

The Cloud

From Hype to Enlightenment

Jumping to the cloud will give your business a quantifiable boost.
But you'd better look before you leap

Contents

01. Overview
02. What is the cloud?
03. Different types of cloud & hybrids
04. Old hype: Beware the 'cloud' hosted desktop
05. New silver linings: Microsoft & Others
06. In summary: benefits and concerns
07. What comes next for the cloud?
08. How C5 Alliance are using the cloud
09. Five steps to taking that leap
10. Questions to ask the vendors

Appendices

- I. A short warning on jurisdictional issues
- II. Glossary of terms

01. Overview

Over the last year or so, we have all heard endlessly about how cloud computing was going to revolutionise IT. Wade through the promotional blurb of most vendors, and you would have been forgiven for thinking the cloud was less a utility model, more like a binary version of the second coming.

Here at C5 we have always had a more considered take. Yes there are incredible savings to be made by harnessing the pooled resources of the true cloud. But until very recently, with Microsoft's launch of Office 365 in June 2011, much of the cloud offering had seemed very hazy. Advances in computing are never as definitive as people like to make out, and immature cloud services invariably arrived on a wind of hype, mistruth and trouble – with every IT vendor clamouring to stick the word 'cloud' next to their product, adding to the confusion we have seen.

In some ways, the Channel Islands suffer worse than most with 'hype', and a surprising number of local 'cloud' services sprung up to exploit the buzz. But let's not beat around the bush here: the wrong choice could seriously harm your business. You may, for example, have been offered the £100-a-month 'cloud hosted desktop', a remote service using an off-the-shelf copy of Microsoft Office. When you learn that Microsoft now offers its own cloud version of Office, one that's custom-built for the new environment and containing far more extensive – for around £6.50 per user, per month – you begin to see the problem.

Throughout the cloud hype, at C5 Alliance our feet have been planted firmly on the ground. And now, more than ever with Microsoft's new collaborative service, we can help you carefully select certain cloud options that offer quantifiably compelling benefits. By using cloud services where appropriate, as part of a more expansive and considered hybrid IT set-up, you can make the most of the savings and flexibility the cloud brings while keeping the risk to an absolute minimum – and evolve your cloud set-up to meet the changing demands of your business.

If you're intrigued by the cloud but have been baffled by the noise, and if you wish to know more about how it can benefit your business, what risks are involved and how to find the best solution, then read on. C5 has cut through the hype for you, and can show you the way into the next stage of cloud enlightenment...

02. What is the cloud?

One of the biggest myths about the cloud is that it's just one thing. It isn't. Vendors have seen a bandwagon and they want on, attaching the term to a dizzying range of technologies. The obvious problem here is that they have wound up selling services that really aren't cloud at all.

Steve Ballmer, CEO of Microsoft has been known to ask an audience: 'What the heck is the cloud?'. So it's useful to apply a standard definition.

The National Institute of Standards and Technology (NIST) defines the cloud as:

'A model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g. networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.'

Let's recap that in English. The cloud essentially allows you to use the Internet to hand the management of your data and IT services over to external specialists.

You benefit from pooled computing resources, which give greater agility, elasticity, power and storage capacity. And it's faster. It saves on time and kit, which means saving money. And you can use the applications when you want, scale them to your needs, and pay only for the amount you've used. By moving to the cloud, computing becomes another utility – just like electricity or gas.

So is the cloud really going to stick? The short answer is yes. Heavily resourced IT powerhouses have thrown their weight behind the development of cloud-based applications. Google, Oracle, Amazon, and Microsoft, have pumped billions of dollars into research and development, and have begun, and will continue to release cloud services for virtually every aspect of business. With the kind of muscle offered by Microsoft Azure, Office 365, Google Apps and Salesforce.com, and the obvious economies of scale they deliver, cloud applications are simply set to become an integral part of working life.

03. Different types of cloud & hybrids

The emergence of true cloud services hasn't been an overnight phenomenon. It's actually the latest in an evolution of services that has moved in-house IT provisions progressively in to the hands of external providers.

