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CUSTOMER NEEDS AND STRATEGIES

IT Cloud Decision Economics: 10 Best Practices for Public IT Cloud Service Selection and Management

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IDC OPINION

The worldwide market for public IT cloud services continues to grow at a blistering pace, reaching $21.5 billion in 2010; IDC forecasts public IT cloud services spending to reach $72.9 billion worldwide in 2015 — a compound annual growth rate (CAGR) of 27.6% — and a tripling of public IT cloud spending. IDC research shows that this market shift is affecting virtually all IT organizations as CIOs are being called upon to do more than just maintain IT operations behind a firewall. As the nature of IT evolves to the next technology platform, a virtual computing–based IT architecture, *it is not just the technology that is changing, but the role of the IT organization and the professionals within it*. To this end, IDC has prepared this best practices document for both IT leaders and business executives to better enable a more productive business/IT dialogue and facilitate their cloud services selection processes. The implementation of public IT cloud computing options raises major governance issues worthy of executive management review and participation. Findings include:

- Although documenting the business case, alignment, and IT accountability have been long-standing IT best practices, moving to the cloud escalates to an imperative the need to define and measure business value and KPIs.
- Recognize that technology and process standardization that are an inherent part of the public IT cloud experience are among the fastest ways to reduce complexity and drive improved IT and business efficiencies; conversely, understand that opting for anything customized beyond the standard technology or process offered by a cloud service provider will quickly change IT deal economics back closer to what they have been in the past, before cloud.
- Cloud is too important to be left to IT departments alone for at least two reasons. First, it's as much about businesses' agility as it is about IT cost takeout. Second, because cloud has the potential to fundamentally affect the IT organization's people, it is difficult for IT (or any department) to deal with the potential organization change management issues by itself.
- Question your IT organization on why you have the infrastructure you do and if you still need to own it, given available substitutes. Financial analysts know that sunk costs are irrelevant when analyzing future return on investment (ROI) calculations, but sometimes it's hard for individuals or departments whose identity is tightly connected with delivering a product or service to make dispassionate and accurate ROI calculations.
- Get the lawyers involved earlier. It's imperative to understand who has what service level with whom, and also who is accountable for monitoring that service level (i.e., a cloud services vendor, the customer, or an independent third party).

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IN THIS STUDY

This document is published as part of a special report series, IT Cloud Decision Economics, and it is designed to provide actionable advice for IT leaders, business executives, and enterprise architects. These insights, based on in-depth interviews with both IT organizations and public IT cloud services provider organizations, were created to facilitate, streamline, and improve public IT cloud services decision process through best practices that address common acquisition pitfalls that rise during the selection process.

SITUATION OVERVIEW

Defining Cloud Services

Cloud computing environments are defined by IDC as having a number of important attributes that distinguish them from other computing architectures including virtualization and clustering (see *Worldwide and Regional Public IT Cloud Services 2011–2015 Forecast,* IDC #228485, June 2011). Specifically, cloud services define a "cloud service" as having eight key attributes:

- **Shared, standard service.** Built for a market (public cloud); internal shared (private cloud)
- **Solution packaged.** A "turkey" offering, integrates required resources
- **Self-service.** Administration and provisioning; may require some "onboarding" support
- **Elastic scaling.** Dynamic and fine grained
- **Use-based pricing.** Supported by service metering (private may not chargeback)
- **Accessible via the Internet.** Ubiquitous (authorized) network access
- **Standard UI technologies.** Browsers, RIA clients, and underlying technologies
- **Public service interface/API.** Web services and other common Internet APIs

Beyond these service attributes, there are three major delivery models:

- **Public.** Service shared among unrelated enterprise and consumers; open to a largely unrestricted universe of potential users; designed for a market, not a single enterprise
- **Private.** Service shared within a single enterprise (or extended enterprise), with restrictions on access, and level of resource dedication, defined/controlled by the enterprise, and beyond control available in public cloud offerings; can be *onsite* or *offsite*; can be managed by a third-party or in-house staff

- **Hybrid.** Service that is delivered through a combination of public and private cloud models

IDC believes that IT cloud computing infrastructure and services, in their many forms and flavors, will continue to evolve rapidly and assume increasingly critical roles within IT organizations as these technology platforms mature. Further, it is important to note that IDC believes that most organizations will use a combination of public, private, and hybrid IT cloud services.

In this document, IDC focuses on the best practices associated with selecting and managing public IT cloud services.

