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The Rise Of The New Cloud Admin

by James Staten and Lauren E. Nelson, February 21, 2013

KEY TAKEAWAYS

Cloud Is Disrupting Virtualization

If you think a private cloud is just another name for virtualization automation, think again. The business sees value from cloud services that deliver agility, autonomy, and pay-per-use economics. If your private cloud doesn't deliver this, the business will look elsewhere to get this value, even going so far as to build its own.

Your Infrastructure Managers Don't Want Cloud

They see it as a threat to their power and job. It isn't; they just don't see how their job changes for the better by embracing it. If you want them to make this transition you need to help them see a career path where their value to the organization goes up and provide access to training to make this transition.

The Private Cloud The Business Wants Is Not The One You're Building

If you have chartered central IT with building a private cloud, chances are it is starting from its existing static virtualized environment and incrementally adding standardization and automation. With this approach, it will never get there. The business wants a private cloud that is already a cloud and has solid connections to the public cloud.

The Rise Of The New Cloud Admin

And No, It's Not Your Virtualization Manager

by James Staten and Lauren E. Nelson
with Christopher Voce, Dave Bartoletti, Jessica McKee, and Heather Belanger

WHY READ THIS REPORT

Nearly half of all enterprise IT shops claim to be prioritizing private cloud investments in 2013, but both in the largest enterprises and those firms that are most aggressively investing in public cloud platforms and services, it's not central IT that will lead these efforts. There is a new administrator rising from within the business units who doesn't see private clouds as a linear progression from server virtualization but instead as an extension of the public cloud. And the type of cloud he is building is very different than your current virtualized infrastructure. Who is this new administrator? How are his plans for cloud different from yours? And what the heck does he think he's doing? You'll meet three of them in this report.

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Notes & Resources

Forrester interviewed 20 vendor and user companies (12 chose to remain anonymous), including Citrix, The Cloudscaling Group, Enstratus Networks, Eucalyptus Systems, Microsoft, Rackspace, RightScale, and VMware.

Related Research Documents

The Forrester Wave™: Enterprise Cloud Databases, Q4 2012
November 8, 2012

Don't Move Your Apps To The Cloud
November 5, 2012

Drive Savings And Profits With Cloud Economics
May 22, 2012

YOUR PRIVATE CLOUD IS NOT A CLOUD

You may call it that. The software you used to build it might carry that moniker. And your virtualization administrator may even swear up and down that it is indeed a private cloud. But if it isn't providing self-service access to your developers, it isn't fully standardized and automated, and doesn't have a pay-per-use model or other mechanism for incenting developers to not park workloads there forever — it's not a private cloud.[1] And if your developers have any experience with public infrastructure-as-a-service (IaaS) cloud platforms, they know your private cloud isn't a cloud.

That doesn't mean what you have is inefficient, slow, or not useful. High-performance virtualization is terrific. It's probably more automated, streamlined, and cost-effective than your virtualization environment was last year and is likely delivering more value for the dollar than your previous static infrastructure. It just isn't delivering *cloud* value, and it's important that you acknowledge the difference. Why?

Your Virtual Infrastructure And Your Cloud Should Be Separate Things

Think about what workloads are running in your virtualization environment today versus what typically runs inside a public cloud environment. There are stark differences in their characteristics, heritage, and dependencies:

- **Virtualized apps are traditional in design.** Most likely the workloads you have atop VMware vSphere are traditional Windows and Linux applications that live within a static configuration of resources. They don't scale out, they aren't componentized web services, and they tend to have a fixed and permanent footprint. And these applications never get turned off (at least not on purpose). They were most likely built and configured for purpose and, in most cases, were put into virtual machines (VMs) that mimicked the physical server configuration they ran on.

- **Cloud apps are elastic or transient.** The best-fit applications in the cloud are designed to scale out, are componentized in construction, intercommunicate via web services, and are designed to fail.[2] They are optimized for cloud environments and built under the assumption that they will run on commodity infrastructure and activate cloud economics.[3] Clouds encourage developers to adapt to their capabilities and services, which are highly standardized, as they are shared among many customers.

  The applications are different in these environments because the environments themselves are different and separate. You can't deliver cloud value from the same environment in which you support traditional applications. So don't try.

This doesn't mean you can't base both environments upon the same infrastructure or even the same hypervisor (although there are economic reasons why you might not want to), but how these environments operate requires them to be separate and distinct.[4]

Virtualization Is Bottom-Up . . .

Part of the reason your virtualization administrators struggle to build a private cloud is rooted in their perspective — they see cloud as a linear progression of the existing virtualized environment. IT leadership often tasks them with creating a cloud that either has to support both the existing applications and new cloud applications or are designed purely from the point of reference of traditional virtualized environments. They focus on the technical and operational deltas between these two environments — not the value propositions.

