



White Paper What is cloud computing and what does it mean for you and your business?

In this white paper, we look to cut through some of the fog surrounding 'cloud computing', crafting clarity out of confusion. We're focusing on two very simple but core questions: what is cloud computing and what does it mean for you and your business?

One of the problems with 'the next big thing' is that all the hype and hoopla can quickly drown out the basic facts, those key fundamentals that are your starting point for any serious consideration of the subject. The evangelists move it quickly into the stratosphere, triggering the cautionary naysayers to bring things down to earth and there follows the inexorable tug of war between the early adopters and late majority. We all know what the eventual result is going to be, we just don't know how long it's going to take. But the claim and counterclaim produces a firestorm of noise and you only have to google 'cloud computing' on the Internet to see the mass of digital ink it's already generated and the 101 disparate views it has spawned.

But you just want the answers to two questions, right? What is cloud computing and what's in it for me?

What is cloud computing?

Up until recently cloud computing has been – appropriately but unhelpfully – a rather nebulous concept. Ask a hundred people what is meant by the term and you'd get a hundred different answers. But now definitions are starting to coalesce around common themes, albeit still expressed in individual ways. For example:

There's the formal precision of heavyweight analyst Gartner who describe the cloud as "a style of computing in which massively scalable IT-enabled capabilities are delivered 'as a service' to multiple customers using Internet technologies."

Then there's this rather more colloquial offering from Accenture's chief scientist, Kishore S. Swaminathan: "Cloud computing refers to the sourcing of some capability – hardware, software, execution of a business process – from somewhere 'out there.' "

And finally this granular assessment from Intel: Cloud computing offerings are:

- Abstracted and offered as a service
- Built on a massively scalable infrastructure
- Easily purchased and billed by consumption
- Shared and multi-tenant
- Based on dynamic, elastic, flexibly configurable resources
- Accessible over the Internet by any device

Curiously there is more uniformity of expression when drilling down into the subsets of cloud computing, with broad agreement on the three main categories of external service available:

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Software as a Service (SaaS) – Software delivered as a hosted or managed service over an IP network. This is usually based on a per seat per month subscription model with fees based on usage, with the provider responsible for support and upgrades.

Platform as a Service (PaaS) – Platforms that give users the tools and environment in which to develop and deploy applications without the need for their own supporting data centres

Infrastructure as a Service (IaaS) – The availability of computing infrastructure, such as servers and storage, as a commoditized utility, enabling an enterprise to bring on line the capacity and resources it needs without having to invest in their own underlying infrastructure.

So now we have a grasp on the fluffy cloud, the next question is, how does all this benefit your business? Why should cloud computing and cloud-based services be on the radar of not just the CIO but increasingly the CFO and COO?

Making the business case

Cloud-based services are becoming large, persistent blips on the radar because they do have immense potential to deliver a range of financial, technical and operational advantages. But realising that potential takes a lot more than just flipping a button and turning everything over to the cloud. As with every other computing trend, the skill lies in harnessing the technology in an appropriate, safe, rational and timely manner, and everyone's journey will necessarily reflect a bespoke mix of factors.

But when it comes to a benefits list, you should expect to be ticking off at least some of the following:

Reduced cost and waste

Most organizations are paying the price for 'rainy day' redundancy, systems overbuilt to cater for those 'just in case' crashes or spikes; or suffering equally from infrastructures that have scaled up to meet demand in the good times but have no handy 'roll-back' button when things go the other way. Unused capacity means waste and waste means unnecessary cost. By moving to a flexible 'utility' model, you pay only for what you use, matching monthly delivery to the precise requirements of the business: with all this scalable computing power on tap, you have the freedom to adjust capacity up and down at will, adding, removing or reassigning resources as required. Why over-provision, with all the hardware, software, power and management overhead that this entails, when you can tailor a perfect fit?

