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Keeping public sector data secure
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A leap into the light

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Sentinel: keeping public sector data secure.

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A leap into the light?

Some of the considerations public sector organisations need to take into account when making the decision to move applications and services into the cloud.

This white paper explores the factors that concern business leaders, CIOs and IT decision-makers in the UK public and commercial sectors with regards to the adoption of cloud computing. It aims to provoke deeper consideration of the most important issues and thus assist decision-makers in advancing their thinking and development of a clear approach to cloud services. It has been commissioned by SCC and written by a professional IT journalist with the aim of providing an objective perspective on this important subject

The public sector puts cloud first

– but some organisations continue to take a cautious approach

UK public sector organisations are being encouraged to look to the cloud for new services. The publicly-stated approach set out in the Digital Marketplace Strategy is 'Cloud First'. There is a growing confidence in the cloud and suppliers on the G-Cloud list are now seeing much higher levels of interest.

However, the level of engagement varies considerably. While it is very mature in some areas, such as central government it is not as strong in some other areas; local government, healthcare and blue light services.

For some organisations, there is much to be discovered, learned and experienced with respect to the cloud.

Yet cloud adoption is accelerating in many areas and is clearly seen as a vital and integral part of IT future. Why then, are some public sector organisations taking such a cautious approach? It may be that they feel that the cloud is not yet proven to be resilient enough to support critical services. Wary and risk averse business leaders and CIOs require rock-solid proof points before they will commit to a hosted service. Performance, security, and the critical role that connectivity plays in the delivery of cloud services are also a concern for many.

There is also some concern about the kind of supplier organisations to whom public sector bodies are being asked to entrust their services.

There are some very large, established and credible cloud services providers. But many of those offering services in the UK today are US multi-national corporations.

While this in itself is not an issue, public sector organisations have a duty to protect the interests and information they hold on citizens. Placing critical services with overseas suppliers may raise questions over compliancy in this regard. Public sector organisations also need to consider whether it is prudent or advisable, given the continued austerity measures and cuts to public services, to award significant contracts to non-UK companies.

Furthermore, while these service provider organisations may have operations based in the UK, Ireland and other western European countries, much of their infrastructure and support network will, by necessity, be distributed. Under certain circumstances, it is quite probable that IT personnel in a UK organisation would find themselves dealing more often than not with an individual or team in a different country and time-zone.

However, this is not an issue that is confined only to non UK-based services providers. Access to support resources is in itself, a complex subject and would merit specific in-depth analysis and consideration in its own right.

Having a proven track record and being able to demonstrate commitment and financial stability are of equal importance as the service delivery capability of the organisation. Cloud services businesses must be viable businesses. While one of the principal aims of adopting a cloud service will be to reduce costs, the supplier must have a business model and funding that will support its strategy, approach and delivery capability for the long term.

Here to stay

– how the cloud has become an accepted and vital element of IT infrastructures

The cloud is now an accepted part of the IT environment. Cloud services have become a viable and widely-used service option in both the public and private sectors and questions over their ultimate stability, security and effectiveness have largely been answered. The cloud is here to stay and will play an increasingly important role in the delivery of IT in the future.

Any concerns there might have been over the complexity of provisioning, integrating and managing cloud services have also been addressed. There is an acceptance that cloud services are simple enough to provision and manage and that they are effective. The increasing use of cloud services within government over the past 18 months is testament to this growing acceptance. In 2015, total spending through G-Cloud was £526.2m, compared to £352.2 million in 2014 (see http://www.govspend.org.uk/g-cloud.php), an increase of 49 percent). The initial scepticism has been replaced by an open and even enthusiastic attitude towards the cloud. This is due to the benefits that cloud promised being delivered – to those organisations that have embraced it.

This current phase of adoption will perhaps be seen as the turning point for cloud services in the public sector; the period during which decision-makers adopted a much more positive and sure-footed approach and left the fears and doubts they had previously harboured behind. Cloud is as a valid, proven option.

Be that as it may, there are still many parts of the public sector that are yet to explore or adopt the cloud to any significant degree. These organisations do need to sit up and take notice now, or risk being left behind and trying to catch-up with other organisations in both the commercial and public sectors.

It is entirely accepted now that hybrid infrastructures are the way forward, for the foreseeable future at least, and that cloud will play an increasingly important role in the mix. Already for many organisations, it has become an indispensable resource that provides added flexibility, dynamic scalability and reduced cost and risk. These benefits at undeniable and they make the cloud a trend that IT decision makers can't ignore.

Why burying your head in the sand is not an option

Indeed, it is already delivering genuine value and is enabling transformation of IT services, working practices and interactions between organisations and citizens.