Even with the very recent, revolutionary launch of Office 365, companies shouldn't view this as a race to the true cloud. Each step in the journey presents certain advantages, but increased risk too. At C5, we are finding that most effective solution for businesses is in fact to cherry-pick elements of each and combine them – in a model known as a hybrid cloud.

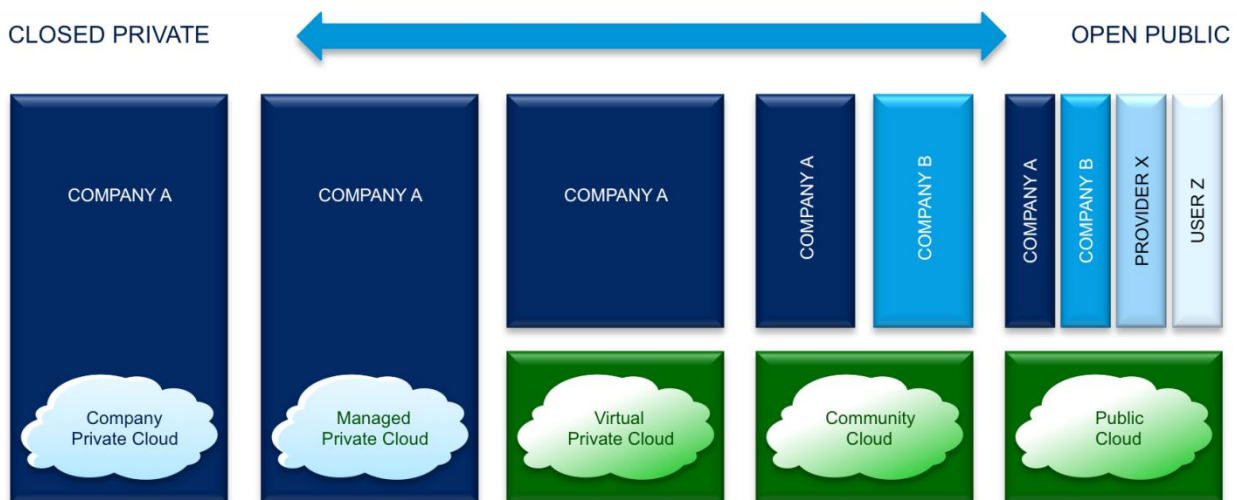
From Private to Public

Imagine to the left of Figure 2 there sits the traditional IT set-up, where a company has a stack of servers in the office computer room, and every time it needs to add extra users or services to the network it has to set up back-up and file storage, physically upgrading the servers by buying extra hardware. The process works, but it involves up-front expense, inflexibility, and a strain on the infrastructure – installing provisions around power, temperature and security. Each step to the right in the diagram involves a new deployment

model, which moves the user progressively away from the traditional set-up, eliminating these burdens. Here's a run-down of these deployment models and what each brings:

The private cloud

In the first step on the cloud journey, the company moves from physical servers to virtual servers. The hardware remains in the office or data centre, but virtualising the servers means it uses less space and gains flexibility: now a new server to support extra users can be added at the touch of a button, reducing your costs and carbon footprint and speeding everything up. The next step, the managed private cloud, simply means getting an external provider to manage that kit. Rather than paying an in-house engineer to enable more storage, install another server or patch the environment, the client leaves all that work to its provider.



Virtual private cloud

This is a logical progression. Do you now need any server equipment in the office at all? The provider can instead host your servers at its data centre. A trusted provider will minimise the risks by making investments in temperature controls, security and power. Plus you can still visit the premises and inspect the conditions and, if need be, physically retrieve your server from the racks. C5 has a great deal of experience creating managed private clouds for companies. We also work a great deal with the likes of Foreshore, 2e2 in Guernsey and Jersey Telecom all of which have 10 years' experience of data centre hosting, and have made huge investments in their hosting infrastructure. It is a safe bet.

