and frequently virtualised resources are accessible across the Internet from a third-party service provider, which divides up the resources and charges its clients on a only pay for what you use method

- **Private Cloud**

Private cloud describes a proprietary computing architecture providing hosting of services on private networks. The Private cloud method is usually used by large companies, as it permits their corporate network and data centre administrators to efficiently come to be the in-house service suppliers to internal staff (often referred to as customers) inside large businesses. However, it misses out on the many benefits of cloud computing because the organisations retain ownership so need to purchase, set up and manage their own clouds.

- **Hybrid Cloud**

It has been suggested that a hybrid cloud environment combining resources from both internal and external providers will become the most popular choice for enterprises. For example, a company could choose to use a public cloud service for general computing, but store its business-critical data within its own data centre. This may be because larger organisations are likely to have already invested heavily in the infrastructure required to provide resources in-house – or they may be concerned about the security of public clouds (see page 9 for more on this subject).

What Services are available from the Cloud?

There are many services available which are deliverable via the cloud computing model, below are of a few of the more widely used cloud-based solutions:

- **Hosted Desktops**

Hosted desktops eliminate the necessity for traditional style desktop PCs, and cut the cost of providing the services. A hosted desktop looks and performs exactly like a normal desktop PC, but the software and users data use are held in remote, data centres, as opposed to being on each person's individual machine. Users can access their hosted desktops from anywhere in the world with an internet connection, using either a PC, laptop or, for maximum cost saving, a thin client.

- **Hosted eMail**

As more and more organisations seek out secure cost effective and reliable email solutions, they are changing to hosted Microsoft Exchange®. Being the global leading email platform, this hosted service allows organisations of all sizes to obtain the benefits of MS Exchange® accounts without the investment into the expensive infrastructure themselves. Hosted Email is kept centrally on managed servers, with redundancy and fast connectivity from anywhere in the world with an internet connection. This enables users to access their email, calendar, contacts and shared files from Outlook®, Outlook Mobile, and Outlook Web Access.

- **Hosted Telephony (VoIP)**

VOIP (Voice over IP) is a means of making and receiving telephone calls and services via digital internet networks. In general terms of usage and functionality, VOIP is very similar to traditional telephony, and VOIP-enabled telephones works just like a regular land line handset, however it also has clear cost benefits. A hosted VOIP system replaces expensive old fashioned phone systems, installation, handsets, BT lines and numbers with a cost-efficient alternative that is available to use on a simple cost effective per user monthly subscription model. Usually, all that is need is a pre-configured handset which is then plugged into your broadband or office network which then allows you to access a feature rich telephony system with features such as voicemail, one number, follow me and voice mail to email.

- **Hosted Storage**

Storage in the cloud is a rapidly growing hosted service as the benefits it offers, like, no capital costs, expandability, anywhere access and the removal of the need of any in-house maintenance and management. It is simply the provision of data storage as a hosted service, from a third party, accessed via the internet and usually charged for per GB of capacity used per month.

- **Hosted Dynamic Servers**

Dynamic servers are the next generation server environment in place of the traditional dedicated server method. Most hosting service providers provides its clients access to resources that look and act just like dedicated servers, but that are fully scalable. You control the amount of processing power and disc space you use, so you don't have to pay for any hardware you don't need or use.

Why Switch from Traditional IT Services to the Cloud?

There are numerous reasons why businesses of all sizes are changing to the cloud hosted services IT model. It offers a way to increase and decrease capacity or add capabilities simply and quickly without the investment costs in new infrastructure, training of personnel, or licensing costs of new software. Companies adopting the hosted IT model can save a significant amount of money and also relieve themselves of the burden of ownership, management and support.

- **Elimination / Decrease of Capital Expenditure**

Businesses can avoid spending large amounts of capital on purchasing and installing their own in house IT infrastructure and or applications by making the move to the cloud hosted model. Capital expenditure tied up in IT diminishes the availability of working capital which may be better used for other business investments. Cloud computing provides a simple operational expense which is simpler to budget for month-by-month, and averts money being wasted on depreciating assets. Furthermore, client's need not tie up capital for excess resource capacity in-house that may never be needed or used.

- **Reduced Administration Time & Costs**

IT solutions can be deployed very quickly, managed, maintained, patched and upgraded by your third party service provider. Technical support is provided 24/7 by reputable providers for no extra charge, reducing the burden on IT staff, or in many cases removing the need for internal IT support staff completely. This can free up their time to concentrate on business-critical tasks. Cloud computing enables businesses to streamline processes, and can remove duplication of many support and administrative tasks.

