

A Forrester Consulting Thought Leadership Paper Commissioned By HP

Hybrid Cloud Future: What It Looks Like And How To Get There

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FORRESTER

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Executive Summary

If you're still debating about whether private or public cloud is the answer to your IT needs — you're behind the curve. That's yesterday's debate. Today, the conversation has shifted from "private versus public" to "which hybrid cloud scenario best fits my requirements." Hybrid refers to any assortment of external/internal environments that includes at least one cloud environment to meet the requirements of your application portfolio. If done strategically, organizations can best fit sourcing of applications by specific architecture, security requirements, and usage. Today, only the most aggressive hybrid configurations split a single application across environments (for optimization within a single application) or actively move applications to cloud environments to accommodate bursts in usage (i.e., cloud bursting). But many enterprises today limit their definition of hybrid to these more aggressive options. Although there are significant barriers to cloud bursting today, other hybrid cloud scenarios are more within reach and common among enterprises.

Forrester found that 40% of organizations planning to/already adopted IaaS are most interested in hybrid cloud deployment types (see Figure 1). But despite all the interest and focus on hybrid cloud environments today, there's limited information as to the look and feel of this hybrid reality or the challenges and barriers that slow its adoption. To better understand this current and future state of hybrid, Forrester interviewed 15 current cloud users about their cloud plans and challenges that they face moving forward. Forrester found the following:

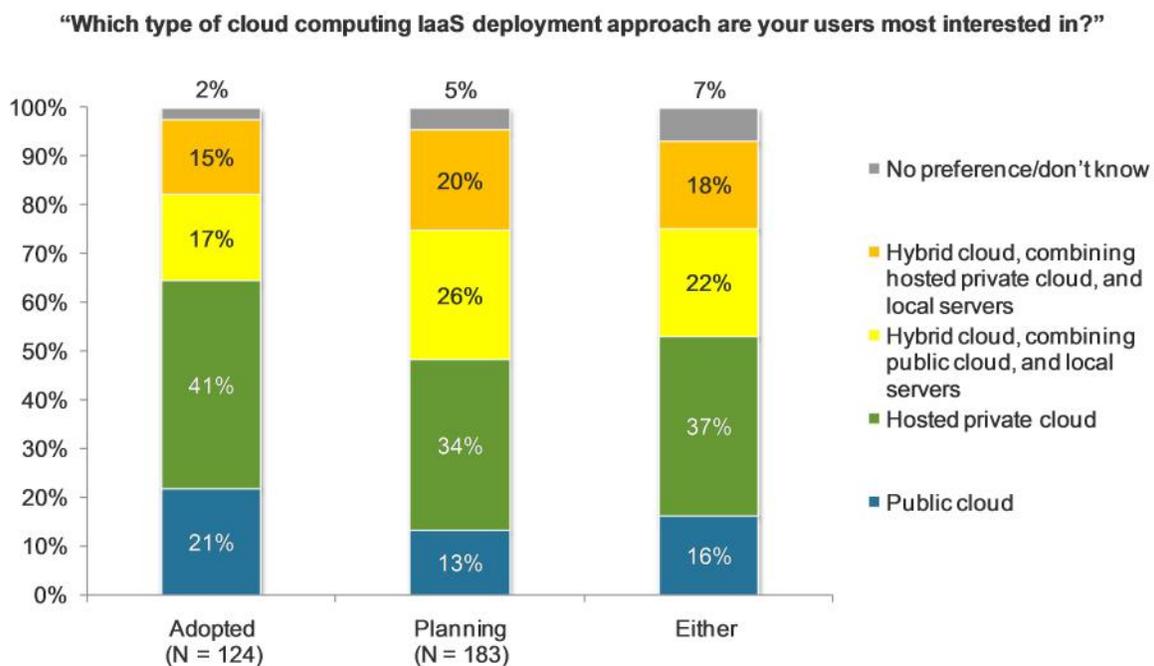
Key Findings

- **Hybrid cloud: because one size doesn't fit all.** Enterprises today look to multiple deployment types to meet various workload requirements. Cloud is just one more option that meets the needs of short-term, variable, time-sensitive, differentiating, and unpredictable workload types — but it's not the most cost-efficient or reliable sourcing option for every app. With hybrid, you can take advantage of multiple models to best fit your portfolio.
- **Cloud users already at hybrid.** Many enterprises see hybrid cloud as a future state, currently out of reach, but that's simply not the case. Almost all cloud users today also utilize traditional virtual and physical resources for the majority of its applications — which is a basic hybrid model. But many set the bar at more advanced hybrid scenarios, viewing hybrid as out of reach. Today, many enterprises are there but often haven't applied strategic optimization practices to the sourcing of each application.
- **Public cloud isn't going away.** It plays a large role in hybrid cloud with its unique noncommittal pay-per-use model ideal for a specific subset of workloads. Although private cloud offers agility, costs continue regardless of usage. Regardless of whether enterprises have started their cloud journey in public or private cloud, all interviewees plan to utilize public cloud in their future hybrid scenario to take advantage of its bursting capacity and low upfront investment for specific applications. Expect and plan for including public cloud in your hybrid scenario.
- **Cloud adoption limiting factor to hybrid cloud.** Simply put — to achieve a hybrid cloud, you need to have adopted cloud. Today, the barrier to hybrid cloud for most enterprises is cloud adoption. On the public cloud side, some enterprises delay adoption due to security concerns and legacy security policies that prohibit these services. On the private cloud side, there's a rush to adopt, but also a lack of understanding about the true benefits and where private cloud goes above and beyond virtualization.

