# Cloud in the real world

## Whitepaper

VIRTUS
Data Centres

# Cloud in the real world

We're a few years in to the Cloud era, and the picture for most users is still confused. Rather than being a brave new world of abstraction, service and affordability, cloud services can be opaque and difficult to cost-optimise. It has become clear that, for all but the most technically adept businesses, assistance and advice is vital for a happy cloud future.

Ten years ago, any self-respecting organisation would be running their IT pretty much the same as they had in the mid-1990s: in-house servers and software delivered most applications. These were supplemented at the arrival of email and the Web as business tools by a hosted email service, and possibly a co-located web presence. That safe and stable state of affairs no longer applies – and that's a good thing.

Organisations now look on IT as a business resource, not a specialist subject. Technology has begun to be a utility – the same as a phone service, water, or electricity. Companies can now buy what they want, when they need it. Of course, this brave new future is not evenly distributed. Some organisations like to keep bits of their technology inside the four walls of their offices. Others have invested in their own data centres. A large number simply can't afford to make the jump – the recession of the last six years has meant they have to sweat the hardware and software investments they have made for far longer than they ever expected.

In the interim, cloud has become accepted as a mainstream technology. Done right, and working in tandem with in-house technology and good co-location, it can deliver immensely powerful capabilities to organisations at a fraction of the cost and a multiple of the effectiveness a large enterprise may have expected only a few years ago. To do this, it needs to be stable, answerable and flexible in order to respond to rapidly changing needs.

## A kickstarter for the cloud era

The good news is that, for many organisations, the capital constraints of the last few years have been lifted – and investment can begin again. But for many, this also comes with the realisation that their infrastructure is woefully outdated. In this context, opting for Colocation or cloud – or both – makes perfect sense. Rather than take a big expenditure hit, CIOs can support their organisation's growth with rentable, scalable technology.

But there are drawbacks; neither Colo nor cloud is a panacea. As cloud providers and users mature with the market, the products on offer become more numerous – and in the process, the choice can become more complex, too.

This paper looks at some of the problematic areas – and the solutions that reveal the full benefits of the current crop of technology.

## Understanding the present

Two of the biggest industry watchers have described the current state of play. Gartner talks of the Nexus of Forces[1], describing it as '…the convergence and mutual reinforcement of four interdependent trends: social interaction, mobility, cloud and information.' This convergence allows individuals to use well-designed, ubiquitous technology to interact with each other – and with information.

IDC sees things slightly differently – as the Third Platform[2], a conglomeration of mobile devices, cloud services, social technologies and Big Data.

Both organisations, however, are in agreement: a convergence of different technologies are creating an environment in which processing power and storage is not always within touching distance of the user – more often than not, it is in a cloud of some sort. All well and good, from the users' point of view. From the perspective of organisations which use or provide this service, however, things are a little more complicated.

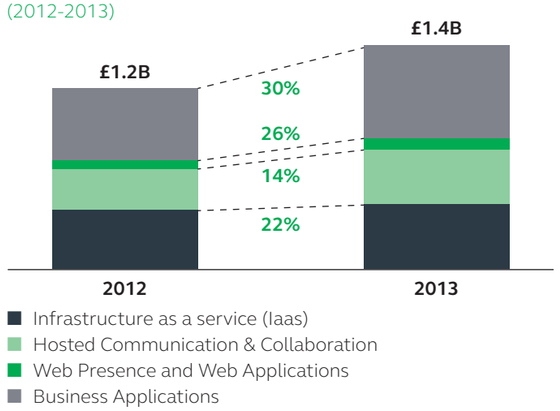
## The biggest question

For many organisations, the battle is between co-locating servers in a data centre, or renting services from a cloud. Typically, the things they buy or rent capabilities or hardware for are fourfold, and are defined neatly by Parallels in its annual Cloud Insights[3] reports for small and medium business customers:

- **Infrastructure as a Service (IaaS)** – including dedicated and virtual servers, managed hosting and utility or elastic computing
- **Web presence and web apps** – from company web sites to eCommerce tools, as well as content delivery networks and content management platforms
- **Hosted communications and collaboration** – email, calendaring and conferencing – amongst others
- **Business applications** – the Software as a Service (SaaS) market, including key enterprise applications like CRM, HR, accounting, helpdesk and virtual desktops

The fourth element, business applications, is the key driver for cloud adoption in UK small and medium businesses, according to Parallels' surveys.

