

For: CIOs

Justify Your Hybrid Cloud Future With A Solid Business Case

by Dave Bartoletti and William Martorelli, February 10, 2015

KEY TAKEAWAYS

Cloud Promises Agility, Flexibility, And Savings, But Are The Savings Really There?

Cloud remains a top CIO priority in 2015, but many question whether the savings are real. Public cloud platforms are indeed cheaper than on-premises infrastructure for most apps and workloads today, but platforms are not your only option. SaaS and managed cloud services options should also be part of your hybrid cloud portfolio business case.

Infrastructure Cost Savings Are Only One Part Of Your Cloud Business Case

You can't easily make apples-to-apples cost comparisons between running apps on-premises and on a cloud platform, as a SaaS subscription, or with a managed cloud service provider. Your business case must include not only capital infrastructure savings but operational cost benefits such as developer productivity and faster time-to-market.

Observe The Peculiarities Of Different Cloud Models

Dynamics of the business case will vary across IaaS and SaaS. The scalability afforded by IaaS is not a primary selling point for SaaS, yet corporate agility is enhanced with both models. Business case planning must accommodate these differences. Our business case methodology outlines costs, benefits, and risks for all three major cloud options.

Justify Your Hybrid Cloud Future With A Solid Business Case

Business Case: The Cloud Computing Playbook

by [Dave Bartoletti](#) and [William Martorelli](#)

with [Glenn O'Donnell](#), [James Staten](#), and Michael Caputo

WHY READ THIS REPORT

Seldom have tech managers had it so easy in building a compelling value proposition as they do with cloud technologies. If anything, expectations for cloud's impact on costs have expanded beyond reason, with many thinking cloud is always cheaper, faster, and easier. Proponents of cloud use must compare cloud's benefits against realistic cost expectations — both hard and soft costs. Cloud can indeed yield significant cost savings, but ascribing value to speed and agility is critical to the cloud business case. In this report, we describe how to make your business case for cloud. We tell you how to identify which apps in your portfolio are a good fit for the three major cloud deployment options: public cloud platforms, software-as-a-service (SaaS), and managed cloud services. Then we describe the most important elements to include in your business case for each of these cloud options. This is an update of a previously published report, "Understand The True Cost Of Cloud Computing," from 2012; we substantially revised this edition to factor in changes in the cloud market that have altered cloud strategies for CIOs.

Table Of Contents

- 2 **More Than Ever, Cloud Promises Speed, Flexibility, And Cost Savings**
- 4 **Run A Rightsourcing Exercise To Identify The Right Apps For Cloud**
- 6 **Build Your Business Case For Using A Public Cloud Platform**
- 10 **Build Your Business Case For Migrating Applications To SaaS**
- 12 **Build Your Business Case For Using A Cloud Service Provider**
- RECOMMENDATIONS**
- 14 **Maximize Value By Tailoring Your Strategy To Your Specific Situation**
- WHAT IT MEANS**
- 16 **Think Twice Before Embracing The 'Low-Cost Supplier' Role In Cloud**
- 16 **Supplemental Material**

Notes & Resources

Companies interviewed for this report include Accenture, AWS, Capgemini, CGI Group, CliQr, Cloudability, Cloudyn, Cloud Cruiser, Datapipe, Dell, Google, HP, IBM, Infosys, Microsoft, Rackspace, RightScale, and VMware.

Related Research Documents

[To Get Applications To The Cloud, Blend Strategic Rightsourcing With Multisourcing](#)
December 16, 2014

[The Seismic Shift In Application Portfolios](#)
March 12, 2014

[Cloud Management In A Hybrid Cloud World](#)
July 30, 2013



MORE THAN EVER, CLOUD PROMISES SPEED, FLEXIBILITY, AND COST SAVINGS

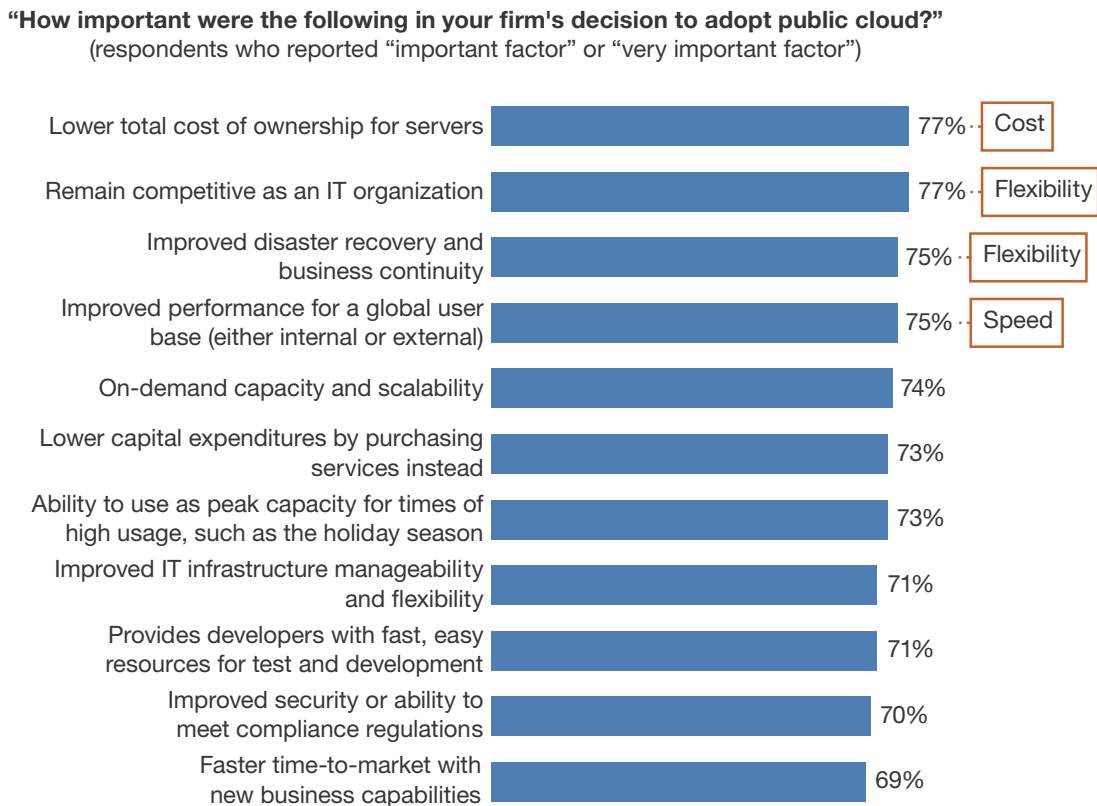
Two years after our last report on the true cost of cloud computing, the cloud is not only a viable option for an even larger class of enterprise applications and workloads, it is often the preferred method for gaining competitive advantage in the age of the customer.¹ Most companies now turn to the cloud first to develop new mobile and eCommerce applications designed to engage, delight, and retain both new and existing customers. Cloud computing is also extending the life and reach of the core systems of record at the heart of every enterprise. Is it time for you to move to the cloud? To answer that question, consider the following:

- **Cloud is a top enterprise priority, driven by cost savings, flexibility, and speed.** Each year brings more cloud options — from public cloud infrastructure and development platform services to new SaaS versions of core business apps to hosted and managed service provider offerings — each designed to help CIOs offload some portion of their technology management burden. Before asking “Which one?” CIOs must first answer “Why?” Forrester’s Business Technographics® surveys confirm that the top drivers for public cloud computing are flexibility, speed, and cost. This data shows maturity: Your business and development teams value cloud’s speed and flexibility first, yet technology managers have in the past seen cloud solely as a cost-saving vehicle (see Figure 1).
- **Are the savings really there?** You must do the math for yourself. Pennies-per-hour infrastructure costs and low per-user SaaS prices look very tempting until you use the infrastructure all the time or grow your SaaS user base — and receive your first “shock bill.” Reports of companies that have spent more than they expected to or have reversed course on cloud computing due to escalating costs cause some to question whether the promised cloud savings are really there. If you’re one of those skeptics, how can you be sure? Have you taken the time to build a cloud business case to explore just how and where cloud economics can actually benefit your organization?
- **Public cloud is cheaper for many workloads, but it isn’t the only cloud option.** For many variable-demand workloads, such as app development/testing and mobile app back ends, renting pay-per-use compute and storage services will indeed save you money versus maintaining your own technology infrastructure. Public clouds offer massive economies of scale, scale elastically, and run fully automated, so it’s nearly impossible for an on-premises data center to compete on price or efficiency. But cheaper isn’t always better, and public cloud platforms are not your only cloud option. Cloud services vary in terms of security and resiliency, and you must make sure that the app portfolio you have is compatible with a cloud infrastructure platform.²
- **Not everything is right for cloud.** Your future is a hybrid mix of cloud services. Your cloud business case today must take into account not only public cloud infrastructure-as-a-service (IaaS)/platform-as-a-service (PaaS) platforms, but also SaaS alternatives and managed service provider offerings. When you move an app to a public platform, you outsource infrastructure only — compute, storage, and network elements, mostly — but you are still responsible for

everything above the operating system: applications, middleware, and data. When you replace an app with a SaaS option, you outsource operation of the app as well, but you're still responsible for integration and customization. When you outsource to a managed services provider, you transfer even more of your technology management function, but likely not all of your operations responsibilities. Pay careful attention to this "uneven handshake" and make sure your business case accurately accounts for how much responsibility you can or must retain for each option.³

In the new world of outsourcing, you don't hand over services wholesale. You may build them as hybrids that tie together critical components, many that you continue to own and operate. For example, an eCommerce business process has elements that are exposed to consumers (systems of engagement) and must deliver a robust experience with low latency. Other elements tie back to corporate inventory and revenue systems (systems of record) and must be encrypted and secured. Of course, all of these elements should be highly scalable, always-on, and have a robust disaster recovery scheme.⁴ Regardless of the delivery model, *you* and your organization need to retain the high-level strategic design and governance responsibilities.

Figure 1 Flexibility, Cost, And Speed Are The Top Drivers For Public Cloud Adoption



Base: 227 technology decision-makers who have implemented or are planning public cloud (1,000+ employees)

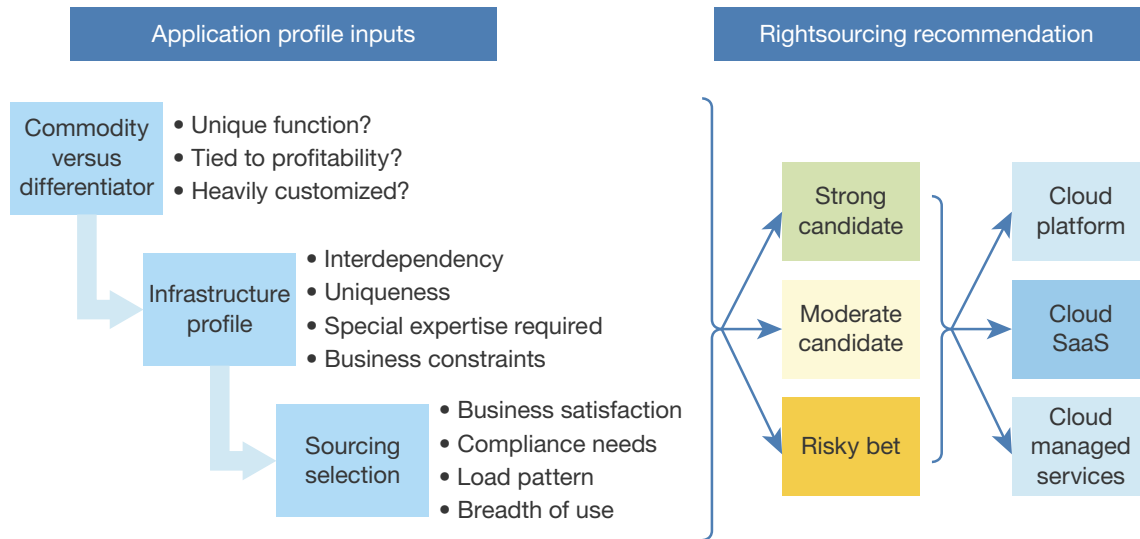
Source: Forrester's Business Technographics® Global Infrastructure Survey, 2014