- **Enterprises look to train employees.** Most IT teams don't have significant cloud skill sets today. Although some enterprises look to hire a single cloud admin expert, most look to train existing staff for their dedicated cloud admin team. Oftentimes, this involves training courses, vendor certification programs, and experimenting with public cloud services for IT-only facing applications.

Figure 1

Enterprises Prefer Hybrid Solutions As Preferred IaaS Deployment Models



Base: 307 server and storage IT decision-makers that are planning to or have already adopted cloud IaaS

Source: Forrsights Hardware Survey, Q3 2011, Forrester Research, Inc.

Introducing The Hybrid Cloud

Today, if you speak with C-level and IT executives at leading enterprises, most will tell you that their cloud strategy includes plans for hybrid cloud. But few recognize their own existing environment, which includes a mix traditional deployment options and select cloud services, is already a hybrid cloud. In fact, many organizations limit their definition to the most advanced and challenging hybrid deployment models as the minimum requirements for hybrid. Forrester defines hybrid cloud computing as:

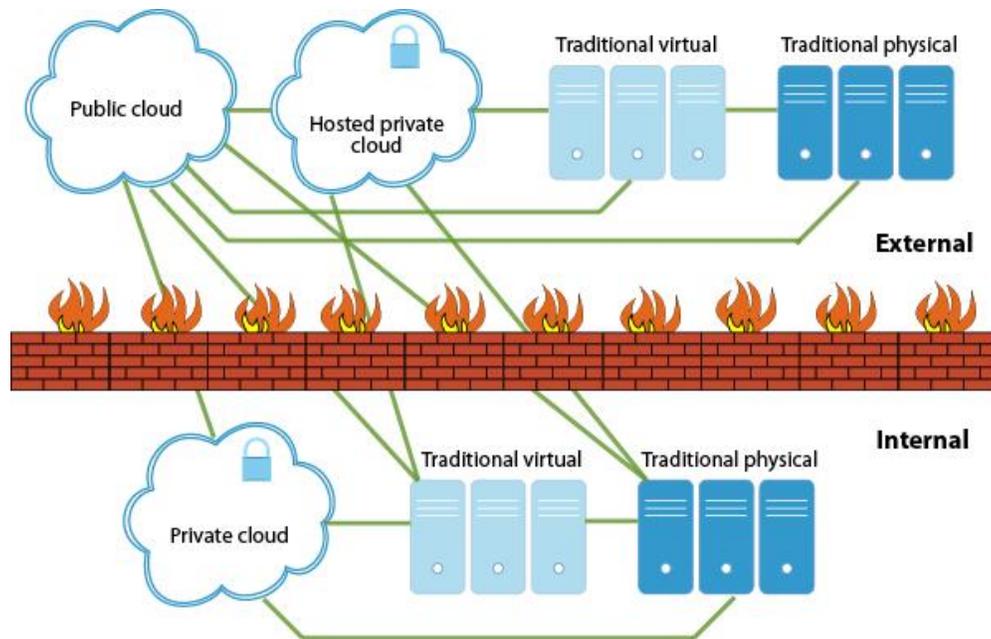
Any mix of a standardized IT capability (services, software, or infrastructure) delivered in a pay-per-use, self-service way, with another deployment option.

Essentially, it is the mix of a cloud environment plus another deployment type(s), whether that is between another cloud or non-cloud environment (see Figure 2). This includes a far greater range of configuration options than is commonly included in the average hybrid cloud definition. In fact, if you're using cloud services today, it's highly likely that you're at hybrid cloud already. But oftentimes applications haven't been optimized across these environments based on application fit or requirements. Most organizations that look to adopt hybrid are aiming for a higher level of efficiency through the sourcing process, using different methods to evaluate and/or utilize these multiple environments. Some variations include:

- **Strategic rightsourcing.** Strategic rightsourcing is a megatrend strategy identified by Forrester in early 2009.¹ The goal is to optimize IT infrastructure by striking the right balance between internalization of core competencies, externalization of commodity capabilities, and increased cost agility. First, organizations undergo a major application rationalization process to reduce the application footprint, and then they look to evaluate where to source each application based on business value, core competency, uniqueness of the application, and tools available in the market. Forrester finds that these programs often aren't completed in full or evaluated without bias or complete understanding of available market tools ultimately leading to inefficiency sourcing.²
- **Cloud bursting.** Cloud bursting refers to the absolute optimization of applications where normal usage is satisfied in a lower price environment with long-term commitment and short-term rented burst capacity is used to accommodate peaks — essentially keeping average usage at minimal cost while eliminating the need to pay for long-term peak capacity. In the ideal world, this application could be split across these two environments so that you're still paying the lower rate for normal usage even during peak usage. But for most enterprises and applications, this model is out of reach. Latency is the top barrier to this particular model, but there are also issues of whether an application can run in two environments that are built differently without failing.
- **Latency-reduced cloud bursting.** Instead of splitting the application across the two environments, the entire application is moved into the short-term environment during times of peak usage. Although this eliminates the latency problems, there are still issues around application architecture resiliency in both environments. Despite this challenge, many enterprises see this as the end goal as a means to accommodating workloads with seasonal peaks.
- **Single pane of glass.** For many, it's not about pushing the limits of specific applications but more about a consistent management solution to manage the entire hybrid environment and requests for resources. This hybrid future includes a decision tree management portal that abstracts information on the environment from the requestor which then selects the appropriate deployment type based on minimum requirements of that application. From there, cloud administrators (admins) can manage resources and move applications if the actual usage doesn't match anticipated usage, etc. If this seems too forward thinking or optimistic — it's closer than you might anticipate. Multiple cloud vendors are in the process of developing exactly this, where it provides a single management user interface (UI) with a decision tree manager at the front end. The cloud admin then can manage the environment and load balance between sites and deployment types.