IT Cloud Services Segments

In January 2011, the National Institute of Standards and Technology (NIST), a unit of the U.S. Department of Commerce, issued Special Publication 800-145, *The NIST Definition of Cloud Computing.* And, while IDC has chosen to create a more detailed taxonomy to measure and report IT cloud services (see *Worldwide and Regional Public IT Cloud Services 2011–2015 Forecast,* IDC #228485, June 2011), the following three categories are well known to most IT leaders and business executives and are used throughout the balance of this document:

- **Software as a service (SaaS)** is defined by NIST as "the capability provided to the consumer to use the provider's applications running on a cloud infrastructure." At IDC, while we believe the NIST definition is informative, it does not go far enough. NIST uses SaaS to refer only to application software delivered as a service, while at IDC, we believe this should include development tools, databases, system software, and so on (i.e., all functional software categories). For example, in our research practice at IDC, we have seen select systems management software segments where 35–40% of new license revenue is being derived from IT organizations opting to have a third party host the software using a SaaS model versus hosting the new application internally.

- **Platform as a service (PaaS)** is defined by NIST as "the capability to deploy onto the cloud infrastructure consumer-created or acquired applications created using programming languages and tools supported by the provider." Many enterprise software providers are now building out PaaS offerings for IT organizations currently using their software products. The major difference when compared with SaaS is that PaaS providers operate an integrated environment versus delivery of a single application. For example, utilizing a SaaS provider, a company could enable its CRM process. However, if that SaaS provider hosted other software products, perhaps from other providers, that ran simultaneously, that would be a PaaS solution. Generally, this is the most complex of the three public cloud services segments.

- **Infrastructure as a service (IaaS)** is defined by NIST as "the capability 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." Of the three options, this is the most straightforward — the provision of IT compute resources consumable on a variable basis.

IT Public Cloud – Comparative Sizing

By way of comparison, a more traditional component of IT, worldwide server spending, has been sized at $52.3 billion (for 2010), growing to $54.7 billion by 2015 (see *Worldwide Black Book Query Tool, Version 1, 2011,* IDC #228105, May 2011). In other words, in 2010, worldwide spending for public IT cloud services aggregated just over 40% of server spending, and, by 2015, spending for public IT cloud services will exceed worldwide spending for servers by 33.3%. Of course, public IT cloud services are very different than server equipment; however, the point of the comparison is to provide a comparative sense of scale.

IDC expects that pubic IT cloud spending will more than triple by 2015.

A Word About Private IT Clouds

At their core, private IT clouds are the latest iteration of a multipart, multiyear effort by IT organizations to introduce more standardization into their typically wildly heterogeneous IT infrastructures. Broadly, IT organizations are challenged to enable their organizations with the best applications possible to enable business processes and deliver those compute resources with very high service levels. Typically, this involves multiple operating systems, complex application management requirements, and (perhaps unnecessarily) very high service levels.

In this new iteration, private cloud initiatives often involve enhancing the software management tools to enhance device and application management, streamline provisioning and enable self-service, and improve device utilization by standardizing operating system platforms. In addition, private IT clouds evolve IT financial practices improving the transparency of usage and granularity of costs (whether charged back or not).

For most IT organizations, these are worthwhile and strategically critical objectives that often involve the acquisition or expansion of system software, as well as a thoroughly revamped governance process.

IT Cloud Strategies and the Challenge

Virtually all IT leaders and business executives within buyer organizations have been exposed to the term "cloud computing," but as industry best practices, nomenclature and industry offerings continue to evolve rapidly, internal discussions, strategy formulation, and sourcing evaluations can often be confusing and frustrating. Because "lower cost" is often cited as a chief advantage of cloud computing, business executives often seek to embrace new options without a fully reasoned discussion of options.

In IDC's conversations with business executives and IT leaders, typically three major topics are discussed: a definition of cloud computing options and how the options may map to the organization's requirements; security, governance, or regulatory constraints and how they should be best addressed; and the revelation that the organization is considering, in the process of deploying, or has already implemented some form of cloud computing albeit with some concerns or reservations. Whether it is applications hosted in a third-party public cloud, operating internal applications

within a more streamlined and standardized internal cloud, or, for most organizations, utilizing a hybrid architecture, cloud architectures are rapidly emerging as a mainstream IT infrastructure and provisioning strategy.

The challenge is advancing the dialogue to a more robust discussion of the opportunities, risks, and potentially differentiating competitive advantages to be gained by exploiting a new IT platform whether it be by accelerating new capabilities, lowering costs, or obviating the need for major capital investments in IT infrastructure.

