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by Erin E. Harrison

Securing the Cloud: Reaping the Rewards of BYOD

The Mayans predicted that the world as we knew it would come to an end on Dec. 21, 2012. However, since this first quarter of 2013 issue of *Cloud Computing* has found its way to you, clearly that prophecy was either miscalculated or misunderstood.

Predictions are usually made based on facts and experience, but sometimes these forecasts prove inaccurate. In the ever-changing landscape of technology, it can be especially difficult to foretell what specific outcomes will come to fruition. Nevertheless, it's the job of analysts and prognosticators to size up the year ahead in technology.

As we start a New Year, many predictions have been made about cloud comput-

ing and how this disruptive force will continue to evolve in 2013. According to Gartner, 33 percent of all organizations currently have Bring Your Own Device (BYOD) policies in place for mobile devices such as smartphones and tablets. The policies and tools initially put in place to deal with mobile devices offering consumer-grade security need to be revised to deal with these devices being under the ultimate control of a private user, rather than the organization, explains Dionisio Zumerle, principal research analyst at Gartner.

2013 is going to be about the expansion of cloud computing and the struggle by the enterprise to achieve adequate security for it.

ing and how this disruptive force will continue to evolve in 2013. Gartner said recently that 2013 is going to be about the expansion of cloud computing and the struggle by the enterprise to achieve adequate security for it.

“Increased adoption of cloud-based computing is expected to impact the way security is consumed as well as how key government agencies will prioritize security of public cloud infrastructure,” according to Gartner analysts Ruggero Contu, Lawrence Pingree and Eric Ahlm.

Increased adoption of cloud-based computing is expected to impact the way security is consumed as well as how key government agencies will prioritize security of public cloud infrastructures, the analysts say. This overall trend will lead to more managed security services providers through cloud delivery.

And for organizations that have embraced software-as-a-service (SaaS) solutions, BYOD can actually make data more secure, according to Backupify's Rob May, who writes about how to make data more secure with BYOD in this issue of *Cloud Computing* (see page 12).

While BYOD can't make your data indestructible, when combined with proper IT policies, regular employee training and comprehensive data backup, May says it can ensure the integrity of your company data while supporting a more flexible, productive workforce.

Regardless of which predictions come true this year, organizations that take a strategic approach to security policies and continue to play an active role in security and risk management even after they choose a cloud service provider will reap the financial rewards of managed cloud applications and services. 



by Rich Tehrani

Who Should Buy Linksys? And How Does the Cloud Fit In?

Cisco recently appointed Barclays to help it auction off Linksys – consistent with the company's move to exit low-margin consumer businesses as it looks to invest in high-margin areas like software and services. But as the saying goes, one man's garbage is another man's gold. Linksys is indeed a treasure to the right partner like Google or even Samsung.

The reason is simple – both companies need to blunt the move by Apple into the home and entertainment is the future of technology as consumer technology trends coupled with BYOD turn into corporate success. When the iPhone first came out, CEO after CEO explained to me patiently about how they could never abandon RIM and that the iPhone would never be secure enough for their IT departments to sanction. Well, that was a short wait as a few years later RIM is gasping for air and even mighty Microsoft is trying to figure out how to get people to buy its mobile products.

The question is – who should buy Linksys and the answer to me seems that anyone who needs to compete with Apple. Aside from Google and Samsung, let's be sure we add Microsoft to the list as well. Imagine what they can do with Linksys and Skype integration – coupled of course with Lync and Xbox. This combo would certainly make the company even more powerful in the world of VoIP/IP communications.

Then there are the cloud vendors – there is a natural fit between products and services these days – and Amazon has shown us that software can and will subsidize hardware. In its case, a suite of cloud services and apps are there to increase consumer spending on products in the Amazon ecosystem. Google with its Chromebooks gives away lots of cloud services in the hopes customers will buy more. Expect this trend to extend across hardware in general meaning companies like Carbonite and Mozy may look at Linksys as a way to get consumers to use their services on a trial basis.

In a way, both of these companies can justify the purchase of Linksys by subsequently cutting their marketing budgets as the sale of each router and other consumer electronics product bundled with a free trial is effectively the same as the result of advertising on radio, TV or the web. Other consumer networking companies like D-Link may also show interest and there is a chance private equity may see some hidden value which can be unlocked.

