

The future of IT outsourcing and cloud computing

A PwC study

A global study examining the views of business executives on the extent to which they are planning for and adopting cloud computing as a replacement for traditional data center infrastructure technologies or IT outsourcing.

November 2011



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Surveying the clouds

Cloud computing. Do we have to go there again? Isn't it already common knowledge that the traditional data center is an endangered species? Don't most business executives have their fingers hovering over the cloud computing button? Aren't CIOs joining the cloud computing party now that the hype and confusion over co-mingled public and private cloud computing is starting to dissipate and they can engage by moving to private clouds? For all the hype about cloud computing, there is very little survey data on the extent enterprises are planning for and adopting cloud computing as a replacement for traditional data center infrastructure technologies and management processes.

And then there are the traditional IT outsourcing (ITO) service providers sitting in the cross hairs of this trend, who are about to see their business models and customer value propositions disrupted. Service providers in the ITO space have, after all, profited handsomely by taking on their customers' highly complex, one-off collections of IT assets and finding ways to manage them more efficiently than their customers can. But the essence of cloud computing is a move towards highly standardized racks of commodity servers and a software environment that together make for a highly efficient use of resources. Where's the ITO opportunity in that?

"We have seen major technology shifts in the data center in the past," says David Stuckey, PwC's U.S. leader of its data center infrastructure practice. "These shifts in reality have just added to the mix in the data center, increasing complexity and cost. Cloud computing, when done right, has the potential to actually replace, and not just augment, legacy environments while adding value by reducing costs and increasing agility."

Do enterprises see it that way? Are they making plans? Who do they take advice from? What business advantages are they anticipating?

PwC surveyed 489 business executives to find answers to these and other questions about the state of data center infrastructure management. Individual interviews with vendors offering traditional ITO and new cloud-based offerings, including infrastructure-as-a-service (IaaS), complemented the survey. We sought to understand the real state of data center management today, how fast business executives expect to move to cloud infrastructures in the future and who they will turn to—traditional ITO providers, new cloud-oriented providers or internal staff—to make the shift. Finally, what is the bigger goal, a shift to public cloud offerings or a transition to private clouds? This series of articles and graphics examines and interprets these trends.

Project methodology

In the spring of 2011 PwC's Center for Innovation and Technology commissioned Bloomberg Businessweek Research Services to conduct a global survey of its readers' views and practices concerning certain information technology (IT) services, specifically outsourcing and cloud computing.

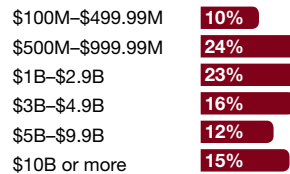
Three waves of email surveys to select members of the Bloomberg Businessweek Market Advisory Board and other lists of business leaders were conducted in April, May and June. The survey panel was restricted to senior executives and middle managers who were involved in IT outsourcing and cloud computing, including management, vendor selection or needs assessment.

The demographic data of the 489 qualified respondents is as follows:

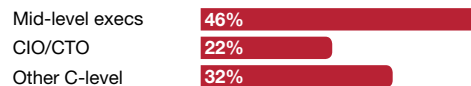
Demographics

489 respondents

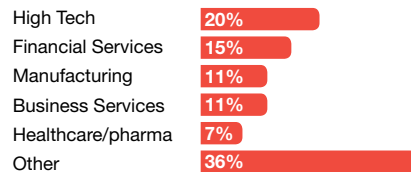
By company size



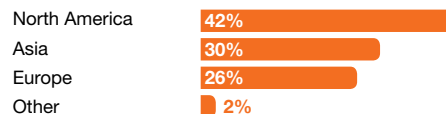
By title



By industry



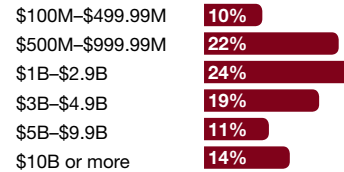
By region



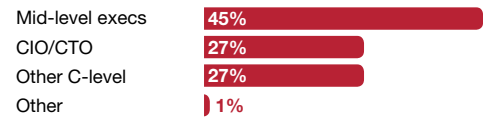
Demographics

261 ITO respondents

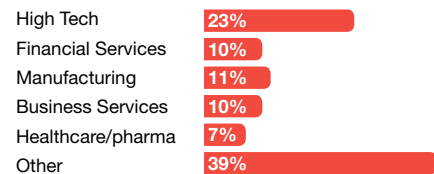
By company size



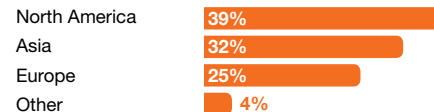
By title



By industry



By region



The respondent sample was divided into two groups of roughly equal size—those that use a third party to run their traditional data center (labeled IT outsourcers) and those that internally managed their data centers.

The statistical significance of the data points posted in these articles, expressed as the margin of error, is typically a bit more than four percentage points for the overall respondent group. The margin of error for the IT outsourcing or non-IT outsourcing subgroups is about six percentage points.

Here are some other characteristics of the survey population:

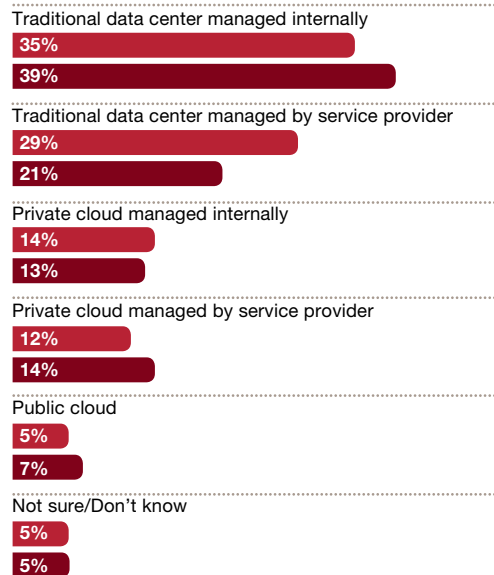
Where their data center management is headed

Question

Please estimate how much of your organization's IT infrastructure is supported by each of the following sources now and will be in three years.
(Average allocation of IT resources, using mean scores)

Today
In 3 years

n = 489



Note: Some totals do not equal 100% due to rounding.

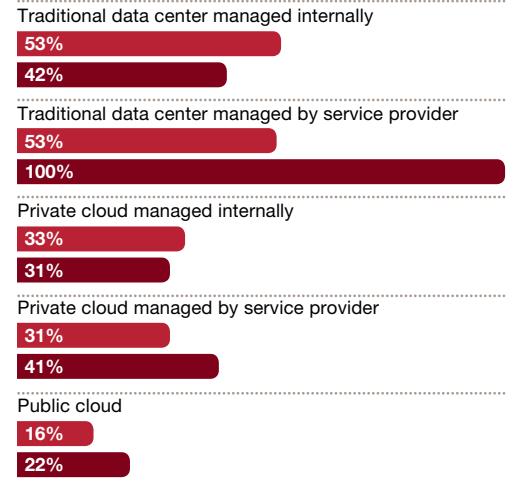
How they manage their data center today

Question

Please indicate which of the following approaches to data center management are currently used by your organization. Select all that apply.
(Totals more than 100 percent)

Overall
IT outsourcers

n = 489



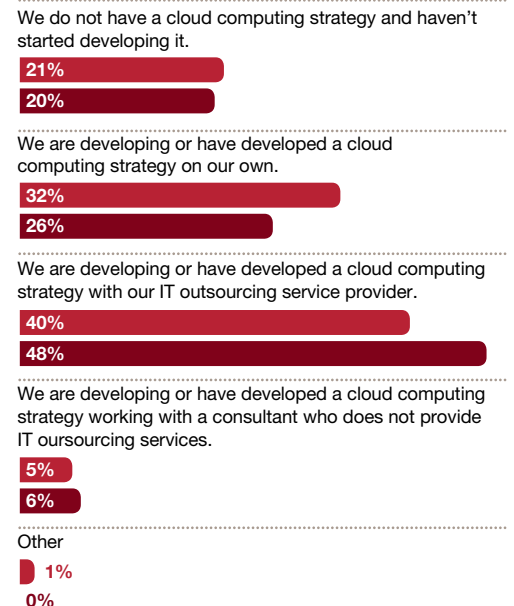
Most have a cloud plan

Question

Please indicate which one of the following statements about cloud computing best describes your organization. Please check only one.
(Overall vs. use IT outsourcing)

Overall
IT outsourcers

n = 489



Note: Some totals do not equal 100% due to rounding.