As a result, your virtualization administrators see the task before them as a series of steps, starting with greater standardization of the services that can be consumed. They then automate the deployment and management of these services and eventually connect these services to a catalog they can use to fulfill requests in a faster and more flexible manner. Service definition and speed are set in comparison to what they offer the business today in the traditional virtualized environment. So if it takes five weeks to fully deploy a new VM to the business in the traditional way, then one to two days through the private cloud is a big win.

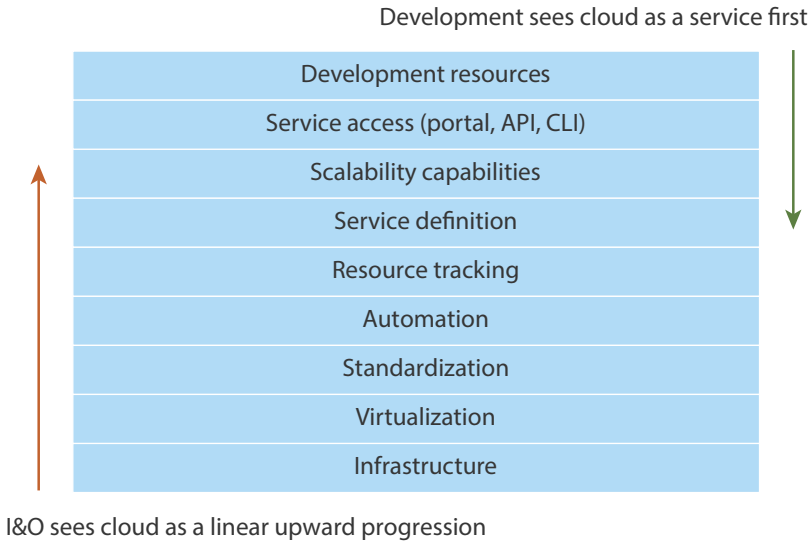
In short, this is faster virtualization with fewer errors, but the reality is that most virtualized environments were built for consolidation, not for speed. In our experience, the majority of virtualized infrastructure is quite consolidated, but not very agile. Static virtualization still rules — you can try to make it incrementally faster and easier to provision, but that's not the best path to creating a cloud.

. . . And Cloud Is Top-Down

Cloud developers look at the private cloud through the lens of the public cloud and the benefits it provides: self-service, a low entry price, strictly limited sets of predefined resource configurations and services, and speed — where fast is defined as fifteen minutes or less. Cloud developers want these characteristics in private cloud, but in an isolated and custom configured package. Cloud developers don't care at all about the VM container their app will eventually run in — the VM has all but disappeared for them. They care about being able to get it fast, run it hot, and throw it away as soon as they're done with it — and they only want to be charged for the time they're actually running it.

The developers and your virtualization administrators aren't even on the same page (see Figure 1).

Figure 1 I&O Looks Up At Cloud; Developers Look Down Into It



86901 Source: Forrester Research, Inc.

IT'S YOUR FAULT THE VM ADMINISTRATOR CAN'T GET THERE

It's useless to blame your virtualization administrator for not seeing this disconnect and probably futile to force him to get with your developers and fix this problem. He doesn't see why he should. And he doesn't see how he benefits from building a cloud. To your virtualization administrator:

- **The cloud is a threat to his power.** Most virtualization administrators have risen to become key members of the infrastructure and operations (I&O) organization. By bringing in server virtualization, they delivered consolidation, workload portability, infrastructure standardization, and faster time-to-market. As VMware-certified administrators, their pay has risen and they have taken your organization to new levels of efficiency, and more and more workloads are shifting under them to reap these benefits. Because server virtualization has been such a boon to the company, this administrator now holds sway over not just server decisions but storage and networking choices as well. And the developers come to him if they want resources fast — or do they?

- **The cloud is a threat to his significance.** As the certified administrator of the virtual pool, this administrator holds onto his power more often than not through what he knows and delivers to the company. He revels in the fact that when he goes on vacation, things don't run as smoothly. He's been rewarded for his tribal knowledge — for being indispensable. So why should he document everything he does so it can be done in a standardized way— by anyone? And why should he automate these tasks that currently define his day and his role? Is he automating himself out of a job?

- **There's no incentive to offer cloud services.** Have you measured your I&O pros solely on cost reduction for the last five years? Have you *truly* tasked them with greater agility? Have you rewarded them for meeting new service-level agreements (SLAs) faster or getting a new app up and running *before* the business starts complaining? Or do you still cut their headcount and ask them to upgrade everything with no budget? You'll get the behavior you reward — take a closer look at how they are rewarded.