The implementation of public IT cloud computing options raises major governance issues worthy of executive management review and participation. IT organizations within large enterprises have dealt with these challenges for decades as they have used business process outsourcing/business service providers as well as IT service providers (outsourcing, hosted/managed services, etc.). A lot of the IT management and governance requirements that public IT cloud demands — for robust vendor management, well-defined business requirements, compliance validation, governance, and so on — already have best practices well established. In this study, IDC discusses how established best practices around use/governance of third-party service providers need to be updated to deal with cloud services:

- **Acquisition practices.** Within the organization, who has the ability to acquire these services? IDC recommends centralizing cloud services acquisition enterprisewide, and that IT buyers implement formal company policies to this effect by 2012.
- **Security.** It goes without saying that shifting potentially sensitive data outside of an organization's direct control creates risks. However, organizations have been managing similar risks for years. Yes, this is a new and evolving technology, but companies have long relied upon business process outsourcers to handle payroll and employee benefit administration, for example. There are clear precedents for managing sensitive data within most organizations.
- **Risk management.** A famous line from the novel *Anna Karenina* asserts that happy families are happy for all the same reasons, but that unhappy families each have their own story. And so it is with risk management. Depending on the situation and circumstances, there are risks unique to many circumstances. However, for buyers of cloud services, major risks that should be understood and potentially mitigated include service levels, persistency of data, recoverability, alternate suppliers, and supplier risk.
- **Compliance.** Technology often moves faster than the management and regulatory practices. The airline industry has often been accused of only making changes after a crash. Regrettably, this is more a statement of the way human institutions operate than a particular industry and IT is no different. Major "events" often precipitate regulatory responses. The issue for cloud services is that they have the potential to unravel "resolved" compliance issues such as Sarbanes-Oxley, HIPAA, or many country regulations about allowing data regarding employees to be stored in other systems.

In the sections that follow, IDC discusses 10 best practices for IT cloud service selection, acquisition, and management.

FUTURE OUTLOOK

Technology selection processes are often time consuming and often involve multiple organizational constituencies with various agendas. Business executives remain acutely focused on IT projects that create business differentiation, accelerate time to market, or enable new capabilities with potential business impact. IT leaders are often focused on platforms, sourcing options, or delivery models that fuel capability as well as improve cost efficiency.

Given this state of affairs, the rapid emergence of a "new" technology option, actually a range of "options," and considerable IT buyer interest led IDC to create this document, in the form of a 10-point buyers' guide to inform the public IT cloud selection and ongoing management discussion.

The listed best practices offer enterprise IT professionals, business analysts, and enterprise architects guidelines and advice on how to more efficiently manage through vendor hype during the product selection process.

1. What Is Public IT Cloud Computing: A Managed Services Contract

Many IT leaders have posed the question of whether public IT cloud computing is just a new form of outsourcing. IDC believes public IT cloud computing options, in terms of their sourcing, management, and risk/opportunity profiles, more closely resemble "managed services." Broadly, managed services is the practice of transferring day-to-day management responsibility as a strategic method for improved effective and efficient operations including production support and life-cycle management activities. Managed services and outsourcing are conceptually similar; the difference is in how they are structured and the degree to which they are customized. "IT outsourcing" has become a metaphor for a complex, highly structured transfer of operational and management processes to a third-party provider. Managed services is the selection of a "standard" offering to outtask a specific set of responsibilities or activities. In this way, managed/hosted services attempted to drive better costs through standardization, in contrast to the traditionally one-off structure of outsourcing deals. In this regard, public cloud services are a next logical step from hosted services, in the productization of IT services.

Many IT organizations have used managed services successfully; conversely, outsourcing remains a somewhat loaded term within the IT industry as many IT organizations have had somewhat mixed results with the strategy. At the risk of oversimplifying, IDC believes the more standardized nature of managed services programs is a major part of their success. "Building once and delivering many" is a much more efficient process for a service provider than "building once and delivering once."

As business executives and IT leaders approach a potential public IT cloud services contract, IDC recommends leveraging the organization's experience and best practices with managed services contracts such as standardization, service-level definition, and contract management — critical details that enhance outcomes.

When considering cloud computing, IDC recommends framing the evaluation, selection, and management processes in the context of other *successful* and *unsuccessful* managed services contracts the organization has experienced because, as Samuel Smiles, a 19th century Scottish author and reformer, said: "We learn wisdom from failure much more than from success." Cloud computing brings with it new opportunities to enhance device and application management, streamline provisioning and enable self-service, and improve device utilization by standardizing operating system platforms — as well as evolve IT financial practices by improving the transparency of usage and granularity of costs (whether charged back or not).

2. Key Contract Variables: Price/Scope, Risk, and Availability

Some cloud service providers like to emphasize that with a credit card one can be online and working in minutes. While that is true, it presumes the IT organization can live with the standard terms and conditions. An IDC review of the terms and conditions for several cloud IT services providers during 2Q11 found a very wide range of representations and warranties, including flexibility for the provider to store the data in any location or country they wished and no service-level guarantees. The approach of the contracts was much more akin to what would be expected in a consumer software license versus a commercial contract.

Clearly there are business situations and processes where these representations and warranties (or the absence thereof) would be adequate given other trade-offs such as time to provision, scale, and exposure. However, this type of business contract is probably not adequate for many organizations for their critical business data, enablement of key business processes, or acceptable in terms of the potential exposure of customer's sensitive data.