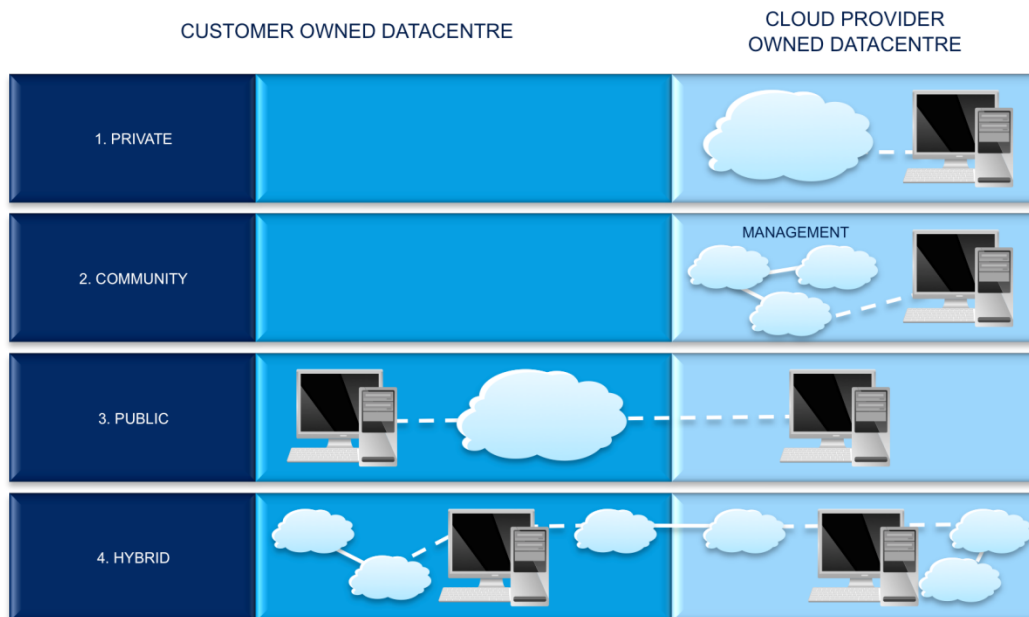
Yet cross the line towards the more open public cloud, and greater risks start to emerge. It still offers huge value, but the technology is newer, and the ground less certain.

Community cloud

Here the data is once again hosted remotely, with virtual machines using software to recreate the server environment. Your data sits on the same physical kit as that of other users. Each has its own distinctive, virtualized environment, with various methods of ensuring data isolation. The benefits are the greater flexibility, extra computing power and reduced costs that come with pooled resources.

It's a sound idea, yet the technology is still relatively new and there are inherent weaknesses in the virtualised server model, as it is a piece of software and potentially more vulnerable than a physical piece of hardware. But the sector is maturing, and it will soon be quite viable to host machines in a shared virtual environment – as long as there are distinct divides in the software infrastructure between different customers' environments.

Great care must therefore be taken in applying the community cloud model. If the cloud service administrator makes mistakes when configuring the system, it may allow others to view your data. This is why it is so important to engage with a provider that has a proven track record in successfully delivering virtual hosted services.



Public cloud

This is the arena of the true cloud pioneers, like Google, Microsoft, Amazon and Salesforce.com

Applications and data are hosted entirely remotely by companies providing cloud services, and made available to the general public.

There are of course even greater risks here – users may end up with no idea where their data is being stored. It's a matter of faith, going with established vendors with vast resources to pump into security and back-ups, and of weighing up the benefits: the immeasurable resource-pooling potential of such global organisations makes their services cheaper still and even more powerful. It's a massive and justifiable lure for prospective clients.

Hybrid cloud

This is a composition of two or more of the above cloud models. They remain unique entities, but are

bound by standardised or proprietary technology that enables data and application portability, like cloud bursting to balance the load between clouds. It's less risky and allows the user to tailor their cloud use to suit their needs – putting non-sensitive data in the public cloud and benefiting from its power and elasticity, while keeping sensitive data in-house where it's more secure and in adherence to jurisdictional domiciled data considerations.

04. Old hype: Beware the 'cloud' hosted desktop

The buzz around the cloud was not necessarily undeserved, but it has been dangerous because it didn't and still doesn't, tell the whole story.