The bottom line is that your virtualization administrator doesn't see how he or the I&O organization benefits from delivering a true private cloud. He might even think his current infrastructure costs are already cheaper than the public cloud.[5] He might think you're on his side against the business: "Isn't my role to stop people going outside? Isn't my job to keep my costs lower than Amazon Web Services?" *You* have to provide this individual (or team) with a clearer picture of how a private cloud benefits them. While it may be obvious to you that delivering a true cloud gives the business greater agility, aligns I&O better with the business, and frees up I&O to do more innovation, the virtualization administrator has the innovator's dilemma.[6]

ENTER THE NEW CLOUD ADMIN

At the rate your I&O team is moving to private cloud, you'll be lucky to meet the needs of the business by 2015. The business won't wait. Cloud service adoption by business-unit-aligned developers is 54% this year.[7] And the business plans to move far more workloads to the cloud than you think (see Figure 2). And their experience and knowledge of cloud platforms is maturing at a faster rate than that of your I&O team, which is leading to more sophisticated applications in the cloud that are starting to incorporate more critical data and integrate with traditional back-office systems and even online transaction processing (OLTP) systems (see Figure 3). As this footprint expands, developers are starting to realize that some of the applications they are building might be better off in a less public environment or one that has more predictable cost controls while retaining cloud benefits.[8] Encourage this. The more your company experiments with the right apps in the public cloud, the more tangible evidence both you and your I&O team will have to understand what your private cloud goals should be.

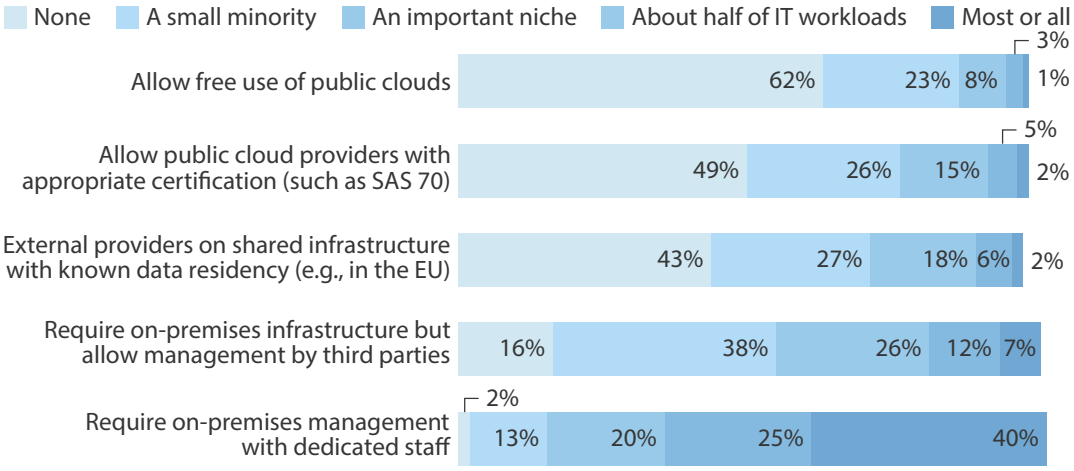
As one of our developer clients asked us in an inquiry request: "Can you tell my I&O team that the cloud *is* cheaper for my type of app and help them not feel so threatened? It's just this one new app — we're not trying to put him out of business!"

When they can't get what they need from I&O, they build it themselves (see Figure 4). This is precisely what we have observed in the largest enterprises — especially those with discrete business units with their own IT resources. The people making this move tend to have some infrastructure knowledge but are in formal development, architect, CTO, or application management roles.

Figure 2 Business-Unit-Aligned Developers Are Aggressive On Public Cloud Use

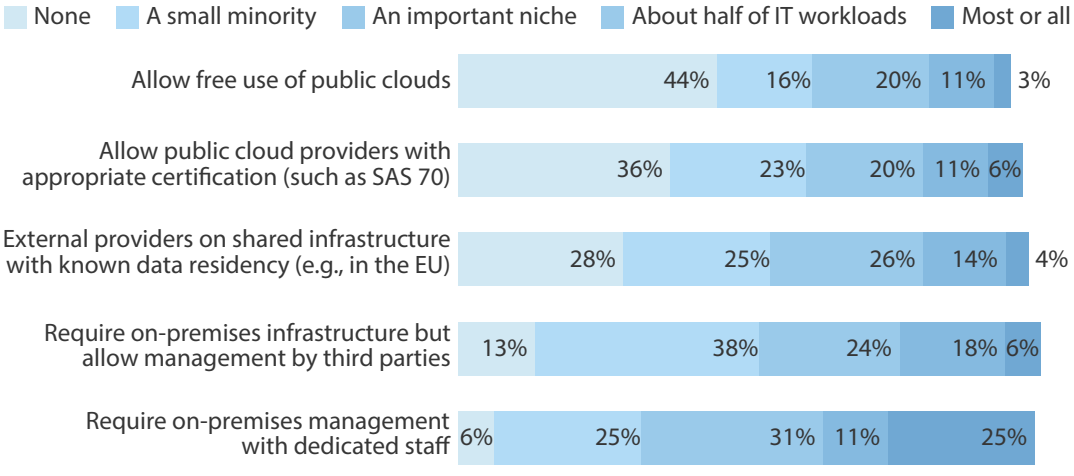
2-1 IT-aligned developers

"How many of your firm's IT workloads fall into each of the following levels?"