The government is pressing public sector organisations to make much more use of cloud services as it continues efforts to drive efficiency and reduce costs across all public services. The potential gains in productivity, scalability and lower costs that cloud services can deliver are very substantial. CIOs are effectively duty-bound to consider cloud services wherever they can, both when looking to deploy new applications or services, or update existing systems.

They will come under pressure to do so as well. Senior executives and managers who bury their heads in the sand and refuse to explore the potential of the cloud for their organisation will need to answer a growing chorus of questions from stakeholders.

Many public services organisations have already started to use the cloud. Indeed, many are already using it extensively and looking to place more services into the hands of accredited providers. Interestingly the size and scope of organisations moving to the cloud and the services they are consuming also varies considerably. HM Revenues and Customs, the Department for Work and Pensions, The Home Office, Ministry of Justice, the Cabinet Office, the Driver and Vehicle Standards Agency, Highways England, the Health and Social Care Information Centre, the Department of Health, are examples of government agencies that have been using cloud services for some time and have invested significant sums in services.

Adoption of cloud by most of these organisations is accelerating. They have seen just how effective cloud services are and experienced the positive impact they have; as a result, confidence in cloud services is growing. They are providing best-practice examples of how cloud can be effectively deployed to deliver positive outcomes. That point made, it is also important to remember that every situation or scenario will be different. A number of options will be available and simply copying what another department or organisation has done, may not be the answer.

As we have already noted, other public sector organisations are only just exploring the potential of cloud or deferring the decision to launch pilots and production work. But wherever they may be today on the 'journey to the cloud' as it is often called, it has to be seriously examined as one of the options for every new service.

Increasingly, the cloud does look like the best option in many areas of IT, especially where brand new applications are being deployed; these will have been designed for use as a cloud service. Clearly, where it does make sense to place services into the cloud, there will be a need for very high levels of authentication and security and an assurance that good service levels and availability will be delivered.

The case for using cloud services as a way of quickly scaling-up, capacity, infrastructure or storage capacity is also increasingly convincing. But here too, solid assurances of service delivery, redundancy and support will need to be in place.

There is a very important proviso here though. If an in-house application or entire infrastructure is inefficient or dysfunctional, simple moving it across to the cloud won't fix it. Indeed, doing this will simply transfer the problems and may make them worse. On the other hand, migrating systems to the cloud does present the opportunity to entirely transform applications and processes. This may require additional expertise and more in-depth analysis of needs, but new processes designed for and delivered in the cloud are likely to be much more efficient and effective.

Assessing cloud services propositions against needs

IT departments are well-practiced in assessing the capability of a supplier to deliver IT projects for on-premise deployments or hosted application services; evaluating the ability of a cloud services provider to meet the stated requirements is an entirely different matter. But such assessments need to be taken just as, if not more, seriously and examined in great depth and detail. There will be a need, for example, for compliance and security policies to be enforced if data is stored in a public cloud or transmitted across public networks.

With more than four decades of shared experience and lessons learned, IT departments and procurement teams know about all the tricks that suppliers can play and today the smoke and mirrors that once shrouded may IT procurements in a veil of mystique have been well and truly swept aside. Those same people will have little or no experience of assessing or purchasing cloud services, and from their perspective, cloud services today come with a 'buyer beware' notice.

But the good news here is that some of the sign-posting to what makes for good practice is already in place and being shared across the public sector. As mentioned above, many central government departments in particular have wholeheartedly embraced cloud and are placing more of their functions with service providers. This is not to say, of course, that the solution they have adopted will be right for every organisation with a similar need. Each requirement needs to be taken on its own merit.

The kind of supplier needed will, of course, depend on the task at hand. If it is a fairly simple requirement for Office 365 or for infrastructure-as-a-service or storage-as-a-service, it may be fairly straightforward (although there are still plenty of factors to consider). If however, it is a critical application or one that is highly integrated and enables transformation of processes, a more complicated and detailed assessment will be needed.

Where a brand new service or application is being introduced, as already stated, it is likely to have been built for use in the cloud; migrating legacy applications to the cloud however, may be much more challenging and may not even prove viable without a complete re-engineering of the software. Assessing whether or not this needs to be done or not, might constitute a project in its own right.

Indeed, a wider assessment of legacy IT deployments might identify the need for a hybridised approach. If this is the case, it will be important for the cloud supplier to understand that its service will need to operate as an integrated part of a hybrid environment.

Supplier selection factors

Once the requirements have been fully scoped and defined, selecting a cloud services supplier from the many hundreds that can now be found on G-Cloud might seem, to those with no experience, like a daunting task. Where the requirement is simple, many suppliers could meet the need; for more complex and integrated solutions, there may be a handful of potential choices.