In addition to analyzing the data, PwC engaged researchers from Triangle Publishing Services Co. Inc. to interview leading executives of the IT outsourcing industry, as well as providers of infrastructure-as-a-service about the data and to offer their perspectives. We thank these executives for giving us their time and sharing their insight:

ITO executives

Luc Barbier

Senior Vice President of Group Strategy
Atos

Vishnu Bhat

Vice President and Global Head, Cloud
Infosys Ltd.

Robert Boles

Senior Vice President and Head of Global
IT Infrastructure Services
Cognizant Technology Solutions

Jérôme Brun

Vice President, Head of Cloud Services
Atos

Siki Giunta

Global Vice President
Computer Sciences Corp. (CSC)

Venguswamy Ramaswamy

Global Head
iON, Tata Consultancy Services Ltd.

Ali Shadman

Chief Technologist
Hewlett-Packard Co.

IaaS executives

Mark Bilger

Chief Technology Officer
Dell, Inc.

Steve Caniano

Vice President of Hosting Services
AT&T

John Engates

Chief Technology Officer
Rackspace Hosting

John Keagy

Executive Chairman and Founder
GoGrid

Jody Little

Vice President of Cloud Portfolio
Fujitsu America

Infrastructure-as-a-Service

New providers innovate to win enterprise cloud business

By Larry Lange

New cloud-based IT infrastructure providers are taking aim at the enterprise market for infrastructure-as-a-service (IaaS) by offering the kind of innovative solutions for which there is growing demand, especially private cloud hosting and consulting.

But they face stiff competition from IT outsourcing (ITO) providers like IBM and Hewlett Packard, according to the PwC IT Outsourcing and Cloud Computing Survey. The survey suggests that many, if not most, functions of the traditional data center—internal or outsourced—will gradually migrate to the cloud.

“It’s an opportunity for smaller, more nimble and younger companies like us to really take advantage of that shift. It’s a threat for all the big guys,” says John Engates, CTO at Rackspace, which has offered some version of these services since 1998.

Engates was one of several IaaS executives who reviewed results from the PwC survey, which reveals a slight preference for new cloud-focused service providers over traditional IT outsourcing vendors to manage private clouds. The survey of CIOs and other senior executives at 489 companies found:

- 77 percent had a cloud plan (completed or in development).

- 64 percent said some type of cloud, including private and public, would be the best way to manage IT infrastructure in three years. (See Figure 1)

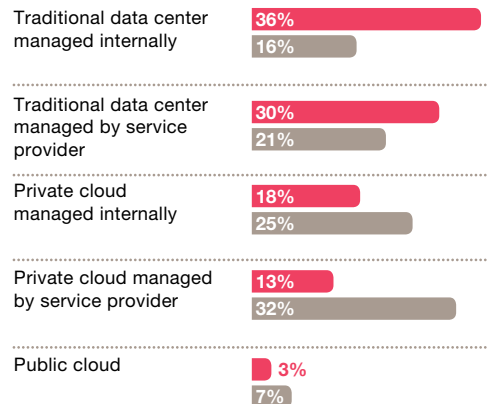
Figure 1: Best today, in 3 years

Question

Considering all the different ways of managing IT infrastructure, please indicate which you consider the one best solution today and in three years.

■ Today
■ In 3 years

Explanation?



n = 484

- 55 percent said service providers who specialize in private cloud offerings would be the best choice in three years. (See Figure 2)
- Even ITO customers leaned toward the new providers instead of their ITO partners: 45 percent of the 151 ITO customers who answered this question said new cloud-focused providers were best for managing private clouds now; 52 percent said they would be best in three years.

Reflecting on the findings, Engates says: “It is going to play out the way the PwC survey indicates.”

Mark Bilger, CTO for Dell Services, which recently entered the IaaS market, says IaaS is a “boon for ITO customers” who are thinking of moving workloads to the cloud because it gives them many of the same characteristics of ITO at a lower price and with greater flexibility.

Amazon Web Services (AWS) is the largest of these providers. Two others, RackSpace and GoGrid, have offered some type of infrastructure hosting for more than a decade. Much of their business comes from small firms and individuals, but they also have large enterprise customers. For example: AWS has Ericsson and Virgin Atlantic; Rackspace has Mazda and MillerCoors and GoGrid has the Orange Business Services, a unit of FranceTélécom.

AT&T has offered cloud storage and compute solutions for three years, and infrastructure hosting for more than a dozen years. More recent IaaS entrants include Dell and Fujitsu, well-known technology providers that have staked a claim on the cloud infrastructure business. Dell announced plans in early 2011; Fujitsu launched in late 2009 in Australia and Europe, and recently in North America.

45%

Percentage of organizations that outsource IT indicating that new IaaS service providers were the best solution for private clouds

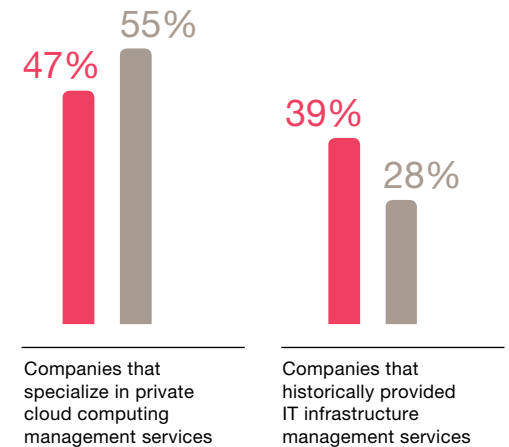
Figure 2: Best at managing private clouds

Question

Which type of vendors do you consider the best source of managed private cloud computing services today and in three years, based on what you've heard, read or experienced first-hand?

■ Today
■ In 3 years

n = 264



Fujitsu Global Cloud is focused entirely on the enterprise market, according to Jody Little, vice president of cloud portfolio at Fujitsu America. “Cloud is bringing rapid improvements to the data center that are equivalent to the magnitude of technology advances we have experienced in our personal lives over the past decade through growth in Internet businesses, advances in mobile technology and adoption of social media,” Little says.

The survey indicates the migration to the cloud could also take a long time. The respondents currently had an average of 31 percent of IT resources allocated to some form of private or public cloud; they said that figure would rise to 34 percent in three years—not exactly a groundswell.



Dhiraj Pathak

Leader in PwC's cloud services practice

"Cloud options for enterprises are definitely set to rapidly expand," says Dhiraj Pathak of PwC's cloud services practice. "More and more clients are buying-into the cloud promise. But buying-into the promise and actually making big changes are two different things. Many are still holding back from a bold cloud strategy because of the perceived complexity of the transition to cloud. Add to this the excessive market hype about cloud, lack of cloud standards and

IaaS executives, however, are confident that they already offer the managed private cloud services in demand; that they understand the model better and that at least some of them benefit from having gotten into the game ahead of their ITO rivals.

Rackspace calls its managed private cloud service "Enterprise Cloud"—leaving little doubt about the intended customer. Likewise, GoGrid

The best way to take advantage of the promise of cloud computing is to embed the cloud into the architectural fabric of the enterprise.

the shortage of cloud expertise in most enterprises and it is not hard to see a long adoption cycle ahead for cloud computing."

The big question for IaaS providers: Over the long haul, can they match the spending, innovation and marketing one can expect from ITO providers, many of whom already offer cloud services?

IBM, for example, is making major investments in its cloud offerings. It projects \$7 billion in cloud-related revenue by 2015.¹

hosts a private cloud offering, which John Keagy, executive chairman and founder, likens to "training wheels" for customers entering the cloud for the first time.

"They want all the great things the public cloud can offer, but they're afraid of it for legal, compliance, security, political or whatever reasons," Keagy says. "So right now, we're giving them a hosted private cloud using dedicated hardware that leverages public cloud technology and architecture." The survey confirms that all those concerns—with security number one—do exist.

AWS, AT&T, Dell and Fujitsu also offer or soon will offer private cloud hosting. Dell and Fujitsu also are partnering with Microsoft on related initiatives.

For the foreseeable future, there is likely to be enough demand to keep everyone busy. But besides deep pockets and trusted brands, another differentiator for ITOs is the vast experience many of them have with consulting services.

