

## Maximising cloud initiatives with analytics

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## Introduction

Few advancements in IT can boast the hype and publicity that currently surrounds cloud computing. As the latest incarnation of the "Age of the Internet" the cloud has come to represent a vast number of things to different organisations and people. In its most favourable light cloud computing is seen as the next logical step in the evolution of IT services, heralded as the solution to meet today's needs for on demand, scalable computing - at very attractive cost profiles. But although the benefits are enticing, cloud is not without its challenges. In this white paper, we take a look at the planning considerations and explain how analytics can help organisations to mitigate the risks and plan cloud initiatives that meet their objectives.

## It's getting cloudy out there

Touted as the answer to today's agile computing needs, cloud services promise a paradigm shift in the way enterprise IT will operate. Although many of the concepts behind cloud – virtualisation and leveraging the internet to distribute shared computing services flexibly and quickly – are nothing new, what is new is the way that cloud services are being so effectively packaged and marketed. Industry analysts believe the cloud is now entering the mainstream, but although there are many reports of successful implementations by SMBs, uptake within the enterprise IT space has, until recently, been relatively cautious. Many of the reasons for this stem from legitimate concerns around security and privacy, business continuity and governance risks. But this reluctance is now giving way to a new dynamic that is forcing CIOs to take more immediate action – whether it is planned or not.

Demands for new and innovative applications and services (both external customer focused and internal) are getting increasingly difficult for today's IT organisations to keep pace with. Business staff and IT developers frustrated by perceived internal red tape and slow deployment processes can now potentially turn to cloud services – getting instant access to the applications and platforms they want, often as simply as entering a credit card. Fuelling this situation, IT budgets remain relatively flat after the global recession and many CEOs remain cautious about investment unless it is certain to generate revenue. The cloud offers obvious cost and agility benefits to the CIO faced with such pressures. Private clouds, whether fully owned in-house or securely outsourced, have the potential to lower TCO and improve efficiency through virtualisation and consolidation; and public cloud offerings come with the tempting lure of offloading already stretched in-house resources to demand adjustable services with pay as you grow flexibility. But perhaps one of the most enticing benefits for CIOs is that it offers the ability for the IT organisation to channel off selected run-of-the-mill services and innovate more effectively on higher value projects that advance the business.

## Benefits and challenges

Cloud, regardless of its hype, is gaining more and more traction and credibility through open declarations of its use. For example, a recent cloud conference cited that mobile phone operator Vodafone and UK broadcaster Channel 4 had both reduced IT costs by as much as 90% compared with previous in-house owned IT. And in the public realm, the US and UK governments have both recently

### What is cloud computing?

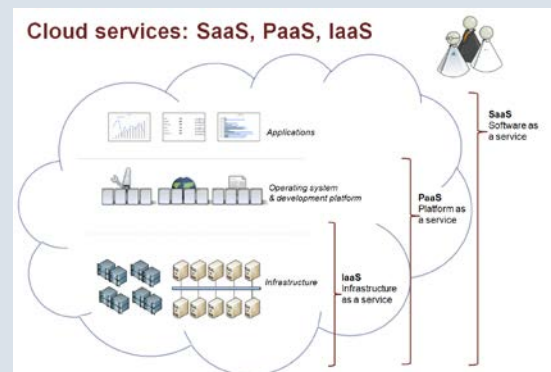
The US National Institute of Standards and Technology (NIST) defines cloud computing as: "a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction." Often cited as a forebear to cloud is the concept of "utility computing" where businesses access IT services on a pay per use model similar to other utilities such as electricity, water etc.

### Public, private and hybrid clouds

Public cloud services are supplied by 3<sup>rd</sup> party service providers and typically charged on a pay per use pricing model. Private clouds, which harness cloud principles of shared services and virtualisation, are owned internally (or outsourced within dedicated environments) and appeal to organisations who do not want to store data on public platforms. Hybrid cloud strategies combine elements of both public and private cloud environments.

### SaaS, PaaS and IaaS

Within public cloud services, there are 3 areas being actively marketed today – SaaS (software as a service), PaaS (platform as a service) and IaaS (infrastructure as a service). Perhaps the most famous exponent of SaaS is Salesforce, whose CRM service is used by 85,000 customers worldwide. PaaS provides a cloud platform to develop and run applications on - Amazon's (Elastic Compute) EC2 service and Google's App engine being well known examples. IaaS is the provisioning of underlying infrastructure resources through the cloud – Amazon, Joyent and GoGrid being examples in this space.