2-2 Business-aligned developers

"How many of your firm's IT workloads fall into each of the following levels?"

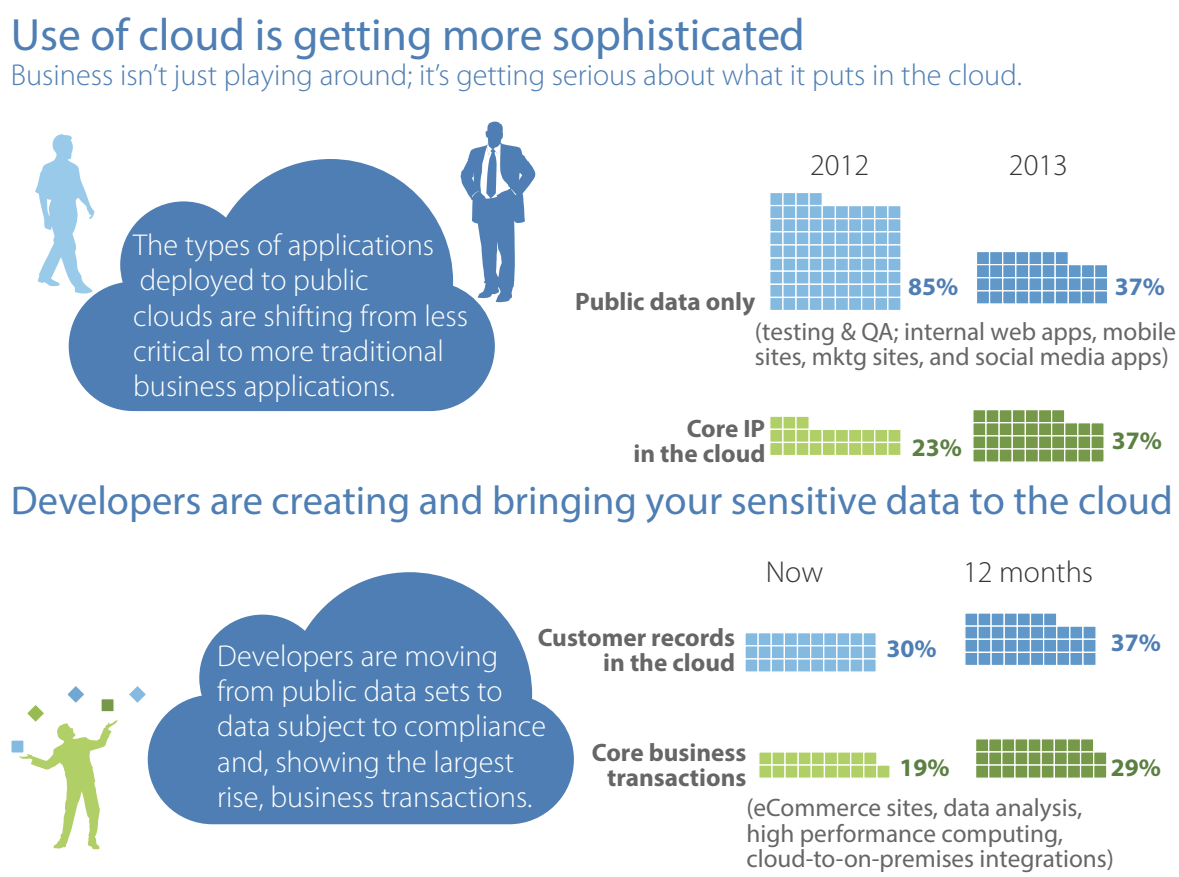


Base: 2,198 IT executives and technology decision-makers at firms with 20+ employees