**Figure1.**
SMB cloud services market size growth in UK (2012-2013)




*Source: Parallels[4]*

[1] http://www.gartner.com/technology/research/nexus-of-forces/
[2] http://www.idc.com/research/Predictions13/downloadable/238044.pdf
[3] http://www.parallels.com/products/hosting-cloud-enablement/smb-report/
[4] http://www.skyhighnetworks.com/wp-content/uploads/2014/02/Skyhigh-Cloud-Adoption-Risk-Report-Q1-2014a.pdf

## Let's not forget Colo

Of course, this doesn't include co-located servers – a proven and established route for many. Colocation avoids many of the expenses involved with having one's own datacentre. The background infrastructure is all taken care of: the Colo provides power, redundancy, physical space that is secure (and doesn't need to be acquired or maintained), hands-on support and a greater level of network connectivity and reliability than most organisations want to pay for on their own. Colo can be easily coupled with existing, in-house systems, too.

It is worth noting at this juncture that the benefits of co-locating must take into account the need to find a good provider that can live up to the claims it makes. This doesn't mean going for the biggest (and often most expensive) local provider, simply because the features they provide are not always a perfect match to customer needs. BSkyB recently consolidated its colo providers to those which offered the best match for its requirements, rather than standardising on a small number of large do-it-all providers.[5]

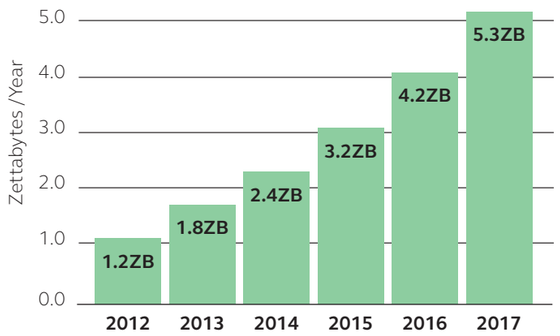
There are, of course, common benefits to both: the ability to interoperate easily with other organisations, including partners and customers, in the same space being one.

Yet there are also downsides, specific to cloud.

## Do you know where your stuff is in the cloud, and is that a problem?

In 2012 and 2013, services provider 2e2 started running into financial trouble. It operated a number of datacentres, and provided cloud services to all kinds of customers – from corporate clients through to sensitive government departments. FTI Consulting, 2e2's administrator, eventually had to approach its data centre customers to ask for money to keep the data centres running. In the majority of cases, customers in 2e2's data centres knew who was hosting their data. But it's quite possible that many of these companies' customers did not. One of the key problems with the cloud is that it's very difficult to know exactly where ones' data resides. Despite this, cloud use continues to rise and rise.

**Figure 2.**
Cloud Data Center Traffic Growth
**35% CAGR 2012-2017**




*Source: Cisco Global Cloud Index*[6]

## Who owns the problem – and what's the solution?

A survey by Skyhigh Networks[7] of 175 organisations with a combined 5.9 million users between them found that the average organisation was using 626 cloud services. Overall, 2,675 cloud services were in use, a sequential growth of 21% over the previous quarter.

These slightly startling facts illustrate a key problem for many organisations: managing and controlling cloud applications is incredibly difficult, not least because any employee can start to use them – and any employee with an expense account can start pointing operating expenditure at a commercial cloud service. This, in itself raises further problems:

- Individual users are unable or unwilling to negotiate discounts, and may be unaware of other users buying the same services
- Users rarely read the small print – especially if the company is footing the bill
- No understanding of whether the services create unacceptable risk, or break the law
- No understanding of security or compliance requirements
- No understanding of platform policy

In short, the sorts of issues addressed by in-house IT departments or resellers when choosing services and applications are routinely ignored or overlooked by users. Instead of being concerned about being squeezed out of a job by end users buying services direct from companies, they are actually an integral part of successful cloud deployments. As the single source of responsibility, they are the one person or organisation to call if something goes wrong – the single point for contract negotiation, compliance, management and advice. This is generally referred to as a Cloud Service Brokerage model.

In crude terms, the cloud service brokerage is the single number to call if something goes wrong – but also the single number to call to aggregate and integrate services, both from within the organisation and from various clouds. Gartner defines[8] a cloud service brokerage as *"…an IT role and business model in which the company or other entity adds value to one or more (public or private) cloud services on behalf of one or more consumers on of that service via three primary roles including aggregation, integration and customization brokerage…"*

This distinction is particularly important for smaller organisations, which may not be able to afford the lock-in or cost of larger cloud service providers, and which may not be able to call a dedicated account handler in the event of problems.