### The infrastructure used

All cloud services will take advantage of virtualisation in some shape and form – leveraging the ability to pool server and storage resources to run applications at optimised utilisation rates. By concentrating expertise on running their datacentres at optimal levels of efficiency, and locating them in areas with cheaper real estate, cloud service providers are able to overcome scalability and cost issues that can hinder privately run in-house systems.

### How does cloud differ from traditional IT outsourcing?

By and large the main differences come down to the business models. Cloud services are typically bought on a pay as you go basis, so there's less risk of inflexible contracts and long term tie-ins, there are no upfront costs as CapEx is taken into the ongoing charging and, unlike traditional outsourcing contracts, offers adjustable scaling to demand. The consultancy and tailoring that often goes with traditional outsourcing is less so with cloud, keeping prices comparatively lower.

made announcements about their cloud aspirations – with the Obama administration projecting savings of ~\$3+ billion, and the UK announcing the creation of 90,000 public sector jobs through its adoption. But behind these attention-grabbing headlines, caveats nevertheless remain. As was the case with many organisations first forays into IT outsourcing, although cost savings are given high credence, they should not be viewed in isolation. Without careful assessment given to the risks and business impact surrounding cloud migration – an assortment of issues can threaten its benefits. For example, the widely debated CapEx vs. OpEx argument (cloud often being cited cheaper due to leveraging operational expenditure

instead of capital) detracts from these considerations by over-simplifying the decision criteria and purely focussing on the cost dimension. Tariffs and pricing models are also subject to controversy – with some public cloud suppliers taking a “ratchet” approach to pricing, charging on bursts of CPU utilisation – and keeping charges at higher level tariffs, even after the peak has receded. Similarly, under-estimated business demand can have a highly detrimental impact on expected cost savings and ROI, especially if demand increases above estimated levels and switches to a more costly tariff. Even more disastrous are the potential risks from security lapses, poor performance and availability. For some organisations, particularly those sensitive to security and regulatory obligations, public cloud services are simply too risk laden.

But for those willing to take the jump, the cloud’s real time to market gains, latest technology and potentially lower costs make it simply too compelling to ignore. The ability to provision resources on demand answers many of the operational headaches that have challenged IT organisations for decades. However, much like the touted cost benefits, the merits of improved agility can sometimes be over-simplified. Cloud, for all its new guise, has much in common with traditional IT outsourcing in this respect. Improved agility is only as good as its direct responsiveness to business change. It is very easy to underestimate the resources needed to continually meet the expectations from business units as well as the relationships with cloud suppliers - the governance, compliance, audits and monitoring of agreed SLAs that it requires. And although there might be improved agility via a non-centralised approach, this comes with the risk of losing visibility into the overall IT spend. In this respect, when the green light is given and cloud services are implemented, there is unlikely to be any quick and practical way to reverse its decision.

### Assessing the opportunity

So taking the benefits and challenges into consideration, how should CIOs begin to assess if the cloud is a viable option? Given the huge hype and intense marketing surrounding cloud, there is now much pressure on CIOs to take action. However, the immediate consideration should always be whether the cloud, be it public, private or a hybrid, is actually right for your business. This can only be assessed with a careful, enterprise-wide planning effort, taking into account all risk, impact and benefit factors pertaining to your specific business needs. For example, banking organisations that are risk-averse to the majority of some mainstream public cloud offerings may well see opportunities to use a private cloud for areas such as batch processing or select a more specialist PaaS for less risk exposed areas such as application development. Similarly, organisations who have already invested in web-based user access to shared services such as VDI (virtual desktop) may well see advantages to directly replace their own stretched datacentres and legacy applications.

But before exploring the many options available CIOs should first conduct a comprehensive examination of their existing IT services portfolio, to understand how they are currently supporting the business and which offer the most suitability for cloud migration. With this strategy in mind, the advanced analytical approach offered by analytics is enabling organisations to rightsize and manage their cloud initiatives by being based on real data.