Figure 2

Hybrid Cloud: One Size Doesn't Fit All



Source: Forrester Research, Inc.

Why Hybrid?

IT is constantly pressured to “do more with less” with budgets decreasing or remaining flat and expectations always rising. More recently, IT is faced with the challenge of rogue business users circumventing them to use various technologies not provided by your organization. Although it may be a security risk and frustrating, these users act out of ambition to differentiate the business and innovate with the best tools possible. For the first time, this puts the business in the driver’s seat. In order for IT to stay in the picture, IT must figure out how to navigate the user without affecting their user experience or risk further circumvention. This forces IT to adopt cloud services more quickly than it otherwise might, and to get it right or risk further circumvention. This is a good thing for both the business *and* IT. Ultimately, this means more application sourcing options and the ability to optimize workloads based on economics — giving IT different pricing options and enabling them to “do more with less.”

But with this flexibility comes a management nightmare. With applications living in multiple environments, it’s a challenge for IT to get out in front and create a structure to manage this sourcing and evaluation process. To make it even more complicated, your users want self-service access to resources to run applications. It’s likely they may not make the right economic decisions or apply the right security and compliance policies to these workloads — especially if doing so affects their productivity. On the front end, IT needs to present a simple user-friendly tool that provides the same user experience as public cloud tools, while abstracting a decision-making tree and sourcing evaluation from their view — essentially supporting this system with a hybrid architecture to apply security policies, compliancy checks, and economic cost analysis to best fit application into an environment. From there, IT can regulate this scenario and move

applications as usage changes. With this level of control and automation, IT can reduce spend and focus its time on differentiating projects that are more core to the business. By incorporating a hybrid architecture rather than a one-size-fits-all model, enterprises can provide agile resources while:

- **Optimizing cost.** Different environments benefit different application use cases. By using multiple environments, enterprises can optimize the configuration based usage and its economic implications.
- **Applying security and compliance needs.** Some workloads are subject to higher levels of security and compliancy. By utilizing various environments, you're able to balance the economic benefits from certain workloads with security requirements so that you can both reduce costs and meet requirements.
- **Maintaining performance SLAs.** Traditional enterprises most likely haven't considered a complete transition to cloud services, especially not for mission-critical workloads. Using both traditional environments and cloud environments not only allows you to maintain the current performance of existing applications, especially mission-critical applications, but it also segregates these new workloads from them on the floor.

Painting The Future Of Hybrid Cloud For Enterprises

Beyond terminology, there's little research today around hybrid cloud and enterprise plans regarding selecting a hybrid architecture, building a cloud team, selecting vendors or determining application fit. In order to better understand this future state, Forrester surveyed 15 self-identified, multi-industry, enterprise (1,000 or more employees) cloud users about their current environment and future plans in addition to our own Forrsights Hardware Survey data to better paint a picture of the future hybrid cloud.³

Hybrid Cloud Architecture

Interviewees expressed interest in all hybrid scenarios outlined above, but few had a specific cloud strategy in place that detailed their approach to hybrid cloud and their preferred architecture. Despite uncertainty about distribution or hybrid model, each party stated that its hybrid scenario will include public cloud since its pricing model and is essential for a portion of its portfolio. Today, some cloud environments are more immature than others particularly in terms of PaaS and software types within SaaS. As these technologies continue to develop, they may influence the distribution across various environments. In terms of hybrid model of choice, most of these organizations see the strategic rightsourcing process as their short-term goal that they hope to undertake within the next couple years. Those interviewed believed that cloud bursting and the single pane of glass concept was far in the future and not something that they were hoping to achieve within the next five years. Most were unaware that many private cloud management portals seek to provide this type of functionality:

"There's been much discussion around hybrid cloud since it presents a more flexible model. We haven't done an expense analysis yet, but we've got five developers exploring this option before bringing it to central IT."

Forrester's hardware survey doesn't reveal much more: As you might expect, organizations plan to continue using multiple environments with most looking to move more applications out of dedicated physical resources (a 27% reduction) and into other more dynamic environments (see Figure 3). Many also report limited plans to outsource workloads and a preference to shift these applications to other internal environments — which is consistent with Forrester's findings regarding enterprisewide adoption of cloud services. There's a substantial preference toward private

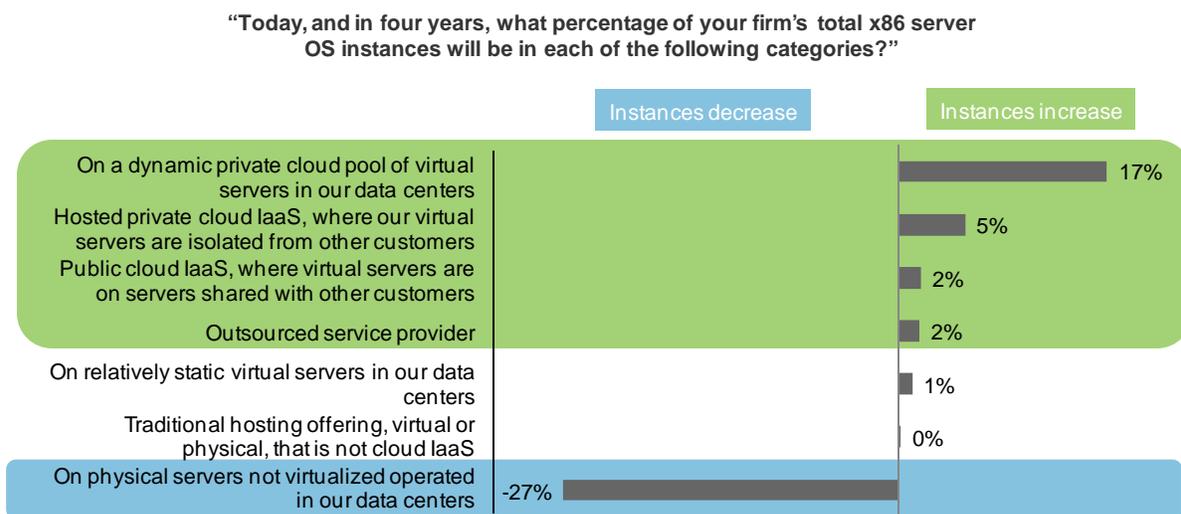
cloud over private cloud services despite the larger economic value of public cloud services — the most frequent justification being security and a preference to keep workloads “safe” behind its corporate firewall. This will heavily influence hybrid architectures more than industry and compliance requirements with the more traditional and risk-averse enterprises heavily favoring internal services. In fact, an interviewee from a heavily regulated industry stated:

“Our goal is 30% public cloud, 50% internal cloud, and 20% dedicated — with compliance, security, economics, and application architecture being the major criteria for evaluating fit.”

The main barrier to achieving this configuration? Cloud skeptics within his organization. An interviewee with little to no compliance requirements hadn’t evaluated any public cloud options because of strict internal policies restricting usage. Instead, this team focuses on optimizing the configuration of internal environments.

Figure 3

Enterprises Plan To Shift Workloads Away From Traditional IT Infrastructures To A Hybrid Architecture



Base: 498 global enterprise IT decision-makers

(Note: Percentages formulated from the average instances found today and average instances in four years)

Source: Forrsights Hardware Survey, Q3 2011, Forrester Research, Inc.

Hybrid Cloud Applications

Interviewees plan to distribute applications across various environments based on security policies, compliancy regulations, current practice, internal skills, or belief that moving an application into a new environment will alleviate the pain. Frequently, application fit evaluations are rarely consistent — workloads are selected upon a particular business unit’s interest in moving this application. Oftentimes, pricing models and application usage weren’t key criteria for evaluating fit for cloud environments versus traditional static environments. This was often a consideration only when identifying a potential use for a cloud bursting scenario. Enterprises today typically aren’t differentiating private cloud environments from traditional virtual environments but rather transitioning from its virtual environment to private cloud. Although this a common approach, it often makes it difficult for IT to incentivize short-term usage of

resources and encourage efficient usage that reflects that of a public cloud usage pattern (without a chargeback system in place). And one respondent identified hybrid as a way to better support mobile workers:

“Hybrid cloud could possibly work for mobile workers looking for local data center presence.”

“Sensitive applications would not be in the cloud. It is possible for us to keep our database internally with the application in the cloud. We’d like to pilot this in order to prove viability but we’ll need permission.”

“We’re looking to use external private cloud for some applications that talk to internal data centers. Currently we’ve got a VPN tunnel that talks to our payment system in our Unix cloud.”

“Possibly for private connection on Black Friday to handle peaks of six to 10 times normal load.”

Hybrid Cloud Vendor Selection

Unlike public or private cloud, hybrid cloud isn’t just a single solution to adopt today. Over time, vendors seek to connect management functions to control both cloud and non-cloud environments through a single self-service portal. Today, this capability is limited and many respondents believe that integration between these systems could restrict their functionality. In the meantime, enterprises are adopting best-of-breed public and private cloud services:

“We’re looking for best-of-breed for vendors but would prefer a single vendor. Since it’s more generic than on the app side, it’s possible that a single vendor might work out if [we] found the right solution.”

“We’ll use best-of-breed for public cloud. And we can’t envision using third-party tools that would try and link [environments] since these solutions have their own nuances. I’m guessing we’ll use separate portals or look to connect using north- and south-bound APIs.”

The next step is to connect these environments and distribute applications across these deployment options by best fit environment. But many enterprises haven’t decided on whether this will be through a single vendor or using APIs to control other portals through its preferred management console. The success of standards with the IaaS space will likely affect this outcome. Although interviewees could name solutions in the private and public cloud space, most admitted that they didn’t know how these solutions compared head to head. Many built environments internally or selected a vendor from an existing partnership with rather than conducting a full RFP to compare functionality.

Hybrid Cloud Skill Sets

In the near term, to no surprise, enterprises aren’t completely re-staffing IT departments to better support cloud services — and a move to hybrid cloud won’t be any different. Most look to enhance existing teams. Today, there’s a shortage in qualified administrators with cloud skills. In fact, one of the most highly sought-after IT role in 2012 will likely be cloud administrators with PaaS and IaaS experience. Typically, these organizations will add on one or two new employees with cloud-specific skill sets to lead these efforts with the remainder of the team largely consisting of the server virtualization expertise. Qualified cloud administrators with “5 years of experience,” as many job profiles ask for today, are hard to come by. To balance this skill set gap, Forrester sees enterprises enhancing existing skill sets through hands-on experience, vendor partnership, consulting, training programs, and/or certifications. This was consistent among interviewees:

“We grew our cloud administrators organically by making an investment in training, building environments, and doing our own experimentation internally. During the first implementation, we cycled people through the lab. We’d build it the first time, then broke it and had another group fix it . . . and then they tore it down and we had different group rebuilt it, etc.”

“Our cloud is managed by the server team, but we might create a dedicated group.”

“We use existing in-house expertise. One big challenge is understanding the applications and types of instances rather than the architecture itself especially since our team is largely familiar with the hardware itself but not the individual apps.”