In the survey, only 18 percent of respondents said 51 percent or more of their compute workloads were ready for the cloud today,

18%

Percentage of respondents who said 51 percent or more of their compute workloads were ready for the cloud today

¹ <http://www.ibm.com/investor/events/investor0311/presentation/pres3.pdf>; see Slide 23 "Growth Initiatives"

suggesting a market for consulting services to help determine the when, what, where and how of migration.

PwC's Pathak agrees there is wide scope for helping enterprises migrate applications to the cloud. "But like any other technology shift, the best way to take advantage of the promise of cloud computing is to embed the cloud into the architectural fabric of the enterprise and seek out opportunities for moving workloads to the cloud when the business is pushing for changes in existing applications or seeking new applications to drive growth."

Recognizing the opportunity to help companies migrate to the cloud, some IaaS providers are offering consulting services, not just compute clouds.

Consulting is integral to Fujitsu's strategy, Little says. She says Fujitsu advisors help customers by taking them through the entire cloud life-cycle, putting together a roadmap, an ROI for the business value, workload assessments and design—and then helping them to modernize applications to align with migration and, finally, to migrating the applications. "We're full service; we cover the whole spectrum," Little says.

According to Bilger, Dell entered the IaaS consulting side before it began to offer private cloud management, creating a special advisory group called Data Center Solutions. "Today, we should really be calling it Data Center & Cloud Solutions," he adds.

Rackspace consultants advise enterprise customers on the applications they ought to move to the cloud, and on the architectures they ought to use. "It's a high-touch service we offer, for those willing to pay for it," Engates says.

Steve Caniano, vice president of hosting services at AT&T, holds a similar view: "Consulting is one of many key elements that shape our approach to providing complete private cloud hosting and virtual private cloud solutions to our customers."

Established ITO vendors aiming for the new cloud business would be wise to not ignore the modest and not-so-modest beginnings of these IaaS providers.

More insight on IT outsourcing and the cloud

To view customized survey results or read the other articles in the series, please visit www.pwc.com/technology and click on the **Future of IT Outsourcing** panel under *Highlights*.



The ITO challenge

Providers must offer both cloud and traditional IT services

By Tam Harbert

For the next several years, IT outsourcing (ITO) providers will face the dual challenge of delivering traditional IT infrastructure services while they meet the growing demand from their own customers to migrate to cloud computing, including infrastructure-as-a-service (IaaS).

ITO providers not ready or able to move with their customers could put the entire relationship at risk, a fact some, perhaps many, of them understand. “A significant part of our revenue is traditional managed ITO services,” says Jérôme Brun, head of cloud offerings at Atos, an ITO services provider. “But if we don’t have a competitive cloud offering, our customers will take their business to cloud providers elsewhere.”

Brun was one of several ITO executives who reviewed results from the PwC IT Outsourcing and Cloud Computing Survey, which found growing interest among ITO customers and non-customers for infrastructure in the cloud, especially for private clouds restricted to a single enterprise. Responses from the 261 ITO customers among the 489 respondents indicate the demand that ITO providers face from current customers:

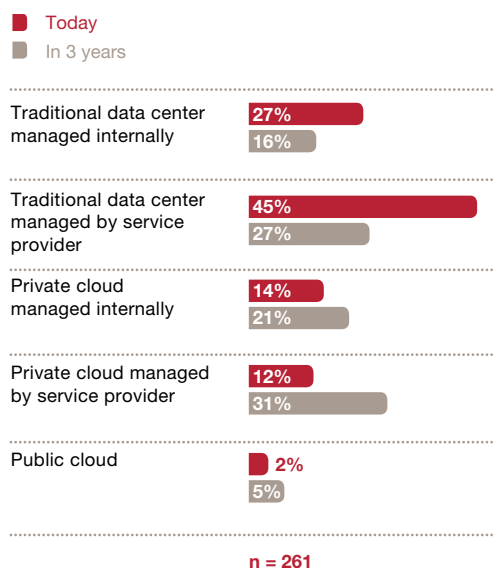
- 41 percent already use a private cloud managed by a service provider for some IT infrastructure resources; 31 percent use a private cloud they managed internally, and 22 percent were in the public cloud.

- 52 percent said private cloud managed internally (21 percent) or by a service provider (31 percent) would be the “best solution” for IT infrastructure in three years. (See Figure 1)

Figure 1: Best today, in 3 years—Ito customers

Question

Considering all the different ways of managing IT infrastructure, please indicate which you consider the one best solution today and in three years.



- However, the amount of IT resources allocated to the cloud was still small today, and would only average 34 percent in three years: 15 percent in private clouds managed by service providers; 12 percent in private clouds managed internally; and 7 percent in the public cloud. (See Figure 2)

Clearly, the migration will be gradual, and the cloud will coexist with traditional infrastructure for a long time.

Since the IT resource landscape will be a mix of traditional infrastructure, private cloud, and public cloud for several years, customers will need help in deciding which applications to run where and to make sure everything works together. ITO providers want to play that role, specifically aiming to provide three vital cloud services: planning and workload assessment, migrating workloads to the cloud and managing all the moving pieces.

They also believe traits they are already known for will serve them well. For example, Ali Shadman, chief technologist at Hewlett-Packard, says industry standard reliability and service level agreements “with teeth” will differentiate ITOs from new providers.

Although 80 percent of the ITO customers in the survey had cloud strategies completed or in development, “strategy” was left to the respondents to define. It might be simply a plan to virtualize more servers. ITO vendors see an immediate opportunity to help customers figure out how they can best use the cloud.

34%

Average amount of IT resources allocated to private or public clouds in three years

Figure 2: Resource allocation—ITO customers

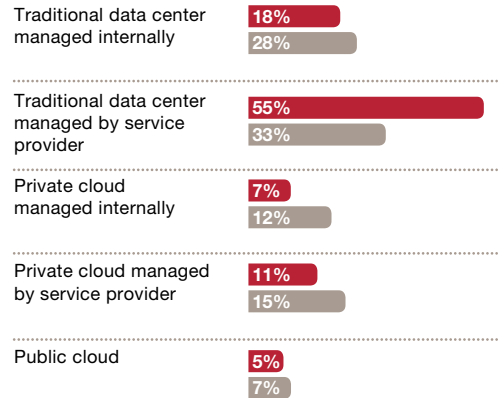
Question

Please estimate how much of your organization's IT infrastructure is supported by each of the following sources now and will be in three years.

■ Today

■ In 3 years

Average allocation of IT resources



n = 261

Cognizant, for example, considers itself an “enabler of leveraging the cloud,” helping customers assess what type of cloud to use and for which workloads, says Robert Boles, senior vice president and head of global IT infrastructure services. Deciding which platform is best for which applications can be tricky. Recently, a large telecommunication customer planned to use the public cloud for a high-transaction-processing application, but Cognizant’s assessment found the public cloud would cost more over time than a well-designed private cloud, Boles says.

CSC offers a service called “application cloud enablement” to evaluate workloads and give the customer an estimate of how much work, time and money it will take to migrate it to the cloud. “Then, it’s up to the customer to decide,” says Siki Giunta, global vice president at CSC. CSC also includes a comprehensive set of highly automated services for moving workloads to

the cloud, and its own cloud infrastructure and expertise, she adds. CSC is among the many ITOs undertaking marketing efforts to rebrand themselves as both ITO and cloud providers.

By offering these services, ITO vendors hope to win the work of migrating customers' workloads. The PwC survey found ITO customers

Despite such efforts, the PwC survey suggested that in some cases ITO vendors may lack credibility as cloud experts. Only 48 percent of ITO customers said ITO providers were the best source of managed private cloud computing services today; even fewer—38 percent—said they would be in three years. In contrast, 45 percent of ITO customers said a new breed of

Mixed environments will last a long time, and ITO vendors are gearing up to help their customers manage the mix of traditional infrastructure and cloud platforms.

were already moving some applications to the cloud; for example, 63 percent said they used the cloud for some data storage and retrieval. The more complicated the migration, the more business opportunity for the ITO provider.

The survey indicated that mixed environments will last a long time, and ITO vendors are gearing up to help their customers manage the mix of traditional infrastructure and cloud platforms. For example, Cognizant has developed a technology called Cloud 360 that manages virtual machines across private and public clouds.

And Infosys is positioning itself to be what it calls a "cloud ecosystem integrator." "Our proposition is to help customers to adopt the best-of-breed cloud technologies and operate them together seamlessly," says Vishnu Bhat, vice president and global head for cloud at Infosys. Infosys wants to be "the single point of accountability," offering comprehensive services for the cloud, he adds.

private cloud specialist was the best source for services today, a figure that rises to 52 percent in three years.