### Cloud sprawl in numbers

- 175 organisations surveyed
- 5,900,000 users
- 2,675 cloud services in use
- 626 average number of cloud services per organisation

Source: Skyhigh Networks

*"…an IT role and business model in which the company or other entity adds value to one or more (public or private) cloud services on behalf of one or more consumers on of that service via three primary roles including aggregation, integration and customization brokerage…"*

[5] http://www.gartner.com/it-glossary/cloud-services-brokerage-csb
[6] http://www.cisco.com/c/en/us/solutions/collateral/service-provider/global-cloud-index-gci/Cloud_Index_White_Paper.html
[7] http://www.skyhighnetworks.com/wp-content/uploads/2014/02/Skyhigh-Cloud-Adoption-Risk-Report-Q1-2014a.pdf
[8] http://www.gartner.com/it-glossary/cloud-services-brokerage-csb

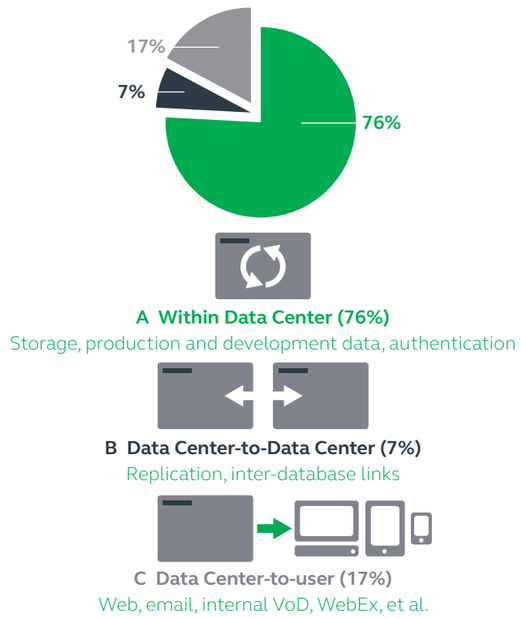
## Cloud you can stub your toe on

All of these things produce a singular problem for organisations. The flexibility of both Colo and cloud services offer an incredible range of benefits. But they also come with their own drawbacks: not knowing where data is held, or how securely funded the provider is, not being able to manage contracts or relationships with providers directly, and the possibility of rogue cloud apps sneaking into a company via enthusiastic or misguided staff.

Overcoming these issues is actually straightforward, and the answer may surprise: rather than choosing a cloud provider based on market presence or brand name, why not choose a local provider, and make use of a combination of in-house, Colo and cloud services to ensure maximum flexibility?

The answer to all of this is to identify your local cloud services brokerage. VIRTUS has identified a set of initial points organisations should look for in selecting a local cloud provider:

**Figure 3.**
Cloud Data Center Traffic by Destination




*Source: Cisco Global Cloud Index*

- **Can I get to the location easily?** VIRTUS Data Centres are all housed within the M25, readily accessible for organisations in the city, or in the greater London area.
- **Ensure the company is financially secure.** VIRTUS is backed by two established and stable private equity investors.
- **Service Level Agreements.** SLAs set in stone – after they're signed – are always important. Just as important is the ability to negotiate terms before signing. VIRTUS is proud of a perfect uptime record reflected in a 100% SLA on power for customers
- **Access.** VIRTUS data centres provide remote hands – but organisations can also service their own collocated hardware around the clock
- **A marketplace.** Sharing services, connections and data with business partners is easier if it's done within the data centre. Latency is reduced, connections are eased
- **Understanding.** At VIRTUS you're talking to real, live people in the same room - not a faceless entity thousands of miles away.
- **Agile, Connected and Efficient.** Is your provider able to provide scale-up and scale-down by the rack, pod or aisle, and if they do, how long do you have to pay for it? Temporary bursting of bandwidth, compute or storage capacity shouldn't lock you in to the higher capacity for months or years.
- **Understandable TCO.** Just as with any other service, an understanding of total cost is vital. By using the latest technology, VIRTUS is able to pass only the costs customers incur on to them – and, because its data centres are very recent, they are designed from the ground up to be energy efficient.
- **Combining the best of Retail and Wholesale Colo.** Harnessing the value added services, rental and pricing transparency models of retail Colo in tandem with the larger facilities, economies and efficiencies of scale and custom capabilities of wholesale Colos helps VIRTUS deliver the best of both worlds to customers
- **Private cloud capabilities.** VIRTUS and its best-of-breed partners can help you to build your private cloud – and make sure it performs to your requirements.

Caption for fig.2: Delivery of data from data centre to user only makes up 17% of actual datacentre traffic. Far more significant is the movement within and between data centres.