Large cloud services providers will be able to provide a solid track-record, demonstrate long-term commitment and financial stability. They may not be UK based but are likely to offer 24/7 support options. Mid-sized and smaller UK-based cloud suppliers may be able to offer more localised support and indeed, more specialist or focused services. You are more likely to be a bigger fish in a smaller pond as well. Whatever the size of the provider, what really matters of course is their ability to meet requirements in both the short- and long-term.

A trusted reseller or solutions provider may have relationships with cloud services providers or vendors. They may be acting as an aggregator and be able to offer a wider choice of options. They are likely to have aggregation portals in place that enable them to monitor and manage services and billing. There may be the potential here to build-in redundancy and the ability to switch providers if required.

The most important consideration is whether the cloud services provider is capable of meeting the specific requirements of the consuming organisation. Careful consideration needs to be given to their experience, track record and stability. New cloud services deployments can be just as complex and involved as on-premises projects and need to be approached in a methodical way and with just as much gravitas and sincerity.

Special considerations for the public sector

There are a number of special considerations public sector organisations must take into account, especially with regard to the large public cloud services providers.

These organisations have the scale, financial stability and resources to provide the long-term reassurance of service delivery. To overcome reservations that may remain regarding where and how data is secured, they either have or are establishing local data centres and processes designed to reassure customers that they can meet security requirements

When moving to Cloud data classification is all important. It is very common for data to be classified at different levels within an organisation depending upon function. Patient Internet/web facing data would be classified differently to identifiable patient data for example.

Government has endeavoured to set guidelines to help; Impact Levels (IL 0/2/3/4/5/6) recently collapsed into OFFICIAL/OFFICIAL Sensitive, Secret and Top Secret. However, public sector organisations have the final say in how their data is classified and consequently which cloud providers offer appropriately accredited environments in which to hold their data and services.

An added level of complexity comes about where multi agency or cross sector collaborative working is required. In many instances one organisations classification is different to another's; health, local authority, Police. Where is the arbitrator and who is right in these instances.

It is also worth considering that decision-makers will be under some pressure to act and may respond by not making any decision or maintaining the status-quo. Decisions may be made in too much haste or simply deferred in favour of current on-premise solutions that are ineffective. In the case of the former, it is simply a matter of making sure that a measured and intelligent approach is taken to supplier selection. The latter is perhaps an even worse scenario, as it makes it more likely that adoption of a cloud services that could deliver significant benefits will be unnecessarily delayed.

Security is another important consideration. While the protection offered by most cloud services providers will be of a very high standard, it is worth checking exactly what is in place and what policy will be followed should some unforeseen set of circumstances, require governments or other external organisations to be given access to data centres. The dispute between Apple and the US Government in the early part of 2016, over the company's refusal to allow security authorities access to information stored on an Apple mobile phone owned by a gunman (the legal case was eventually dropped after the US government said it had found a way to access the phone – see http://on.ft.com/22p8wYg), showed that this can happen and that when it does, there may be significant pressure on commercial organisations to provide access to the relevant authorities.

There is bound to be a temptation on the part of public sector organisations to simply follow the lead taken by others in the sector and adopt the services they use. But if this approach is taken on a widespread basis, there is a danger that many organisations adopting services that are insecure in some way, exposing them all to risk. For this reason alone, services should be assessed for specific individual projects or requirements.

Certain indicators and accreditations can help in identifying suppliers that are applying high standards. The ISO 27001 Information Security Management standard, for example, demonstrates that an organisation is following international information security best practices. This and other ISO and independent standards will provide you with an independent recognition that the company has been assessed and verified to be following specific protocols and procedures in the correct manner.

There are also some further considerations around security regarding commercial and private sector suppliers that make use of third party cloud services. Organisations who provide services encompassing; construction, catering, facilities management and legal services, for example, and for all of them, who need to deliver secure cloud services as part of delivering their particular service.

Long-term market perspectives

What happens in the long-term also need to be considered. One of the main reasons that the larger cloud services providers are successful is that they are not likely to suddenly disappear if their profits don't reach expected levels. Having committed an application or service to a cloud provider, no organisation can afford to see that service provider fail.

While there now appear to be more suppliers than ever, the cloud services market is polarising, consolidating and finding its own level. Smaller organisations are withdrawing or becoming aggregators or agents, having entered the market with enthusiasm and consequently found the reality of maintaining and managing services to be much more complicated and expensive than they first anticipated. The cost of investment required to set up and secure data centres is high, as are the risks involved in holding and protecting critical data that belongs to other organisations. Others are focusing on providing very specific services in a vertical market niche.

