

**TalkTalk
Business**

Business Brief

Cloud

Migrating with vision and purpose

One third of all digital
information created annually
will either live in or pass
through the cloud by 2012.

IDC Digital Universe Study, 2010

Some say that yesterday belonged to the "cloud", today is all about "hosted" and tomorrow, for all anyone knows, is already "virtualised".

Irrespective of the jargon, in essence, what we're talking about is the ability to rent a virtual server, load software on it, turn it on and off at will, clone it indefinitely and scale automatically. Architecturally, cloud computing can be provided using a firm's own servers, or it can be provided by a cloud operator that takes the capital risk of infrastructure.

While many in the industry "don't believe the hype" when it comes to cloud, others are resolutely evangelical – preaching the virtues of conversion. No matter which of these tunes you sing to, it's clear the business community needs more than buzzwords and sound bites to underpin ICT strategies.

So, where are we today? If Gartner's 'Hype Cycle' is to be believed, cloud as a technology is operating at the "peak of inflated expectations" and will soon freefall into a "trough of disillusionment". The theory being that cloud has been over-hyped and under-delivered.

Will this virtual panacea soon give way to a more grounded, realistic landscape? Is the hype really hype, or something more tangible, meaningful and relevant? Suspend those thoughts for a moment - we will explore those questions in the commentary to follow. Instead, we invite you to focus on two important statistical details:

- **More than 8 out of 10 business have at least some of their infrastructure already in the cloud**
- **On average non-virtualised servers operate at only 10-15% utilisation**

Barriers

Now, whether your organisation is an early adopter, a latecomer or cloud sceptic, let's examine the commonly held business barriers to cloud adoption.

1. SECURITY
2. SUPPORT
3. MIGRATION
4. ANALYSIS PARALYSIS

1. Security

Historically, the business community has bought into the idea that IP protection is best achieved within the corporate firewall. And that this is where application, end point and edge security is at its optimum. 'Moving' data to the cloud tends to be viewed in the context of migrating to a public cloud environment and is filled with negative security connotations revolving around increased risk and potential non-compliance with industry standards.

Issues over the location of data and the local laws and jurisdictions are prevalent and, just like any other technology, there are instances of cloud systems proving less than infallible. Cloud applications, for example, should continue to operate with their data intact, despite the failure of one or more servers or virtual machines. This means that any disruption to stakeholders and the business is minimised or, ideally, eliminated.

As IDC research analyst, David Bradshaw, says: "The richer the pot of data, the more cloud service providers need to do to protect it."

Provide access only to authorised, authenticated users to ensure that remains safe. Have strong authentication, authorisation and accounting procedures establishing security of data at rest and in transit – lock down your networks. Remember, security should be inherent to the application, its deployment and use (architecture and processes).

2. Support

Some corporates struggle with the concept of cloud compatibility. This is especially the case if previous spending has been high on building on-site data centres and all that entails from a financial and internal resource standpoint.

How does the cloud complement that without seeming an indulgence too far? How will integration be delivered when you can't afford a rip and replace? ICT resource is limited, but aren't most cloud suppliers self-service? How will manage the back-up and monitoring? These are just some of the issues that dominate the corporate mindset when examining the pros and cons of a virtualisation strategy.

Engage with specialists who know their market and have the track record to prove it. Ensure the transformation process is done with you not for you. As well as crossing the 't's and dotting the 'i's with robust contracts and SLAs, ensure that you have a good cultural fit with your project team and that self-service is applied on your terms, not theirs.

3. Migration

Moving to a cloud is also thought, by some, to be an exercise in loss of control – particularly within IT departments. That can be true enough, because without third party access and user permissions, the cloud – as a flexible, highly-accessible platform – will quickly spiral from being beneficial to un-manageable.

It cannot be ignored that a cloud model – public or private – requires a shift in architecture, development, delivery and management strategies. Without careful planning, controlled implementation and specialist support the required performance improvements and efficiency savings promised by the cloud will be left un-delivered. Control over the virtual environment requires a combination of policies, enforcement and auditing – all the things you already do within the corporate firewall.