Gartner plotted cloud computing on its notorious Hype Cycle (Figure 1, below). Six months ago, it was sitting right at the very top, reflecting how everyone was clamoring for a piece of the cloud action, often blind to whether it was actually a good idea.

To the right of that steep curve lies the 'trough of disillusionment', and unfortunately, for some vendors and clients, this is where they are now finding themselves. Under Gartner's model, the peak of hype is always followed by a downward trend, as vendors and clients realise the industry isn't heading where everyone thought. Sound ominous? It's that realisation which killed companies like Boo.com when the Internet bubble burst. Many Channel Island 'cloud' vendors are now learning how that feels; two notable local cloud services have already proven themselves to be unviable, with their providers now having to radically refocus their offering.

The Channel Islands have in fact had a peculiar take on the cloud story so far. Many local vendors jumped on the bandwagon and rushed out competing with 'cloud hosted desktop' services, for £100 a month per user.

While they labeled these services as 'cloud', if you peer through the 'cloud-wash' there was obvious cause for concern. It's just wasn't, and isn't, the way the majority of the industry is heading. While the vendors of the 'cloud hosted desktop' were shouting as loudly as anyone about the power of their product, they were selling solutions more at home in a private environment. And they failed to give proper respect to the security problems inherent in this still immature technology.

The noise coming from vendors in the Channel Islands is dominated by the 'cloud hosted desktop'. But this managed service is not being promoted to the same level by vendors elsewhere. The wider industry is moving in a different direction entirely.

With the 'cloud hosted desktop', the client is simply paying for the use of a regular copy of Microsoft Office, hosted remotely, with their screen acting as a terminal into a remote session. This copy of Office will run on

one or more servers, with each client's data sitting alongside that of other users. The email boxes of separate clients may also sit beside each other, using out-of-the-box programs like Exchange. There is a very real risk of the vendor configuring these machines incorrectly – and potentially leaving data in the wrong place. This is risky, and the chances of data corruption or theft are real. The prospect is disconcerting. Here's a run-down of further concerns:

The 'cloud hosted desktop' is not true cloud

Users sign up for a fixed service on a yearly or longer-term contract, rather than paying for a scalable on-demand service. They can be locked into an old version of the software with no chance to upgrade. This isn't utility computing, so can't really be called 'cloud'. It's simply a rental model.

These vendors lack 'cloud' experience

Each system has been built and maintained by small teams of local engineers with no previous experience building an enterprise-level multi-tenant solution. Their resources pale in comparison to those of Amazon and Google, and many of the local service-level agreements and exit clauses lack substance.

It's potentially insecure

With multiple users logging in to the same directory there's a chance of cross-contamination. In the event of a major Zero day security vulnerability being discovered, a shared solution can't 'close its doors' to reduce risk in the way an in-house solution can.

It's limited

As Microsoft doesn't permit these vendors to supply a separate local copy of Office for portables or other machines, users are stuck with the hosted version. Buy a second copy separately, and you'd still struggle to access your files outside the managed environment.

There are hidden costs

Users still need PCs and networks in the office, requiring day-to-day management, protection and support. Then there's the cost of migrating data, and of the line of business applications required outside of Office that are not part of the £100 bundle. These costs soon stack up, and in our opinion it is not a viable or cost-effective model.

It's just not the future

The 'cloud hosted desktop' is not supported by Microsoft's strategy, which is promoting Office 365, private clouds and Azure and has the power to dictate the industry's general direction.

It's an unsustainable market

With six rival vendors competing for Channel Island business, can you be sure that the vendor you decide to back will still be here tomorrow? Why take such a huge risk on a solution that may have no future?

And the worst thing? The 'cloud hosted desktop' doesn't even save you money!

For 50 users at £100 per month over 3 years would cost £180,000. C5 has calculated that if you hosted your servers as a private cloud it would cost as little as £100,000 (with a fully managed service) and even less if using a hybrid model. Given the above concerns, the £100 'cloud hosted desktop' really doesn't seem like the answer.

