Point of View

Riding the Cloud To Improve Your Top- and Bottom-Line Economics

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A cloud revolution is brewing, and it promises to radically transform the way we compete, collaborate, and consume business services. Indeed, in an economy as volatile and hyper-competitive as today's, the cloud's potent mix of simplicity, security, faster innovation, and lower operating costs is proving increasingly attractive. For many businesses—small, medium, and large—the time to adopt this game-changing approach is now.

A cloud combines computing, networking, storage, management solutions, and business applications. The key for businesses is that this powerful infusion of technologies enables IT to be delivered as a service—only when it is needed, and from a central, secure data center. Cloud alters the way content is delivered and improves the ways people work and collaborate. Once those business services move to the cloud, they can be consumed simply, safely, and with much greater agility. A cloud delivery model offers a simple way for companies to increase employee productivity and innovation from their data center-driven applications. Moreover, clouds offer reduced total cost of ownership (TCO) and easier scalability than traditional data center architectures.

We are moving toward *a world of many clouds,* and forward-thinking leaders should already be pondering which cloud combination is right for their organizations. They can architect their own private clouds for maximum security, purchase services from public-cloud providers, or find the right balance between the two. Increasingly, users will participate in interconnected communities of clouds, offering business services on an as-needed basis, anywhere, anytime, and on any device. All crucial data will be safely backed up, so lost or damaged hard drives will be a minor inconvenience instead of a nerve-wracking disaster. In some cases, business services that once cost millions of dollars in internal technology and IT staffing can be garnered for just *hundreds of dollars per month* when outsourced to the public cloud.

Private- and public-sector leaders are sensing the cloud's opportunities, and they're aware that if they don't act now, their competitors will.

Already, certain industries are embracing the cloud in a big way. A recent Cisco Strategic Marketing Organization (SMO) research study[1] surveyed 903 U.S. technology decision makers and found that two-thirds of companies had already adopted their own private clouds across the following industries:

- Business Services/Consulting
- Biotech/Medical Devices/Pharmaceutical
- Hospitals/Healthcare
- Retail
- Telecommunications

Those who have not yet begun their migration to the cloud may find it a daunting prospect. They may be wondering where to start, just what to adopt, how much to invest in the cloud, and how to tailor it to their organization's specific needs.

The Cisco® Internet Business Solutions Group has envisioned the steps required for successful cloud adoption, including an interactive tool to help organizations assess IT and business benefits.

This paper focuses on:

- The compelling IT and economic arguments for cloud adoption
- The reasons for doing it now
- How to do it
- How to size the benefits of the cloud for your business
- Initial steps that will enable a successful cloud transition

Why Cloud?

There are many pressing factors motivating businesses to rise up to the cloud opportunity. One key advantage is business agility. Cloud offers the ability to address unpredictable application events weighing on a company's data center, meeting the challenge from sharp, sudden usage spikes. At the same time, cloud promises more efficient ways to address new products, customers, and selling situations.

In other words, cloud drives top-line growth *and* improves the bottom line. After all, when streamlined, innovative services meet with substantially lower total operating costs, the result is a highly competitive business.

Top-line growth results from a host of enhancements:

- **Improved business agility, reach, and scalability.** According to Savvis, the IT solutions firm, cloud *reduced the time it takes to provision a service or app from 90 days to mere minutes.* This capability gives businesses greater speed to value through rapid deployment of new offerings.
- **New services innovation.** This helps transform IT from a cost center to a business enabler. Well-known companies that have leveled their respective playing fields with cloud-based technologies include Amazon, Netflix, and Apple; as a result, the book, film, and music industries will never be the same. Smaller companies can take a similar approach in their own markets.
- **Competitive differentiation by enabling adoption of new technologies.** These include mobility, video, sensors, business intelligence, and social computing, all of which can make a company more efficient, competitive, and attractive to the most sought-after knowledge workers.