Coupled with this, the migration process needs to be performed at a high velocity with minimal pain – internally and externally – if the organisation is going to buy-into making the transition a success.

Choose a cloud provider that knows their own market and can provide, for example, ways to archive and deploy libraries of virtual machines. Also look for providers who use standard APIs, where possible – particularly those that are delivering storage and deploying or scaling applications.

4. Analysis paralysis

Any form of investment – even one without capital cost implications – will be scrutinised heavily in today’s competitive, cost-controlled, cash-poor economic climate. With businesses needing to innovate quickly, while attempting to generate efficiencies, technology is seen as the silver bullet.

But, with a history of continually doing more with less, has mindset has become an inhibitor to IT departments that are already at breaking point. It’s no surprise, therefore, that a culture of analysis paralysis pervades the corporate world with the c-suite striving to get blood from a stone and the IT function, understandably, reluctant to trigger another major undertaking.

The purpose of the cloud is to get things done quickly, yet it requires a change in approach from top to bottom. The CIO needs to communicate that it’s no longer business as usual and earn the buy-in of the executive team. It’s not quite a case of short-term pain for long-term gain, but the sentiment certainly resonates.

Benefits

By implementing a cloud strategy, we've saved USD 17 million to date – and we anticipate approximately USD 7 million annual savings over the next three years.

Diane Bryant, Intel Vice President and CIO

So, if there are so many valid barriers to entry, why have more than 8 out of 10 firms got at least one foot in the cloud already? Why have 75% of businesses moved up to half of their existing IT infrastructure there? And why have almost 1 in 10 (9%) already migrated the majority of their business to a public, private or hybrid cloud model (IDG research)?

Some of the macro or meta drivers behind the movements to hosted solutions are market orientated and can be loosely categorised as follows: economic constraints, technological development and the growth of consumerisation.

Coupled with these, at an enterprise level, the business case for deploying applications using the cloud include: reduced run time, quicker response time, lower physical infrastructure risk, minimal cost of entry, increased pace of innovation.



Now, let's explore some of these aspects in more detail:

- 1. EFFICIENCY**
- 2. COST**
- 3. CONSOLIDATION**
- 4. SCALABILITY**
- 5. INNOVATION**
- 6. FLEXIBILITY**

1. Efficiency

The theory or philosophy behind the cloud is that it's about paying for what you actually use, not what you might use. Another way of looking at it, purely from finance perspective, is in the sense of avoiding investment in capacity which is left idle for the majority of the time.

Given that – as an industry benchmark – un-virtualised, non-cloud based servers operate at only 10-15% of utilisation, it's clear that any business case for transitioning to the cloud must be rooted in efficiency savings.

Whether or not your primary motivating factor is generating efficiencies, a full or partial cloud solution should always demonstrate a greater utilisation of physical, virtual and/or financial resources. This is the point of cloud computing, so ensure you are getting it.

As a model, you can optimise utilisation by earmarking in-house infrastructure for normal demand and hosted for abnormal workloads. This can protect you from seasonal spikes and support higher throughput when new products, applications and tools are deployed.

For you as an IT stakeholder, the benefits are realised through easier management with the cloud removing the need for time-intensive tasks such as manual purchasing, installation, cabling and configuring servers, storage and network infrastructure.

Cloud should provide efficiency in terms of reduce capital and operation costs – benchmark it and ensure these savings are realised through your SLAs. Efficiency should also manifest itself in speed to market – track it, measure it.

Efficiency should be delivered through considerably higher utilisation – is your cloud model working hard for the business, or running idle like its predecessor?

2. Cost

Cloud is about embracing the model of cost being temporary, not permanent. Migration to the cloud – on or off premise – is routed in an ideology of why buy and carry the risk when you can scale up or down at will on somebody else's infrastructure?

With zero capital investment, lower operational costs (processing and storage) and reduced time to market, the cloud model reduces both internal and external costs. With cloud storage and bandwidth charges now so affordable, many firms are recognising that legacy hardware-based systems are quickly depreciating assets which consume too many resources at inception and in operation.