Source: Forrsights Software Survey, Q4 2011

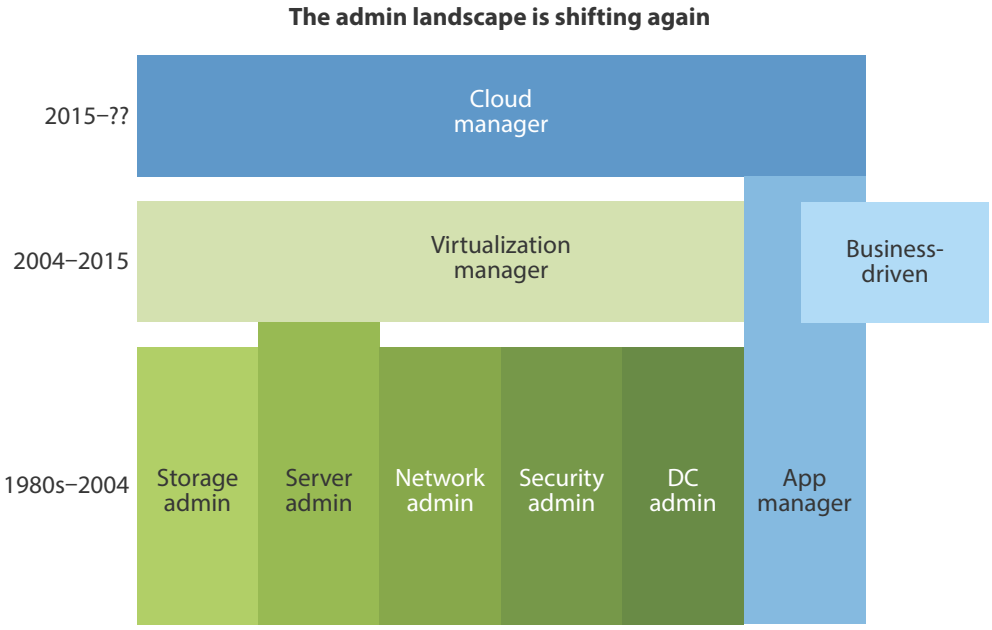
86901 Source: Forrester Research, Inc.

Figure 3 Public Cloud Applications Are Getting More Sophisticated



86901 Source: Forrester Research, Inc.

Figure 4 App Dev Is Becoming The New Cloud Admin



86901 Source: Forrester Research, Inc.

Their Clouds Don't Start With The Existing Virtualization Environment

Cloud admins start from a cloud foundation that mimics the value proposition of the public cloud. As these administrators are not infrastructure managers, they tend to favor solutions that are prebuilt as clouds or are an IaaS solution that can be dropped onto commodity hardware and any hypervisor. Early cloud admins were forced to build a cloud from incomplete systems, like the early open-source Eucalyptus project, but increasingly these buyers are eschewing the erector-set models for appliances, complete software solutions, or software that is a cloud management tool first and a private cloud second. Today's cloud admins are deploying Citrix' cloud solution based on Apache CloudStack or OpenStack-based solutions from Morphlabs, Piston Cloud, Cloudscaling, or Rackspace Cloud Builders. They aren't choosing solutions built from the virtualization layer up or built to preserve the traditional enterprise IT management tools that are in place today. It's not that solutions built from the latter aren't fully capable of being clouds, just that developers don't know these vendors and don't see their solutions as aligned with the public clouds with which they want to integrate.[9]

The new cloud administrators are starting fresh with new solutions that are designed to integrate with the public cloud first and the rest of the enterprise second (see Figure 5). This means the new cloud admin isn't prioritizing integrating this solution with the help desk, vCenter, or the configuration management database (CMDB) or incorporating ITIL processes. These emerging new administrators are a different animal.

Figure 5 Meet The New Cloud Admins

Figure 5 Meet The New Cloud Admins

Name: Jeffrey (name changed to protect his confidentiality)
Official title: Infrastructure architect, software product development
Company: Silicon Valley high-tech manufacturer
Publicly held — Revenues: Approx. $3 billion to $10 billion annual
Cloud experience: Two years' experience managing the public cloud environments used by business unit developers for test and development, marketing initiatives, and new and future products and product-related services
His private cloud: Citrix CloudStack on commodity Dell hardware
Why he built a private cloud: The static footprint of several cloud services had grown into a significant cost to the business — a cost it wanted to capitalize. He needed a cloud solution he could scale easily as the business' needs grew and supported workloads as configured on AWS and Rackspace Cloud today.
Why he bypassed the corporate private cloud:
"Those guys just don't get what we are doing over here."

Name: Harold (name changed to protect his confidentiality)
Official title: Technologist, reporting to the division CTO
Company: Wall Street investment bank
Publicly held — Revenues: Approx. $60 billion annual
Cloud experience: Three years' experience managing the in-house high-performance computing lab and public cloud environments used by business unit developers for test and development, trading, risk analysis, and mobile initiatives
His private cloud: Piston Cloud (based on OpenStack) on commodity HP hardware
Why he built a private cloud: Virtualizing the HPC lab gave the bank flexibility but not the level of agility the developers were seeking. Public cloud resources delivered the agility and cost-efficiency but not the security needed as projects got closer to production. He knew he needed to take workload deployment automation to the next level to meet developer needs.
Why he bypassed the corporate private cloud:
"They just couldn't move at the speed I needed. And we could implement chargeback now — they are still trying to figure out how they will do it. And their idea of self-service was only to themselves."