Improved cost control

For the CFO cost control and cost stability are arguably as high a priority as cost-efficiency. Having fixed, known costs doesn't just make for easier cashflow management, it also simplifies scenario planning – if we do x and y, the cost implications are z. And greater transparency on cost means that it is easier for the CFO to make their own assessments of value, rather than relying on the interpretations of colleagues.

Reduced carbon footprint

Over-provisioning has an adverse ecological as well as economic impact with the environment ultimately paying the price for all that wasted energy, under-utilized capacity and obsolete material. Centralising your IT in the cloud is





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inherently green as you can do more for less: the use of multi-tenancy and virtualized systems optimise how we use computing resources, which means less power for each unit of work; while SaaS requires no delivery medium other than an Internet connection, reducing the insatiable churn of hard copy discs, tapes et al. Recent studies from Netsuite have revealed that reduction in pollution from businesses that have adopted the cloud model have reached an estimate 423,000 metric tonnes of CO² per year. Put another way, this equates to the electricity consumption of 56,000 homes or 1,000,000 barrels of oil annually. Hardware, power, cooling, floor space, cabling, discs, packaging, back-up systems, they all combine to put a black mark against your green credentials. The cloud can't make you whiter than white - but it will remove the shadow of an excessive carbon footprint and minimize exposure to environmental tax reform.

Greater financial flexibility

Cloud-based services enable IT spend to be translated from upfront Capital Expenditure (CAPEX) to Operational Expenditure (OPEX). As a balance sheet sweetener, it's a 'no brainer' but it has impact elsewhere too. New IT projects can be difficult to finance because of the large upfront capital costs, a situation not helped by the risk of that project failing to deliver as expected, or the threat of market conditions deteriorating to make the expense unsustainable. But what if that lack of investment compromises performance? With the cloud, you have the ability to commission additional capacity, deploy new applications or initiate big-ticket projects without significant capital outlay, enabling the business to push on with minimal financial exposure. For those organizations looking to gain competitive advantage through innovation or to lock down customers through improved service delivery, then the IT project that has been tagged as

pivotal to success no longer risks derailment by budgetary constraints.

Greater business agility

Cloud computing is not just about enabling organizations to do the same for less and/or with better fiscal control, although that's probably a sufficient lure for most CFOs to take an interest. Of equal weight at least is the very real potential for being able to do more and to do it quickly. Agility is the current business watchword: having the vision, will and ability to anticipate or respond to commercial imperatives, customer demands or market conditions. For years the received corporate wisdom was always that the 'big would devour the small'. SMEs echoed with the mantra 'Get big, get out or get niche'. But in today's mercurial digital economy size has given way to speed: the quick will devour the slow.

This was true even before the seismic ruptures of 2008-09 but now it's even more relevant given that most organizations find themselves operating on 'shifting sands'. Globally and nationally, economically and politically, there is an uncomfortable degree of uncertainty, an unpredictable state of flux surrounding UK plc. And while businesses have to contend with those uncertainties at the macro level, at the micro level they also need to be hyper aware of changes, opportunities and risks within their own marketplace. Against this backdrop, long-term strategic IT planning is becoming increasingly difficult; the uncertainty is also hindering IT investment, sapping the will even to evaluate projects, let alone sign off on them.

But there are huge dangers in just treading water. Competition is rife in every sector and clients use this to their advantage - there are no signs of them soft-pedaling on their demands, in fact they are more likely to be ratcheting them



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up as they know that suppliers are desperate to maintain revenues and market share. If a supplier doesn't respond appropriately or rapidly, then they will inevitably be pushed backwards in the competitive tide.

In this context cloud computing is a compelling business support tool. Because the time, money and effort needed to deploy new IT resources or launch new applications is reduced, it allows an organization to be much more responsive to the drivers and dynamics affecting its business. A threat or opportunity is not well-served by a traditional 6 or 12-month provisioning cycle; a balance sheet doesn't welcome large infrastructure investment to support an application roll-out; the inevitable bottleneck that develops while decisions are pondered on, budgets assessed, teams assembled is unfavourable to the lean and mean, clinical delivery of new capability and functionality across the enterprise. Utilise cloud-based services and you can start talking in terms of days and weeks, sometimes even hours, for provisioning, not months and years; costings are immediate, fixed, transparent and off the balance sheet; services can be precisely configured to your exact needs; specialist expertise resides with your provider and is available on tap, no internal overhead required; and yet you still have control at all times.