Finally, there is Dell and HP. I can't imagine either company successfully pulling off such a merger but the synergies between consumer printing, computing and networking are too obvious to ignore. Moreover there are a slew of Asian vendors – many in China that could take the Linksys brand and use it to introduce a number of new products, which would have immediate name recognition in the U.S. Lenovo leveraged IBM at first to do something similar – I imagine in my scenario, a Chinese manufacturer renaming itself as opposed to the other way around. Of course the U.S. government may have something to say about such a move from China but then again being a consumer play, Linksys may not get much attention from the feds looking to keep our communications networks safe.

Either way the biggest opportunity for growth for Linksys seems to be the melding of hardware with cloud services such as storage, audio and video. Apple and Amazon are pulling this off brilliantly and it seems to me the future of commodity hardware will be using it to push a surrounding ecosystem. In a way consumers can thank the cloud for adding more value to the products they buy and for its ability to subsidize hardware in order to make upfront costs more attractive. 



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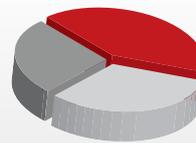
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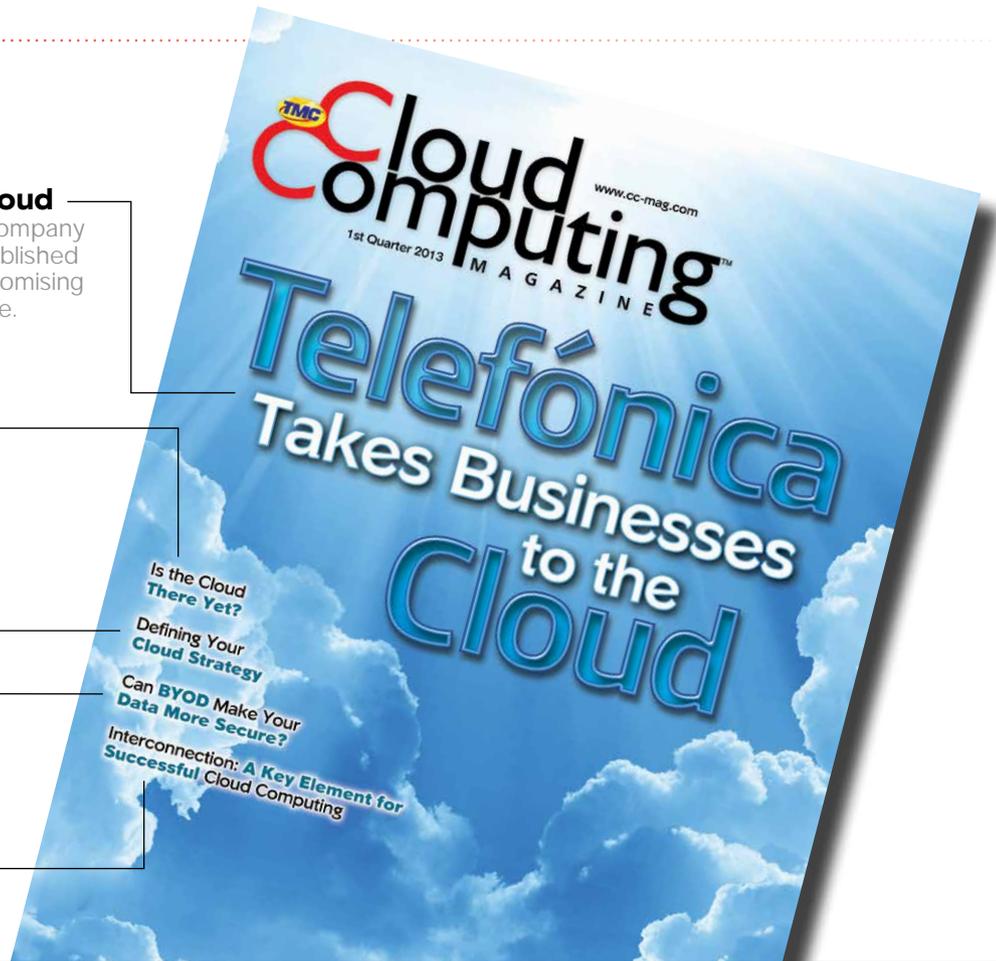
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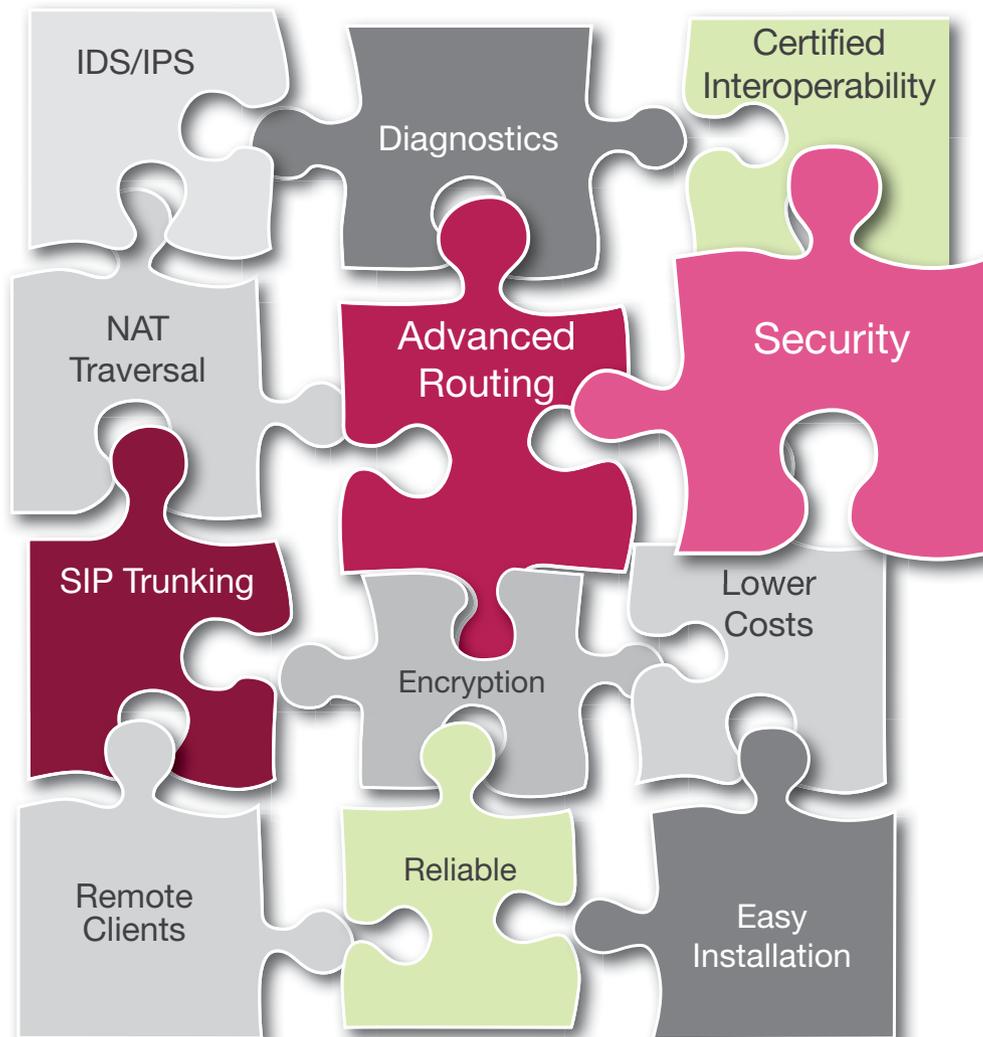
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CipherCloud Gets \$30M from Andreessen Horowitz