86901 Source: Forrester Research, Inc.

Figure 5 Meet The New Cloud Admins (Cont.)

Name: Steve (name changed to protect his confidentiality)
Official title: Senior developer, online and interactive media
Company: Hollywood media and entertainment conglomerate
Publicly held — Revenues: Approx. $88 billion annual
Cloud experience: Three years' experience developing and managing public cloud applications, web properties, and mobile applications
His private cloud: Hosted private cloud, GoGrid
Why he built a private cloud: Core content assets needed special protections and low-latency links to his public-cloud-based applications that streamed video to consumers and professionals (directors, producers, special effects shops, etc.). As a developer, he didn't have the experience or desire to become an infrastructure manager, so he selected a private cloud solution that functioned like the public cloud but provided the isolation and opportunity for custom configuration he needed.
Why he bypassed the corporate private cloud:
"[IT's solution] is only a cloud by name, and these guys just don't understand my use case."

86901 Source: Forrester Research, Inc.

DISRUPTION, ASCENSION, OR A TEMPORARY DISCONNECT?

It's unclear how widespread and permanent this rise of the new cloud admin from non-I&O groups is. So far, Forrester has seen these new administrators as either business-unit IT personnel stepping up to the task or central IT administrators being pulled into this role by the business unit and asked to create a cloud through a separate effort from that of the core virtual infrastructure team. This shift is most prominent in the very largest multidivisional enterprises and public sector clients. In smaller organizations where business units have less autonomy and direct budget control, we hear more grumbling about IT's private cloud efforts without an independent move — so far. Virtual and hosted private clouds (VPCs and HPCs) present an opportunity for business units to move independently without capital budget or direct infrastructure management experience.[10] VPC adoption has thus far been very popular, and these environments are certainly being managed mostly by developers, but it is less clear if VPCs constitute the same trend, as they do not offer physical isolation and thus fulfill a desire to capitalize on more consistent cloud use. Certainly the public cloud development team is the buyer and driver of the requirements and user experience these private clouds must meet.

Comparing the trend of the business buying a cloud platform to that of it buying SaaS, we see that in most cases, the business tires of having to manage it itself and eventually turns it over to IT. Most salesforce.com, Workday, and similar business-unit-acquired SaaS solutions are now centrally managed by the IT department. Both the solution design and the economic model of cloud platforms differ from that of traditional IT infrastructure, and so far I&O doesn't get cloud platforms.

RECOMMENDATIONS

ASSUME YOU ARE BEING DISRUPTED

Given the uncertainty around the sustainability of this trend, it behooves CIOs to act on what the trend represents — a growing gap between I&O and the business. If the gap is left untended it will grow and hinder other efforts you have afoot to raise IT's relevance with the business. What can you as the CIO do to ensure that it does not? For starters:

- **Separate your advancing virtual environment from your cloud.** The investments your I&O team are making in virtualization automation are worthwhile investments even if they aren't resulting in a true private cloud — and don't accept a cloudwashed virtual environment. Just don't force the effort to fully evolve into a cloud, because your static virtualization environment should be a distinctly separate environment from your cloud. Not all workloads fit well into a cloud, so instead, separate these two pools so they can be operated differently.

- **Send I&O virtualization administrators to cloud school.** Push your I&O team members to learn what it really takes to go cloud. Give them accounts on the public clouds your developers are using so they can experience what the developers are experiencing. Or send them to cloud school. Cloud pioneer Rackspace recently announced Rackspace Certified Technician for OpenStack, a training course for administrators of cloud platforms based on this open-source IaaS foundation. Tony Campbell, Rackspace director of training and certification, said he has been offering a four-day course on OpenStack for the last several years (the predecessor of this formal training program) and has seen a mix of developers and I&O attendees who bring very different attitudes. "Half of the attendees are software engineers, usually aligned with a business unit, who get the public cloud and are coming to learn how they can set this up themselves," Campbell said. "The other half is VMware admins who have been told they have to attend and have an initial shellshock, as they see it as a replacement for VMware. Then as the course goes on, realize this is very different than their existing VMware environment."