When true cloud pioneers like Google, Amazon and Microsoft have poured billions of dollars into reconfiguring and securing their own services, and Microsoft has now launched Office 365, it is very unlikely that local vendors will be able to compete.

05. New silver linings: Microsoft & Others

Returning to Gartner's Hype Cycle for a moment, while services like 'cloud hosted desktops' may be dragging vendors and clients into the 'trough of disillusionment', on a much more positive note, the product pipeline from Google, Amazon and Microsoft, should quickly see us into the 'slope of enlightenment.'

At the end of June the year, we saw will be the first step of this upward lift, when Microsoft officially launched the long-awaited Office 365, bringing together the Cloud versions of the most well-known Microsoft Products, including Exchange, Lync and SharePoint, along with the latest version of Microsoft Office.

Compared to the recent efforts of local providers to supply 'cloud' services, this new offering from Microsoft is cheaper, (both to set up and on an ongoing basis), more flexible, has more features, and offers products that have been custom-built for the cloud environment – the day of reckoning has now well and truly arrived.

Specifically, Office 365 now provides access to enterprise level technology for as little as £6.50 per user, per month. Compare this to 'cloud hosted desktops', remote services using off-the-shelf Microsoft Office that providers in the Channel Islands have been offering for £100 per month, and it is clear that some vendors are not going to survive this new era of cloud development.

With Office 365 there is no capital investment required to buy infrastructure, like servers, or the need to factor in the cost of support, such as additional staff or power. And the ability to add or remove users instantly, also means you only pay for what you are actually using, making Office 365 suitable for large and small businesses alike.

While there has been some debate about how cloud computing will work legally in terms of client data jurisdiction, (for example for local trust companies), we are now finding at C5 Alliance that for many clients, a lot of elements of Office 365 are still incredibly useful and cost effective, and hybrid solutions that still isolate client data locally can easily be put in place. I believe that as products like Office 365 develop, hybrid solutions will become more common, and the meaningful question businesses will ask themselves is not, "should we use the cloud?", (the answer will be "yes"), but more importantly, "do we keep our client data in-house on our own server, or outsource to a locally based storage provider?"

Effectively, the developments being brought forward by the big players, like Microsoft, are going to make computing the New Utility. Until now, our IT provision has been the equivalent of having individual electricity generators in each building, and everyone owning private water tanks. In the future, we will pay for our computing in the same way we pay our utility bills, and cloud services will legitimately be able to claim their spot on the Monopoly board.

06. In summary: benefits and concerns

BENEFITS

Computing becomes a ubiquitous utility

This delivers better agility, elasticity and storage capacity. It saves money and leads to greater efficiency – for the vendors and customers alike. Resource-pooling brings incomprehensible power. Need to make a complicated calculation on a vast database? You can in an instant. And, you're using far less energy in the process.

It's elastic

If you need to accommodate 20 extra users, their accounts can be created at the push of a button. IT needs are no longer restricted by your infrastructure. Capabilities can be purchased in any quantity at any time.

Less hassle and lower costs

The States of Jersey, for example, will be moving from their own servers to the private managed cloud. Their consolidation strategy, delivered incrementally, will facilitate better cost management and savings in areas like electricity and hardware replacement. For their remaining infrastructure they are also moving to a hybrid private cloud. This further reduces the burden on their internal systems, while ensuring that they use existing infrastructure efficiently by sharing the load from previously dedicated hardware, extending its life and reducing recurring costs.

Low barrier of entry

The cloud makes business easier for start-ups, and as it's on-demand you pay only for what you use. Gone are the days of having to shell out up front to invest in racks of hardware you may never even need.

Where is your data?

Previously it sat on a server in your office or a local data centre. Now you may not know where it is, and that could raise serious jurisdictional implications (see Appendix I). There are also data protection laws to consider.

How is your data being treated?

It's crucial to know who has access to your information, and whether they've had proper background checks. And how is it stored? Is there a chance it's being mixed with the data of other users – and perhaps even competitors?

Is it secure?

Sensitive information in the cloud can be incredibly vulnerable. In July 2009, a hacker gained access to confidential documents stored on Google Apps by hacking a Twitter employee's official email account hosted by Gmail.