Take InTechnology's Virtual Server Hosting for example, which gives customers the ability to buy, configure and manage virtual servers/virtual machines that are hosted within InTechnology's private cloud. The service comes with a self-provisioning portal, enabling users to change, offline, power down or upgrade virtual machines (VMs) as needs dictate – new VMs can be up and running in four hours or less and operate the same pay-as-you-use model. Whether it's

providing on-demand additional capacity or a temporary R&D environment or a permanent element of a business continuity plan, the accessibility, availability and affordability of this and similar cloud-based services combine to deliver that essential agility and flexibility.

Improved operational capabilities

With the modern enterprise totally dependent on the proper functioning of its IT systems, it can be enough of a trial for an in-house team just to keep things straight and level – hardware, software, networks, communications, security, it's a complex web that can eat up time and resources. And yet demands on those two precious quantities only seem to be escalating. Workplace dynamics are changing, with employees increasingly requiring access from anywhere at anytime via a multiplicity of devices; organizations are often more geographically dispersed, making IT management difficult; customers expect 24/7 access to client-facing portals and applications; the demand for new technologies to support performance and productivity such as video conferencing or collaborative platforms is gathering pace; all in all, a heavy burden and one which can compromise an IT team's ability to expand operational capability in line with the needs of a business and its users.

The beauty of cloud computing is that it gives organizations the ability to harness the power of advanced technical infrastructure, allied services and associated human capital without a) the burden of ownership, b) undue delay and c) operational or financial risk. What was impossible yesterday becomes possible today because it's there on tap, ready to flow.



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Better utilization of expertise

A clear consequence of the above is that moving services to the cloud helps free up valuable IT resources, switching them from cost-centric 'keeping the lights on' duties to more profit-oriented value-added activity. The modern CFO realizes that the company should be focused on its core competencies, its business processes and its differentiators; they'll have little appetite in building out an expensive IT workforce just for purposes of 'house-keeping', not when so much competitive advantage lies in business specific applications and intellectual property.

Similarly the progressive CIO has no desire to be a high level 'spanner man', primarily reactive and operations focused. He knows his real value lies in working more as a strategist, partnering with business units to better understand their requirements and dial in as needed the projects, programs and platforms that will underpin success going forward.

Richer resource pool

Cloud computing gives you more to play with. By its very nature, with large amounts of scalable computing power always available, there's the option to make commodity IT services like infrastructure for storage, data back-up and email archiving serviceable externally at a much lower price point – relieving budgetary and operational pressures into the bargain. Plus, with providers now offering a raft of specialist cloud-based services, such as hosted IP telephony and hosted Unified Communications, organizations can consider leveraging those resources to bring in new and desirable functionality; this may have been previously denied to them due to lack of budget or the lack of necessary skills in house, but utilizing the cloud and the expertise within, they can deploy quickly and cost-effectively for maximum business advantage.

Enhanced business continuity

In the same way that traditional 'overprovisioning' can be supplanted by the 'made to measure' tailoring of the cloud's massively scalable IT-enabled capabilities, so can the long-standing problems around business continuity be similarly resolved. At enterprise level, it is estimated that almost 80 per cent of an organisations's disaster recovery budget is given over to the protection of just 20 per cent of the total server network, namely their most business-critical servers. It's not ideal but it's an understandable risk management trade-off – budgets only go so far and one must protect mission-critical operations above all else.