As for the bottom line, cloud enables the following benefits:

- **Better data center flexibility, utilization, and efficiency.** Many current company data centers employ machines that are essentially siloed, each dedicated to a certain application. Many are calibrated for peak capacity, but most of the time they are significantly underutilized. In fact, the average utilization of a data center has been

found to be under 10 percent.[2] That inactive 90 percent still incurs maintenance costs, and there is no guarantee that this spare capacity will be sufficient to handle an application's peak load requirements, especially in the long run.

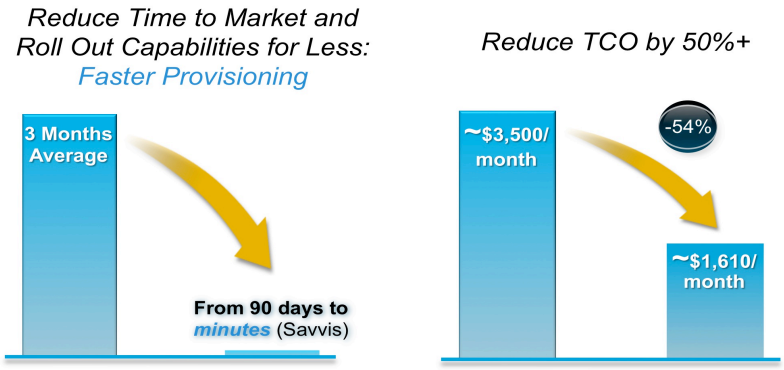
Under the cloud, and with a much more optimized, flexible infrastructure, a business can consume the resources it needs only when it needs them—and from a greater number of servers during usage spikes. Overall, the use of IT services on an as-needed basis, accessed from a central data center, will substantially impact total cost of ownership. Cisco estimates that companies in the cloud can expect *data center cost reductions of up to 54 percent* and application cost savings.

The cloud has enabled Cisco to enjoy much more efficient resource utilization, improving from 9 percent to 37 percent (with an overall goal of 50 percent).[3]

In addition, clouds reduce the risk of technological obsolescence by using highly ubiquitous, standardized technology. While all technology runs the risk of becoming obsolete, the more pervasive use of cloud architectures and technologies helps guarantee that new hardware and software will be as compatible and seamless as possible. By contrast, use of more specialized data center technologies runs the risk that a manufacturer may require certain upgrades to maintain a specific level of functionality, may stop producing a system, or may even go out of business.

- **Lower operating expenses.** Cisco estimates that cloud-enabled automation can reduce management costs by 75 percent to 85 percent, and maintenance costs by 50 percent.[4]
- **Lower TCO for applications.** At Cisco, cloud-based integration of infrastructure and applications has reduced TCO for collaboration applications by 23 percent.[5]

Figure 1. Cloud Computing Drives Many Top- and Bottom-Line Benefits, Including Faster Provisioning and Lower TCO.



Sources: Cisco IBSG, CBA, SMO, Commercial Sales, CSG, 2011

Cisco's SMO market research survey identified the top three benefits for deploying a *private* cloud (this was not asked for public cloud):

- Increased operational efficiency (45 percent rated it first or second)
- Faster delivery of services and data (39 percent rated it first or second)

- Faster disaster recovery time; decreased operating expenditures (33 percent rated each of these first or second)

All of this flexibility further results in improved business agility, reach, and scalability. *And more agile and more flexible ultimately means more revenue.* As companies like Savvis have found, what took months to deploy in the past may take only minutes when accessing cloud services, opening ample new windows for companies to do what they do best: innovate new capabilities and products of their own, with much faster rollout.

Cloud makes it easier and less expensive to address the needs of a rising generation of top-flight knowledge workers who want to interact via the same types of mobile, social, visual, and virtual services and networks that they have mastered in their private lives.[6] And they want to be able to do it on any device, at any time, with a consistent experience highlighted by state-of-the art applications. If they have a favorite device at home and at play, they will want to be able to bring their own device to work. In return, this helps businesses attract and retain the most desirable and productive talent.