ITO executives recognize the problem, and are working to increase awareness of their cloud capabilities. "You have to make sure your market knows the skills you have in the cloud," Boles says. "You have to demonstrate that you have the knowledge."

Atos recently moved to strengthen its credentials by acquiring Siemens IT Solutions and Services, looking to extend its global reach, says Luc Barbier, senior vice president in charge of group strategy at Atos. The company notes it is doubling "the capability and capacity of Atos to position it as one of the leaders in cloud computing with 40 major data centers around the world."

If, however, ITO vendors over-emphasize the cloud they risk alienating existing customers who prefer traditional infrastructure. The challenge will be to maintain a balance, Barbier says. Customers that have fully outsourced IT operations may see less need for cloud computing, as long as price and flexibility remain competitive.

52%

IT outsourcing customers who said that cloud services specialists were the best source of such services in three years



Jai Sudharsan
IT Outsourcing Services Leader

Some ITO providers are trying to educate customers about cloud benefits. Less than one third of CSC's outsourcing customers use the cloud, Giunta says. "In the new fiscal year we plan a tremendous push to try to move existing customers to the cloud." About half of CSC's new cloud business comes from existing ITO customers, and the other half from entirely new customers, she adds.

ITO vendors feel pressured to respond quickly to this opportunity because they concur with the survey findings that the move to the cloud is accelerating. "The tone of the discussion has changed," Bhat says. "Skepticism of the cloud is not center stage anymore." He predicts that 60 percent of enterprise workloads will move to a combination of the public and private cloud in the next five to seven years.

The overall picture that emerges from the survey regarding the strategic position of ITO vendors in the cloud arena suggests tremendous opportunities and enormous challenges. As PwC IT Outsourcing Services Leader, Jai Sudharsan, puts it, "ITO users can be uncertain

about the strategic positioning challenge their ITO vendors face. On the one hand, ITO providers who promote new cloud infrastructure investments can be seen as simply pushing for more spend on IT with uncertain payoffs. On the other hand, ITO providers who don't promote cloud investments can be seen as dragging their feet to maintain high management fees."

The solution, from PwC's perspective, is to reconsider performance metrics with the cloud in mind. "The cloud can and will deliver disruptively better performance; ITO vendors and users can both share in those gains by making performance improvement expectations explicit in any new contracts," Sudharsan says.

Established ITO vendors clearly have a role to play as enterprises move to the cloud. Their ability to seize the opportunity and to offer credible private cloud services could, in fact, determine their ability to prosper in the future.

More insight on IT outsourcing and the cloud

To view customized survey results or read the other articles in the series, please visit www.pwc.com/itocloudstudy.



The big dilemma

Security versus scalability in the public cloud

By Larry Lange

Enterprise executives identify security as the biggest risk of the public cloud, so it is not surprising that they overwhelmingly—about 8 to 1—prefer private cloud over public for their IT infrastructure, according to the PwC IT Outsourcing and Cloud Computing Survey.

What is somewhat surprising is the amount of push back on this finding from vendors of IT outsourcing (ITO) and Infrastructure-as-a-Service (IaaS). ITO and IaaS executives, who reviewed the survey findings, agree that the customer's biggest concern is public cloud security. But they argue that the concern is more perceived than real, that the public cloud will be part of the future IT infrastructure environment and that it will happen much sooner than customers think. Their companies can meet current demand for private cloud services, but they say limits to scalability and scope in private clouds eventually will spur enterprises to adopt hybrid models with private and public cloud elements.

Here's what the survey of executives at almost 500 companies found on these issues:

- 62 percent rated data security as a “serious” or “extremely serious” risk to IT infrastructure in the public cloud. Four other risks were essentially tied as a distant second, each in the low 40 percent range. (See Figure 1)

- 57 percent said the more secure private cloud, restricted to a single enterprise, either internally managed (25 percent) or externally managed (32 percent), would be the best way of managing IT infrastructure in three years. A mere 7 percent said the public cloud.

Figure 1: Perceived risks in the public cloud

Question

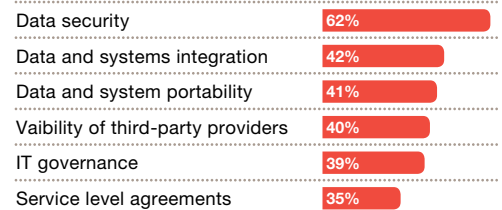
Please indicate your view on the seriousness of each public cloud risk for your organization, on a scale of 1 to 5.

1 = minimal risk

3 = moderate risk

5 = extremely serious risk

Percentage of respondents who indicated a 4 or 5



n = 481

- Yet, as the second part of “Best versus reality” illustrates, more IT resources will still be allocated to traditional methods in three years, ranging from an average of 39 percent still in the internally managed data center to an average of 7 percent in the public cloud. (See Figure 2)



William Beer
Leader in PwC's London
Information Security practice

Clearly, most enterprise IT strategies are likely to be mixed and will include a hybrid of private and public cloud for some time to come.

William Beer, a leader in PwC's London Information Security practice, says it is not unexpected that enterprises and service providers see the security issues of cloud computing differently. “While there are some common requirements at a basic level for information and data center security, the reality is that industry sectors, individual enterprises within sectors and even different geographies all have unique security concerns. The nature of cloud computing, especially public clouds, is shared infrastructure—meaning a one size fits all approach. This may not graph well onto the complexity of information security requirements,” Beer says.

Clients do evaluate which mission critical applications could run safely in the public cloud, but their choices show a “strong preference for private cloud,” says Siki Giunta, global vice president for CSC, an ITO provider. Nonetheless, she expects the hybrid cloud to displace the internally managed traditional data center over the next five years. Through their experience, she explains, customers will learn that security and transparency are well handled in the public or off-premise setting, and this will, over time, prove that off premise can be as secure as on premise.

57%

Survey respondents who indicated that a private cloud is the best IT solution in 3 years

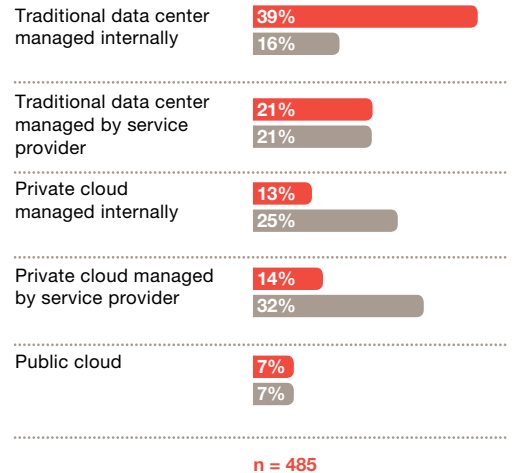
Figure 2: Best versus reality in three years

Question

Which do you consider will be the best solution in 3 years?
How much of your IT infrastructure will be supported by each of the following in 3 years?

■ Supported in 3 years
■ Best in 3 years

Percentage of respondents who indicated which would be the best level of support



John Keagy, executive chairman and founder of GoGrid, an IaaS provider, says the private cloud is popular now because customers have fears about the public cloud due to security, compliance and legal needs. Eventually, he says, “They’ll run into a lot of problems with workloads that shift by the hour, with scalability, programmability and agility,” and then begin to shift to a hybrid model that includes the public cloud. The public cloud “can be used on demand, pay-as-you-go, no long-term contract associated with it and almost no penalty if you decide you don’t need it anymore.”

Keagy also points out that a private cloud run in the enterprise’s data center still means the organization must own the equipment, hire staff and bear the operating costs.

***The market
will increasingly
demand hybrid
environments.***

Jody Little, vice president of cloud portfolio at Fujitsu America, an IaaS provider, says the first step for many customers would be a managed private cloud because that would still offer control over their infrastructure. She sees the private cloud as a “stepping stone” to the managed hybrid model. “That’s where cloud will probably go over the next five years,” Little says. “The market will head to more of a hybrid environment.”

As the “Best versus reality” graphic shows, survey respondents said an average of just 14 percent of IT resources would be allocated to private clouds managed by a service provider in three years, and just 34 percent across all cloud options. This and other findings from the PwC survey suggest a gradual migration to all cloud options; in contrast, the vendors predict much faster adoption.