- **Give your virtual environment managers a career path to cloud . . .** If your I&O team members aren't building a true cloud because they can't see the benefit in doing so or are threatened by it, show them a new career path that makes cloud a no-brainer. Cloud admins shift from managing workloads to the care and feeding of the pool as a whole. This means tracking its overall utilization, availability, and capacity churn. They also must focus on the customer experience first — an outside-in view of the cloud from the developer's point of view.[11] This means developing and maintaining standard services, images, and workloads developers can easily build solutions upon, and tuning the portal and integrations with development provisioning tools like RightScale or Puppet Labs' Puppet to help them work autonomously. When they realize their new goals, they won't have time for the activities that

fill their days in the traditional virtualization environment — they'll push to standardize and automate those tasks so they can move to their new role as quickly as possible.

- **. . . and change their rewards system, too.** Reward them for helping the business experiment with a true cloud (not based on existing virtualized servers) — whether in-house or outsourced. Incent them to seek out opportunities to build a true test cloud. If you don't, they will instead spend their time building cost models to prove they are better and cheaper than the cloud already.

- **Learn from the business unit.** If you have a business unit that has built its own cloud, learn from what it's done. Short term, it will help inform your I&O team about what is really desired by these customers. Long term, it will help prepare them to run this environment if the SaaS trend of passing a growingly complex administration role over I&O repeats itself with cloud platforms.

- **Outsource the cloud if you can't build it yourself.** A growing cadre of cloud providers is offering hosted private cloud solutions that act as true cloud environments. This path avoids a capital commitment and accelerates cloud implementation — and gives you greater levity to adjust the capacity of the cloud if successful in meeting developer demands.

- **Be prepared for IaaS-plus.** While a base IaaS model lies at the heart of most cloud platforms, developers are increasingly leveraging more abstracted services in public clouds. Raw VMs or even single VM image libraries are awfully basic building blocks when you want to build and deploy complex web applications. Platform-as-a-service clouds and IaaS services such as Amazon Web Services' Elastic Beanstalk and Cloud Formation let developers start from more preconfigured (and managed) environments that let them concentrate on the code that makes their solution unique over the basics of software setup. Managed-database-as-a-service solutions are increasingly complementing databases in a VM on cloud platforms for the same reason.[12] This means your private cloud will be under pressure to deliver these capabilities as well. So again, follow your developers. If they are leveraging these higher-level capabilities, start looking at private cloud and cloud management solutions that can offer similar value in your environment.[13]

WHAT IT MEANS

CLOUD IS A SERVICE, NOT AN INFRASTRUCTURE

While cloud platforms are indeed a form of hosting, it's important to stop viewing them as infrastructure implementations and look at them from the eyes of the developers who see a service they can leverage to rapidly design and deliver new business capabilities. Clouds change the I&O-to-developer relationship in fundamental ways. First, they change the definition of fast from "deployed in days" to "deployed in minutes." Clouds also invert capacity planning from something you do upfront to something you manage based on real-time activities. Budget planning shifts accordingly with low upfront costs and increasing costs with success. Transparency of costs becomes a core tenant to service delivery. Even the definition of boundary changes — no private cloud (in the eyes of a developer) is an island — it *must* be an extension of the public cloud. And no, it's not the other way around. I&O can't see offering a public cloud as a means of keeping the business from running to the public cloud. *The public cloud is favored from this point forward.* Economies of scale, user empowerment, geographic reach, and scale all favor the public clouds.

I&O must shift from being the department that runs technology for the company to a group that evangelizes technology adoption where it best meets the needs of the business and monitors and governs company IP within a broader realm of deployments.[14] This disconnect between the business and I&O is just one example of the pain that will be felt over IT if attitudes aren't changed and new career paths forged.

SUPPLEMENTAL MATERIAL

Forrester's Forrsights Software Survey, Q4 2012 was fielded to 2,444 IT executives and technology

decision-makers located in Canada, France, Germany, the UK, and the US from small and medium-size business (SMB) and enterprise companies with two or more employees. This survey is part of Forrester's Forrsights for Business Technology and was fielded during November 2012 and December 2012. LinkedIn Research Network fielded this survey online on behalf of Forrester. Survey respondent incentives include gift certificates and research reports. We have provided exact sample sizes in this report on a question-by-question basis.

Forrester's Forrsights Software Survey, Q4 2011 was fielded to 2,438 IT executives and technology decision-makers located in Canada, France, Germany, the UK, and the US from small and medium-size business (SMB) and enterprise companies with two or more employees. This survey is part of Forrester's Forrsights for Business Technology and was fielded during November 2011 and December 2011. LinkedIn Research Network fielded this survey online on behalf of Forrester. We have provided exact sample sizes in this report on a question-by-question basis.

Each calendar year, Forrester's Forrsights for Business Technology fields business-to-business technology studies in more than 17 countries spanning North America, Latin America, Europe, and developed and emerging Asia. For quality control, we carefully screen respondents according to job title and function. Forrester's Forrsights for Business Technology ensures that the final survey population contains only those with significant involvement in the planning, funding, and purchasing of IT products and services. Additionally, we set quotas for company size (number of employees) and industry as a means of controlling the data distribution and establishing alignment with IT spend calculated by Forrester analysts. Forrsights uses only superior data sources and advanced data-cleaning techniques to ensure the highest data quality.