Cloud information protection company CipherCloud has received \$30 million in new funding from Andreessen Horowitz. The money will enable CipherCloud to accelerate its global go-to-market strategy with expanded sales and marketing and further develop its offerings.

The company has 1.2 million users, 100 million customer records protected across more than 40 customers including two of the five largest banks in the U.S., 10 industries and eight countries, according to Paige Leidig, senior vice president and chief marketing officer. CipherCloud plans to accelerate the development of new product offerings and advance its technology leadership with the new funding.

CipherCloud's go-to-market strategy is focused on multiple routes to market including both direct and channel sales; the key regions of APAC, EMEA and North America; and key industries including financial services, government, healthcare and technology.

<http://tmcnet.com/59221.1>

Message Bus Receives Funding for its Cloud-Native Solution

Message Bus, reportedly the first to provide a cloud-native application service enabling and powering messaging across email and mobile channels, has closed \$11 million in growth funding, thanks to North Bridge Venture Partners and True Ventures, Ignition Partners, James Lindenbaum, Tim Young and Jesse Robbins.

The company plans to ramp up hiring and product development with these assets. In 2010, the company's founders created what they call the first cloud-native application service to enable and power messaging across established and emerging channels.

Companies are realizing the benefits and efficiencies of highly elastic, redundant

cloud-based systems. Message Bus is poised to solve the messaging challenge across channels by creating a single platform to enable messaging in the cloud.

<http://tmcnet.com/59222.1>

CloudPay Raises \$16M in Series B Funding

CloudPay, a provider of multi-national payroll technologies and services, has completed a \$16 million Series B round from Pinnacle Investment Partners, Rho Ventures and other institutional investors. The funding round will help CloudPay to consolidate its SaaS platform for multi-national payroll management and further accelerate the strong growth that it has experienced in the last 18 months, company officials said.

As the use of the cloud for enterprise payroll management continues to gain significant momentum, CloudPay will focus on extending its technical, service and sales capabilities.

CloudPay has raised more than \$50 million in equity funding since launching its cloud product. The company has the capability to process payroll in 160 countries, supports 30 currencies and 26 languages and maintains operations in Raleigh, N.C., Salisbury, Singapore, Shanghai, Paris and Budapest.

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Sumo Logic Raises \$30M to Help Enterprises Capitalize on Big Data

Sumo Logic, a next-generation log management and analytics company, has closed a \$30 million Series C funding round led by Accel Partners, with participation from existing investors Greylock Partners and Sutter Hill Ventures.

Sumo Logic helps enterprise IT professionals search, analyze, monitor, and visualize big data in real time, enabling application and infrastructure trouble-

shooting within data center, cloud and hybrid environments.

The latest round brings the company's total venture capital funding to \$50.5 million. The funding will be used to help Sumo Logic expand research and development, and increase investments in sales, marketing and other go-to-market resources.

Less than a year after the company's public launch, Sumo Logic has seen rapid adoption from large-scale enterprise clients including Netflix, enabled broad access to its services through its popular Sumo Logic Free offering, and provided deep enterprise value with innovations like LogReduce, push analytics and real-time dashboards.

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Calxeda Secures \$55M to Cut Data Center Power

Austin-based chipmaker Calxeda has secured \$55 million in additional funding, one of the largest semiconductor capital deals this year. Austin Ventures and Vulcan Capital led the funding, in addition to participation by the firm's existing investors.

Calxeda, which claims to have invented the concept of using ARM technology to cut data center power, plans to use the funding to accelerate adoption and innovation in the emerging market for ultra-low power scalable computing, according to Barry Evans, co-founder and CEO at Calxeda.

The company employs over 100 people, with offices in Austin and Silicon Valley and subsidiaries across Asia.

Calxeda officials claim that performance testing and power measurements conducted by third parties confirm the company's initial projections: Calxeda provides up to a tenfold improvement in energy efficiency compared to today's commodity X86-based servers. The market is ripe for data centers looking to become more power-efficient while reducing costs.

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If You Don't Trust the Cloud, Don't Go

Security. Reliability. Functionality. Flexibility. Most of the questions about the cloud have been answered to the point that contact centers are turning to cloud solutions en masse. And yet, among certain decision makers in the business, IT, and the contact center, there are still those that are reluctant to move operations to the cloud.

“We just don't trust it.”

Okay. Maybe some of these decision makers don't trust that sensitive customer data will stay secure. They don't believe the cloud is as reliable as providers promise. They don't think companies providing cloud services are experienced or stable enough to partner with. The concerns are legitimate, and cloud service providers must be prepared to address them.

Issues like security and reliability are vital to the cloud's mission and a business's success, and are always central to the discussion. This speaks to the level of trust one can expect in the service and the technology behind it. However, customers tell us there is more to evaluating trust. They also want to know the provider of the service has the level of contact center experience and corporate stability they expect in a partner.

In essence, customers need to know that both the service and the provider of the service can be trusted before putting the lifeline of their business – their customer interactions and revenue stream – in the hands of a third-party organization.

Secure and Reliable Services

To address global regulatory and compliance issues, a cloud solution should be operated with consistent operational guidelines across multiple jurisdictions, with common security and privacy requirements in mind. It should also

meet the specific security, privacy and compliance needs of the contact center and business that uses it. Additional trust could stem from providers offering a single-customer, multi-instance platform that leverages virtualization technology to deliver a superior level of isolation and protection. Following security measures such as SSAE 16 best practices promotes trust, as well.