Cloud computing, on the other hand, brings cost reduction through a pay-as-you-go (pay by the hour / usage, not by the quarter or annual contract) model that minimises both direct costs (hardware, software, floor space, power) and indirect costs (cash flow, depreciation, purchasing, administration, management).

Clouds are built on the premise that applications are temporary and billing, consequently, is based on resource consumption such as: CPU hours used, volumes of data moved, gigabytes of data stored.

From a financial perspective, migration to the cloud should deliver both a tangible reduction in capital cost, but also a reduction in operational expenses including: storage, energy, waste and maintenance. A data centre model, based on the private cloud, is likely to provide the optimum blend of performance and cost reduction.

3. Scalability

The value of hosting applications outside of the corporate data centre are lauded behind the promise of “unlimited capacity” through the ability to quickly and easily create copies of existing environments.

But scaling up is only one part of the bargain. The biggest benefit is the ability to scale down too. Hosted applications can scale with workload demands so that performance and compliance with service levels remains on target.

To do this, applications and data must be loosely coupled to maximise scalability – up and down – so that the cost of operating in the cloud is controlled and minimised. As part of this process, work with your provider to examine whether scaling can be done horizontally over a number of servers (i.e. refactoring) as this will have an impact on your cloud strategy.

Use the virtual environment to encourage enterprise expansion and contraction based on workload and performance parameters. From the outset of renewing or building your cloud architecture build scaling automation into the process allowing departments to self-service their needs within protocols governed by the IT function.

4. Consolidation

Very much linked to cost reduction, cloud solutions focus on reducing physical infrastructure through virtualisation. Moving non-mission critical systems or automated processes to the cloud allows IT departments to rationalise hardware and focus on a more efficient and dynamic data centre model.

Choosing what needs to be migrated to the cloud and what type of cloud model is key, so carefully consider the architecture of your stack and how it will service the changing needs of the businesses and its stakeholders (internal and external).

Be mindful too that the cloud increasingly puts powers into the hands of developers, instead of architects, and this brings added responsibility. A developer must, therefore, think like an architect to understand the implications of starting a new virtual machine versus another thread or instance. They should be thinking in terms of consolidation from the outset and be mindful of costs, interoperability, maintenance and management.

The cloud is a lightweight deployment model that enables organisations to develop beta software in a democratic fashion. This landscape of real world trailing and testing can be highly beneficial in deciding which applications are, developed, scaled or – indeed – retired. Consider whether this approach can help you consolidate in real time, once the benefits of the initial cloud migration have taken place.

5. Innovation

A virtualisation strategy can create a more level playing field for new entrants into a market and steal a march on more established players, utilising legacy systems and tools. As we've already learned, the cloud permits enterprises to deploy new or updated products quickly and at a low cost.

Broadly speaking, increased competition speeds the pace of innovation which is beneficial to the market as a whole. The very assumptions of technology innovation are inextricably linked to a cloud-based system with open source at its heart.

Embracing this culture and leveraging developer communities – through the cloud – can aid innovation within the enterprise. For inward-looking, IP protective, conservative enterprises, the cloud can help release the shackles and increase the pace of innovation.

First mover advantage in new markets has never been more important, so if your business is technology and R&D driven, the cloud is the ideal platform to cost and time-effectively test products, services, tools and apps.

Shift the development of nonmission critical projects to a virtual environment unconstrained by development time and costs – the two biggest barriers to innovation. It will liberate your business.

6. Flexibility

Virtualisation affords the opportunity to change according to business conditions including increasing the velocity at which applications are deployed and taken to market.

The cloud environment can be used to test and automate tasks, tools, products and other new initiatives in a virtual environment, while the core business systems and operations operate independently without disruption. This is the kind of agility required to remain competitive, responding to ever more demanding internal and external stakeholder needs.

When properly architected, cloud service delivery can provide flexibility and security to businesses of all sizes. It's important to design the model to make it easy to re-apply changes to new virtual machines and configure appliances through their standard APIs.

The logic behind virtualisation is to re-deploy, not to patch. So, make sure you are carefully managing the model upon which the virtualisation has been based and this will simplify re-deployment.