RUN A RIGHTSOURCING EXERCISE TO IDENTIFY THE RIGHT APPS FOR CLOUD

Forrester inquiries indicate that many customers are wondering, “Where do I start?” The best first step is to narrow your focus. It is not so much a binary question of whether you should go to the cloud or not. Instead, you should be asking narrower and related questions such as, “Should we develop this eCommerce app in public cloud?” or “Should we replace this business intelligence app with SaaS?” or “Can we outsource this collaboration app to a cloud service provider?” Not every app or workload is right for cloud, nor should be. Start with a strategic rightsourcing analysis, and keep the following in mind (see Figure 2):⁵

- **Your business case should be workload-specific.** Applications in which there is intermittent demand, such as development and test, are obvious candidates for the cloud. Additional workloads, such as SaaS equivalents to on-premises software, are also relatively straightforward to justify in the cloud. Expected benefits will only accrue if you match the right apps to the right cloud deployment options. For example, heavy transaction-oriented workloads are better fits for private cloud models or more traditional models as opposed to the public cloud. A strategic rightsourcing analysis can help illuminate these choices.⁶
- **Ancillary factors such as regulatory exposure can constrain alternatives.** For example, SaaS and IaaS suppliers are hesitant to build data centers in all relevant jurisdictions to control their costs, complicating regulatory compliance and data protection issues. Moreover, many customers are wary of limited liability protections and one-way indemnification common to IaaS agreements. These need to be taken into account when evaluating candidate workloads.
- **An individual ROI analysis is essential for evaluating existing workloads.** Of course, all things are possible with an unlimited budget. However, customers are often hesitant to fund rationalization exercises when faced with new requirements for systems of engagement. Beyond the obvious candidates, clients should evaluate the costs of moving specific workloads to the cloud in conjunction with anticipated benefits. While cloud pricing estimators based on published public cloud pricing have become commonplace, definitions of typical workloads remain immature. Startup company UCXchange has announced a compute exchange using standard workload models developed by 6fusion.
- **Consider “network gravity” in your cloud versus on-premises decisions.** Sometimes referred to as *data gravity*, this point addresses physical proximity of processing to the data being processed. In the hybrid model, the data and its processing will span both your external cloud services and your on-premises services. For small data chunks accessed sporadically, proximity is not much of an issue (e.g., your cloud service can act on data in your on-premises data center). Big data workloads, however, will process huge quantities of data. For these, the processing and data must be as close as possible, with high-capacity network connections between them (i.e., both on-premises or both in the same cloud provider). Also, high-frequency transactions, even if small, should follow a similar design.⁷

Figure 2 Strategic Rightsourcing Analysis Finds The Best Deployment Option For Each Application



61608

Source: Forrester Research, Inc. Unauthorized reproduction or distribution prohibited.

Base Your Business Case On Realistic Expectations

Expectations for cloud have become so enormous that cloud proponents often now find themselves in the unfamiliar position of tempering enthusiasm as opposed to generating it. Now that technology management is stepping up to an expanded role in cloud contract management and administration, the truth of cloud’s business value will ultimately be revealed. Improved billing engines will make it ever easier to demonstrate cloud consumption to business customers. Cloud proponents can improve their chances of generating positive experiences by observing the following principles:

- **Demand management is important to achieving optimum cloud cost benefits.** Intermittent processing demand is a key element of cloud’s value proposition for certain workloads, such as promotions in the context of web storefronts. Because today’s best public cloud pricing is available with reserved instances, customers will not benefit as much if they cannot effectively forecast these demand periods. Moreover, while sandbox environments can be set up quickly using cloud technology, they also need to be turned off when not required so that cloud’s “meter” is not left running while idle.
- **Important elements of the business case are not applicable to all companies.** Cloud computing’s benefits include the ability to reduce costs, avoid upfront expenditures, and transfer capital expenditures to expenses. Preference for capital versus expenses can be an

issue. Some enterprises, such as utilities, actually prefer capital expenditures to operational expenses, rendering at least one of the traditional business case rationales largely moot. Plus, the transition to cloud models like IaaS and SaaS introduces other potential obstacles and risks, including access security, data sovereignty, and compliance concerns (see Figure 3).

- **Customers need to value flexibility in considering cloud's benefits.** Cloud technologies can contribute to business flexibility and responsiveness as well as cost savings. However, it is difficult to ascribe value to cloud investments if cost savings are not immediately apparent. Borrow from options models to evaluate flexibility. Use Forrester's Total Economic Impact™ methodology as one way to quantify how cloud computing can contribute to business agility and how initial investments can enable financial benefits downstream.⁸

BUILD YOUR BUSINESS CASE FOR USING A PUBLIC CLOUD PLATFORM

If your workload or application has a highly variable load pattern and you consistently monitor your mix of pay-per-use and pre-purchased capacity reservations, a cloud IaaS platform will almost certainly be less expensive than running your own data center infrastructure. However, making an accurate comparison between public cloud platforms and your internal costs is a challenge. You cannot easily compare compute, storage, or network costs because the services offered by each public cloud platform vary widely, have different naming conventions, and have inconsistent units of measurement. The leading providers do have online price calculators or total-cost-of-ownership (TCO) analysis tools to simplify analysis, but they all make assumptions about your current costs, so you'll need to answer two questions in parallel:

1. **What does it cost to run your current infrastructure?** The first step in your cloud platform business case analysis is to estimate your current on-site infrastructure costs. Spend the time to get your on-site cost model right before you start running cloud vendor cost comparison tools — they each make assumptions about typical acquisition and maintenance costs for a generic enterprise, and your mileage will almost certainly vary. We have updated our On-Premises Infrastructure Cost Analysis Tool to simplify this process. It asks for a set of baseline acquisition and operational costs for your compute and storage infrastructure and helps you estimate your actual costs (both capital and operating costs) to deliver a specific number of virtual servers over several years.⁹
2. **What will it cost to run your infrastructure on a cloud platform?** With your current costs in hand, ask your potential cloud platform providers to estimate one-time and recurring costs for an equivalent number of similar compute instances and associated storage capacity and performance. Many of the leading public cloud infrastructure and platform vendors offer online cost comparison tools, and they are updated regularly as prices fall (which they do several times per year).¹⁰ Note also that a rich ecosystem of cloud cost comparison sites has emerged in the past few years. These sites can help you model a typical workload and estimate pricing across

multiple clouds, either for upfront planning or ongoing price optimization, or both. RightScale Cloud Analytics, Cloudyn, Cloudability, Cloud Cruiser, Apptio, and 6fusion are some of the more popular sites.

Don't Cut Corners: Identify And Validate Your Key Infrastructure And Operations Costs

Your potential cost savings in the cloud will depend on how efficiently you manage your infrastructure resources today. It will also depend on your recurring costs over the useful life of your current infrastructure. Wherever possible, simplify data collection by estimating recurring costs as a percentage of an easy-to-count metric (such as number of servers or percentage of administrator time). Don't cut corners here: Validate your assumptions with key data center staff; by the same token, don't agonize over the details — remember that the model is an estimate for decision purposes, so keep the process moving with your subject matter expert's best estimate, where possible. Make sure to gather and validate the following key metrics:

- **Define baseline server configuration, consolidation ratios, and OS distribution.** Identify a small set of reference server configurations that describe a reasonable set of your existing virtual machines. Be sure to account for the amount of server consolidation you've already achieved through server virtualization when estimating the number of cloud VMs you'll need. Determine your mix of operating systems and hypervisor platforms and verify how much each costs to acquire. The more you can maximize server utilization in-house, the more favorably your internal costs will compare to cloud offerings.
- **Identify your current storage and network costs.** Start with your current storage acquisition costs: What's the all-in hardware and software cost per gigabyte to acquire the type of storage used for your virtual server infrastructure? Estimate overhead for redundancy, which you won't have to maintain with a redundant cloud storage offering. Determine how much you pay for network interface cards, switch ports, host bus adapters, storage network devices, and the like. For the purpose of simplicity, we model these in our tool as a percentage of server and storage acquisition costs. Get a sense for what you pay, and increase or decrease the percentage in the tool accordingly.
- **Include hardware maintenance costs and management software costs.** Cloud platforms include device maintenance in their hourly charges. To understand how your internal costs compare, you'll need to account for the cost of maintenance contracts and spare equipment for each year of useful life. Be sure to also include the time admins spend maintaining the physical infrastructure today in your staffing costs. Allocate management software costs (for provisioning, patching, and monitoring tools, for example) by application. If these tools are shared, determine the amortized cost charged back by application or business unit to arrive at a per-server cost.

- **Estimate data transfer charges, facilities, and energy costs.** Cloud computing offerings charge for data transferred out of the cloud, such as traffic to other applications, services, or users. To account for this cost in your on-site calculations, you'll need to understand what you pay for bandwidth on your external WAN links (typically measured in dollars per megabit per second), and estimate how much bandwidth the application will consume. For facilities and energy costs, you'll need to determine your energy cost per server, which is most easily estimated as a percentage of acquisition cost.
- **Unless your applications live in isolation, don't forget about WAN costs.** Clouds are a bit like the Eagles' "Hotel California": They're easy to enter but harder to exit. This means that they typically don't charge you for WAN bandwidth to upload data but charge you for data that leaves. So unless your VMs won't be talking to the outside world, you'll need to include these costs too. In addition to the outgoing WAN charges from the cloud, also include the impact to network links on your end from sending more data across the WAN.
- **When comparing other cloud service types, model the use and the remaining admin costs.** While our tool only estimates internal costs relative to IaaS services, the same principles apply to compare PaaS or other discrete cloud services as well. PaaS abstracts the infrastructure plus the OS and middleware, reducing the application life-cycle costs but not eliminating them, for example, and you can adjust your admin costs accordingly. With database-as-a-service platforms, for example, compare like for like as best as you can, and do not model the cost of the VMs you currently operate to host database instances.
- **Administrative and operations costs can make all the difference.** Measure the amount of time your technology staff spends managing your virtual and physical infrastructure versus application life-cycle management activities. The former will be included in your hourly cloud charges; the latter won't. Remember that application life-cycle management goes beyond installing and updating application software — you'll also still be responsible for OS and virtualization management, workload availability planning and data protection, and performance and security management capabilities you require that go above and beyond those provided by the cloud platform provider. You should adjust the number of virtual servers managed per FTE in our tool to a level that accurately reflects your staff skill levels and how complex and time-consuming your current application life-cycle management processes are.¹¹