Companies Interviewed For This Report

Citrix

Enstratus Networks

Eucalyptus Systems

Microsoft

Rackspace

RightScale

The Cloudscaling Group

VMware

ENDNOTES

[1] Cloud computing — a standardized, self-service, pay-per-use deployment model — provides companies with rapid access to powerful and more flexible IT capabilities and at price points unreachable with traditional IT. You can fast-track cloud learning with turnkey solutions for greenfield environments, but delivering an internal cloud will take years for most enterprise shops. See the July 26, 2010, "You're Not Ready For Internal Cloud" report.

[2] It has become conventional wisdom that leveraging cloud services will save you money. But that isn't universally true. To achieve these benefits, especially from cloud platforms (infrastructure-as-a-service and platform-as-a-service), your application must achieve high availability (HA) and performance on its own through its design and configuration. See the November 5, 2012, "Don't Move Your Apps To The Cloud" report.

[3] We all believe that cloud computing can save us money but aren't sure how to maximize these savings. The key is in understanding how the applications you place in the cloud align with the economics of the various cloud services out there today. See the May 22, 2012, "Drive Savings And Profits With Cloud Economics" report.

[4] If you think your data center challenges are tough, you should see what the IT ops pros deal with at Google, MySpace, and Yahoo. They're going to extremes to squeeze inefficiencies and complexity out of services that consume hundreds of thousands of servers and double every 12 months. Some of their moves are unique, but many can be adapted to enterprise data centers to yield similar benefits. See the August 15, 2007, "What Can Enterprise IT Learn From The Web Giants?" report.

[5] Forrsights surveys show that enterprises are turning to the cloud for speed and lower cost — but are the savings really there? The answer isn't always obvious; it might be that your internal costs are actually lower. See the June 20, 2012, "Understand The True Cost Of Cloud Services" report.

[6] Source: Clayton M. Christensen, The Innovator's Dilemma: The Revolutionary Book That Will Change the Way You Do Business, HarperBusiness, 2011.

[7] Source: Forrsights Software Survey, Q4 2011.

[8] Zynga, a pioneering game company built on the AWS cloud, determined that its entire application footprint was not as elastic as it had started out, and would be better off running on equipment it owned rather than rented. This led the company to create the zCloud, a private cloud that mirrored and served as an offload site from AWS for its games. Source: Rick Freedman, "The Evolution of Zynga's zCloud: Interview with CTO of Infrastructure, Allan Leinwand," TechRepublic, March 15, 2012 (http://www.techrepublic.com/blog/datacenter/the-evolution-of-zyngas-zcloud-interview-with-cto-of-infrastructure-allan-leinwand/5426).

[9] Source: BMC Software (http://www.bmc.com/news/press-releases/2012/bmc-software-expands-global-alliance-with-amazon-web-services-delivers-packaged-cloud-solutions-for-the-enterprise.html).

[10] While slightly more than half plan to build a private cloud in their own data center, more than 25% said they prefer to rent one. But which cloud hosting provider should you choose? See the January 17, 2013, "The Forrester Wave™: Hosted Private Cloud, Q1 2013" report.

[11] We've entered the age of the customer — an era where a focus on customers matters more than any other strategic imperative. Companies are waking up to the fact that customers' perceptions have a profound impact on business metrics ranging from brand equity and customer loyalty to increased revenue and cost savings. See the October 4, 2011, "Why Customer Experience? Why Now?" report.

[12] Cloud database offerings represent a new space within the broader data management platform market, providing enterprises with an abstracted option to support Agile development and new social, mobile, cloud, and eCommerce applications as well as lower IT costs. See the November 8, 2012, "The Forrester Wave™: Enterprise Cloud Databases, Q4 2012" report.

[13] While cloud computing is still in the early adopter phase, you're under executive pressure to develop a cloud strategy. And it's up to you to sort through the cloudwashing and not only understand the basic economics and capabilities but also the security risks involved. And if that isn't challenging enough, it seems your developers are circumventing I&O and going to the public cloud without thoroughly vetting solutions. See the November 7, 2011, "Market Overview: Public IaaS Clouds, Q4 2011" report.

[14] The IT status quo will collapse in the next 10 years, and a new model — empowered BT — will take its place. Today's IT and business leaders should prepare by rethinking the role the IT department plays and how technology staff engages the business, shifting from controlling to teaching and guiding. See the January 7, 2011, "BT 2020: IT's Future In The Empowered Era" report.

About Forrester

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