“Our company has been heading into virtualization for quite a while, so we’ve got a great deal of expertise in [best-of-breed] virtual storage and servers. However, for our cloud environment we wanted to use [open source]. Ultimately, we did need to hire one new engineer to deal with [those management and development tools].”

“We built our private cloud in-house with database and web management expertise. We did hire one outside cloud expert to serve as the cloud administrator.”

However, long term, organizations are looking to change the composition of their staff to better accommodate its future. In these interviewees and during inquiries with enterprises across industries, Forrester found that most seek a handful of highly skilled workers with IT knowledge that spans across many subject areas (storage, servers, and networking) and larger numbers of workers with lower skill sets but with business experience — rather than mid-level skills in siloed specialties within a specific stack:

“Our team is made up of two different towers within the organization on [virtualization] side: [other OS] systems admins and Linux system admins. Outside of that we’ve also got an engineering team that keeps up to speed and reviews weekly performance reports. Within our organization, engineers are the highest skill level with high levels of system admin and training in the platform from [various hypervisor management solutions]. Long term, we’d like to add employees with mid-level skills and bring them up to speed with internal training.”

“The cloud team consists of a good mix of skill sets which includes: our current head of IT has 20+ years of broad experience in hardware (across the stack), software, Linux, and Linux-specific software. Below that we’ve got four main IT staff and 20 subs that can be brought into certain projects to serve out 10,000+ employee base. Each has a variety of skill sets that combined help us manage our cloud environment.”

“Our technical staff consists of three tiers of technicians, but mostly with networking focus. We’ve found that networking people have mix of experience in virtualization and storage. Overall, we’re looking for breadth of skills with a couple of specifications for our internal private cloud.”

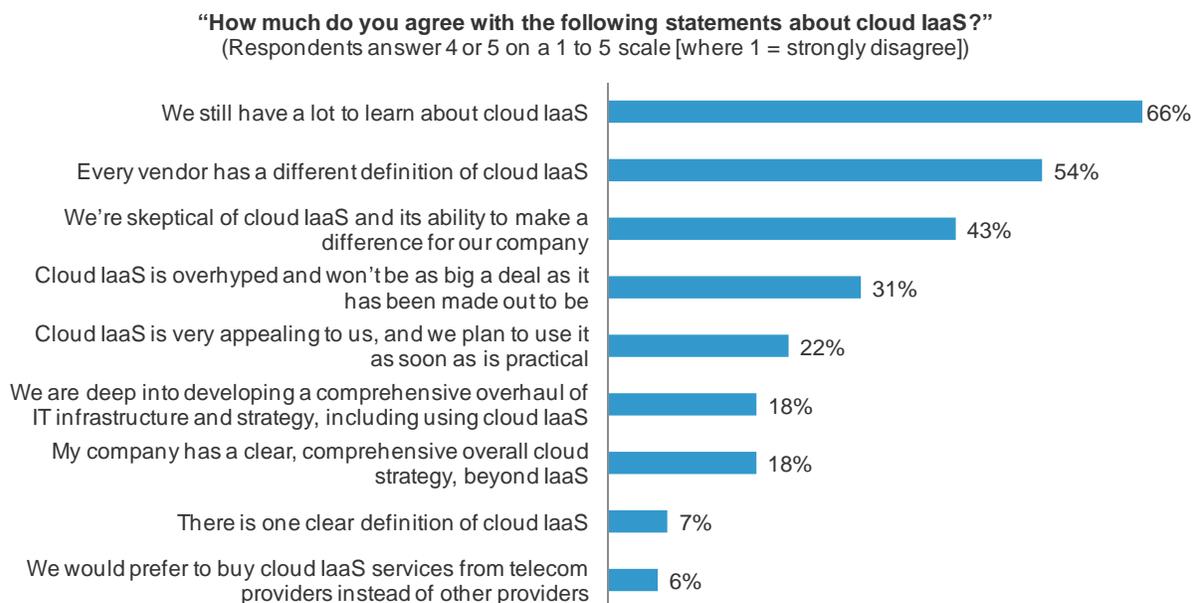
“We need expertise that spans across all those layers, instead of 30 people with specialized skill sets. We need 25 people that aren’t as skilled and five people that know all of it.”

Challenges Of Hybrid Cloud Today

You may consider hybrid cloud as far in the distant, but variations of hybrid are here today. Although most models aren’t providing significant strategic advantages or optimized in a way that will reap significant hard savings, it is a start

to the multisourcing of applications to various environments based on minimum requirements, security standards, usage, and pricing model. Over time, these hybrid scenarios will become increasingly aggressive at pushing for higher levels of efficiency as IT budgets remain steady and expectations continuously increase and security policies are rewritten to account for cloud services. What's holding the market back from this future state? It's still early on in IaaS adoption and many traditional enterprises are still getting their feet wet in terms of public cloud adoption. On the private cloud side, organizations view private environments as slightly more managed virtual environments but rarely get to a true cloud. Beyond that, standards and skill sets are holding hybrid back. Skill sets to run, manage, and/or build are still rare, and enterprises are working hard to develop homegrown cloud admins, while some enterprises have held off or dialed back adoption plans until there are set standards in the IaaS space. As these challenges are overcome, the adoption of hybrid cloud will be more prevalent and we'll also start to see more advanced scenarios that look to push the boundaries of cloud economics (see Figure 4).