Several years ago, multiple public companies had employees from their respective human resources departments traveling with laptop computers that contained detailed salary, benefit, and personal information on hundreds of thousand employees and retirees. The data on the laptops was not encrypted, and the access controls for the devices was weak. When the laptops were lost and the information compromised, it was headline news. In IDC's view, the issue was not whether laptops were a suitable tool to analyze data, but governance practices around access to data — the manner in which it was deployed and (not) managed. Suitability to purpose is the critical point.

In conversations with IDC client IT organizations, public IT cloud services provisioning discussions have focused on balancing four critical trade-offs: scope (of functionality), price, SLAs (availability and performance), and risk. Critical questions for IT buyers include: Is it a noncritical business process that can be offline for an hour or two at a time? Are there any regulatory, privacy, or proprietary business reasons that mandate the data be managed with a high degree of security? Finally, what is the scope of capability the organization expects a potential services provider to deliver? These are questions that must be asked and then the trade-offs made.

In the end, IDC believes that all of an organization's public IT cloud services contracts should be structured, managed, and measured consistently on these three axes by technical, contracting, and business leaders. Think of price/scope, risk, and availability as the three-dimensional framework of cloud services management.

For potential IT buyers, the issue in structuring a public IT cloud services contract is a matter of defining requirements, assessing suitability to purpose, and finding the best fit possible while minimizing service customization. While the temptation or opportunity to customize a contract can be powerful, relying on "standard" offerings, offerings that most closely match requirements, will enhance the likelihood of a successful experience.

3. Governance … A Critical Enabler

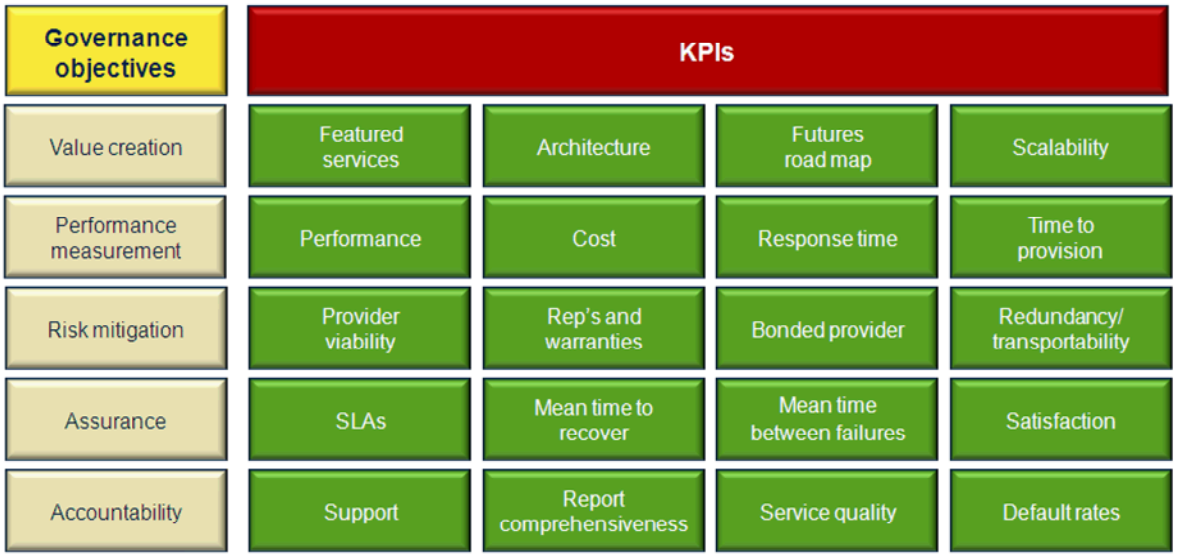
A leading cloud services provider likes to share a customer story about how a large newspaper needed to convert all of its archived newspaper articles from one format to another for its new Web site. One of the IT staffers took it up and used a new public IT cloud services offering and completed the task in one day for less than $500 — such a small fraction of the time and cost previously estimated that it was embarrassing. The thing is — it worked. The employee was hailed as a hero and an internal IT legend was born.

Perhaps lost in this story is the issue of risk. What if the collected archives of every news article of the newspaper had been compromised, that is, publicly spilled? The consequences may have been so significant that it would have affected this public company's reputation and potentially affected its market value. Was the risk worth it — unknown and unknowable?

In addressing public IT cloud services governance, IDC believes IT organizations need to evolve their existing governance frameworks within their overall governance framework (i.e., not create a separate governance framework for your use of public cloud services). In Figure 1, IDC highlights a broad IT governance framework that includes five major IT governance objectives and preliminary KPIs a potential public IT cloud services engagement may require.