Cloud providers should base their solutions on proven technology.

leverage third-party technology they have little or no control over).

The cloud space is highly fragmented. Some providers will survive and some will not, some will be acquired, and a handful will emerge as preferred providers. Thus, companies are looking for a stable partner – a public company whose sustained financial stability and growth is well documented and who is recognized as a worldwide leader with a proven

There are cloud providers that are proven and trustworthy. It's just a matter of doing your due diligence and hopping on board.

Offerings should come with applications built solidly on five 9s uptimes, for example, along with tiered service levels and the ability to keep the voice path local. Other trust-driving measures should include geo-redundant data centers, full-time intelligent and proactive monitoring, and quick and seamless failover.

Experienced and Stable Providers

Cloud providers should make you smarter by bringing both a deep and broad level of experience to your team, gained through thousands of previous contact center deployments across the globe. When the provider also develops the code that powers the service, there is a major jump in the level of expertise available to customers (some

record of innovating and executing in the contact center.

Someone once said, “If you don't trust the pilot, don't go.” I guess the same holds true for moving your contact center to the cloud. The good news is there are cloud providers that are proven and trustworthy. It's just a matter of doing your due diligence and hopping on board.

Trust is central to Interactive Intelligence. We seek to gain, maintain, and defend the trust and confidence of our customers – and to alleviate the concerns of any decision makers who still don't trust the cloud. To learn more, you can visit trust.inin.com. 

Jason Alley is solutions marketing manager at Interactive Intelligence.



Did Sandy Shake-Up the Cloud?

This past fall, the Northeast was blasted by a storm named Sandy that left millions without power and thousands without homes. Numerous data centers were flooded and down. All of this happened during the hype of the cloud.

Reports repeatedly state Software as a Service (SaaS) is going to grow 14 percent CAGR until 2015. Will outages like Sandy throw a wrench in those predictions?

One factor in favor of cloud is the ROI on IT investments. IT budgets have to get more value out of their expenditures – and cloud allows that to happen since it outsources hardware, licensing and management. This allows the current IT staff to work on priority projects that do add value to the organization.

As layoffs continue and the economy worsens, everyone has to do more with less. Cloud gives small and medium-sized businesses

(SMBs) access to enterprise grade software affordably. At its best, cloud services provide for business process improvement, which grants businesses the opportunity to do more with less, be efficient and more productive.

The idea of the office is changing with more employees going virtual and mobile. Cloud services permit access to data and apps from anywhere. This was challenged during Sandy since without power, accessing the Internet is difficult. The bottleneck tends to still be last mile access, where terrestrial broadband failed as did cellular services.

The factors for moving to cloud services are still clear and present. Will Sandy actualize a new perspective on cloud services like SaaS?

Considering a recent Citrix-Wakefield survey established that “51 percent believe stormy weather will interfere with cloud computing,” I don’t think perceptions have changed much.

Sandy will make savvy customers ask questions about redundancy, uptime and design. By design, I mean the way in which the data center and network architecture is built for failover and replication, basic disaster recovery and business continuity (DR/BC) planning. The problem with DR/BC is that it is expensive.

There are companies, like Netflix and Sonian, which were built from the ground up, to leverage cloud computing. It is different to build from scratch for cloud than it is to migrate to cloud.

Sandy may actually help the solid, built for cloud companies sell more services, since the factors for companies moving to cloud services have not changed.

Peter Radizeski is a telecom consultant and the owner of RAD-INFO, Inc.



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Brokering the Cloud for IP Telephony Services

The potential of cloud service brokers on communication service providers

For the most part, the telecom industry has understood the concept of cloud services, and its basic premise of enabling carriers and service providers to take advantage of an opportunity to address specific IT and network infrastructure needs, as cheaply as possible.

Most recently, the concept of “cloud services brokering,” a term defined by Gartner, has described the implementation of this premise to reflect a focus on the integration, aggregation and customization of third-party cloud services and applications.

For communication service providers (CSPs), especially IP telephony and VoIP providers seeking to leverage the cloud, this model can enable carriers and service providers, including Internet telephony service providers (ITSPs), to overcome expensive, legacy operational complexities that typically plague service fulfillment across disparate applications, partners and platforms.