Figure 4
Still Early In Cloud Adoption



Base: 650 enterprise hardware decision-makers

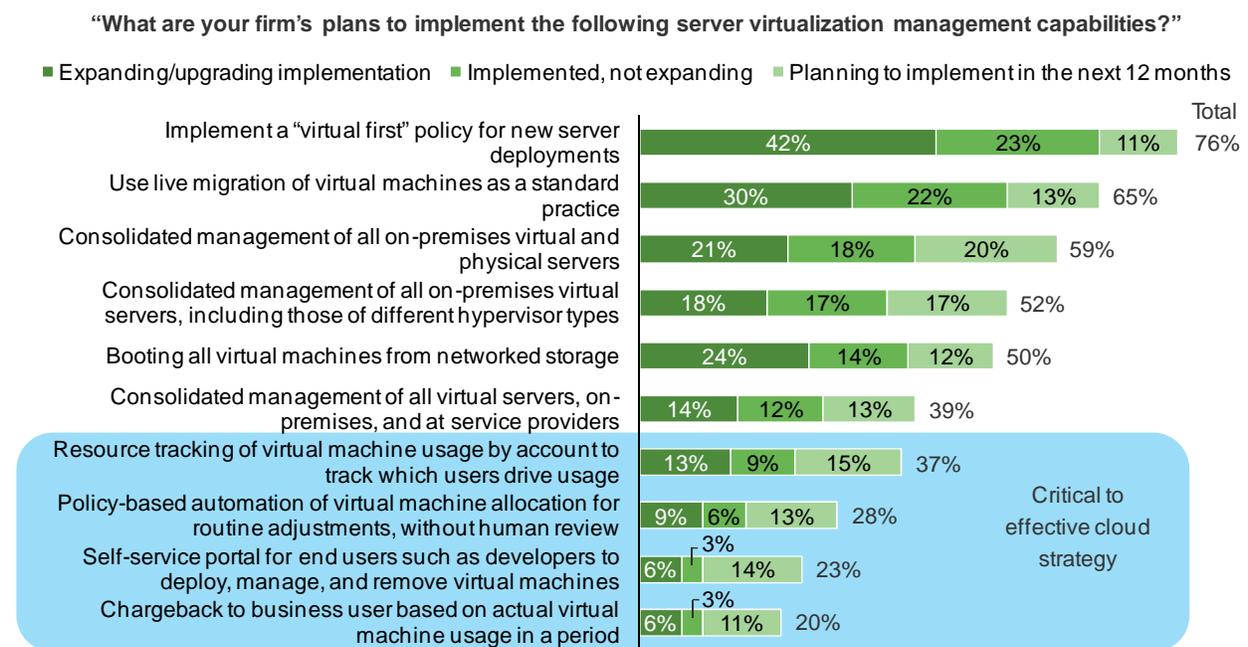
Source: Forrester Hardware Survey, Q3 2011, Forrester Research, Inc.

Challenge: Getting To Private Cloud

All too frequently virtualization and private cloud are used interchangeably within organizations. Those that recognize where cloud goes beyond virtualization often pick and choose which management features to include rather than getting to a true private cloud environment. According to the Forrester Hardware Survey, only 28% of enterprises using server virtualization today plan on having policy-based automated provisioning of resources within the next 12 months and only 23% plan to have self-service access of these resources (see Figure 5). Even those with self-service

access only grant access to their cloud admin team, where end users must still request via a ticket-based system. For most enterprise IT shops, this adjustment seems reasonable and reflects existing practice (traditional virtual and physical) rather than comparing it to the true alternative: public cloud services. Almost all of the self-identified private cloud users we spoke with didn't have a fully functional private cloud in place — with most lacking self-service access, tracking of resources, and/or full automation. When asked about each missing component, the common response was that business users don't require this functionality. It's not surprising that none of the interviewees had spoken with any business groups specifically about this topic and that they could not confirm that shadow IT (usage of public cloud services without IT's knowledge or approval) wasn't a problem within their organization. In order to take advantage of the cloud component for hybrid architectures planning to keep all applications in-house, these organizations need to push the envelope and get closer to a true cloud environment.

Figure 5
Cloudwashing Is Prevalent



Base: 533 global enterprise IT decision-makers

Source: Forrsights Hardware Survey, Q3 2011, Forrester Research, Inc.

Challenge: Security Concerns With Public Cloud

Public cloud skepticism is prevalent in the market today. Conservative enterprises prefer to keep all workloads behind the company firewall, with commonly cited concerns of security, reliability, SLAs, and compliance. These public cloud naysayers often don't fully understand the benefits and limitations of public cloud and rather than taking an application-by-application approach to sourcing, they default to the private cloud. Public cloud vendor-provided security typically ends at the infrastructure layer — the only layer managed in IaaS — with the need for you or a third-

party service to make up the difference between your needs and that provided by the vendor.⁴ Beyond that, the implications of multitenancy, standardized SLAs, and delay in compliancy updates have slowed adoption. Although these concerns can be very real and limiting for some applications, it doesn't apply to every app. Within any given application portfolio, there are applications that are better fit in a public cloud environment over any other deployment model. Private and public clouds aren't interchangeable in terms of benefits despite both providing increased agility and flexibility. Private cloud makes IT the cloud provider, taking on the burden of managing the infrastructure, providing a competitive cloud solution (for its business users), and making costs consistent across the board. The ability to shut down and walk away is no longer an option. It is this distinct difference that makes public cloud an essential part of an optimized future hybrid scenario. Some enterprises have corporate policies that ban the use of public cloud across the board. Oftentimes, this is a result of legacy security practices and policies that have not been updated to fit and take new environments into consideration. For those that fit from an economics perspective, consider revisiting security policies and looking into creative scenarios. Respondents said the following:

"Why are we worried about public cloud? Three things come to mind: sensitivity of customer data, the [vendor] failure, and no strict security guarantee."