For example, based on conversations with large enterprise clients, Robert Boles, senior vice president and head of global IT infrastructure services at Cognizant, an ITO provider, expects that 50 to 80 percent of these enterprises’ application portfolios will move to the cloud in three years. The majority of these applications will be deployed into private clouds, with some portion taking advantage of public or hybrid cloud offerings.

Within three years, “60 to 70 percent of interested cloud customers will be on the public cloud,” but as part of a hybrid model, says Venguswamy Ramaswamy, global head of iON, the cloud services unit at Tata Consultancy Services.

CIOs are also concerned about compliance issues, which are important because most providers, both ITOs and IaaS vendors, house data in various locations—and not always in the region the customer is headquartered.

“European laws are especially strict on data protection, some mandating the data must reside in the country of origin,” says Fujitsu’s Little. “A lot of cloud providers are not able to guarantee where a particular client’s data is going to reside and to prove that for governmental audit purposes.”

These executives think the security fear will dissipate sooner rather than later as the benefits of flexible capacity and significant cost savings become too tempting to ignore. Even so, customers are likely to want a “management wrapper around the public cloud offering,” which Cognizant can provide, Boles says.

Dell, a new IaaS provider, will launch a managed hybrid cloud offering later this year, says Mark Bilger, the CTO. “If you need more capacity, our solution will seamlessly burst from your private cloud to the public cloud.” Dell will provide a management layer around such public cloud capabilities, he adds.

Bilger thinks security is not a “substantive issue anymore, but of course, it’s a perception issue, and will continue to be so for many years.” He believes trusted vendors with established security technologies, like Dell and large ITO providers, will ultimately assuage the worries CIOs have.

64%

***Survey respondents who
outsource IT that say data
security in the cloud is a
serious risk***

There's little evidence in the survey that providers have convinced their own customers yet: 64 percent of ITO customers said data security risk was "serious" or "extremely serious," compared to 58 percent of non-ITO customers; and 61 percent of respondents who developed a cloud strategy with their ITO partner said data security risk was "serious" or "extremely serious," compared to 57 percent of respondents who developed a cloud strategy on their own.

As vendors begin to recognize the commercial importance of implementing robust information security, PwC's Beer expects a gradual reduction of these concerns among CIOs. "In reality, the public cloud infrastructure option is less than five years old," Beer notes. "Public cloud computing and third-party vendors are hearing these concerns from potential customers and responding with new technical solutions and, more importantly, better governance.

But information security is not a domain where enterprises can adopt incomplete solutions, no matter how advanced they may be and how attractive the cloud option is from a cost perspective. Unlike the adoption of, say HTML5, where new functions and features can be tried incrementally, new approaches to protecting data and infrastructure must be relatively complete from the get go."

The security issue is not likely to go away soon. CIOs will continue to be wary as long as the IT world suffers the occasional headline-grabbing breach like this year's reported hacking into an online video game network, which is hosted in a leading public cloud service.

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Cloud value proposition

Little consensus on how the cloud will benefit enterprises

By Tam Harbert

Even with all the talk about the cloud, enterprise customers seem unsure of its value proposition.

While cost reduction is a reason enterprise customers consider using a service provider to manage private clouds, it is just one among many and, for a substantial number, not the main one. When the 489 respondents to the PwC IT Outsourcing and Cloud Computing Survey were asked the most important reasons for using a private cloud managed by a service provider for IT infrastructure, three reasons tied with tepid support: faster delivery of IT solutions for business requirements (23 percent), access to superior technical skills (22 percent) and cost reduction (20 percent). (See Figure 1)

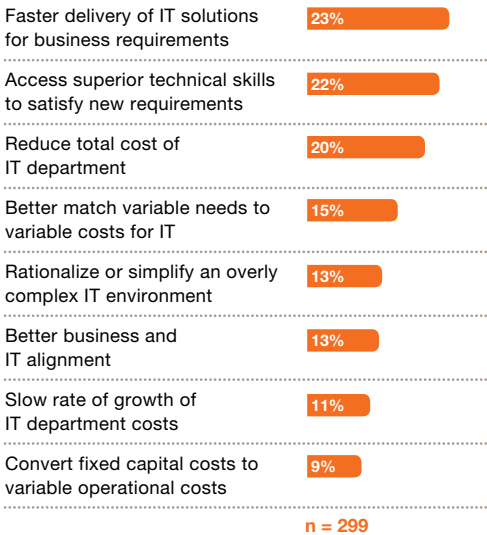
In contrast, cost is the clear driver for IT outsourcing (ITO). When respondents were asked to choose the most important reasons for using external providers to manage traditional data centers, the top choice (40 percent) was reduce total cost of IT department. (See Figure 2)

In short, unlike the ITO model, no single reason stands out as a dominant driver for the cloud. This may reflect the fact that large enterprises are in the early stages of cloud adoption.

Figure 1: Private cloud value proposition

Question

Please select the three most important reasons for using private cloud managed by a service provider for IT infrastructure today.



Mark Bilger, CTO for Dell Services, which recently entered the infrastructure-as-a-service (IaaS) business, estimates that only 2 percent of all applications run in the cloud today and that the average Fortune 500 company spends only 5 percent of its IT budget on cloud-related activities, mostly studies and pilots. Bilger was one of several executives at IaaS providers and ITO providers who reviewed the survey results.

Given the market's immaturity, the cloud is a Rorschach test of sorts. It can mean whatever an IT department happens to need or whatever a vendor happens to sell. One IT department may outsource Web hosting and call that an externally managed private cloud, while another would only consider a private cloud to be multiple operations running on third-party infrastructure that is not shared with other tenants.

"At large companies I've interacted with, if you ask their executive management teams to define cloud, you'll get different answers," says Bilger. "If you ask them what's important about it, you'll get different answers."



Cindy Warner

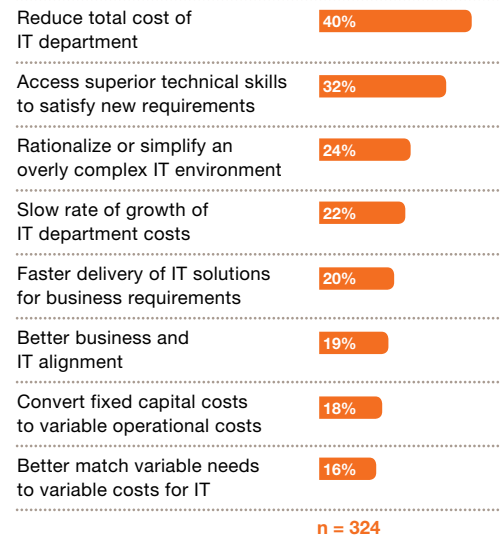
Leader in PwC's cloud computing practice

PwC's cloud computing practice leader, Cindy Warner, says it's not surprising that the value proposition of ITO is more set in the minds of executives. "ITO has been through a couple of generations of development both in terms of technologies and business practices, as both vendors and users of ITO learn ways to jointly benefit from the business relationship. Cloud computing offerings are in many cases first generation, and vendors are emphasizing different messages in terms of the value proposition. Unlike ITO, the cost control message is frequently not a big part of the cloud computing message. And many times the buyers aren't the same—business units are more actively engaged and often making decisions without IT's involvement."

Figure 2: Managed data center value proposition

Question

Please select the three most important reasons for using external service providers for data center today.



Survey respondents' expectations of business value from externally managed private clouds may well reflect a wish list based on experience with or perception of ITO. Comparatively few respondents have significant experience with externally managed private clouds: 31 percent make any use of the model, but on average only 12 percent of total IT resources are allocated to it today. Yet most are familiar with ITO, whether they are customers or not. Their reasons for wanting externally managed private clouds may indicate benefits they haven't gotten or don't believe customers get from ITO.

12%

Percentage of resources currently provided by externally managed private cloud

“We have heard that,” says Robert Boles, senior vice president and head of global IT infrastructure services at Cognizant, an ITO provider. “I don’t know if that’s directly linked to cloud, but clearly we’ve heard from some CIOs who’ve done the Big Bang ITO deals that the transfor-

There is some evidence that ITO customers who have developed a cloud strategy with help from their ITO providers have a better idea about the cloud’s value proposition. Among this subgroup of 147 respondents, 33 percent said faster delivery of IT solutions, and 31 percent said access to

Most customers turn to the cloud primarily to meet the needs of business users quickly and efficiently.

mation and service improvements promised when the deal was done didn’t happen.”