Figure 3 Business Case Elements For Public Cloud Platforms

Category	Sample benefits	Sample cost elements	Risks
Capital expense reduction	<ul style="list-style-type: none"> • Reduced server infra. costs • Reduced storage/network infra. cost • Lower hypervisor/OS license fees 	<ul style="list-style-type: none"> • Compute: \$/instance/month • Storage: \$/GB/month • Reserved versus on-demand costs • Cloud provider support costs 	<ul style="list-style-type: none"> • Tracking growth in cloud platform spending • Ability to monitor and allocate actual cloud costs • Optimizing balance of on demand vs. reserved • Modifying existing budgeting /allocation methods
Operating expense efficiency	<ul style="list-style-type: none"> • Hardware maintenance costs • Software maintenance costs • Power and cooling recurring costs • FTE productivity gains through automation • FTE headcount reduction 	<ul style="list-style-type: none"> • Hardware and software maintenance, power and facilities costs included in service cost • FTE hours required to provision, patch, and update infrastructure • FTE hours required to diagnose and troubleshoot performance issues • Increased virtual-server-to-admin ratio 	<ul style="list-style-type: none"> • Reduced environment flexibility (limited to cloud provider compute/storage services) • Hiring and training costs for cloud-savvy technology managers • Availability of cloud monitoring and management tools and skills • Ability to extend on-premises management tools to support cloud platform services
Application delivery improvement	<p>Improved developer productivity/quality:</p> <ul style="list-style-type: none"> • Shorter release cycles • Faster time-to-market (new features and updates) • Increased accuracy and fewer errors • Reduced testing costs • Access to advanced middleware and data services in PaaS/IaaS platform 	<ul style="list-style-type: none"> • Application release and integration process re-engineering costs • Development, test, and release tooling integration costs • Application architecture redesign costs • Developer and operations staff training costs 	<ul style="list-style-type: none"> • Blocking and labor-intensive testing and release processes • Developer skills development in cloud platform tools and processes • Transition costs to new processes • Lack of developer operations (DevOps) skills in operations team • Cloud vendor lock-in to advanced services
Facilities consolidation gains	<ul style="list-style-type: none"> • Lower facilities costs through consolidation of existing data centers • Increased utilization of all technology assets (reclaim unused capacity) • Faster access to newer/improved infrastructure with no upfront costs 	<ul style="list-style-type: none"> • Facility off-load costs (retirement and closure costs) • Chargeback of remaining costs by business unit or application • Retention costs for on-premises infrastructure required for security or compliance reasons 	<ul style="list-style-type: none"> • Ability to write down existing facilities costs • Ability to repurpose remaining facilities and infrastructure components • Redundant infrastructure costs during cloud migration • Training and staff retention

BUILD YOUR BUSINESS CASE FOR MIGRATING APPLICATIONS TO SAAS

Because the dynamics of SaaS vary widely from public cloud adoption, elements of your business case will similarly vary. Elements of the infrastructure and facilities business case will still pertain, but additional considerations are relevant specifically to SaaS, including the impact on implementation costs, software license costs, and applications support and maintenance (see Figure 4).

- **Make sure your intended tradeoffs for SaaS are, in fact, achievable.** Much of SaaS demand is generated directly by end users, without any real consideration of the impact on existing systems. In other cases, including HR management systems, the explicit intent is complete replacement of an existing on-premises solution. But following through on the cost savings made possible by retiring data center infrastructure and facilities as well as reducing headcount associated with these on-premises solutions is easier said than done.
- **Remember to factor in the impact of SaaS on support and integration costs.** SaaS solutions present obvious tradeoffs in terms of upfront capital expenditures versus long-term operational expenditures. Conventional on-premises software solutions typically require significant chunks of capital expenditure at upgrade time, whereas SaaS solutions usually present a smoother slope in terms of cumulative costs. But make no mistake: SaaS is not necessarily cheaper over time.¹² To ensure a compelling business case, do not forget to account for the support and integration costs associated with SaaS, but also take account of reallocated infrastructure, facilities, and staff (if you can actually realize them).¹³
- **Beware the “SaaS trap.”** Today’s SaaS solutions are defined by NIST as embodying key precepts of cloud computing, such as consumption-based pricing and a lack of lengthy contractual commitments. In truth, many SaaS solutions are sold on a term-based model and use time-honored pricing models such as a monthly price per user. Moreover, many customers continue to employ remote software delivery in which license payments and service components are priced separately. This is reminiscent of the classic application service provider (ASP) model more so than true cloud and is particularly true for enterprise resource planning (ERP) systems. This approach offers potential value if you are realistic about the benefits and pitfalls. Your benefits in reduced costs and higher flexibility are likely to be higher with closer adherence to the true principles of cloud computing.¹⁴

Figure 4 Business Case Elements For SaaS

Category	Sample benefits	Sample cost elements	Risks
Capital expense reduction	<ul style="list-style-type: none"> • Avoidance of upfront capital expenditures for data center infrastructure and facilities • Reduced risk of paying up-front application license fees • Avoidance of big additional lump sum costs at upgrade time 	<ul style="list-style-type: none"> • Implementation costs • Cost per seat • Cost per concurrent user • Additional storage • Cost per customization (various) 	<ul style="list-style-type: none"> • Introduction of new vendor risk elements • Reduced ability to create customizations
Operating expense efficiency	<ul style="list-style-type: none"> • Hardware maintenance costs • Reduced discrete software support and maintenance costs • Reduced facilities and environmental costs (e.g., cooling) • Reduced operational costs 	<ul style="list-style-type: none"> • Software maintenance costs (built into per-user cost) • Software support costs (built into per-user cost) • Integration costs 	<ul style="list-style-type: none"> • Reduced environment flexibility; reliance on unsustainable integration scenarios • Fragmented support model • Reliance on vendor's business continuity capabilities
Application delivery improvement	<ul style="list-style-type: none"> • More rapid introduction of new software features • "Released" personnel capacity usable for alternative requirements 	<ul style="list-style-type: none"> • Application release and integration process re-engineering costs • Development, test, and release tooling integration costs • Application architecture redesign costs • Developer and operations staff training costs 	<ul style="list-style-type: none"> • Loss of control over introduction of new software functions • Loss of control over patch applications schedules • Creating unintended locus of application development in cloud (e.g., Force.com)
Facilities consolidation gains	Reduced reliance on internal data center infrastructure and footprint	<ul style="list-style-type: none"> • Facility off-load costs (retirement and closure costs) • Chargeback of remaining costs by business unit or application • Retention costs for on-premises infrastructure required for security or compliance reasons 	Server and footprint consolidation may not be realizable

61608

Source: Forrester Research, Inc. Unauthorized reproduction or distribution prohibited.