FIGURE 1

Public IT Cloud Services KPIs



Source: IDC, 2011

4. IT Operations Integration

Public IT cloud computing options challenge the IT operations team to evolve its role profoundly. Instead of "operating" the equipment to deliver the required IT resources, the IT operations team assumes oversight of the managed service providing 7 x 24 assurance, by constantly monitoring business events and the underlying IT processes. When something fails and priority one event occurs, this is the team that should have a formal triage process to address and manage the "events." While some may consider this a statement of the obvious, in multiple IT organizations IDC analysts have worked with the IT organization has no "responsibility" for service delivery of software delivered via SaaS, because public IT cloud services, particularly those sourced by business leaders or employees without IT participation, create potential situations where events occur without a formal oversight or management process in place to remediate failures.

A major fraction of the cost of each "owned" IT device is the cost of IT assurance. Monitoring, installing updates, and tracking changes are part of an organization's change management process. Most of these processes, and their related cost, exist to enable IT organizations to deliver very high service levels.

The critical issue for those acquiring public IT cloud services is having an integration plan for external IT services with existing IT operations. Clearly, IT operations will be evolving functionally. Previously, their key role was to operate the equipment. In the world of cloud services, they will be monitoring externally supplied compute resources and how they interact with internal IT systems. Many IT organizations report to IDC

analysts that they already have 50 or more SaaS streams flowing in through their firewall. In some of the organizations, IT has little or no responsibility for the integration and service delivery of the software enabling these business processes. However, when an event occurs, they are called in to remediate it.

IDC recommends that as part of the acquisition and implementation of public IT cloud services, integration into the IT organization's operational functions of assurance and remediation be a perquisite.

5. Enterprise Architectural Considerations

The availability of public IT cloud services sourcing, provisioning, and delivery options creates critical new enterprise questions and opportunities for business and technology architecture. Previously, IDC characterized cloud services as a major element of IT's third generation (the first being mainframes and the second being distributing computing — i.e., PCs and the Internet). As with each generational change, it was difficult to envision the transformation and possibilities each opened up. And so it is with cloud services.

In recent conversations with an IDC analyst, one IT leader, whose organization sources some 75 applications via SaaS, expressed his frustration with both IT's lack of involvement with sourcing and reviewing these services and at the same time IT being responsible to cope with the implications of having the "tendrils" from these numerous applications threading themselves throughout the IT infrastructure without formal oversight.

When selecting external public IT cloud service options, IDC believes it is not just about technology architecture, but the implications for other aspects of the IT infrastructure. At issue is how the technology infrastructure and business processes interact to shape operations, service delivery, and employee enablement.

As the industry is still in the early phases of public IT cloud services evolution, the architectural implications are still evolving. Nevertheless, IDC recommends inclusion and elevation of both the business and the technology architecture roles into the public IT cloud services governance process.

6. Deciding When a Plan B Option Is Mandatory

Public IT cloud services as well as the related providers are still evolving rapidly. New providers will continue to enter the market for years to come. Some existing players will be acquired. Some providers may exit the business being unable to make a go of it. The industry is still in the rough and tumble period of emerging best practices, an evolving set of standard offerings, and the maturation of business models. One thing IT buyers can be assured of is that there will be unexpected changes as the business and technology evolves for years to come.

In managing a public IT cloud services contract, the critical questions to keep forefront in the discussion are:

- How do the standard contract deliverables map to the organization's requirements (present and future) (i.e., suitability to task)?
- How has the provider delivered against the documented and agreed-upon SLAs, and what are the consequences/remedies if a default occurs?
- What provider changes have occurred or might occur (scope of delivered services, price, SLAs, and risk) since the engagement was established?
- What are the organization's current requirements, and how might they evolve over the duration of the agreement?
- What does it take to establish the contract, and what does it require to terminate it?

Each of these five critical contract management elements may evolve into a scenario requiring a contract be restructured or, perhaps, terminated. Generally, the least expensive and disruptive option is evolve the situation with the current provider to one congruent with the organization's requirement. In the event that is not possible, termination remains the option of last resort.

In the event of termination, provisions for data and code migration and destruction of all backup copies will be required. Some IT organizations have considered source code escrow agreements for situations involving custom or highly configured applications. However, the most important termination scenario planning requirement is ensure that there are viable alternate providers with the capability and capacity to meet requirements — especially the complex process of transferring an existing workload.

Requiring public IT cloud services contracts have alternative suppliers shapes what an organization can and should do when structuring contracts. Key issues to consider if a public IT cloud services contract reaches the threshold of mandating a Plan B include questions such as: How critical is the (enabled) business process? What are the governance, regulatory, and compliance (GRC) implications? How extensive is the relationship with the cloud service provider? How customized is the contract, deliverables, or terms?

7. Funding Preferences: Opex Versus Capex

Briefly, Opex is business slang for operation expense and Capex is shorthand for capital expense. Most discussions of public IT cloud services benefits emphasize how much more favorable it is for an organization to pay for its resources via "operating expense" instead of acquiring IT resources such as equipment or software, whether through acquisition and using precious "capital" resources.