Most likely, respondents’ answers about the value proposition of externally managed private clouds reflect where they are in cloud adoption and the applications they are moving there, which vary widely. “I don’t see cloud as a forklift proposition,” says Steve Caniano, vice president of AT&T Hosting Services, an IaaS provider. “Customers, after all, don’t just decide to move to the cloud all at once. It’s in phases, gradually, and each event may be for a slightly different reason.”

John Engates, CTO at Rackspace, an IaaS provider, agrees. “Some customers are doing big campaigns and big marketing events online. Well, those people are going to look at fast delivery of IT solutions as the only thing that matters.” Others might turn to cloud primarily for extra capacity during times of peak demand, which would translate to matching variable needs to variable costs, he adds.

superior skills were the two top reasons; these are statistically significant differences from the response rates for the entire group.

It is also possible that cost is a more important factor for the private cloud than the survey indicates because cloud adopters tend to think in terms of gaining business agility at a manageable cost rather than simply reducing costs. “The ability to react faster to business needs is a top driver for cloud adoption, be it private or public clouds,” says Jody Little, vice president of cloud portfolio at Fujitsu America, an IaaS provider. “Enterprise customers value the flexibility of a cloud at a manageable expense.”

Siki Giunta, global vice president at CSC, an ITO provider, agrees that the cloud’s “pay as you go” pricing is an attraction, but says most customers turn to the cloud primarily to meet the needs of business users quickly and efficiently. “You don’t do the cloud if it means spending three times as much, but if it is equal cost and you can be more agile, then it’s a good business decision,” she explains. “IT needs to support the agility of the business.” A steering committee of executives from CSC’s customers recently concurred there were savings to be had from a highly virtualized environment, she adds.

54%

Percentage of respondents using a cloud option today who named data storage and retrieval as the primary IT cloud application

In some cases, Engates notes, the customer may have simply run out of space. Rather than build a new data center, which is “a big chunk of expense to swallow all at once, sometimes people look at a private cloud in a hosted fashion as a way to push that expense into the future.”

Asked which IT infrastructure functions were currently supplied to their organizations via any cloud option, respondents named data storage and retrieval (54 percent) first, followed by online transaction processing workload execution (40 percent). Given that data storage is growing faster than any other component of data centers today, this outcome supports the “out of space” hypothesis.

Some vendors acknowledge that CIOs are simply caught up in the hype. “There are very few CIOs that are not hearing from their CEOs, ‘why aren’t we in the cloud,’” Boles says.

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Big cloud hurdle

Workload readiness is the key to accelerating cloud adoption

By John W. Verity

Business executives are buying into the promise of cloud computing. And there are sufficient examples of “ready to go” compute workloads—mostly data storage and retrieval based on this survey—to create the impression that a wholesale shift to cloud is upon us. But not so fast.

For various technical reasons, most mission-critical workloads are not yet ready for multi-tenant cloud computing infrastructure. And they won’t be ready until some major re-architecting and re-coding gets done, the cost of which may prove to be a major factor in keeping these applications in traditional data centers for many years.

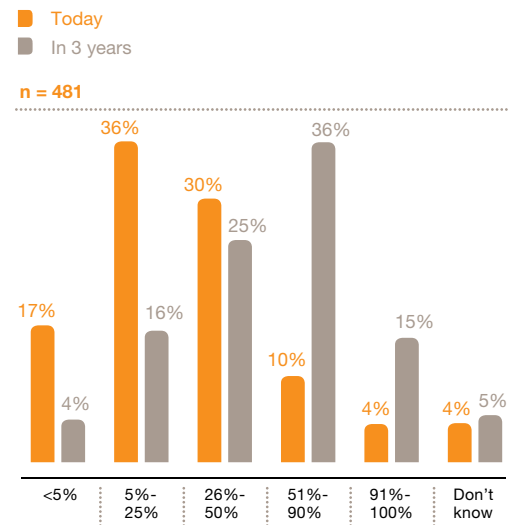
Mission-critical online transaction processing (OLTP) applications and other enterprise systems will require extensive recoding to take full advantage of the highly virtualized cloud infrastructure. IT outsourcing (ITO) providers, Infrastructure-as-a-Service (IaaS) providers and enterprise cloud adopters are unlikely to see cloud technology fully replace traditional infrastructure in some sort of “forklift upgrade” as a result. And once the commercial applications are ready, large organizations aren’t likely to move them to the cloud until the refresh cycle dictates it based on the business requirements of individual enterprises.

Findings from the PwC IT Outsourcing and Cloud Computing Survey of 489 CIOs and other senior executives paint a clear picture of the situation:

- Only 18 percent of the respondents said 51 percent or more of their organizations’ workloads were ready for the cloud today; 53 percent of respondents said 25 percent or less of workloads were cloud ready. (See Figure 1)

Figure 1: Shift to cloud-ready workloads

Question
What percentage of your compute workloads are ready for cloud hosting today and in three years?



Before re-hosting major parts of the application portfolio onto clouds, an enterprise would be wise to revisit the strategic fit between the evolving business architecture and IT.

- Three years out, the figures were essentially reversed: 56 percent of respondents said 51 percent or more of their workloads would be cloud ready; 20 percent said 25 percent or less would be ready.
- Data storage and retrieval was the most widespread application running in the cloud today, followed by OLTP. (See Figure 2) In three years, the frequency of each increases and the order does not change.

ITO and IaaS executives, who reviewed the survey findings, wondered if the respondents weren't too optimistic, especially about OLTP workloads. "Naive," was how one executive described expectations for an easy transition of OLTP to the cloud—at least for mission-critical workloads.

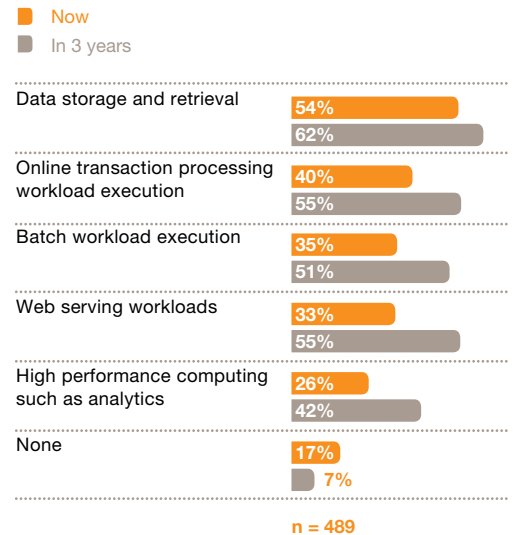
At the heart of most of these applications are one or more relational database management systems (RDBMS). This is a problem, executives say, because RDBMS tend not to perform well in a highly virtualized environment. They can obtain significant performance gains when run on a cluster of tightly-coupled servers; many IT shops in financial services, for instance, have aggressively embraced that concept. In the highly virtualized infrastructure of the cloud, where entire software stacks can be redeployed at a moment's notice, the coupling of servers is quite loose. In some cases, this causes distributed RDBMS performance to suffer significantly.

"Clouds are notoriously bad at optimizing relational database workloads," says Mark Bilger, vice president and CTO for Dell Services, which recently began to offer IaaS. "But RDBMS are the workhorse for 99 percent of traditional ITO applications. You get some benefit from moving to cloud, but you cannot massively parallelize these apps as you can a Web 2.0 application."

Figure 2: Applications that drive IaaS adoption

Question

Please indicate which of the following IT infrastructure functions are currently supplied to your organization via public or private cloud now, and will be in three years.



Mission-critical workloads may not be cloud ready for a long time, says Ali Shadman, chief technologist for Hewlett-Packard. But the great volume of computing is not mission critical and could be moved to the cloud, he adds. "The great majority of workloads are ready now."

The good news, of course, is that the mismatch between apps and infrastructure offers a significant business opportunity. Established ITOs and IaaS upstarts stand to profit if they can help enterprise customers re-craft their home-grown apps and adapt commercial software packages for the cloud. The developers of those packages—SAP, Oracle, IBM, Microsoft and others—would also play a potentially major role in this effort.

"The opportunity for the ITO providers is to partner with applications providers in refactoring and rewriting ITO applications," Bilger notes. But "fairly exotic software technologies, such as Hadoop and BigTable, are needed to fully exploit the cloud, and I don't think that the majority of CIOs understand that."

Evolving database technologies should also enable OLTP to run well in the cloud. “They will need two or three more years to mature, which means that it will be six or seven years before they are widely adopted,” Bilger says.