BUILD YOUR BUSINESS CASE FOR USING A CLOUD SERVICE PROVIDER

Getting cloud right is not easy. Adapting to the model requires mastering new technologies like cloud management platforms and adjusting to new modes of self-service delivery. Change management is also part of the challenge. Using a cloud service provider partner can help in the following ways (see Figure 5):

- **Insulation from making specific, risky choices in underlying cloud management.** Emerging cloud platform companies promise a lot of capability but are volatile by nature. For example, leading cloud management solutions like Enstratus and ServiceMesh were acquired by Dell (rebranded Dell Cloud Manager) and Computer Sciences Corp (CSC), respectively. But systems integrators are also getting involved in creating cloud management capabilities. For example, Accenture has earmarked \$400 million in spending on cloud capabilities, including its Accenture Cloud Management Platform. Using these capabilities can insulate customers from making inherently risky bets on underlying technologies. Solutions like Accenture's CMP and Infosys' Cloud Ecosystem Hub, while powerful, are immature and occupy a middle ground between being product suites unto themselves and proprietary, vendor-specific solutions, therefore introducing elements of risk.¹⁵
- **Extension of terms and conditions over public cloud platforms.** Many customers are struggling with public cloud contracts in regard to limitations on liability and one-way indemnification provided by the public cloud providers, for example. While systems integrators cannot directly influence the service-level attributes of public cloud platforms like Amazon Web Services (AWS), they can help architect a solution for higher resiliency using AWS availability zones as an organizing principle and extend customized terms and conditions that the public cloud providers themselves are not willing to make. They can also help build up additional elements of service assurance, such as incident notification/resolution procedures.
- **Enhancement of the customer's ability to move workloads around.** Moving to the cloud is not an all-or-nothing proposition. That is, the public cloud is not always the ultimate destination. Even when it is, customers may feel the need for intermediary steps such as virtual private clouds or other models until their comfort and confidence grow. The right provider can ease these transitions without you needing to staff up, down, and sideways for each individual target model.

Figure 5 Business Case Elements For Cloud Service Providers

Category	Sample benefits	Sample cost elements	Risks
Capital expense reduction	<ul style="list-style-type: none"> • Avoidance of upfront capital expenditures for data center infrastructure and facilities • Reduced server infra. costs • Reduced storage/network infra. cost • Lower hypervisor/OS license fees • Avoid upfront capital expenses for cloud management platforms (cost built into annuity services) 	<ul style="list-style-type: none"> • Compute: \$/instance/month • Storage: \$/GB/month • Reserved versus on-demand costs • Cloud provider support costs • Billing rate per hour for professional services • License fee associated with element of cloud management platform (proprietary or third party) 	<ul style="list-style-type: none"> • Tracking growth in cloud platform spending • Ability to monitor and allocate actual cloud costs • Optimizing balance of on demand versus reserved • Modifying existing budgeting/allocation methods • Introduction of new vendor and relationship risk elements
Operating expense efficiency	<ul style="list-style-type: none"> • Hardware maintenance costs • Software maintenance costs • Power and cooling recurring costs • FTE productivity gains through automation • FTE headcount reduction • Improved terms and conditions (e.g., liability and indemnification) for public clouds 	<ul style="list-style-type: none"> • Hardware and software maintenance, power and facilities costs included in service cost • FTE hours required to provision, patch, and update infrastructure • FTE hours required to diagnose and troubleshoot performance issues • Increased virtual-server-to-admin ratio 	<ul style="list-style-type: none"> • Reduced environment flexibility (limited to cloud provider compute/storage services) • Hiring and training costs for cloud-savvy technology managers • Availability of cloud monitoring and management tools and skills • Ability to extend on-premises management tools to support cloud platform services

61608

Source: Forrester Research, Inc. Unauthorized reproduction or distribution prohibited.

Figure 5 Business Case Elements For Cloud Service Providers (Cont.)

Category	Sample benefits	Sample cost elements	Risks
Application delivery improvement	<ul style="list-style-type: none"> Improved developer productivity/quality: • Shorter release cycles • Faster time-to-market (new features and updates) • Increased accuracy and fewer errors • Reduced testing costs • Access to advanced middleware and data services in PaaS/IaaS platforms • Access to integrator’s development methodologies 	<ul style="list-style-type: none"> • Application release and integration process re-engineering costs • Development, test, and release tooling integration costs • Application architecture redesign costs • Developer and operations staff training costs 	<ul style="list-style-type: none"> • Blocking and labor-intensive testing and release processes • Developer skills development in cloud platform tools and processes • Transition costs to new processes • Lack of developer operations (DevOps) skills in operations team • Services vendor “lock-in” due to proprietary platforms, terms, and/or services employed
Facilities consolidation gains	<ul style="list-style-type: none"> • Lower facilities costs through consolidation of existing data centers • Increased utilization of all technology assets (reclaim unused capacity) • Faster access to newer/improved infrastructure with no upfront costs 	<ul style="list-style-type: none"> • Facility off-load costs (retirement and closure costs) • Chargeback of remaining costs by business unit or application • Retention costs for on-premises infrastructure required for security or compliance reasons 	<ul style="list-style-type: none"> • Ability to write down existing facilities costs • Ability to repurpose remaining facilities and infrastructure components • Redundant infrastructure costs during cloud migration • Training and staff retention

61608

Source: Forrester Research, Inc. Unauthorized reproduction or distribution prohibited.