In other words, the premise of cloud service brokering can greatly help IP-enabled service providers to adopt standard, branded, unified solutions for automating, aggregating and integrating voice services and B/OSS connectors or APIs, as well as exposing unified APIs for internal and external use. Moreover, leveraging brokered cloud-based voice services can even simplify the acquisition and management of products such as telephone numbers, SIP trunks, PBX hosted seats and Access (circuits), enabling services providers and their trading partners to more easily buy, sell and manage VoIP service applications and products from one another.

For forward-thinking communication service providers, tasked with reducing voice service fulfillment and internal complexities and expenditures, the adoption of cloud services within internal IT organizations is typically happening in two ways: either by pushing the acquisition, management and risks

of running data-centers into the cloud, and effectively reducing the administrative burden of network, server and software infrastructure; or by leveraging existing solutions and applications that can help carriers and service providers to improve time-to-market and reduce the cost of running IP telephony solutions or applications. In fact, a growing number of CSPs are seeking cloud-based voice applications and service fulfillment services and solutions that are already available within the cloud.

Likewise, many IT organizations are already reaping the benefits of cloud services, and recently Gartner industry analysts have predicted that IT expenditure on cloud services would hit the \$100 billion mark by the year 2014, focused on the overall objective of reducing IT capital and operating expenses.

Now, while the advantages for implementing cloud-based voice applications and services are many, adopting them can be complex and costly. Recently however, in the telecom space many VoIP providers have begun leveraging cloud service brokers that specialize in the integration, aggregation and customization of third-party services and applications to streamline the process of buying, selling, and managing their inventory, such as DID, and products.

As more and more CSPs, from carriers to service providers, begin simplifying the fulfillment of VoIP services by brokering their cloud-based components, cloud service brokers are beginning to set a new precedence for the fulfillment of global IP-enabled services. 

C. Enrique Ortiz is head of products at Shango (www.shango.com).

While the advantages for implementing cloud-based voice applications and services are many, adopting them can be complex and costly.

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Can BYOD Make Your Data More Secure?

The amount of data and information enterprises are generating continues to grow at a truly staggering rate. Yet it seems very few companies are truly prepared to manage, store and protect it properly. Data is created through a wide array of devices and is distributed across numerous systems, locations, and geographies, so getting a handle on it can prove challenging.

With all of this happening in the background, the question is – how can businesses store, protect and manage data efficiently while reaping the business benefits? In truth, the traditional onsite data storage solutions coupled with conventional, offsite backup storage is no longer the practical answer for many. In addition to being extremely costly, enterprises need solutions that are scalable and can easily, and economically, grow as the quantity of data grows.

Enter the cloud.

Historically vendors have focussed on the service enabling side of cloud. However, according to analysts at the 451 Group, cloud-based storage will soon play the starring role in cloud development – and I for one agree.

The consumerization of IT, for example, has played a huge role in managing and storing enterprise data. With the exponential rise of unstructured content and the growing need for access to data from any location, there is now a huge demand for device and location independence. Smartphones and tablets are becoming increasingly ubiquitous and are enabling a more mobile workforce. For companies to keep up with this trend they need to adopt solutions that support the Bring Your Own Device (BYOD) policies of today.

As demand grows it becomes more and more evident there has been a significant rise in storage technologies that are location independent. Indeed, many

technology providers have brought more mature, scalable and reliable solutions to the market. So why is the cloud yet to become the obvious choice and replacement for traditional block-orientated local storage, or to enhance backup storage requirements?

For business owners and IT decision makers, increasing storage needs have long posed a headache. There have been too few options and not enough reasons to continue to make the case for more budget. Nowadays companies need not

terprise. Regardless of the hype or the real value, many enterprises are still hesitant to embrace cloud technologies for a variety of reasons ranging from existing investment and expertise, to concerns around security and compliance. Therefore, my recommendation is that enterprises view cloud storage as a piece of their overall enterprise storage strategy – essentially meaning adopting a hybrid storage solution. By “hybrid storage” I mean what many would call a disk to cloud storage solution or, for an ideal backup storage solution, disk to disk to cloud. This means enterprises continue

With the exponential rise of unstructured content and the growing need for access to data from any location, there is now a huge demand for device and location independence.

worry about the considerable expense of traditional storage. There are a number of opportunities and benefits to storage in the cloud that IT departments can use to build a strong case to present to decision makers. The cost savings alone can be a key influencer for adoption but there are a lot more benefits beyond cash savings:

- Secure data back-up and recovery;
- Remote and secure storage archiving;
- Mobile file sharing and multiple device access; and
- Scalable, on-demand growth.