Is it being monitored?

Many cloud vendor contracts include the right to monitor all data they store. This probably wouldn't suit certain Channel Island clients, and is another spur to be highly selective about what you put in the cloud.

Can you trust the hardware?

Are there adequate procedures against downtime through power outages or natural disasters? And do you have a business continuity plan in place ready for when problems occur?

How do you get out?

If something does go wrong, or you wish to change your provider, have you signed an exit clause that allows you to pull your data out? Even if you have, the vendor may not offer any help getting data out of its environment. Microsoft is one such example. You will need third-party tools and professional help.

CONCERNS continued...

Who owns what?

CONCERNS

Cloud vendors often supply proprietary development tools, allowing the user to create their own databases or applications. If you don't clearly delineate your IP rights from those of the vendor, you could be in for a nasty surprise should you decide to take those databases or applications elsewhere.

Are the terms set in stone?

Cloud vendor contracts often allow the vendor to modify the terms of the agreement. Simply continuing to use the system once it's been changed, or after a certain stated period, is often enough to imply the user accepts those changes.

Could you get stung?

The service agreement of one popular cloud vendor says it has the right to terminate and suspend access to the services if the user's account falls into arrears. And there's no obligation to retain the user's data: you could find it 'irretrievably deleted' after 30 days.

Do you have access?

You have to be connected to the Internet 24/7 to be able to access your line of business systems. This puts a greater reliance on other third parties such as telcos, and a greater investment may need to be considered to ensure you have resilient network access to the Internet.

07. What comes next for the cloud?

The cloud landscape will continue to evolve as the hype dies down, and products like Office 365 become more familiar and used. Most companies should be patient and consider moving only suitable systems to the cloud.

This can be considered a logical 'toe in the water' if they choose a local host with the right experience, processes, and managed infrastructure, and it could save them significant time and money. From there they can then extend to a hybrid model, using public cloud for certain non-sensitive areas like event management, payroll, CRM and accounting via SaaS, and benefiting from the power, speed and elasticity of a true cloud database.

And, how about the cloud in the Channel Islands? We believe that there will be attrition, and that this in turn will stifle the adoption of local provisions. Ultimately, local clients will probably leap from on-premise and bespoke cloud solutions to the primary cloud providers, attracted by the obvious economies of scale afforded by the global players. In short, even more local cloud services will fall away.

As for the bigger picture, you have to look at what those global players are saying. Microsoft has certainly made its stance clear.

Brian Anderson, corporate vice president of Microsoft's Management and Security Division –

'Many of our customers have told us they want the benefits of cloud-computing — fast deployment, increased agility, lower costs — but with tight control over things like physical infrastructure and security policies. Our new private cloud offerings fulfill that need at the infrastructure level, while providing a clear migration path to cloud services at the platform level'

C5 Alliance takes the same view, and urges clients to seek those with knowledge and experience to help them decide the most powerful yet safest solution. And this, categorically, is not to go to a vendor selling the £100-a-month 'cloud hosted desktop' and say: 'take away my pain'.

Do so and you may find that your 'agile and elastic' service provision is bound by a three-year lock-in, and that the vendor expects you to buy your way out. They have bet their company on you being there for the ride – whether they provide a great service or not. Unfortunately the consequences of a bad decision could be severe. Take the wrong path and it could cost you: not just money, but perhaps even your business.

But this is the negative side of cloud services, and if clients consider products like Office 365, as wholesale IT support, or more likely as a cost effective part of a hybrid solution, they're likely to reduce costs, increase agility and enjoy the true benefits of the cloud.

08. How C5 Alliance are using the cloud

Here at C5 Alliance we don't directly sell our own cloud services, but we have introduced the cloud as part of our overall solution strategies.

We are currently working with hosting partners to build and manage private clouds for our clients. We give consultancy and maintain the hardware, hosted locally at Foreshore, Jersey Telecom and 2e2 or still on the client's premises, while developing certain cloud elements – migrating email to the Microsoft cloud, for example, and providing the hands-on care to supplement what Microsoft provides. We ensure it's all running correctly, and are on hand to manage the push-button scalability of these virtual services.