RECOMMENDATIONS

MAXIMIZE VALUE BY TAILORING YOUR STRATEGY TO YOUR SPECIFIC SITUATION

Just as no two enterprise data centers look alike, no two cloud strategies will align perfectly. For CIOs who are trying to decide when, how, and where to experiment with cloud computing, peer testimonials and cloud vendor pricing sheets only provide some of the inputs required for a comprehensive cloud business case. You must start with an honest assessment of your current application portfolio and your unique objectives and risk tolerance. As you start, keep the following in mind:

- **Buy only what you’ll use all the time, and rent the rest.** Cloud computing prices are dropping extremely fast, and competition is fierce. Amazon has reduced AWS prices more than 40 times since the service launched, and Google has reduced Google Compute Engine instance prices by almost 40% in 2014 alone. As public cloud offerings expand, vendors can build new infrastructure at ever lower costs, and those savings are passed on via multiyear reserved-capacity contract discounts.

- **Plan to move administration and security tools and processes along with your apps.** You can't just move an application to the cloud and assume all operating costs move with it. To maintain service levels and keep your application updated, patched, and secure, you'll need to augment the basic management and security tools provided by your cloud provider with tools your staff already knows or that are compatible with your cloud of choice.
- **Consider moving to a hybrid cloud model all with the same provider.** As our analysis shows, when parts of your portfolio are static, they can't take full advantage of cloud economics, so you may be better off splitting your workloads between traditional hosting and cloud models. If the cloud and the hosting are all from the same vendor and served up from the same data center, the intercommunication happens on its LAN, avoiding the WAN charges discussed above. This same approach can be taken to link business services spanning workloads that are best in colocation, on dedicated hardware, or run as managed services by a single provider.
- **Don't forget availability and disaster recovery costs for production applications.** Unless all your cloud deployments are test and development, you'll probably want to provide some degree of a high-availability configuration to protect your workloads from cloud service outages. If you need continuous availability, this will mean redundant instances in isolated compute zones with the cloud provider plus storage synchronization that may not be a standard feature. In your RCO analysis, do not tax the cloud with these enhanced availability costs unless you add them to your on-premises side too.¹⁶
- **Be careful in justifying cloud on immediate personnel reductions.** Cloud computing, like other epochal computing innovations, such as DevOps, has enormous implications on personnel structures and required roles. The very notion of a cloud admin is something of an oxymoron in a predominately self-service model, at least on the public side. Some customers are anxious to make personnel reductions an immediate outcome of their transition to the cloud. But do not jump into a scorched earth model immediately, so as not to introduce unnecessary organizational shock. Do, however, think of appropriate career paths and training regimens that focus on needs of the future, including business relationship management, solution engineering, and sourcing execution.
- **Remember that just getting to cloud is only the beginning of the savings.** Putting workloads that can benefit from cloud economics on these platforms gives you initial cost savings. Keep in mind, however, that cloud costs can quickly rise and easily get out of hand if you aren't watching the behavior of your applications. Optimizing your application configurations to reduce the amount of cloud resources they consume is a skill your teams will need to learn to extract the greatest returns from your cloud investments.

WHAT IT MEANS

THINK TWICE BEFORE EMBRACING THE 'LOW-COST SUPPLIER' ROLE IN CLOUD

Given the market traction and scale of today's cloud offerings, trying to make the business case *against* cloud and *for* retaining a majority of on-premises applications is a losing battle. Security, compliance, and data sovereignty concerns might preclude cloud for you today, independent of any cost benefit. If you are ready for cloud, however, beware the trap of believing you can compete head on with public cloud providers by becoming an equivalently low-priced alternative. You cannot. The leading public cloud providers continue to rewrite the book on technology economics. Accordingly, it can be a fool's game to demonstrate how you can deliver data center infrastructure platforms cheaper than Amazon, Google, or Microsoft. More importantly, cloud's principal contribution to business value is not about costs, as we have discussed. To this point, concentrate your efforts on demonstrating how cloud computing contributes to greater business flexibility instead of trying to match Amazon's storage prices or Google's compute prices.

SUPPLEMENTAL MATERIAL

Methodology

For Forrester's Business Technographics Global Infrastructure Survey, 2014, Forrester conducted a mixed methodology phone and online survey fielded in June and July 2014 of 3,190 business and technology decision-makers located in Australia, Brazil, Canada, China, France, Germany, India, New Zealand, UK and US from companies with two or more employees.

Forrester's Business Technographics provides demand-side insight into the priorities, investments, and customer journeys of business and technology decision-makers and the workforce across the globe. Forrester collects data insights from qualified respondents in 10 countries spanning the Americas, Europe, and Asia. Business Technographics uses only superior data sources and advanced data-cleaning techniques to ensure the highest data quality.

We have illustrated only a portion of the survey results in this document. To inquire about receiving full data results for an additional fee, please contact data@forrester.com or your Forrester account manager.

Companies Interviewed For This Report

Accenture	CliQr Technologies
Amazon Web Services (AWS)	Cloudability
Capgemini	Cloud Cruiser
CGI Group	Cloudyn