The reality today for many public companies is that cash levels are at a 50-year high. According to the U.S. Federal Reserve, for the past 50 years (i.e., from 1960 to the

present), cash, as a percentage of balance sheet assets, has ranged from 3.5% to 6.5%, meaning that public companies' ability to fund purchases is at an all-time high. The reasons many organizations have increased cash reserves are complex, but the point is that cash balances, as well as the availability of business credit, are quite favorable to borrowers.

The reality for most, larger, IT organizations is that they have two budgets: one for operating expenses (from which they fund Opex expenditures) and another for capital budget (for acquiring assets — Capex). In reality, one of the budgets is usually "low" and another is "high," requiring IT leaders and business executives to seek financial options to equalize the in-balance.

The principal benefit of funding the cost of resources with Opex is that it allows organizations to better match resource acquisition with costs. For many organizations, especially service providers, the ability to directly match costs and capacity with (potentially) revenue is a highly desired business architecture attribute.

Emphasizing the Opex model has potential shortcomings for IT buyers. Specifically, it removes some of the discretionary flexibility for IT infrastructure expenditures. For example, in a really difficult year, perhaps the "owned" resources could be pushed for one more year; an Opex acquisition model does not have this discretionary element. As with most questions, this is not a matter of right and wrong, but a matter of best matching the internal consumption model with one or more acquisition models.

For some IT organizations evaluating public IT cloud services, the issue of existing investments in IT infrastructure including capitalized datacenter buildings and leasehold improvements in leased facilities as well as capitalized but as yet not fully depreciated equipment or software raises potentially material financial issues. Accounting guidelines in most geographies require existing assets not being utilized be revalued (i.e., written off). As a result, IDC counsels IT leaders and other business executives evaluating cloud services to survey their own internal financial landscape to fully understand the consequential financial implications for incorporation into the business plan.

The availability of IT resources "as a service" creates new options and possibilities. The advantage is never having to disburse large sums of business capital for specific IT resources. The disadvantage is paying, potentially perpetually, for the use of those resources.

Public IT cloud service providers recognize some of the limitations inherent in an Opex-based business model, and as a result, have introduced longer-term contract options including multiyear plans. These provide the buyer with additional certainty in terms of price increases and the provider with greater certainty. Key point here: quite a few providers (and customers) are in annual/multiyear, rather than month-to-month, agreements.

8. Integration into the Business Context and Goals

When a new project is undertaken, especially one with the opportunity and risk associated with public IT cloud services, the business architect and IT organization must be blunt about their business objectives and align each project with business goals and metrics. To achieve this alignment, IT organizations must be able to communicate their business objectives and the project's impact on related business processes, which could include various levels of business impact across internal or external customers, cost controls and containment, business process impact, or other business objectives.

IT organizations should challenge providers on their ability to help achieve alignment. Building the business case is much more than saving money and product innovation; it's the ability to improve the effectiveness and efficiency that IT organizations deliver to the business. Buying more technology is not a useful exercise; implementing technology to resolve a business problem should be the goal. IT organizations are support organizations to the business and need to have tools and build business case scenarios for full value and maximum output.

During the technology and services selection phase, ideally there will be a business problem framed with the technology service options that addresses and resolves it. Building a business case is helpful to obtaining executive-level support, budget, and project support consensus. The business ramifications should be clearly understood by all stakeholders; ranking business priorities is helpful when there are multiple business objectives. There are often many value scenarios to define, such as customer, IT, business, and process value, that can and should come from technology projects. It is critical to define the value objectives for each technology project. From a measurement perspective, IT organizations should define metrics to measure project value.

The good news with public IT cloud services is that — as we've already seen with many SaaS apps (Salesforce.com, SuccessFactors, Taleo, Workday, etc.) — there's such an obvious business case, the buyer is often the business executive. Obviously, the closer you are to the application part of the stack — or better yet — seen as a business service (rather than an application), the more transparent the business case is.

9. Organizational Issues and Human Factors — A Critical Element

IT organization/skills transformation is, without doubt, the single greatest strategic priority for IT executives in a successful journey to the cloud.

Human barriers and resistance to change are often the greatest impediments to process innovation and new technology adoption (it's all about culture and politics). Cloud services providers that work proactively with IT organizations, or have active user communities, to help them better manage the transition from device to service management (one example) and assist enterprise IT organizations in moving processes, technology architectures, and staff forward, significantly increase the likelihood that a specific project will be successful.

Training and certification programs are one powerful strategy for both providers and IT organization leaders to build momentum to embrace chance and address the natural human and organizational resistance to change. As of the writing of this study, provider organizations including Amazon, Dell, EMC, and IBM have all announced formal cloud engineering certification programs. For IT professionals, there is broad understanding of the need to constantly invest and reinvest in professional skills development. Regrettably, with the recent economic climate, many IT organizations have scaled back their training or training reimbursement programs. For IT leaders and other business executives, the link between training and organization transformation is obvious. What may not be quite as obvious is that training investments, even for programs not directly linked to current initiatives, underwrite an individual willingness to take the personal risks necessary that enable the organization to explore new technology platforms.