Through the cloud, all of this is not only possible, but represents the obvious course of action for a wide variety of enterprises and small and medium-sized businesses. With many existing company data centers, new applications and capabilities need to be developed for every new device—a time- and money-consuming process. With cloud, "BYOD" (Bring Your Own Device) is a reality, not a catch phrase, because cloud-based applications can be scaled faster and more effectively to many different types of devices. In addition, cloud's ability to share the load across many servers improves overall resiliency and uptime.

In short, cloud drives top-line growth from:

- Improved business speed, reach, and scalability, with faster provisioning
- New services innovation, transforming IT from a cost center to an enabler of business and competitive advantages
- Competitive differentiation through adoption of new capabilities such as mobility and video
- Improved business resiliency through better uptime

Bottom-line impact is driven by:

- The ability to pay only for what you consume, when you need it
- Improved employee productivity resulting from a consistent user experience and access to state-of-the-art applications
- TCO reductions greater than 50 percent for the data center and reductions in application costs—for instance, collaboration application cost savings of up to 23 percent[7]
- Reducing the risk of technology obsolescence in the data center

Why Now?

In a volatile and hyper-competitive economy, cloud adoption grows more imperative each quarter. By fostering business agility and delivering compelling economics, the evolving world of many clouds promises certainty in uncertain times. And as demand grows for new IT consumption models, one driving reason for adopting the cloud now may trump all the others: as you hesitate, your competitors may be gaining a substantial edge.

The current dragging, difficult economy has everyone looking to conserve cash. So large, up-front capital expenditures continue to be a mounting concern. With the cloud model, a company can *pay as it goes or pay as it grows*.

With a public cloud, businesses will pay for the IT services they need, but only when they need them, replacing up-front capital expenditures (CapEx) with ongoing operational expenditures (OpEx).

With a private cloud, incremental capacity can be added faster and inexpensively due to use of standardized equipment. Ordinarily, data center expansions are "lumpy"—requiring excess capacity in anticipation of future needs. Private clouds enable a "pay as you grow" strategy. Cisco forecasts that a private cloud can enable TCO reductions of up to 54 percent. In this economy, that number is hard to ignore.

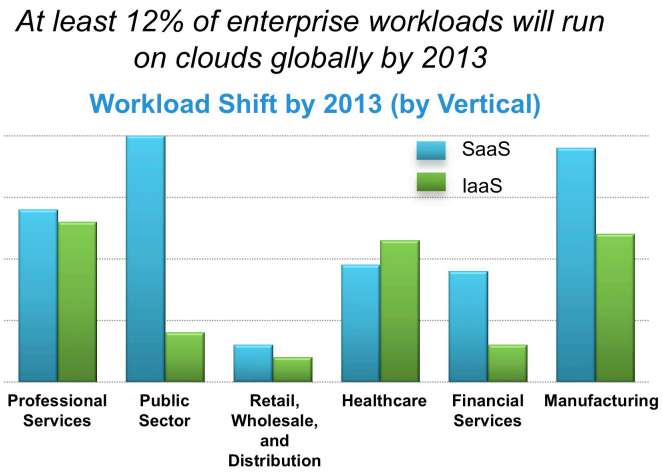
Certainly, the competition is not ignoring such numbers. And whether competitors are smaller or larger will matter less, because the cloud is capable of leveling the playing field. This has already happened with some large, legacy retailers who have been overtaken by onetime upstarts like Amazon, which grew an order of magnitude faster than its brick-and-mortar rivals over the past five years. That is partly because the cloud has enabled companies like Amazon to deploy new offerings and capabilities much faster and more economically.

Taking things a step further, Amazon established itself as the benchmark for taking advantage of the cloud, beginning as far back as 2008. Amazon launched two new cloud-based business models: Amazon Web Services (AWS) and an e-commerce platform for third parties. Revenue from AWS was projected to reach more than $1 billion in 2011.[8] Through its third-party e-commerce platform, the company welcomes other sellers to its user base of more than 90 million people, and third-party commissions account for more than a quarter of its operating income.[9] Having established a vast, global cloud-based network to sell physical books, the company—with seeming ease—stepped up with its Kindle e-reader and app to become the leading seller of digital books.