Datapipe	Infosys
Dell	Microsoft
Google	Rackspace
HP	RightScale
IBM	VMware

ENDNOTES

- ¹ Forrester defines the age of the customer as a 20-year business cycle in which the most successful enterprises will reinvent themselves to systematically understand and serve increasingly powerful customers. To succeed, technology organizations and executives must broaden their agendas beyond infrastructure management and internal operations to include more work focused on acquiring and retaining customers. For more information, please see the October 10, 2013, “[Technology Management In The Age Of The Customer](#)” report.
- ² Start by determining which of these applications are truly differentiating for your business and thus must remain in the hands of in-house developers. The majority will not meet this criterion; determine how best to transition them. In some cases, the business may have already shown the way through an acquisition of a SaaS application that better meets current and emerging business needs. See the March 12, 2014, “[The Seismic Shift In Application Portfolios](#)” report.
- ³ Cloud management includes familiar IT capabilities that are updated and extended for the hybrid cloud world, one in which you won’t own much of the underlying IT infrastructure. It’s time to look at which IT operations processes will carry over to the hybrid cloud and which need to be supplemented by newer tools and technologies. To assess your current cloud management skills and understand where you need to improve via training or acquiring new tools, see the July 30, 2013, “[Cloud Management In A Hybrid Cloud World](#)” report.
- ⁴ Cloud services are rapidly growing in the enterprise. While these services offer flexible new options to CIOs and other business and technology leaders, they also pose new challenges to sourcing and ongoing administration. Forrester Research offers a methodology called strategic rightsourcing (SRS) that will help with these challenges through an application-first, workload-focused approach that recognizes evolving methods of application delivery, including composable services based on interconnected application programming interfaces (APIs) and alternative software-as-a-service (SaaS)-based models. For more information, please see the December 16, 2014, “[To Get Applications To The Cloud, Blend Strategic Rightsourcing With Multisourcing](#)” report.
- ⁵ Forrester’s strategic rightsourcing (SRS) methodology gives firms agility and flexibility even in situations when the involved services are not cloud-based. For more information, please see the December 16, 2014, “[To Get Applications To The Cloud, Blend Strategic Rightsourcing With Multisourcing](#)” report.
- ⁶ Forrester provides a spreadsheet model to guide your own rightsourcing exercise. See the March 27, 2014, “[Strategic Rightsourcing Application Portfolio Analysis Tool](#)” report.

- ⁷ Network gravity is a key consideration in the design of any service. This is described in more detail — along with other smart design principles for next-generation technology services — in the following report. See the July 25, 2014, “[Evolve Your Infrastructure Architecture For Systems Of Engagement](#)” report.
- ⁸ A variety of techniques borrowed from financial modelling can be used to illuminate the future value of technology investment decisions. See the September 21, 2009, “[CIOs: Use TEI To Unearth IT Investment “Options”](#)” report.
- ⁹ Take advantage of Forrester’s On-Premises Infrastructure Cost Analysis Tool to estimate actual capital and operating costs for your compute and storage infrastructure. Please see the January 9, 2015, “[On-Premises Infrastructure Costs Analysis Tool](#)” report.
- ¹⁰ Most of the major public cloud platforms offer public pricing guides and on-line calculators. Amazon Web Services offers a total-cost-of-ownership calculator to compare on-premises costs with AWS costs. For more information, see the AWS Total Cost of Ownership (TCO) Calculator (<https://awstcocalculator.com/>).

Other public cloud platform pricing tools include Google Cloud Platform Pricing Calculator (<https://cloud.google.com/products/calculator/>), Microsoft Azure (<http://azure.microsoft.com/en-us/pricing/calculator/>), Rackspace Cloud Calculator (<http://www.rackspace.com/calculator/>), and VMware vCloud Air (<http://vcloud.vmware.com/service-offering/pricing-calculator>).
- ¹¹ Regardless of how much of your app portfolio you outsource to a cloud provider, you are still responsible for making sure that your cloud applications and services meet your company’s operational requirements, perform as advertise, are secure, and are protected. Cloud management as a new technology management practice fills the operational gaps left by this “uneven handshake.” To understand which capabilities you need to fill those gaps, see the July 30, 2013, “[Cloud Management In A Hybrid Cloud World](#)” report.
- ¹² Most SaaS applications reach a break-even point at about the three-year mark. Thereafter, they are often more expensive than on-premises alternatives. See the June 23, 2011, “[The ROI Of Cloud Apps](#)” report.
- ¹³ SaaS transformation is just one part of a holistic approach to optimizing your application portfolio and improving your software delivery speed. For a detailed analysis of what to include in your business case for faster application delivery and SaaS transformation, see the July 10, 2014, “[Transform Application Delivery To Improve Business Agility](#)” report.
- ¹⁴ With enterprises increasingly interested in SaaS and all things cloud, vendors aren’t about to miss the party and are smart enough to know that they have to at least market themselves as SaaS to get into your selection process. But an outsourced app that is not true SaaS will probably cost you more over time, result in less agility, and lock you into a poor sourcing decision. To avoid this mistake, see the March 18, 2014, “[Beware Of The “SaaS” Trap](#)” report.
- ¹⁵ Forrester has developed a reference model of the skills needed by today’s cloud managers. To understand these skills and how various vendor tools fit, see the July 30, 2013, “[Cloud Management In A Hybrid Cloud World](#)” report.
- ¹⁶ RCO is “recovery consistency objective,” a measurement of the consistency of data among distributed systems in fault-tolerant services.

About Forrester

A global research and advisory firm, Forrester inspires leaders, informs better decisions, and helps the world's top companies turn the complexity of change into business advantage. Our research-based insight and objective advice enable IT professionals to lead more successfully within IT and extend their impact beyond the traditional IT organization. Tailored to your individual role, our resources allow you to focus on important business issues — margin, speed, growth — first, technology second.

FOR MORE INFORMATION

To find out how Forrester Research can help you be successful every day, please contact the office nearest you, or visit us at www.forrester.com. For a complete list of worldwide locations, visit www.forrester.com/about.

CLIENT SUPPORT

For information on hard-copy or electronic reprints, please contact Client Support at +1 866.367.7378, +1 617.613.5730, or clientsupport@forrester.com. We offer quantity discounts and special pricing for academic and nonprofit institutions.

Forrester Focuses On CIOs

As a leader, you are responsible for managing today's competing demands on IT while setting strategy with business peers and transforming your organizations to drive business innovation. Forrester's subject-matter expertise and deep understanding of your role will help you create forward-thinking strategies; weigh opportunity against risk; justify decisions; and optimize your individual, team, and corporate performance.

« CAROL ITO, client persona representing CIOs