Public IT cloud services represents a significant new technology platform, and best practices continue to evolve rapidly but have not yet been fully solidified. IT organizations should analyze existing business processes and the underlying technology infrastructure issues that will need revision as the cloud services are implemented, and what will need to change in response to growing business requirements.

Often, IT organizational structures pose one of the largest risks to project failure as IT groups tend to be motivated by different goals. The nature of public IT cloud services, the sourcing of IT compute/services resources from an external provider, suggests a diminution or evolution of certain IT functions (such as IT operations). Inevitably, some individuals embrace the possibilities that change brings and view it as opportunity. Others react in a negative way. As with any new technology or service delivery model, the human factor is a critical, if often overlooked, element to organization change management.

Based on the many conversations with IT organizations by IDC analysts, most IT professionals are inclined to embrace public IT cloud services because they view it as a long-term, strategically important IT shift, and they want to be part of it. Emphasizing this future view of the technology can help engage employees. Funding employee cloud engineering certification programs, even ahead of actual planned deployments, demonstrates an organizational commitment to personal development and transformation that will pay direct dividends in accelerating the pace of change and innovation.

10. Is Cloud Computing Cheaper … Perhaps

Virtually every discussion involving public IT cloud computing involves assertions that cloud computing is less expensive. From an engineering perspective, there are at least three key reasons why a well-run third-party public IT cloud provider should be able to deliver compute resources less expensively than a typical internal IT organization:

- **Load aggregation.** By combining the highly variable compute loads from disparate organizations, it is theoretically possible to achieve better levels of device utilization. Consider a global company and imagine its compute loads shifting from geography to geography as a typical workday progresses. Think of

a large power utility and consider the millions of random events that happen daily as consumers shift devices on and off. Aggregated, they are a much smoother load. For third-party compute providers, aggregation is a powerful tool to load their devices more consistently.

- **Cost of electricity.** By locating datacenters in areas with low-cost power, third-party providers can lower their cost of compute resources. Given that power can often represent 35% of operating costs, this advantage could be material.

- **IT labor efficiency.** Compared with a typical IT organization operating a heterogeneous IT infrastructure — that is, one with many operating systems, diverse applications and a wide variety of equipment — operating an "IT factory" streamlined and optimized to a small set of IT variables makes huge IT labor efficiency possible.

The key issue however is not the *cost* of delivering a unit of IT compute resources. For IT buyers, the issue is comparing the *price* of acquiring a public IT cloud service versus the cost of supplying it via internal (dedicated) resources. The presumption is that the lower "production" costs will ultimately flow to IT buyers. This is a complex question, the short answer to which is "it depends … ." Pricing is a function of market conditions, seller motivation, and buyer requirements. In mature industries, cost and price are usually highly correlated. As discussed previously, the cloud industry is anything but a mature industry, and assuming the pricing and cost will be correlated is an assumption IDC recommends buyers not build into their external contracting models for cloud services.

The cloud computing market is in a period of rapid expansion, affecting both providers and their service offerings. Pricing varies from very short-term contracts, literally minutes of usage, to multiyear contracts with associated discounts. The scope of the public IT cloud service offerings varies even more widely.

The long-term outlook is that externally sourced IT virtual resources, that is, the public IT cloud, have the potential to reduce the cost of capacity. However, there is no guarantee, even likelihood that any particular project or application will certainly be hosted more effectively with hosted or virtual compute resources. As with most complex engineering questions, the answer is a function of many variables. Nevertheless, IDC believes that public IT cloud services will evolve rapidly into a major IT platform, and for that reason, IT organizations should continue to explore new options and applications albeit with the caution appropriate to an evolving technology platform.

For IT leaders and other business executives, managing delivered IT cost is a critical element of their professional responsibilities. Public IT cloud services present a new and rapidly evolving option for sourcing and delivering IT capability. Answering the inevitable question about ultimate cost needs to be approached with the typical discipline applied to evaluating other IT options.

For midsize and larger projects, IDC recommends IT leaders and other business executives rely on the proven methodology of building a three- to five-year scenario factoring the relevant components, including direct resource costs (equipment,

software, and services), assurance costs (such as monitoring, patching, and maintenance), and indirect costs (including buildings, energy consumption, taxes, and IT management), and comparing them with external options (also fully encumbered with all relevant costs including assurance and IT management).

In our interactions with IT organizations reviewing their IT investment proposals, the most common error is that future costs are typically projected linearly, that is to say "flat" into the future. One well-understood IT reality is that the cost of maintaining devices into the future is virtually never "flat." Whether the rising costs are for software maintenance, energy, or employee salaries, prices generally increase across a three- to five-year planning scenario.