## Now is the time to press for TCO – and Total Cost of Service

All of the factors we've discussed point towards the current climate as a perfect environment for optimising the costs and capabilities of your cloud inventory.

Fiscal responsibility, pragmatism and a quest for efficiency are meeting a maturing cloud market that is increasingly able to offer a Total Cost of Ownership figure. This is, in turn, a means to understanding Total Cost of Service (TCS) – the actual cost of delivering a service to one's customers. By quantifying the cost of making and delivering a product, a gross profit margin can be calculated more effectively.

It's probably worth looking at that last sentence in detail; after all, cloud services should, by their very nature, come with a TCO figure attached, shouldn't they? Of course they do – but that TCO number can be high, and users do not want to pay for features or performance numbers that do not benefit their business aims. A Hedge Fund's high frequency trading platform may call for the absolute optimum speed and connectivity – but email or backup applications might not need the same whizz-bang capabilities – or price tag.

Not all cloud services need to be hosted in large, premium cloud access hubs with direct connections to large cloud providers like Amazon Web Services Direct Connect or Microsoft Azure Express. This level of provisioning, latency and connectivity comes – literally – at a price. That's not to denigrate either platform – but this level of capability is not vital for every application a company hosts in the cloud.

Now that the first flush of superscale vanilla cloud platforms – Amazon Web Services and Microsoft Azure among them – have seen wide adoption, customers are taking a more considered look at the total cost of operating these services. As it turns out, what might appear at first glance to be a vanilla service can be adjusted to provide differing levels of performance and economy, depending on the needs and value of the application in question. For example, if a direct connection to cloud providers isn't needed, and a carrier connection will do the job for far less outlay, then the carrier-connected datacentre has a stronger value argument – at least for that facet of the overall TCO calculation.

This is a familiar issue to those who have gone through the process of choosing datacentre sites or Colo providers in the past. Balancing connectivity, latency, resiliency, power consumption and accessibility – physically or via a console – allows organisations and cloud service brokerages to fine-tune the services they buy and provide, and extract the best value in the process. This maturation of the cloud market does introduce complexity, but it also introduces the opportunity to fine-tune efficiency while picking from a greater array of options.

Total Cost of Service is an important figure to include in calculations, as it presents the total cost of the service provided; this is different to TCO, especially in colocated environments.

## A marketplace for cooperation

VIRTUS targets key markets that stand to gain the most from a local cloud brokerage model. Those industries with a high dependence on cooperative working stand to gain the most.

Cloud and hosting providers need the flexibility, agility and efficiency offered by the VIRTUS model to provide services to their customers. This also makes cloud interconnections within VIRTUS facilities an easier proposition

Media and content producers need to store, share and distribute very large files – and often cannot justify building the capability in house. In the case of small post-production studios, such costs would be crippling. By working with VIRTUS, they can cooperate with partners instantly – and store their work in the cloud

Finance and Professional Services firms face more significant compliance issues – but also need to have hardware physically close to their places of business. The need to host certain datasets within national borders – and be able to go and physically retrieve or work on them – makes the location of data centres within the M25 a significant requirement.

System Integrators are often in the process of becoming cloud services brokerages in their own right – and often prefer to outsource key customer applications and hosting responsibility to specialist providers with solid foundations.

Healthcare, Education, Research, Oil and Gas organisations often have rapidly changing requirements and value the flexibility and custom capabilities VIRTUS data centres and VIRTUS staff provide. All HEROG industries face regulatory and compliance requirements, but otherwise have diverging needs: oil and gas companies often need to process large data sets; healthcare organisations must demonstrate consistent approaches to delivering value. Education and research organisations have to balance regular demands on their IT estate with one-off, sometimes short-term, peak demands.

## Conclusion

Regardless of whether your organisation is making the leap to an all-cloud business, or taking a more measured approach, there is a strong argument to be made for selecting a local cloud brokerage, and understanding the exact parameters of what one is buying. Organisations that exist solely on technology services in the cloud or solely in-house are few and far between for good reason: the capabilities of both are complimentary, and, when coupled with Colocation, can make an unbeatable combination of value, flexibility, power and ability.

## About VIRTUS

VIRTUS owns, designs, builds and operates a new generation of agile, connected, efficient data centres around the heart of London's cloud and digital content economy. Located within London's metro, VIRTUS offers the best of traditional retail colocation including limitless connectivity, dedicated support and complementary ecosystems, combined with the low cost, scalability and custom solutions of the wholesale model, in uniquely flexible and customer friendly packages.

VIRTUS Data Centres

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