"For us, it's about accountability and reconciliation. Vendors demonstrate predictable or spiky traffic but in actuality it's still a challenge. We hear examples all the time of a finance or business employee that just wanted was ten minutes and ended up with a huge bill. The Achilles heels of public cloud are the accounting and security."

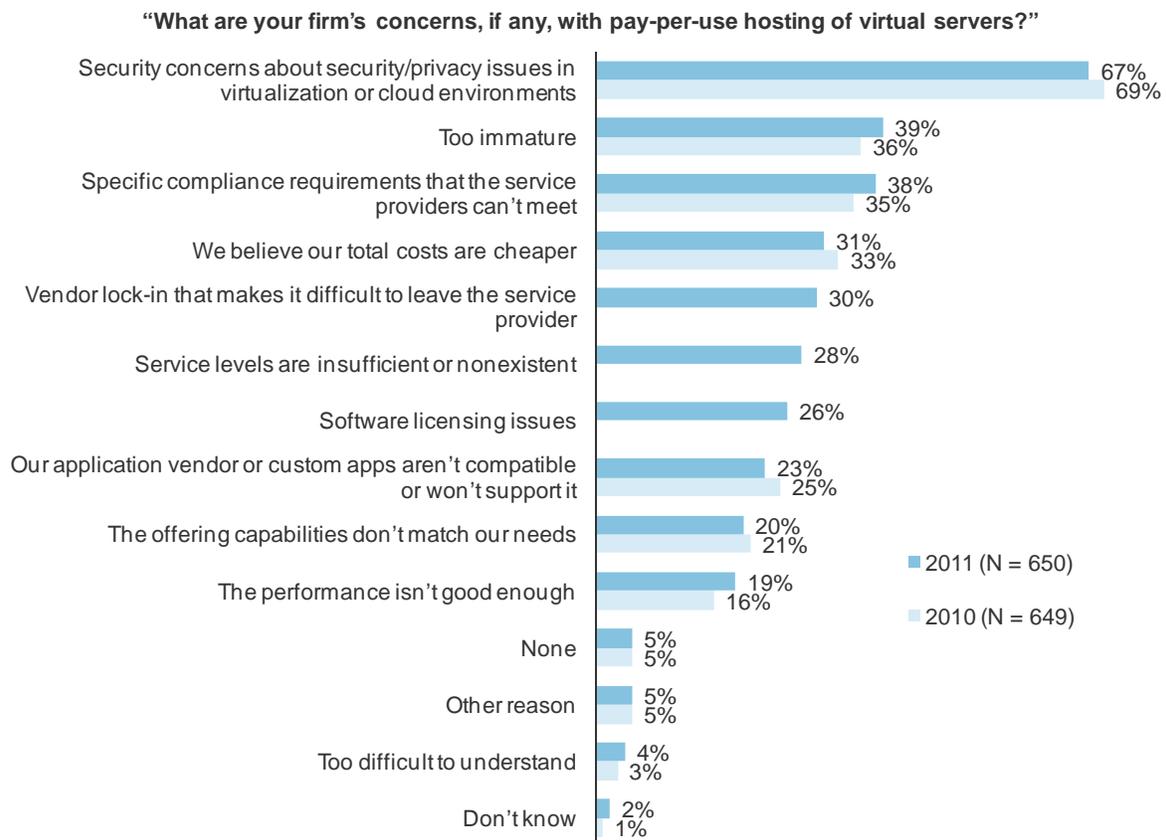
"We plan to use the public cloud in the future, but the biggest problem is the security end of it."

"Right now, security is a big one in terms of price. If you go beyond the basic services and look at DR, high availability, and meeting compliance needs, it starts to get expensive."

"Every time you deal with a new vendor, you need to re-establish trust. Vendors don't always tell the truth or are explicit about terms. It's almost like you need a full-time person focusing on just vetting cloud vendors as his/her primary job."

"Our legal and regulatory group shut us down since they expect a certain level of security and rigor around company data. They don't understand that the cloud provider is only responsible for certain layers."

Figure 6
Security Top Barrier To Public Cloud Adoption



Base: North American and European IT hardware decision-makers at companies with 1,000 or more employees

Source: Forrsights Hardware Survey, Q3 2011, Forrester Research, Inc.

Challenge: Lack Of Standards And Management Ease

Today, the cloud space, particularly the infrastructure-as-a-service (IaaS), lacks set standards. Although you'll find standards from other arenas applied in the space (e.g., OVF, certain networking protocols), when it comes to consistent expectations between solutions like security practices, interoperability, portability, and consistent management capabilities — it is not standardized and largely do-it-yourself (DIY) for enterprises looking to achieve more advanced hybrid scenarios today. Connecting internal environments with public environment means writing to southbound or northbound APIs to enable this connectivity. Leading enterprises that look to move applications between various environments or from one cloud to another must invest in application rewrite and work to make these applications resilient enough to run smoothly in each environment. The lack of standards influences the market in several key ways: 1) risk-averse vendor selection in fear of rework if vendor no longer competitive; 2) difficult to connect environments; 3) increased vetting of solutions required; 4) slower adoption of cloud services before standardization. Respondents expressed their concern regarding the lack of standards in the cloud market:

“Today, there’s multiple ways of doing the same thing which makes hybrid very difficult. We’ll need unified change control processes and common security and technology architecture in order to get there.”

“We’re currently using different portals, not the same for both public and private. Eventually, we see this being the same portal long term. From the management-front it would simplify things. With one or universal portal, there’s no need to go from portal to portal, which is easier, faster, and less of a management hassle.”