Confronted with building expense analysis models for public IT cloud services to guide an organization's investments, IDC recommends that IT leaders and other business executives make the investment in time to build a multiyear technology/financial scenario as it will serve as a solid foundation for optimizing existing operations as well as making well-informed future choices.

ESSENTIAL GUIDANCE

Why Cloud Computing?

Beyond the potential economic benefits, perhaps the most important attribute of public IT cloud services is that they enable completely new business and technology models. Yes, there are numerous issues to be considered and perhaps addressed as the industry transitions to a new IT infrastructure model; however, IDC believes the potential opportunities are even more important than the potential economic benefit from acquiring IT resources on a unit basis without having to acquire an entire device, or the flexibility of paying with Opex versus Capex.

Cloud computing is a business model that instantiates new business flexibility and scalability. For many stable, existing business/IT platforms such as ERP systems, IDC expects they will remain hosted on company-specific equipment for many years to come. What is most likely is that much of the new business and technology innovation will spring from cloud computing platforms.

Consider PCs; in the mid-1980s, they were curious devices that were rolled around many business offices on wheeled carts. By the late 1990s, business writers began to talk about how companies such as Amazon or Dell had reinvented entire industries — Amazon with the bookseller industry and Dell with the PC industry with its online configuration tools.

IDC expects a similar period of technology evolution and maturation and, at the same time, a period of business process revolution enabled by the new technology platform.

In its current instantiation, cloud computing has many potential roles within a typical IT organization. The issue is recognizing the state of technology maturation, and matching it to the appropriate business requirements. Again, in a phrase, it is all about "suitability to task."

How to Proceed?

As Confucius says, "The journey of a thousand miles begins with a single step."

Public IT cloud services offerings such as SaaS, PaaS, and IaaS are evolving rapidly. Some providers report to IDC that within select segments of the systems management software industry, some 35% of new software installations involve a SaaS delivery model. In many cases, there are software tools that are "important" but not critical — that is, could be offline for an hour or two, once a month — and as such may be suitable candidates for a public IT cloud services model — a delivery that does not yet have the same very high availability of many hosted solutions.

Many organizations already use PaaS offerings for their CRM capability. IT buyers report to IDC that they are generally very pleased with the robustness and functionality of the product, but a few have complained about the open-ended nature of the financial model.

In the collaboration software/service business segment, many providers have rapidly expanded buyer options offering email or collaboration software "in the cloud."

Finally, other organizations already utilize or are evaluating public IT cloud services as part of their QA process for new software testing, while still others are exploring cloud services as part of their business continuity strategies.

Conclusion

As we move into the back half of 2011, IDC recommends IT organizations identify three to five specific cloud initiatives as a way to evaluate the technology and to expose both business and IT employees to the potential it engenders. Embracing change and driving it, in a controlled and considerate manner, is often a much more productive strategy than resisting it and then having it thrust upon oneself.

From an internal IT organization management perspective, public IT cloud services are a form of managed services; however, as IDC has outlined in this document, there are critical governance, contracting, architectural, and business planning aspects for even a seemingly small and potentially innocuous cloud services contract. Organizations that embrace the fact that public IT cloud services engenders a major change in how IT will enable business processes by doing the heavy lifting in structuring acquisition, governance, and contract management processes will benefit from these investments.

The purpose of this document is not to deter IT buyers from continuing the exploration and potential acquisition of cloud services but to coalesce the risks and opportunities together for consideration, evaluation, and review.

The key recommendation for IT organizations is to collaborate with their business partners to embrace the need to establish the key governance framework that will enable the organization to approach the new technology with a cohesive plan. It is a matter of going slow, that is, establishing the entire organizational framework, so that

the organization can "go fast." IDC believes it is critical for IT organizations to start their journey to the cloud by 2012, if they have not already.

LEARN MORE

Related Research

- *Worldwide and Regional Public IT Cloud Services 2011–2015 Forecast* (IDC #228485, June 2011)
- *Private Cloud: It's All About Operational Efficiency* (IDC #227870, April 2011)
- *Worldwide Cloud Systems Management Software 2010–2015 Forecast and Trends* (IDC #226682, January 2011)
- *IT Cloud Decision Economics: Ten Tips to Maximize Your Organization's Cloud ROI* (IDC #WC20101118, November 2010)

Synopsis

This IDC study provides actionable advice for IT leaders, business executives, and enterprise architects.

"Designed to provide actionable advice for IT leaders, business executives, and enterprise architects considering the acquisition of cloud services, this document is based on in-depth interviews with executives at both IT organizations and IT cloud services providers, and it is designed to help IT leaders and business executives facilitate, streamline, and improve public IT cloud services decision process," said Joseph Pucciarelli, program director, IT Financial and Executive Strategies.

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