Following in the footsteps of cloud giants like Amazon, countless SMBs have an opportunity to level their own playing fields, particularly via the public cloud. But if your competitors are already adopting the cloud, expect them to become more agile, lean, and innovative in a short time.

Because cloud services now provide a proven model with several options (private, public, hybrid, community) and a choice of providers, enterprise workloads are increasingly moving to the cloud. But the good news for smaller businesses is that for them, the process can be simpler and faster, making for an obvious choice. For businesses with small IT staffs, it's practically a no-brainer.

Figure 2. Half of SMBs Will Spend over a Third of Their IT Budgets on Cloud and Managed Services by 2013.



Sources: Cisco IBSG, CBA, SMO, Commercial Sales, CSG, 2011

In fact, small businesses are the largest portion of the market and represent a huge untapped market for the public cloud. In the cloud, smaller companies that did not have access to new IT services can now attain undreamed-of capabilities. For example, complex services like customer relationship management and enterprise resource planning used to require large IT staffs and millions of dollars. As a result, they were usually restricted to large enterprises. Today, cloud services like QuickBooks Online and Salesforce.com offer such help to even the smallest companies for monthly fees in the *hundreds* of dollars. And, their services are integrated, collaborative, and available on mobile devices.

Thus, it is not surprising that a recent Cisco IBSG study indicated that half of SMBs will spend over a third of their IT budgets on cloud and managed services by 2013 (see Figure 2).[10]

In Silicon Valley, small start-ups are jumping headlong into the cloud to gain a quick edge. Often they can't predict what their customer base will be from month to month. And if fortune and hard work combine into a combustible mix, they need to be prepared for a sudden period of hyper-growth. This demands scaling up very quickly, with the risk of far eclipsing the capabilities of the start-up's internal infrastructure. This is why smaller start-ups like tango.me, which offers mobile video conferencing, have taken advantage of the public cloud. But larger companies, such as Netflix and Zynga, continue to utilize the public cloud for aspects of their business, especially when they need to scale very quickly to grab market share without a heavy burden from up-front CapEx.

Which brings us to investors and shareholders. Venture capitalists, as we all know, like to save cash. So they don't want to sink money into IT CapEx, especially for an unproven start-up that may or may not deliver. By adopting third-party cloud infrastructure from companies like Amazon, Google, Savvis, or Microsoft, that start-up looks like an even better bargain—especially if it stands ready to scale up almost instantly, once that golden, hyper-growth moment suddenly arrives.

Not that there aren't lingering inhibitors to cloud adoption. In some companies, confusion over the value opportunities that come with the cloud remains high, along with security concerns and the reluctance of data center executives to write off older equipment or reduce IT staff. In other companies, there is simply an inability on the part of decision makers to quantify the benefits of virtualization or to agree on which cost-cutting options are best.

Cisco's SMO market research study highlighted the top three inhibitors to deploying the *public* cloud:

- Security/data privacy concerns (49 percent rated this as a barrier)
- Concerns about reliability (42 percent rated this as a barrier)
- Loss of operational control (31 percent rated this as a barrier)

As for the *private* cloud, the top three inhibitors were:

- Security/data privacy concerns (39 percent rated this as a barrier)
- Concerns about reliability (33 percent rated this as a barrier)
- Cost of transitioning to a private cloud (33 percent rated this as a barrier)

Regardless, cloud adoption is escalating. According to a recent Cisco IBSG study, more than 50 percent of enterprises began cloud migrations in 2011, and at least 12 percent of all enterprise workloads will run on clouds (public, private, hybrid, community) globally by 2013.[11]

And don't forget those restive, demanding, hyper-connected knowledge workers who are driving the BYOD Movement. As we have seen, they are highly attractive to employers in today's fast-changing digital workplace, but they expect a consistent experience across multiple environments: mobile, social, visual, and virtual. Without it, frustration mounts, and productivity and employee retention may fall.