But despite all of the benefits of cloud storage, I am also a realist when it comes to the requirements and challenges of the en-

to utilize existing onsite or hosted physical storage solution investments and then connect to a cloud storage solution for additional flexibility, scalability and backup and recovery options.

I believe that cloud storage, just like the cloud, is here to stay. The flexibility and scalability it offers companies brings an abundance of advantages including cost savings and efficiency of scale. Of course, just like the cloud, it's not for everyone. However, with the multitude of offerings available in the market at the moment and the emergence of new technologies such as the hybrid cloud, mark my words – there will soon be a cloud (and cloud storage) for everyone. 

Rob May is the CEO and co-founder of Backupify.



OpenStack: The Good, the Bad and the Future

The OpenStack open source cloud software project is only two-and-a-half-years-old, but it has already attracted the active participation of more than 200 companies and 6,000 software developers. New deployments are launching continuously across all segments: service providers, enterprises, and even web-scale businesses.

As with many cloud technologies, OpenStack has received its share of hype. It's likely the fastest growing project in open-source history, leading some pundits to call it the "Linux of cloud."

However, analysts and media who have lived through previous hype cycles have begun highlighting the realities of the OpenStack project as well as the software itself. Critical functionality is absent from raw OpenStack. New deployments do not appear to be growing as fast as the community itself. Questions remain as to how the newly formed OpenStack Foundation will govern itself and encourage participation from vendors and community members.

Meanwhile, attendance at OpenStack Summit events has roughly doubled every six months. Vendors are launching new OpenStack distros, products and services each month. The software continues to improve and stabilize, with new services and capabilities added at each biannual release.

Sorting through the mix of marketing noise and technology reality can make mapping out your OpenStack strategy a challenge. The following questions should help you accomplish just that.

Do you expect to download OpenStack and unwrap a cloud in a box?

The biggest misconception we hear about OpenStack stems from the deeply mistaken belief that OpenStack is a complete cloud operating system. It is not.

Stated simply, OpenStack is more like a kernel technology that offers compute, object storage and network services combined with

support services such as identity and VM image management. To deploy a cloud with OpenStack technology, you must add many additional critical services and make choices about configuration and architecture. Those additions and choices are numerous and non-trivial (500+ configuration options at last count), and if your goal is to support applications in a production environment, these choices can define success or failure. You must decide if you want to make them by yourself or enlist a vendor to help.

Do you prefer vendor risk or living on an island?

Any infrastructure development project carries risk. With OpenStack, your first major choice is between vendor risk and the risk of building your own solution and then living on your own island.

With a vendor, you're risking that they have the engineering and technical chops to take you through to deployment, then stand behind their work with ongoing service and support. Fortunately, this risk is somewhat mitigated by the fact that OpenStack is open source technology and you always have the option of taking it back under your own control or enlisting another vendor for support.

Obviously, living on your own island carries its own significant risks. Aside from the challenges in building a team, providing ongoing support, and managing the OpenStack community developments and enhancements, there are also the costs related to building what is inevitably a one-off solution. Since OpenStack is incomplete, you will be stuck integrating or developing components to get your system to production-grade. Is your business about developing and managing infrastructure or about leveraging the business applications it empowers for business differentiation?

Are you married to traditional, enterprise hardware vendors?

OpenStack gives you the freedom to run your cloud on commodity x86-based

servers and JBOD or SSD storage devices. Liberating your enterprise from vendor lock-in, gold-plated technology solutions, and the high margins of traditional vendor solutions is a big draw for using open source technology like OpenStack.

If, however, you are wedded to the same vendors who've built your enterprise data-centers, you are likely to discover that the economics you'd hoped to gain by building an OpenStack-based cloud are tough to achieve. Alternately, if you make the shift to commodity hardware, you should first make some decisions about the kinds of applications you will support with your cloud. (Last quarter's column lays this choice out in some detail.)

Is cost reduction your primary driver?

Stemming from the previous question, if your primary interest in OpenStack is reducing your IT spend, then you're missing the big picture.

Yes, open source software and commodity hardware are keys to reducing capital expenditures and ongoing operating expenses. But the real benefit to building with OpenStack technology is the ability to build an elastic cloud infrastructure that supports new, dynamic applications. Apps like mobile and web services, online gaming, PaaS and hybrid or federated cloud are a technical and economic challenge to support with legacy, virtualized infrastructures. OpenStack is a necessary precursor to building infrastructure that can.