Not surprisingly, the survey found security to be the top perceived risk of the public cloud, but “data and system portability,” which is related to migration, was tied for second.

Not all IT activity is affected equally by security, advises John Keagy, executive chairman and founder at GoGrid, an IaaS provider. “It’s a shame that more Web-serving workloads aren’t in the cloud,” he says. “They are, by definition, public-facing, so there’s no compliance or security issues there, and they’d get much better performance, much better cost, much better scalability using public servers.”

In the survey, web-serving workloads were next to last in frequency in the cloud, followed only by analytics workloads, which ITO and IaaS executives see as another missed opportunity.

“These are the workloads we recommend as the low-hanging fruit,” says Jody Little, vice president of cloud portfolio management at Fujitsu America, an IaaS provider. “The most value and the biggest growth are going to be in the analytics space, because you have all that high-performance computing that you can take advantage of without all the expense.”

Siki Giunta, global vice president of CSC, an ITO provider, agrees, noting that enterprises need to plan carefully for the cloud: “Analyzing the application portfolio is very important. Some applications will never move to the cloud. We find that this assessment initiates some rewriting and combining of legacy apps to take advantage of cloud and new database models like Gemfire or technologies like Hadoop. For the rest of the workloads, there are highly automated and industrialized refactoring services that quickly provide immediate return on investment.”

The operating system is yet another obstacle. “Most computing clouds today are built around Linux and Windows,” says John Engates, CTO at Rackspace, an IaaS provider, “and sometimes within enterprise IT organizations you still have apps built on servers and operating environments that pre-date virtualization and cloud computing. Those apps don’t really lend themselves nicely to moving to a public cloud or even a private cloud today in a virtualized fashion.”

Engates says apps like traditional corporate email systems “tend to be very scale-up as opposed to scale-out. When you want to add capacity, you buy a bigger server.” In the cloud, to boost performance you add more servers, not bigger ones. “People are rethinking how they’re going to build apps to take advantage of the cloud’s scale-out architecture. Packaged apps are going through this transition,” he says.

Many organizations have decided to put mail in the cloud. But despite financial advantages in many cases, even moving this workload can be more difficult than some perceive.

“There are very few enterprises, especially larger ones, for whom mail is just mail,” says Robert Boles, senior vice president and head of global IT infrastructure services at Cognizant, an ITO provider. “In many cases, mail is tightly integrated with collaboration services and workflows, and it involves sign-offs and authorizations around critical applications. This creates certain challenges.” Boles says software providers are starting to address these challenges.



David Stuckey

Leader in PwC’s practice for data center infrastructure

42%

Percentage of respondents who indicated that data and systems portability were serious risks of cloud computing

PwC's practice leader for data center infrastructure, David Stuckey, says the most important step for many companies is to finally—really—get serious about enterprise architecture and its role as a planning tool. “There are many great reasons to consider cloud infrastructure, and it is definitely the future. But the transition is not free. Before re-hosting major parts of the application portfolio onto clouds, an enterprise would be wise to revisit the strategic fit between the evolving business architecture and IT. It's also a great time to commit to disciplines such as ITSM (IT service management) because cloud infrastructure fits naturally into the ITSM paradigm.”

Despite efforts directed at workload readiness, “it's going to be very difficult, time-consuming and expensive to modernize and upgrade legacy applications, and that's going to take some time,” Fujitsu's Little says. “You will see traditional data centers continue for many years.”

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Similarities and differences

ITO customers and non-customers seek somewhat different cloud services

By John W. Verity



Charles Aird

Leader in PwC's global outsourcing practice

Differences in perception, current use and planned use of cloud computing for IT infrastructure distinguish enterprises that presently use an IT outsourcing (ITO) partner to manage their data centers from those that do not. And some of these differences point to business opportunities for providers that are able to deliver services to address the needs and maturity levels of each group.

In the PwC IT Outsourcing and Cloud Computing Survey of 489 CIOs and other senior executives, 261 respondents were current ITO customers and 226 were not. The sub samples were large enough to make statistically significant comparisons in the similarities and differences.

For example, asked whether they had a cloud computing strategy, the two groups were similar: only 20 percent of ITO customers and 22 percent of the non-ITO group did not have a strategy (completed or in progress).

However, there were some differences among the respondents who had a cloud strategy. Among ITO customers, 26 percent developed a strategy on their own, while 48 percent worked with their ITO provider on a cloud strategy. Among the non-ITO group, 40 percent developed a cloud strategy on their own and 31 percent worked with an ITO provider.

Non-ITO customers working with ITO providers? This is not the contradiction it first appears to be: The respondents sorted into the “non-ITO” category were those who indicated they had no traditional ITO provider running their data centers, even in part. Yet, most of today’s ITO providers offer a variety of consulting services, including IT strategy.

Evidently, there appears to be new, cloud-related business available to ITO providers if they can offer the right menu of services to customers who have previously shied away from them.

As Dr. Charles Aird, the PwC global practice leader for Outsourcing Advisory, notes, “Cloud computing will soon be thought of as just another sourcing option for managed data center infrastructure. ITO providers are well-positioned to help their current clients capture cloud computing value propositions around cost and agility, especially for workloads that are well-matched to commodity server environments that dominate cloud offerings today. The challenge for ITO providers who target new clients is to create a cost structure that competes with new entrants for these types of services. It might be best to create a new brand with different SLA parameters for their cloud offerings.”

CSC is pursuing this opportunity. According to Siki Giunta, global vice president, the company's cloud-related opportunity pipeline is split 50/50 between new customers and those it already serves as an ITO provider. Some

"Customers are struggling with, 'How and where do I move to the cloud? How do I support my computing workloads, my storage needs and my mobile apps?' Customers want a trusted provider who will guide them. For example:

The challenge for ITO providers who target new clients is to create a cost structure that competes with new entrants for these types of services.

customers take the initiative to ask CSC for help with cloud technologies, and the company reaches out to others.

"We understand that we have to be proactive because the customer may not be aware that we are a cloud service provider with public, private and hybrid cloud and services to ready their workloads for the cloud," says Giunta, one of several executives at ITO providers and infrastructure-as-a-service (IaaS) providers who reviewed the survey results. "They typically reach out to market-leading public clouds and eventually find that their enterprise expectations aren't a match for the 'one for all' offers they find there."

Steve Caniano, vice president of AT&T Hosting Services, an IaaS provider, believes potential cloud customers are seeking consulting and integration from providers they trust and those who demonstrate the ability to deliver solutions that help them address the totality of their business:

"Here's the workload that you want to consider for this type of cloud, where and how you migrate from point A to point B, which workloads you might want to do in a different way.' Call it a cloud application mapping plan. I think it is an opportunity for all service providers."

Between the two sub samples, additional differences show up in the actual use of cloud computing, either private or public, for IT infrastructure. The ITO and non-ITO groups were more or less equal in terms of whether they currently make any use of "internally managed private clouds": 31 percent vs. 35 percent. But 41 percent of the ITO customers indicated any use of a "private cloud managed by a service provider" versus 21 percent of the non-ITO respondents. Similarly, 22 percent of ITO customers indicated they were making at least some use of the public cloud versus just 10 percent of the non-ITO group.

Yet, when asked about the extent to which their total IT infrastructure was currently running in some form of cloud, it was the non-ITO group that appeared to be ahead. On average, the current ITO customers had moved 7 percent of their infrastructure to "private cloud managed internally," 11 percent to a "private cloud managed by a service provider" and 5 percent to the public cloud, for a total of 23 percent of IT resources allocated to some cloud option. For non-ITO respondents, the total for all cloud options was 40 percent: 22 percent internally managed private cloud; 13 percent private cloud managed by a provider and 5 percent public cloud.

22%

Percentage of ITO customers who said they were making at least some use of the public cloud vs. 10 percent of the non-ITO group

With such minimal usage of cloud and with ITO customers describing an average of 55 percent of their infrastructure as “traditional data center managed by a service provider,” it would seem that ITO providers have some fertile ground for expansion into managing private cloud infrastructure for their current customer base.

The two groups also differ in their enthusiasm for the cloud, today and in the future. Only 28 percent of ITO customers thought that some form of cloud-based infrastructure was “the one best solution today” versus 39 percent of the non-ITO group. Looking ahead three years, this difference continues, with 57 percent of the ITO customers looking favorably on cloud versus 70 percent of the non-ITO group.