Overall, cloud resources are becoming more pervasive and mainstream. Soon, they will be essential. Those inhibitors to cloud carry less weight when measured against the striking advantages afforded by cloud.

But if the overall cloud picture still seems a bit hazy, rest assured.

Moving to the Cloud

As previously stated, we live in a *world of many clouds.* The challenge is to understand which cloud model is best for each organization and opportunity, and then to understand how best to connect with other clouds to achieve cloud's full potential. This involves bringing together the people, processes, and other technologies to securely deliver cloud services—collaboration or video, for example—in ways that benefit customers or employees, in whatever way they choose to consume those services and applications.

A good place to start is with a better understanding of the different types of clouds:

- **Private Clouds:** A cloud-like structure within a company's own data center where virtualized servers usually operate as one unit
- **Public Clouds:** An on-demand outsourcing arrangement with a third-party provider offering cloud-based software, infrastructure, or computing platforms *as a service*

(software as a service, or SaaS; infrastructure as a service, or IaaS; or platform as a service, or PaaS)

- **Hybrid Clouds:** A combination of private clouds and public clouds, where mission-critical applications or highly sensitive data are maintained on a company-controlled private cloud—but where public clouds are employed for other applications that may be especially complex, offer irregular demand patterns, or require frequent updating. For example, some companies may prefer to "rent" an application-testing environment on the public cloud to simplify and speed what for them might have been an intensive, demanding process, taxing the limits of their own data center.

Each of these clouds offers advantages when applied to specific needs. The private cloud promises greater security for particularly sensitive data. It also adds to the benefits of virtualization by creating a system where, for example, seven virtualized servers can act synchronously as one unit, enhancing their overall efficiency.

Private clouds offer the security and control that public clouds don't, and represent the lowest-cost option. In exchange, they may lack the rapid scalability of public clouds. For example, a public cloud can provide potentially thousands of servers to handle the most intensive demand spikes.

Of course, public clouds have drawbacks of their own. By using a standardized application or platform, customization is limited. Plus, a customer must be comfortable with the additional risk if sensitive information is entrusted to a third party. For some industries (e.g., healthcare and financial services), this might eliminate the public-cloud option altogether.

Cisco's SMO market research study has identified the applications best poised for the *public* cloud:

- Web conferencing/video conferencing (37 percent of respondents have deployed or would deploy to public cloud within two years)
- E-commerce (36 percent have deployed or would deploy to public cloud within two years)
- Online transaction processing (34 percent have deployed or would deploy to public cloud within two years)

Cisco's research showed that the following applications are best suited for *private* cloud:

- Team collaboration/file sharing (58 percent have deployed or would deploy to private cloud within two years)
- Email (55 percent have deployed or would deploy to private cloud within two years)
- CRM (53 percent have deployed or would deploy to private cloud within two years)

Hybrid clouds may offer the best option for many organizations. They can minimize risk by retaining risk-laden applications while farming out less-sensitive but spike-prone applications. In short, the hybrid cloud's fundamental strategy could be described as "Buy the Base, Rent the Spike." So companies could consider creating their own private cloud infrastructure, but only for when utilization is consistent and greater security and availability are at a premium.

Zynga, the social network game developer, is a perfect example. As a start-up, the company used Amazon for much of its cloud infrastructure and Facebook for its user interface. But with the great success of games like FarmVille and CityVille, it began building its own cloud infrastructure—the zCloud. However, the company still expects to encounter spikes that will challenge its internal capabilities. For these periods, Zynga will continue to rent its cloud infrastructure from Amazon.