Finally, remember that large amounts of data and low-bandwidth, lengthens the time it takes to move data. The cost of moving data can be expressed in both time and bandwidth charges. Flexibility to do what you want, when and where you want is all about connectivity. A cloud-based model can be crippled by poor connectivity so ensure your network operator has business grade capabilities to service your post-migration needs.

When working with suppliers consider the value of open versus proprietary APIs. Many are not standardised meaning that they have proprietary features for managing its services, which locks you in and makes it difficult to change providers.

Final thoughts

The first step for the enterprise, before committing to the cloud is to examine the benefits and restrictions offered by the three hosted models: public, private and hybrid. Working with established providers of business grade cloud design architectures, hardware, applications and networks is of paramount importance at the early scoping stage.

So, how do you realise your cloud strategy? Let's look at the key steps:

Take the lead

You need to ensure that IT leads the process from cradle to grave to avoid stakeholders within the business from derailing the project with agendas that are rooted in a silo mentality. The integration phase is critical and it cannot be disrupted by policy and investment decisions made on the fly, or out of self-interest.

Team up

Start by establishing a multi-disciplinary task force to develop a consensus on appropriate technologies and tactics. External stakeholders, consultants and third party research, case studies and statistical evidence are devices you should employ to maintain a healthy distance from the project and ensure the vision becomes a virtual reality.

Select your cloud

In the majority of cases, implementing strategy that works from the inside out is most appropriate. Utilise a private cloud solution for business critical data and applications to ensure security, compliance, IP protection, privacy and regulatory compliance. An on-site, highly-controlled virtual environment is also a great way for the IT function and key project managers to gain vital internal migration experience. Vital so that you can deploy new business initiatives faster and enable internal departments to provision their own computing capacity. But also vital because you are quite possibly gearing up for the future when a public cloud solution is utilised, which will call upon your newly acquired skills and experience.

A public cloud, sat beyond the corporate firewall, is appropriate for non-mission critical support or commodity tools, workloads and APIs. Consider which of these functions are non-core or outside the key businesses competencies, as they can often be hosted externally to provide greater agility and efficiency.

Then, once confidence has been built and expertise established in architecting, building, developing and deploying in the cloud, examine the benefits of a hybrid cloud model. The perfect marriage of public and private can be leveraged by many enterprises to meet spikes in business demand and increase utilisation.

According to Intel, "IT consumerisation will become the norm as the number of inter-connected devices soars to an anticipated 15 billion worldwide." Are you geared up for this explosion and the strain it will place on your IT infrastructure?

Eliminate silos

Your approach to cloud-based ICT may have serious implications – both perceived and actual. Operational disruption is the enemy within, so you need to look at a roll out strategy that learns towards evolution, not revolution. Migrate rather than rip and replace which will be a more manageable process for you, the wider business and, indeed, your project partners. Eliminate internal silos, create a shared, standardised, flexible environment where SaaS, PaaS and IaaS solutions can thrive.

Stack the cards in your favour

Cost reduction should sit at the heart of the transformation process. Larger enterprises should stack the cards in their favour by utilising their economies of scale. The private cloud model is one that is ideally suited to corporate with the ability to leverage both financial and human resources to create a dynamic data centre with connectivity at the core.

Build experience in the private cloud and transfer those skills to managing SLA offered by public and hybrid providers. Add in self-servicing provisioning to keep costs down, guard against proprietary applications and enjoy the flexibility of scaling to speed and need.

Lock it down

Secure your business and intellectual property by exerting control over entry points to enterprise critical data in order to meet your compliance obligations. This should be wrapped up with internal checks and balances, as well as service level agreements with partners to guarantee performance and availability.

Team up

On the assumption, you are ready to activate a cloud strategy, what reassurance should you be looking for from your suppliers? Here are some of the fundamental questions to resolve when moving to a virtualised model – irrespective of its size and architecture:

- **Is there a genuine business case for change?**
- **How will the new set-up be different?**
- **Can all business goals be met by a single provider?**
- **Will the transition interrupt my business activities?**
- **Is my provider reputable and reliable?**
- **Will the hosting provider offer ongoing support?**
- **Are the terms of supply sufficiently flexible?**

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