- **Improved Resource Utilisation**

Cloud computing reduces costs and makes the most of utilisation by providing resources only when they are needed. Companies don't need to be concerned about over-provisioning for services that do not align with their forecasts, or under-provisioning for services that develop faster than forecast. Moving more applications, infrastructure and support to third party cloud services providers can free up valuable time, energy and finances to focus on taking advantage of technology to improve the core business potential. Utilising cloud services can free up precious time and resources creating the opportunity to make better more productive use of your time – focusing on your business and allowing your cloud service providers to manage the resources leaving you to focus on getting to where you want to go. When sharing computing power there are material improvements in utilisation rates, as server usage is maximised, this can considerably diminish costs.

- **Economies of Scale & Size**

Cloud computing users benefit from the economies of scale enjoyed by service providers, who generally have very large-scale data centres operating at very high levels of efficiency, with multi-tenant architecture enabling them to share resources between many different customers. This model of IT provision allows them to pass on savings to their customers.

- **Scalability & Demand**

Scalability coupled with flexibility are extremely valuable advantages provided by cloud computing, this enables your business to act quickly when your IT needs change as they inevitably do, increasing and decreasing capacity and adding or removing users as and when the need arises; responsive to the actual IT needs as opposed to forecasted and projected needs. Additionally as cloud-computing shadows the utilities model where the service costs are only ever charged for actual consumption, therefore you only pay for what you use.

- **Fast & Simple Implementation**

An automated customer greeting that provides callers the option to enter their desired party's extension, or select an option from a menu. E.g. "Press 1 for Sales, Press 2 for Engineering". Each sub-level menu requires a separate call centre instance.

- **Benefits for Smaller Businesses to Compete**

In the past there has been a vast difference between the IT resources available to large companies and smaller businesses. Cloud computing has made available possibilities to smaller companies to participate on a level playing field. Rental of cloud based IT services in place of ownership of hardware and software provides affordability to smaller businesses and removes the capital cost associated with ownership. This also frees up capital to be used for other business activities. Cloud service providers offer enterprise level technology to SMBs for a low monthly fee, for which the ownership costs would be hundreds of thousands of pounds.

SLA's, Uptime Guarantee

Ask to see the service level agreement (SLA) from a prospective service provider, also ask about reliability and guaranteed service levels – confirm with them that your applications and services are always accessible.

- **Access Anywhere Anytime**

Your cloud services supplier should provide access to your applications and data securely from a PC, laptop or thin client with an internet connection from anywhere at any time. Collaboration can be improved and simplified because your applications and your data are all located and stored in the cloud, multiple users are empowered to work and collaborate on the same projects, share calendars, contacts and more.

Obviously if your internet connection fails at your location it will not be possible to access your data. However because with the cloud you can access from anywhere with an internet connection, users are able to simply connect from an alternative location – for example if your office connection fails and you don't have redundancy (known as a failover internet connection – a 2nd connection), you can of course get access to your data from home or a Wi-Fi enabled point. Flexible working is easily achieved with access from anywhere this can also help you to cut overheads and provide flexible working for your staff.

- **Technical Support**

Your chosen cloud service provider should be providing 24/7/365 (24 Hours a Day–7 Days a Week–365 Days a Year) technical and systems support by qualified and certified engineers with agreed SLAs for example response to emergency situations within 15 minutes with a work until fixed no matter what agreement.

- **Disaster Recovery / Backup**

Research indicates that almost 90% of businesses have inadequate disaster recovery or continuity plans, making them extremely vulnerable and exposed to any disruptions that might occur. Cloud services Suppliers offer an array of disaster recovery services, from cloud backup where your desktop or office network are backed up in their data centres to setting up ready-to-go desktops and services just in case your business is hit by a disaster. With Hosted Desktops you don't need to be concerned about data backup or disaster recovery, as this is included as part of the service.

Should I be Concerned about Security?

Many companies considering implementing cloud computing solutions raise concerns about the security of their data being both stored and accessed over the internet. What many don't appreciate is that service centric suppliers observe stringent privacy rules and policies with sophisticated security procedures; encryption of all data is a fundamental example of this. You can decide on encryption of data prior to storing it on a provider's servers. This results in suppliers offering greater data security and confidentiality than companies that store their data in-house. Conversely, not all suppliers offer or provide identical levels of security. It is suggested that everyone with concerns over security and access should investigate the supplier's security policies prior to using their services.