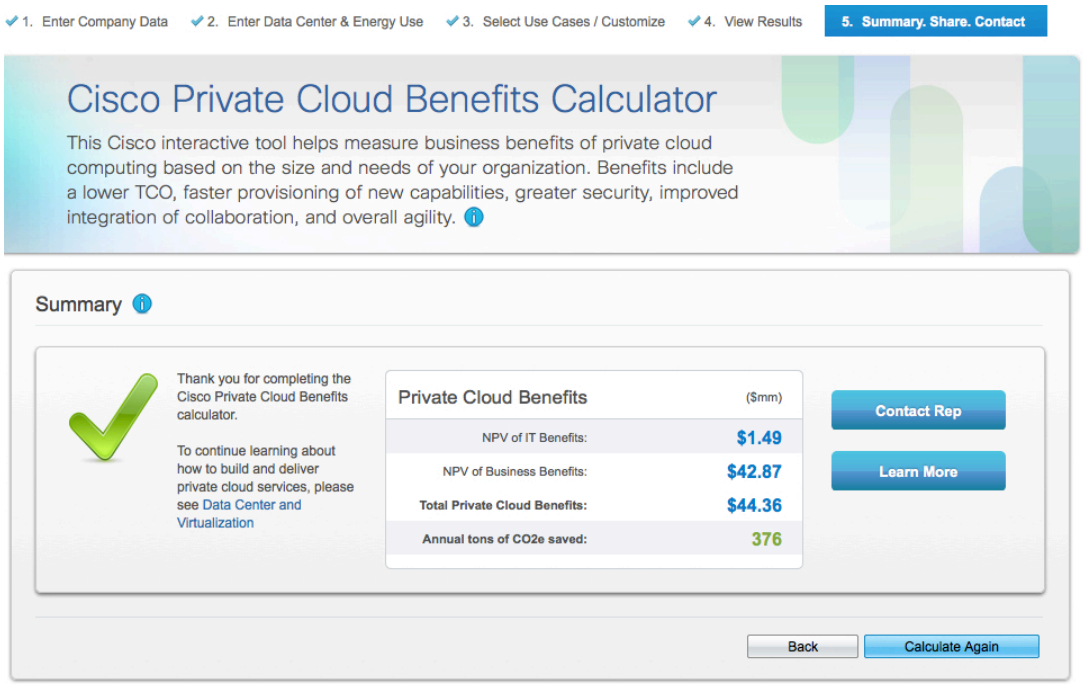
Whether public, private, or hybrid, the overall cloud advantages of simplicity, agility, flexibility, and rapid provisioning will prevail, along with the cost savings and increased revenue that accrue over the long term.

Sizing the Benefits

While organization leaders recognize cloud's ability to reduce TCO, they often have difficulty evaluating the many other business benefits of cloud. Often this process is based on some combination of gut instinct and hard data. But the more quantifiable the data, the easier the decision; and the more the potential benefits can be sized, the clearer the opportunity. Since the process of embracing the cloud may be done in increments or by degrees, decision makers will want to weigh which aspects of their operation should be migrated to the cloud—or *clouds*—and what return on investment to expect from the decision.

Cisco IBSG has developed a simple-to-use, interactive tool to simplify the process of measuring the economic impact of cloud for a given organization. It enables decision makers to input different values based on the size and needs of their organization. The output is a solid projection of what the cloud will do for their organization, including potential benefits like a lower TCO, faster provisioning of new capabilities, greater security, and improved integration of collaboration and overall agility.

Figure 3. The *Cisco Private Cloud Benefits Calculator* Helps Organizations Size Potential Benefits Such as TCO Reduction and Faster Provisioning.



Source: Cisco IBSG, 2012

Cisco IBSG also recommends looking at processes, applications, and services that are core versus contextual, and mission-critical versus non-mission-critical. Such parsing can help any company begin the process by clarifying the obvious and no-so-obvious candidates for early migration to the cloud. Contextual, non-mission-critical processes and applications may be the first candidates for migration.

Information about employee benefits, for example, might be deemed non-mission-critical, and may be an early candidate for cloud. Other capabilities might be steered toward temporary "rental" on the public cloud. For example, a massive application testing process that might take days on company servers would require only hours on a public-cloud infrastructure.

On the other hand, a bank's low-latency trading platform—crucial to the everyday workings of the organization and demanding the highest security—might be the last to go. And since privacy is at a premium for such high-risk data, it would most likely wind up residing within a carefully conceived, private-cloud architecture.