### The role of analytics

Unlike rudimentary approaches to cloud planning and migration, analytics provides the necessary multi-dimensional analysis of all key considerations (cost, performance, risk and impact) that are required to ensure initiatives successfully realise their objectives. By capturing and combining data from across the IT estate and correlating this with business/application consumption metrics, analytics establishes a “big picture” working model of the current IT environment, enabling cloud scenarios under consideration to be effectively compared and evaluated against the current working environment.

By using analytics’ quantified evidence to guide their decision making, CIOs can be found in the knowledge that chosen initiatives deliver against business SLAs, achieve ROI goals, and do not expose the business to undue risk. Moreover, its application ensures an independent assessment of cloud suitability for the business, ensuring decisions are grounded on fact-based evidence and not purely on conjecture or the merits of the cloud supplier/technology alone. And because analytics has the ability to measure and monitor the performance of cloud services along with in-house IT services, it has the ability to provide a complete, holistic view of the working estate, ensuring the IT portfolio as a whole delivers required standards of quality and is continually aligned to business’ overall needs.

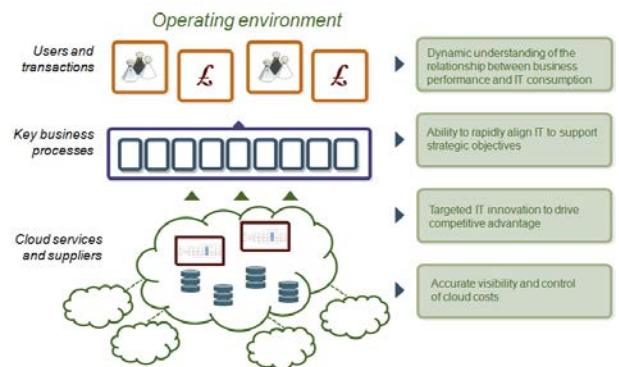


Fig. 1 – Maintaining a holistic view of cloud services and suppliers

### Collaborating with a specialist provider

Although IT organisations can attempt to undertake an analytical approach to cloud requirements gathering using various software tools, there are a number of skill, process and resource challenges that can often make it difficult to set-up and maintain on an ongoing basis. By collaborating with a specialist analytics service provider like Sumerian, organisations can take advantage of the dedicated skills, independence and expertise that has been built up across a broad range of clients and challenges. Sumerian offers a unique range of analytics subscription services that inform IT decision making by combining data-driven analytics with statistical modelling techniques and data scientist expertise. This advanced approach supplies clients with quantified reporting and deep ready to action insight into the working dynamics of their critical IT environments - helping teams to concentrate on taking practical action to drive business advantage.





## Pragmatic cloud planning

The following 5-step approach, using analytics as a framework, provides a pragmatic way of approaching all cloud initiatives, ensuring both current and future requirements are taken into consideration.

### 1. Baseline the current environment

To gain a clear understanding of which IT services offer the most value to the business from cloud implementation (whether public, private or a hybrid) it is vital to understand how existing IT services are being consumed. To do this accurately, analytics collects infrastructure utilisation metrics gathered from the IT environment and application/business consumption to determine an accurate baseline of how current service(s) are performing and what their demand and capacity profiles look like. The baseline assessment provides quantified findings to accurately scope and rightsize cloud requirements and in parallel can act as a mechanism on which to base investment justification, answering key initial planning questions such as:

- *What services offer a good fit for cloud migration – on either private, public or hybrid options?*
- *What are the potential cost savings, consolidation and ROI of these options from the current situation?*
- *What are the minimum performance, bandwidth and capacity requirements to meet business SLAs?*
- *Will moving applications to the cloud be impacted by performance issues due to the distance between application components, users and data?*

The baseline assessment clearly defines the IT organisation's total suite of current services or can take a service by service approach depending on requirements. By then mapping the direct correlations between the IT service and its connected business process/function along with associated IT staff resources, the assessment will gauge not only how the service is currently supporting the demands of the business from a process and SLA perspective, but provides a basis for scenario modelling both future requirements and cloud options/suppliers.