It is highly probable that, by the end of the decade, the global public cloud market will be dominated by a handful of suppliers. There may be some regional variations, but essentially, these organisations will provide multi-national or global services and serve the needs of millions of consumers as well as business and public sector customers.

There will also be a number of regionally- or vertically-focused players, who specialise in specific markets or industries and cater for localised and industry-specific variations. The very large number of suppliers currently seen on G-Cloud may well reduce over time and fewer of the companies on the list will be UK-owned.

SCC's approach with Sentinel

SCC has constructed its Sentinel cloud services specifically to meet the needs of public sector customers. It comprises a wide-ranging hosting capability and specific 'as-a-service' options, backed by SCC's own professional and technical design, consulting, support, and services capabilities. It is designed to meet government standards for data security and flexibility. Contracts of only 30 days are available, so customers are not tied into long-term commitments.

SCC also has services (Shadow IT and Cloud Analyser) that can be used to assess current deployments and their suitability for migration to a cloud environment. It can also assist with management of multiple public clouds such as Azure & AWS and private clouds through an integrated portal, Universal Cloud Gateway (UCG).

As a privately-owned UK company with three UK data centres, SCC can readily meet any concerns over where data is stored and who has access to it. It has a good pedigree in data centre services and has a strong track record of delivering both on-premise and cloud-based solutions and services to the public sector. In fact, SCC was founded more than 40 years ago as a data centre bureau, so in a sense it has come full circle, acquiring along the way a whole range of supply, professional and managed services capabilities.

It conforms to key UK standards, such as ISO 9001 (Quality Management) and ISO27001 (Information Security), and was the first UK provider to win Pan-Government Accreditation (PGA) for its G-Cloud platform, and was one of the first to offer hosted services that were compliant with the Public Sector Network (PSN) accreditation.

These accreditations provide reassurance that SCC is a 'fit for purpose' organisation that can meet required standards of compliancy and risk management, and has a formal process in place which it follows to ensure services are delivered to recognised quality standards and a level that meets the expectations of the UK public sector.

It is a credible and established provider of cloud and data centre services are exemplary. Indeed, SCC lays claim to being the largest secure multi-tenancy supplier in the UK. But while Sentinel is an important element of its broader Datacentre business, cloud services are not SCC's only or core focus. The company has built its own, independent capability to deliver cloud, but also continues to offer on-premise and hybridised solutions. This means it is much more aligned with the kind of infrastructures its customers are likely to be operating for many years to come. It also has proven experience and capability in delivering transformation projects. SCC is able to draw on a wide range of skills and services capabilities within its own organisation to assist customers without having to bring in the expertise of other third parties.

Conclusion – learning from and building on experience

The move into cloud can no longer be thought of as a leap in the dark. On the contrary, it is more akin to stepping into the light and a future in which IT is a much more dynamic, fluid and flexible resource that is easier to manage. Decision-makers however, must be cautious not to launch themselves blindly into this new era.

The IT industry is notorious for proclaiming new revolutions, when in practice most IT usage and infrastructure evolves with the organisation and the demands of its users and stakeholders. After an initial spurt of activity, fuelled by industry rhetoric that promoted immediate cloud adoption, there was a marked change in attitudes. CIOs started to recognise that the migration to cloud services, certainly where important and involved systems and applications were concerned, could present some challenges in terms of the impact they would have on working practices and processes, both within IT itself and the wider organisation.

Subsequently, we have seen a much more cautious approach being taken in the public sector. This is both prudent and sensible.

The cloud can rightly be seen as – to borrow a favourite cliché of the IT industry – a 'game-changer'. Within the public sector there is now increased pressure to make use of cloud options and as such, the pace of adoption is accelerating. Part of this is because organisations are having good experiences and as a result their confidence in the cloud is growing. No public sector organisation should be discouraged in seeking out appropriate cloud services for their needs.

Public sector organisations need to keep their own long-term IT strategy and expectations clearly within sight when assessing and committing to cloud services and suppliers. Most IT infrastructures will be hybridised for the foreseeable future, with a higher proportion of systems and services being placed into the cloud. There needs to be a way of bringing new digital services into this federated environment and managing them effectively.

The public sector needs to embrace the cloud and all it delivers. Increased use of cloud services will undoubtedly play an important part in enhancing efficiency, improving public services and reducing costs. But the process of assessing needs, selecting and committing to a cloud services provider and then remodelling processes and applications, and classifying data before it is placed in the cloud, must be carried out with the utmost care and prudence.

It is very much a matter of building on what experiences have taught both user organisations and cloud services so far, making use of the most appropriate service for requirements and not underestimating the level of care, attention to detail and breadth of skills and capabilities that are needed to ensure success.

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