For years the stumbling block to lowering the budget figure and upping the server estate coverage has been the high cost of appropriate levels of redundancy - the hot standby environment with high end server clustering and data replication that powers them. But with cloud computing making the provision of dynamically scalable and virtualized resources more widely and cheaply available, the DR picture is changing. For example, any company building their infrastructure on top of a provider's cloud-based services, for example, email or web application hosting, will automatically have built-in hardware, data redundancy and backup.

Organizations looking to protect their own in-house assets more efficiently and cost-effectively can utilize external infrastructural components such as storage servers and virtual machines. Virtualised DR gives you the means to swap out system building-oriented solutions mired in compromise, cost and complexity and bring in a streamlined – and high performance – alternative. No longer do you have to manhandle heterogeneous blocks of OS, software and application data; instead you can simply slip the

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encapsulated or homogenous workload into a virtual machine environment at a secondary location, boot up the VM and set yourself on the path to rapid recovery. And if all this is available as a managed or hosted commodity, you don't have to worry about any in-house provision at all - the on-demand, pay as you use model ensures that you have what you need when you need it, with no complications, no waste, no risk.

Reduced risk

Disasters may be rare but you still have to plan for them just in case. But low-grade risks are the stuff of everyday and you have to deal with them - or avoid them. Network outages, poor LAN or WAN performance, spam and viruses, application crashes, database corruptions, these are just some of the common IT nuisances that can increase your exposure to inefficient working, lower productivity, poor staff morale and client dissatisfaction. By transferring the responsibility for delivery and support, monitoring and maintenance to a third party operating within the cloud, you have a de facto IT team (albeit one external to your organization) focused solely on the optimal performance of the services subscribed to; charged under the terms of a Service Level Agreement to respond and remedy issues within a certain timeframe; and able to call upon a broader, deeper resource pool to effect rapid change or improvement.



Technology refresh and the cutting-edge

When IT heads talk about their domain, it's not usually long before the word 'legacy' is used. It's invariably meant as a euphemism, a kindly way of labelling something as well past its sell-by date but still on the shelf as it either has a very particular use or that simply nothing else has been given the green light to replace it. Most organizations will still be coping with a lot of legacy equipment and systems, while also having to deal with a pace of technological change that is making even many of their more recent acquisitions obsolete in a shockingly short space of time. Frustrations only grow when new developments and applications present some attractive opportunities for, say, process efficiency or improved communications, and yet this potential remains untapped because of a rather blunt truth - there's either no budget or ability to add a cutting-edge.

One of the least exalted aspects of cloud-based services is that technology refresh and modernity come as standard - if you want the latest and greatest software version, that's the one you subscribe to. If you have a creaking infrastructure, you can have your IT delivered into you from a provider's data centre with its state-of-the-art infrastructure instead. If there's a new application that could catalyse business performance, you can evaluate it without having to build a data centre and a team to do it first. If it's not right, you just walk away. One of the country's largest recruitment consultants estimated it saved itself half a million pounds on technology refresh alone when it moved its entire IT estate into the cloud. Fluffy benefits these are not.

Indeed, the benefits are clear and compelling - but they need context too. Organizations are not rushing headlong into a new computing



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paradigm with their heads in the cloud – as with every other major IT trend, they're making a careful, studied and thorough evaluation of the concept. In a recent CIO.com survey of IT leaders, 58 percent of those surveyed believe that cloud computing will trigger a profound shift in information technology. Yet 36 percent believe that current offerings are not yet appropriate for their business. Earlier statistics from an IDC Enterprise Panel revealed that security, Quality of Service (performance and availability) and fit (ease of integration and customization) were the top three concerns of a similar audience.

It's incumbent upon a service provider to acknowledge and address these concerns and work consultatively and collaboratively to fill in the 'trust gap'. IT heads should be willing to meet them halfway. The variety of cloud computing solutions in the marketplace today already present a broad range of service options that can fit a wide range of computing requirements. As the market matures and adapts to its customer base, those options are only going to grow in sophistication and suitability. But for the moment, assessing the elements of each service offering, understanding how they can serve your operations and judging the calibre of the provider behind them, is the commonsense approach to the cloud.