### 2. Factoring in future needs with scenario modelling

For cloud migrations to be truly successful, future business requirements must be addressed as part of the planning process and before negotiations commence. Key questions arising from this phase of planning might include:

- *What happens if business demand grows by 20% in the next 2 years - how will this impact costs and ROI?*
- *What are the connections between different IT services and how will channeling off some to the cloud impact the overall IT infrastructure?*
- *What likely changes in services or applications are we anticipating and how will these be met by the cloud?*
- *What happens if we need to bring services back in-house?*

Scenario modelling provides precise answers to the above questions and more by answering any number of "what if?" situations that might occur. By using scenario modelling in this way, IT organisations can safely predict the outcome of future change and how it will impact the cloud supplier/option under consideration. This pays due diligence to keeping the cloud arrangement flexible enough to cover all eventualities, ensuring internal management costs and contingencies are factored into the overall requirements and expected ROI. By making the true cost differentials associated with various scenarios apparent, assumptions that might have been based on best guesses or the supplier's pitch alone can now be based on independently corroborated analysis.

### 3. Factor in ongoing management

If externally managed cloud services are being considered it is crucial to retain overall governance and visibility of these services in-house. This helps to ensure that there is an independent, unbiased way of monitoring the quality of the service, that SLAs are being adhered to and that the service continually meets the business' needs. Under-performing public cloud services could be devastatingly detrimental to a business, internally as well as externally by damaging brand reputation and customer confidence. Although cloud suppliers may provide proof of service quality this will be centred on protecting their business model, not yours, and as such will not provide any indication on whether the service has generally degraded in performance. Questions that should be addressed in this area include:


- *How do we measure ongoing performance of the cloud service?*
- *How do we ensure we get ongoing value for money?*
- *How should we review suppliers, enforce penalties and audit their performance?*

By using the baseline as a monitoring gauge, cloud performance can be independently monitored in-house to ensure service quality and SLAs can be verified internally and, particularly where several cloud suppliers are used, help maintain a holistic view. By not retaining such visibility in-house, IT organisations risk losing overall control and will find it difficult to mitigate risk to the business from any performance degradations or availability issues. By using analytics to maintain visibility of cloud services independently, as part of an IT governance and business continuity strategy, teams can ensure any below par performance issues are proactively tracked and effectively mitigated.

### 4. Comparing cloud options through benchmarking

Now armed with a clear set of requirements and understanding of which IT services offer the best fit for cloud, proceeding to evaluations of cloud technology (for private implementations) and suppliers (for public and hybrid options) can begin. While there are many considerations to take into account - such as the supplier's capabilities, credentials, tariff charging structure, security and availability measures - the use of analytics' scenario modelling can play a key role in this part of decision making process too. By benchmarking the various offerings and associated costs of each cloud option/supplier against the baseline, analytics provides precise like-for-like comparisons, indicating which option provides





the most appropriate fit against key performance, risk and cost/ROI requirements.

Key questions that can be answered here could include:

- *For private cloud: which technology platform offers us the most benefits from a performance, capacity, ease of management and ROI perspective?*
- *For public cloud: which supplier(s) provide the most beneficial arrangements to our specific security, performance and cost requirements?*

By using these benchmark findings as part of a robust procurement process, CIOs can deliver strong assurances to the board around the cloud selection process and present upfront quantified evidence on why particular suppliers/options have been selected.

## 5. Evaluating success

When suppliers/technology options have been agreed and implementation is underway, the baseline analysis can then be repeated to quantify the actual working outcomes (performance, demand, capacity and costs) of the new cloud environment. This enables teams to categorically understand whether the migration is meeting service quality requirements and on track to meet its ROI objectives. If any areas require attention, this stage will uncover what further action is required to correct the situation. Unlike rudimentary methods of tracking such progress, analytics' ability to independently quantify the results and their relative impact for the business is especially powerful for not only negotiating improvements from suppliers, but for demonstrating value and gaining future investment from the board.

## Realising success

Today's flat budgets and demand from the business for fast to market, agile IT services are forcing CIOs to seriously consider the virtues of cloud computing. While the cloud offers a range of benefits from reducing costs, improving agility and driving more in-house IT innovation, without careful consideration to the long term and a clear understanding into business/application consumption and expected growth profiles, anticipated benefits can be quickly put at risk.

By using analytics to baseline the existing IT environment and scenario model the vast array of "what ifs?" - CIOs can be sure of gaining precise, quantified answers to inform their decision making and ensure selection of the right cloud service providers and technology options – maximising IT spend and delivering continually high levels of business value.

### More information

For further information on Sumerian or to arrange a demonstration of our services, contact us on 0141 229 7580, e-mail us at [info@sumerian.com](mailto:info@sumerian.com) or visit our Web site at [www.sumerian.com](http://www.sumerian.com)