We are also developing its role as an aggregator. This is a different provision to that of other local providers, many of whom are building their own systems with often scant resources. By contrast, an aggregator takes the powerful true cloud services of established vendors – from Microsoft's CRM to Amazon Web Services and video hosting via YouTube – and tailors

them for clients by adding extra elements to the package.

Using some suitable cloud services is an excellent idea, harnessing for example Microsoft Office 365's capacity for voice and video conferencing and instant messaging. The different plans in Office 365 suit different businesses, from small operations to huge multinational enterprises, and gives users access to Office online, as well as a copy for their local machines should they not be 'connected' to the cloud for any reason. It provides a huge range of true cloud services from £6.50 per user per month. Meanwhile the aggregated solution allows for sensitive data to be kept in-house. This is true hybrid cloud.

In short, the cloud is not simply an 'all or nothing' deal. And C5 Alliance can help build the service that truly meets the client's specific needs.

09. Five steps to taking that leap

1. Plan it

Get the right advice, and build a realistic migration strategy over time. Companies simply need to assess their internal systems, looking for any opportunities to move identified low-risk services to the cloud.

2. Shift in stages

First consider decommissioning your computer room and move your hardware to hosted providers like Jersey Telecom, Foreshore, 2e2 & C&W and get managed services to help you maintain that environment. Then consider PaaS with local vendors for some of the less risky technologies, like web servers and CRM databases.

3. Check their credentials

If the likes of Facebook and Google have had high-profile issues with privacy and security, even with the amount of resources at their disposal, can you really trust that local vendor? What are they offering in terms of process, security standards, access controls and customer support?

4. Get your SLAs sorted

Cloud service-level agreements should provide the following assurance – consistent, reliable access to IT resources, and solid contingency plans in the event of an outage.

SLAs should also cover the handling and destruction of back-up tapes, data accessibility, customer support,

legal policies, liability, and confidentiality. And they must include exit clauses. Ask many Jersey vendors to show you their standard SLA and they won't be able to. Going with a vendor that can't provide an SLA is potential commercial suicide.

5. Keep your IT team

Your techs still have a major role to play. They simply need to understand the cloud offerings and re-skill themselves to help integrate hybrid cloud solutions. They won't lose their jobs. It's simply a case of adapting, of switching their focus and moving on to more value-added services that will benefit the business.

The progression to the cloud is inevitable

If you're not talking about at least some of these cloud technologies then your business is missing a trick. At the most basic level, a user's carbon footprint and costs will be dramatically improved by using a selection of cloud services in a lower risk hybrid set-up.

There is, however, rough weather ahead. You must be careful to take your time and choose the right options. Soon the buzz around the technology will die away, and you'll be sat in the cloud simply as another quiet part of everyday computer provision. By then, of course, you'll be able to look down on everyone chasing that next bandwagon. And you will know not to jump too soon.

10. Questions to ask the vendors

- Do you have a comprehensive SLA designed to protect my business?
- Do you use a risk-based information security model?
- Do you maintain and update a detailed set of security controls for risk mitigation?
- Do you have a documented regulatory framework for my business sector? (PCI-DSS, SOX, GLBA)
- Do you operate within a framework, which covers data privacy and security, such as the ISO27001?
- What is your security patching policy?
- How long would it take you to recover any corrupted or lost data, and how much could I lose?
- Can you prove that you carry out regular audits?
- What is your strategic roadmap for the next two years?
- If I decide that this is simply not working for me, how can I extract myself from your systems quickly and cleanly?
- Are you backing up each client's environment separately? If so, can I have a copy of my data in a usable format so that I can test your processes and run a trial restore with my own team?

Appendix I

A short warning on jurisdictional issues

If you thought the hype surrounding the cloud was confusing, then the jurisdictional issues around hosting are positively baffling. As such it's worth introducing some of the issues here, as any clients handling sensitive data need to be aware of the potential pitfalls.