Challenge: Expertise Of Existing Workforce

Today, IT teams aren’t built or structured to support cloud services. It’s oftentimes the server virtualization team that gets saddled with the responsibility of getting a cloud strategy up and running. But this group traditionally favors hypervisor providers as vendors which often pair with substantial licensing costs that aren’t optimal for achieving cloud economics. This group also isn’t entirely versed in communicating and working with business users on designing services that prioritize speed and customer experience. And despite this group’s knowledge in virtualization technology, they often have little experience with running applications in a highly scalable environments or how to optimize cloud services. Before enterprises start to create their desired hybrid mix and model, there’s a significant amount of training, and shifting among this cloud admin team. This will most likely entail dedicated individuals for certain tasks that are key for this hybrid scenario. Respondents said:

“Our challenge is lack of experience. We need to get more familiar with the environment. What we’ve been doing is to push it into a private cloud environment and vet the heck out of it. This builds our own skills and also allows us to thoroughly evaluate vendors.”

“We’ve struggled with automating the SaaS approval process. Oftentimes, the business is filling out this form and 90% of the time they don’t have enough knowledge to answer the questions that need to be answered. It’s almost like we need a full-time security person that is dedicated to just this evaluation process to avoid substantial time loss and rework.”

“The most difficult challenge has been getting support resources to wrap heads around role changes since it involves so many different skills. The network guys start to participate and then the server and storage guys get involved. All in all, it requires everyone to think differently about how they configure and set things up.”

KEY RECOMMENDATIONS

PREPARE YOUR ORGANIZATION FOR THE HYBRID FUTURE

Although there are challenges slowing the adoption of hybrid cloud today, there's a way in which you can better prepare your organization for this hybrid future. Forrester recommends that you incorporate the following into your cloud strategy:

- **Start using the cloud.** Many IT professionals try to run before they walk when it comes to cloud by trying to build, operate, and manage an IaaS cloud service before ever using one. Get started today with public cloud services to set expectations and develop skill sets regardless of whether your organization plans on taking a private/public cloud first approach.
- **Design for hybrid future.** When you're creating your cloud strategy, make your hybrid future easier by preparing and designing for this today. If you'll be looking for best-of-breed, you'll need to make sure that you select a solution that has explicit plans to enable this interoperability and adopt key standards within the industry.⁵ And if you're planning on using a single vendor to manage across environments, you'll need to look at its development plans to enable this hybrid future and make educated decisions about likelihood of these enhancements coming to term.
- **Create a decision-making tool for sourcing of applications.** Sourcing of applications today usually takes one of the following approaches: 1) default sourcing of applications in one set environment; 2) time-intensive evaluation by a sourcing team that decides on an application by application basis; or 3) business teams decide and often overprovision resources. Each option tries to minimize some of the following challenges but can't address all: missed opportunity, uninformed decision-making, overspending on resources and time, and bias approaches. Take a different approach that minimizes each by creating a decision-making tool that helps best fit each application based on minimum requirements of each application. Make sure that the requestor is informed of the costs associated with each model/selection so that they can make informed decisions to best fit its needs.⁶ Long term, this is going to help you better fit applications across multiple environments in an accurate, less time-intense fashion.
- **Re-evaluate legacy security policies.** If all use of public cloud within your organization is banned today — there's legacy policies in place that aren't designed for new architectures/environments. These policies must be re-evaluated. Within a given organization, there are likely some applications/workloads that don't pose a significant security threat if hosted in a public cloud environment; some of which are a much better fit for a public cloud environment than a private cloud.⁷ Even within the most risk-averse industries, Forrester sees IT executives requiring security professionals to justify the existence of each security requirement. If the executive team is on board with cloud adoption, push for this same security re-evaluation within your own organization.
- **Broaden your view of hybrid cloud.** As mentioned earlier in this report, many organizations limit their view of hybrid cloud to cloud bursting, the most challenging of hybrid cloud scenarios.⁸ When considering your own hybrid cloud strategy, look to other types of hybrid cloud environments to see if there's a better hybrid scenario given your existing environment.

Appendix A: Supplemental Material

Related Forrester Research

“You’re Not Ready For Internal Cloud,” Forrester Research, Inc., July 26, 2010

Appendix B: Endnotes

¹ Source: “Rightsource Your Applications For The Cloud,” Forrester Research, Inc., May 24, 2012.

² Source: “Strategic Rightsourcing Application Portfolio Analysis Tool,” Forrester Research, Inc., May 11, 2011, and “Rightsource Your Applications For The Cloud,” Forrester Research, Inc., May 24, 2012.

³ Source: Forrsights Hardware Survey, Q3 2011, Forrester Research, Inc., and Forrsights Hardware Survey, Q3 2010, Forrester Research, Inc.

⁴ The NIST defines IaaS as: the capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications. The consumer does not manage or control the underlying cloud infrastructure but has control over operating systems, storage, and deployed applications; and possibly limited control of select networking components (e.g., host firewalls). Also, see “Put Guardrails In Place To Drive Cloud Success,” Forrester Research, Inc., May 18, 2012.

⁵ Source: “The State Of Infrastructure-As-A-Service Cloud Standards,” Forrester Research, Inc., December 1, 2011.

⁶ Source: “Strategic Rightsourcing Application Portfolio Analysis Tool,” Forrester Research, Inc., May 11, 2011, and “Rightsource Your Applications For The Cloud,” Forrester Research, Inc., May 24, 2012.

⁷ Source: “Justifying Your Cloud Investment: High-Performance Computing (HPC),” Forrester Research, Inc., December 22, 2010, and “Drive Savings And Profits With Cloud Economics,” Forrester Research, Inc., May 22, 2012.

⁸ Source: “Which Cloud Computing Platform Is Right For You?” Forrester Research, Inc., April 13, 2009.