The survey results suggest that ITO providers should not presume that their own clients are the best gauge of the pace of movement to cloud infrastructure. “Managed clouds, whether private or public, attract a different clientele from many traditional ITO customers,” Dhiraj Pathak, practice leader for PwC’s cloud services, says. “The latter have often been attracted to the special skills ITO providers have in managing highly complex environments. Cloud users are oriented the opposite way; they haven’t seen complexity as the main attraction of managed private clouds as much as the opportunity to radically reduce costs for running standard workloads like Web serving and email. The threat for ITO providers is that virtualization technology is drawing ever more complex workloads into the cloud world.”

One place ITO customers appear to be well ahead of the non-ITO group is the cloud readiness of their workloads. Among the ITO customers, 17 percent estimated 51 percent or more of their workloads were cloud ready today; against 10 percent for the non-ITO group. And in three years the disparity appears to be even greater: 58 percent of the ITO customers said 51 percent or more of workloads would be cloud ready then, versus 44 percent of the non-ITO group. (See Figure 1)



Dhiraj Pathak

Leader in PwC’s cloud services practice

Figure 1: Shift to cloud-ready workloads

Question

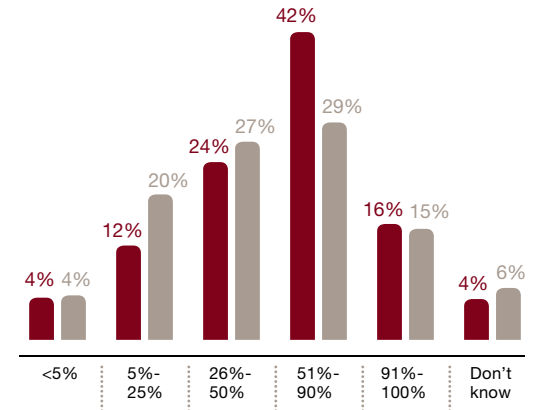
What percentage of your compute workloads will be ready for cloud hosting in three years?

■ ITOs

■ Non ITOs

ITO n = 259

Non ITO n = 225



“We’re already helping companies determine what types of applications they ought to move to the cloud, what types of architectures they’re going to use as they move those apps to the cloud,” said John Engates, CTO at Rackspace, an IaaS provider. “We’re also consulting on the designs and the deployments of clouds themselves—on the design of the cloud technology underneath the apps. Absolutely, that’s going to be one of our differentiators at Rackspace.”

70%

Percentage of non-ITO customers who said cloud was the one best solution for IT infrastructure in three years

Non-traditional providers like Rackspace would appear to have a better edge with the non-ITO group than with the ITO customers. Asked which type of vendors they would consider the best source of managed private cloud computing services in three years, the two sub samples disagreed: 59 percent of the non-ITO group and 52 percent of ITO customers said new providers that specialize in the cloud, while 14 percent of non-ITOs and 38 percent of ITO customers said traditional ITO providers would be. (See Figure 2)

Figure 2: Who they like for managing private cloud

Question

Which type of vendors do you consider the best source of managed private cloud computing services in three years, based on what you've heard, read or experienced first-hand?

■ ITOs
■ Non ITOs

ITO n = 151
Non ITO n = 113

Companies that specialize in private cloud computing management services and never provided traditional IT management services



Companies that historically provided IT infrastructure management services



Neither, the best way to support private cloud is with internal resources



Not sure/Don't know



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A cloudy future

ITO providers beware

Cloud computing creates contradictory expectations that will test even the best providers.

Our survey respondents—489 CIOs and other enterprise executives—are in an odd place right now. They are true believers and, at the same time, eternal skeptics of cloud computing. The contradiction is understandable when considered against the history of enterprise approaches to provisioning and managing IT infrastructure.

These approaches have tended to follow the pattern identified by the late Thomas Kuhn, the first to argue that progress in science and technology is not so much linear as marked by periodic, disruptive “paradigm shifts.”

This is clearly the case with IT infrastructure, where we have seen long periods of stasis with broad agreement about what constitutes best practice, what a “standard platform” in the data center looks like and how to optimize performance of that platform. But, inevitably the standard platform assumptions are disrupted by innovations in technology and new management practices. In short, every 10 years or so there is a paradigm shift. Cloud computing is the latest shift.

In general, platform disruption has not automatically led to application porting. Changing platforms solely to move to the latest technological zeitgeist has been hard to justify given

the expense and potential end-user disruption. But there has also been an implicit cost to running multiple generations of standard platform paradigms—creeping complexity and its cost.

Enter the era of IT outsourcing. For many companies, it is exactly this creeping complexity that has driven the value proposition of handing off IT infrastructure management to service providers.

There is a strong argument to be made that the cloud computing paradigm shift will be different. That it will be the first time a new platform has explicitly targeted complexity reduction and not just the price/performance enhancements seen in previous disruptions to the status quo. PwC’s Technology Forecast detailed the ways this could happen in the *Summer 2009* issue.

But as good as it sounds in theory, CIOs must be asking: Will the cloud computing transition really be any different? Will the cloud simply be yet another overlay of new technology used mostly for new applications built to take advantage of the unique cloud architecture? If so, older applications and platforms will remain in place, complexity will increase yet again and the IT outsourcing value proposition will only escalate.

Or, will cloud computing platforms be the first true consolidating solution to IT infrastructure? Will they be the first to massively reduce complexity, thereby radically changing the cost structure of data centers and enhancing agility to boot? If this is the case, what does it mean to IT outsourcing vendors? What happens to the traditional IT outsourcing value proposition?

The PwC IT Outsourcing and Cloud Computing Survey asked questions that address many aspects of the preceding logic. But it did so without “leading the witness.” It asked respondents a variety of questions about what is the best approach now and in three years, what will be the breakdown of workload readiness and what are the value propositions of different approaches to managing data center infrastructure.

The results of the survey could have suggested a clear cut answer to the future of IT outsourcing in the cloud era.

That isn’t what we found.

On the one hand, a large majority of respondents believe some form of cloud computing—private and self-managed, private and managed by a service provider or public—will be the single best approach to managing data centers in three years (whereas traditional approaches are the best today). While few respondents indicated that a majority of their compute workloads are ready for the cloud today, most expect a majority of their compute workloads to be cloud-ready in three years.

On the other hand, these respondents only expect a small increase in the actual percentage of workloads to be running on any form of cloud in three years, growing from 31 percent today to 34 percent. This is hardly a tsunami on the horizon that threatens the traditional data center, whether managed internally or by IT outsourcing vendors. When asked to indicate the value propositions expected from cloud approaches, the respondents offered little consensus that cost, reduced complexity or even responsiveness were going to be obvious outcomes.

Bottom line: the technology industry is entering a period of contradiction

For various reasons—public cloud service providers demonstrating every day that a cloud architecture is extremely efficient, vendor messaging reaching extreme levels of hype, and even early experiences with public cloud infrastructure-as-a-service offerings—business executives know that cloud computing will soon be the single best approach.

But knowing there is a better place and getting there are two different things. They don’t believe their current workloads are going anywhere anytime soon. On the surface this may appear to be good news for IT outsourcing vendors, but only if those vendors are perceived as helping customers to reach the cloud.

This research has therefore only scratched the surface on the future of data center infrastructure management in the cloud computing era.

Some interesting questions to consider for future research include the following:

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|---|--|--|
| 01. Service providers are creating an overload of terminology—facilities management, co-location, low latency, “vaults”, traditional IT outsourcing, bodies on site, hosting, multi-tenant versus single tenant, cloud computing in all its flavors. Are we losing any meaningful distinctions among these different services? | 02. If an IT outsourcing vendor wanted to develop a business plan for being part of the solution instead of part of the problem enterprises face in moving to the cloud, what would it look like? | 03. What is the role of a strategic enterprise architecture function in a company without a cloud strategy today, about to embark on a dedicated push to the cloud? |
| 04. Are the best cloud migration strategies the same regardless of industry vertical? | 05. What about fast growing companies that have never had their own data centers; what is their data center strategy for the next 10 years? Can they avoid ever having their own, self-managed data centers? Should they? | 06. Will the risk/reward of moving traditional workloads to the cloud platform be sufficiently different this time, or will it just be another “overlay?” |
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PwC can help

If you have any questions about the survey results or just want to talk more about the challenges your company is facing and how to factor cloud into your strategy or develop an implementations plan, give us a call or send an email. We're here to help.



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