If data sits on your physical machine, the legal implications are clear: it's yours, and it's covered by the rules of your jurisdiction. But hand custody over to a cloud host and the definition of who owns those bits and bytes of data – and which jurisdictional laws apply – becomes incredibly complex.

Moving data to the cloud may mean transferring it to a new jurisdiction, triggering data protection requirements and regulatory considerations. Cloud clients may have a nasty surprise, when they discover that data they've stored in the cloud turns out to be subject to the laws of a distant jurisdiction.

Jersey and Guernsey have no specific laws regarding data sovereignty, so there is no legal boundary to any company storing all its data with a vendor in the cloud. But there are still legal and reputational risks of unintended disclosure along with data protection to consider.

Take, for example, the UK's Home Office, which is attempting to revive plans to force service providers to keep records of all e-mails sent on their systems, for as long as a year. Meanwhile, under the USA's Patriot Act, American law enforcement agencies can access hosted data in the USA if they consider it simply 'relevant' to their investigations. And the host is obliged not to tell the user its data has been seized – despite what your contract may state.

In at least one case in the US, an entire public cloud server was seized under a search warrant directed at one particular company, meaning other companies data was also taken simply because it also sat on that server.

Would your clients be happy to learn that their trust or private client data is held on cloud servers where tax authorities could feasibly remove it, and the host is told not to tell you?

There are other tax issues. In automated transactions, the jurisdiction where the transaction is processed, i.e. where the data is based, is often where it is taxed. If cloud hosting means transaction processing will happen in another jurisdiction, make sure it doesn't affect your tax position.

Ensure the new jurisdiction has data protection laws at least as strong as your current jurisdiction. Don't forget to find out where the cloud supplier's contingency site is, and where they are storing back-up media. If these are in different jurisdictions, you need to be aware. As an over-riding rule, only store your data in a location where you're prepared to defend litigation.

But there are only two sure ways to know where your data is. The first is to ask the cloud service provider. The second is safer – to keep sensitive data in-house or with a local host, and only go to the public cloud with data that's not going to create problems. Such jurisdictional issues give great weight to the local hosting options provided by the likes of Jersey Telecom and Foreshore, as part of the hybrid solution.

Appendix II

Glossary of terms

Cloud Software as a Service (SaaS)

The capability provided to the consumer is to use the provider's applications running on a cloud infrastructure and accessible from various client devices through a thin client interface such as a Web browser (e.g., web-based email). The consumer does not manage or control the underlying cloud infrastructure.

Cloud Platform as a Service (PaaS)

The capability provided to the consumer is to deploy onto the cloud infrastructure consumer-created applications using programming languages and tools supported by the provider (e.g., java, python, .Net). The consumer does not manage or control the underlying cloud infrastructure.

Cloud Infrastructure as a Service (IaaS)

The capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications. The consumer does not manage or control the underlying cloud.

Datacentre hosting

A data centre is a facility used to house computer systems and associated components, such as telecommunications and storage systems. It generally includes redundant or backup power supplies, redundant data communications connections, environmental controls (e.g., air conditioning, fire suppression) and security devices.

Private cloud

The cloud infrastructure is operated solely for an organization. It may be managed by the organisation or a third party and may exist on premise or off premise.

Community cloud

The cloud infrastructure is shared by several organisations and supports a specific community that has shared concerns (e.g., mission, security requirements, policy, and compliance considerations). It may be managed by the organisations or a third party and may exist on premise or off premise.

Public cloud

The cloud infrastructure is made available to the general public or a large industry group and is owned by an organisation selling cloud services.

Hybrid cloud

The cloud infrastructure is a composition of two or more clouds (private, community, or public) that remain unique entities but are bound together by standardised or proprietary technology that enables data and application portability.

On-demand self-service

A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider.

Aggregator

An aggregation brokerage service combines multiple services into one or more new services. It will ensure that data is modeled across all component services and integrated as well as ensuring the movement and security of data between the service consumer and multiple providers.

¹ <http://csrc.nist.gov/groups/SNS/cloud-computing>

² <http://www.gartner.com/it/page.jsp?id=1064712>