Similarly, a proprietary application, such as one tailored for a company's specific accounting needs, might be too customized for a public cloud's services, which might be geared for more standard accounting needs. This too, would not be a candidate for immediate migration to the public cloud.

In any case, migration to the cloud does not have to be a daunting, anxious process. It can be done in increments, beginning with the most obvious choices and ending with the most proprietary and security-sensitive applications and services.

What Are My Next Steps?

For many SMBs, cloud makes immediate sense, offering more capabilities at tremendous cost savings. For enterprises, the process may need to be more gradual. Regardless, decision makers will need to evaluate the best approach for their own needs.

To further clarify the call to cloud action, Cisco IBSG offers a five-step roadmap to cloud success. So if you are just starting out on the upward path to the cloud, you can get an idea of where to begin and how far to go:

1. **Is Your Company Ready to Consider Cloud-Centric Practices?**
   The first step for any organization is to assess its readiness. The company may need to fully consider its strategy, computer efficiency, legacy applications, current infrastructure, and overall capabilities. New sourcing models and openness to new business models may need to be evaluated.
2. **What Is Core vs. Context, Mission-Critical vs. Non-Mission-Critical?**
   Decision makers will need to map out their applications and IT capabilities in terms of which represent core business processes that win customers by differentiating the company from the competition; and which are essential to the daily operation of the company, causing immediate risk if they are lost. Those aspects of IT that are context and non-critical may be the simplest to migrate to the cloud early on.
3. **Opportunity Analysis: Where Can I Buy?**
   At this stage, the company can examine the options for the public cloud, including

costs and which outsourced cloud services are best for their individual needs and challenges.

4. **Which Applications Can and Should Be Migrated to the Cloud?**
   Companies can consider if an application is proprietary or highly customized, if it is optimized for network delivery, and if there is a high privacy risk if those apps are off premise.
5. **Which Immediate Cloud Opportunities Are Right for You?**
   Decision makers can weigh business value and service maturity, focusing on those applications and services that might already belong in the cloud. Whether it is retail supplier collaboration, web hosting, or a wide range of data center services, they will find that the cloud is ready to cut their costs, increase their revenue, and speed their innovation.

Indeed, by following these steps and by employing Cisco IBSG's interactive tool to estimate the impact of cloud on your organization, the crucial and far-reaching benefits of this transformational set of technologies will be within your immediate reach.

Welcome to the world of many clouds.

Endnotes

1. Cisco Strategic Marketing Organization (SMO) Market Research, 2012.
2. Cisco IBSG interviews with Cisco IT, 2012.
3. Cisco, 2011. Regarding TCO reduction, the numbers on this slide are based on the following scenario: (1) Traditional platforms without virtualization have a quarterly unit TCO of >$3,500 / quarter; (2) real-world execution of virtualization without changing the hardware or the design leads to a reduction in average CapEx per unit; (3) adoption of unified computing and automation leads to reduction in average OpEx per unit. The result is an overall TCO reduction of 54 percent—from $3,500 to $1,610 per unit.
4. Ibid.
5. Ibid.
6. According to a global Cisco study, 66 percent of respondents would accept a lower-paying job with more work flexibility than a higher-paying job with inflexibility. "Cisco Connected World Technology Report," December 2010.
7. Cisco, 2011.
8. UBS Investment Research, 2011; Cisco IBSG, 2012.
9. Ibid.
10. "New Cisco IBSG Research Reveals Dramatic Growth in Cloud Interest Among SMBs," Cisco IBSG, 2011, http://www.cisco.com/web/about/ac79/docs/sp/SMB-Cloud-Watch-POV_IBSG.pdf
11. "Network Service Providers as Cloud Providers: Survey Shows Cloud Is a Bright Option," Cisco IBSG, 2010, http://www.cisco.com/web/about/ac79/docs/wp/sp/Service_Providers_as_Cloud_Providers_IBSG.pdf

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