Technology analyst and consulting firm Gartner suggests seven security points to consider when evaluating a suppliers services:

1. Privileged user access—enquire about who has access to data and about the hiring and management of such administrators.
2. Regulatory compliance—make sure a vendor is willing to undergo external audits and/or security certifications.

3. Data location—ask if a provider allows for any control over the location of data.
4. Data segregation—make sure that encryption is available at all stages and that these "encryption schemes were designed and tested by experienced professionals".
5. Recovery—find out what will happen to data in the case of a disaster; do they offer complete restoration and, if so, how long that would take.
6. Investigative Support—inquire whether a vendor has the ability to investigate any inappropriate or illegal activity.
7. Long-term viability—ask what will happen to data if the company goes out of business; how will data be returned and in what format.

However security is normally improved by storing data in a centralised location. In data centres security is typically as good as or better than traditional systems, as they devote resources to security issues which many businesses would find cost prohibitive.

What about Integration?

In order to maximise your existing IT infrastructure, any cloud computing services you decide to use should be capable of easily integrating with your current infrastructure. Zed One's enterprise offering is being able to easily integrate with customers' existing networks, so that our services become a seamless extension of those already provided by in-house IT departments. A Cloud computing infrastructure should allow enterprises to achieve more efficient use of their existing IT hardware and software investments.

Good quality suppliers will work with many different channel partners enabling them to provide complete solutions for small businesses, if a company wants to evaluate, plan migrations and move towards cloud computing, this can be done quickly and simply.

Conclusion

As businesses expand and grow, inevitably their IT needs grow too. Scalability and swift deployment provided through the cloud computing model allows you to expand your IT on demand and meet increases and decreases in your requirements quickly, efficiently and without the need for capital expenditure. Security is usually also enhanced, alongside greater resilience, flexibility and responsiveness of the cloud model for IT services which means you can respond quickly to a fast changing business environment. Time and resources wastage is greatly reduced, allowing management to do far more with less which in turn delivers a leaner, more efficient IT business model all of which is available on demand.

Operating your business on a cloud based IT model can help organisations not only to survive in tough economic times but can help a business to thrive by equipping it with the latest and best business tools available and providing access to forward-thinking technologies at a fraction of the cost associated with buying and running the systems in-house. Check that your supplier is able to deliver the range and quality of services you require, and your organisation will reap the rewards and benefits of cloud computing.

About Zed One

Zed One's expertise, specialisation and core focus is in servicing the IT needs of smaller businesses, unlike dedicated hosting companies who can only provide hosted solutions Zed One are more akin to an independent financial adviser where our approach is to work with our clients to establish the best solution for their specific and individual business needs. Like most things in life a one size fits all is far too simplistic in today's complex IT environment and for this reason we specify, implement, manage and support a portfolio of products and services shaped to fit each client's specific requirements.

There are some businesses for whom hosted solutions are not appropriate to their individual circumstances and the case for owning in-house IT systems is the best and correct IT model for them to operate. It may also be the case that it makes sound business sense for an organisation to use a hosted Exchange/Outlook mail service but to have their business applications in house. However for businesses whose circumstances and needs fit the hosted cloud computing model our experience has shown it to be a very cost effective and efficient method of obtaining IT services for those businesses.

Why consider using Zed One?

Zed One are a Microsoft "Certified Gold partner" and also hold the Microsoft "Small Business Specialist" accreditation this means we have been recognised and approved to the necessary standards to specify, implement, manage and support Microsoft products which are at the heart of IT systems however the material difference in our view which separates us from the rest is that we provide "fully managed" hosted services this means we do not offer any complicated dashboards for you to manage your users and systems. Our offering is truly managed as we literally do everything for you! "We do all of the techie stuff for you"

We are owner operators of hosting services from our Kingston-Upon-Thames premises, we do not outsource, we are a small private company providing enterprise class IT to small and medium businesses working together to help them leverage the benefits from their IT investment and to manage the cost liability of owning IT by offering it to customers as an on demand pay as you go service. Our current hosting products include Hosted Managed Desktop, Software as a Service (SAAS), Hosted Managed Exchange, Hosted Managed Telephony (VoIP), and Hosted Dedicated Servers. With Zed One Managed Hosting services clients only pay for what they use, and can scale up and down as and when required. For more information contact Zed One.

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