OpenStack is a promising technology. We've actively supported it since its public inception in the summer of 2010, put more OpenStack solutions into production than anyone else, and it's at the core of our flagship product. Still, enterprises used to unwrapping fully baked solutions from vendors with strong support and service pedigrees must ask themselves the right questions at the outset of their OpenStack deployment projects to avoid disappointment. 

Randy Bias is the chief technology officer of Cloudscaling.



Considerations When Moving to a Hosted Cloud

I have worked with many companies over the past 17 years to transform their business by implementing SAP. During transformation, companies typically review Total Cost of Ownership (TCO) of the enterprise architecture and recognize opportunities presented by the transformation.

The opportunity to move the infrastructure to cloud is a game changer. The business is offered a level of flexibility, speed and agility that was not available in the past. However, moving to cloud does not solve basic issues that we experience on a daily basis in the IT world. In fact, some of those issues become more difficult to navigate. We will take a look at some of the key issues and think about the impact across the enterprise.

Issue #1 – Data Management

This is the biggest issue I see at most customer sites. Data management includes sensitive data, testing data, and size of data sets. Why would this be an issue for the cloud? Answer – Think TCO. The cloud offers a business the capability to spin up and spin down systems quickly. Efficiency is optimized if you have a well defined System Development Life Cycle (SDLC).

Many of our colleagues desire full copies of production data for testing purposes. This is inefficient and wasteful. Storage costs can quickly consume your IT budget if you have large data sets. Also, sensitive data may require encryption or other processes that take away the speed, agility, and flexibility recognized by cloud.

Therefore, I recommend a data management process to mitigate this issue. The business should be able to define a subset of data required for testing end-to-end business processes. Use dummy data or a tool to scramble sensitive data. If possible, complete your data management process prior to moving into the cloud. Doing so will help you with issue No. 2.

Obviously, performance testing is a different issue and may require a full data set depending on system sizing and complexity. I will table that issue for another time and discussion. Hopefully, the brief discussion of data management will help you think through the issue.

Issue #2 – Migrate Systems or Rebuild Systems

I typically deal with global customers who have complex system landscapes and perform multiple releases of business functionality on a yearly basis. Landscapes include sandbox, development, test, staging, preproduction, training, etc. I may choose to migrate these landscapes one-by-one into the cloud or I could

migrate a source landscape into the cloud and rebuild based on a source. Data management is a perfect segue into this discussion. Also, keep TCO at the forefront.

Question: Migration or rebuild, which costs more?

Answer: Migration.

Choosing migration is essentially a data center move. You will either accomplish the move via a network migration or some type of media. Providing one source of data to be migrated to the cloud and then rebuild your landscapes by copying that source to each landscape takes advantage of the cloud model.

The reality is that you will be forced to pick and choose. Most customers choose a mix of migration and rebuild. Global companies are constantly in middle of an SDLC for a release of functionality and must make hard choices. Otherwise, costs go up and you will not take advantage of a benefit offered by your cloud provider.

Issue #3 – Responsibility Assignment Matrix

Responsible, Accountable, Consulted, Informed (RACI) between all organizations.

A wise consultant told me: “Technology is rarely the problem. People are always the problem.” You add an additional layer of communication by going to cloud if moving systems that are currently in house to a cloud vendor.

Scenario – End-users press the submit button and their sales order times out. Where do I send the issue? Answer – The problem determination process does not change. However, moving to cloud presents an opportunity to solve this area if it has been a problem in the past. A detailed RACI that addresses support of all aspects of the enterprise solution will remove redundancy and reduce costs.

Those dreaded words “It’s not in our contract” means that the various teams will stay in their box. Therefore, it is critical to have a RACI agreed to by all parties. This may require a contract modification with your vendors. Failure to follow through in this area will result in finger pointing by the various teams and slow problem resolution.

Regardless of which cloud model your business is considering adopting, ultimately, lowering TCO and recognizing the cloud benefits will determine the value add to your company. 

Michael Ryan is an associate partner with IBM Global Business Services.

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Taxing the Cloud: Tax Implications of Adding Cloud Communications on Providers of Cloud Computing

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Despite the increasing interest in cloud computing solutions, most would be pressed to come up with a single definition or description of what a cloud computing service is. At its core, the “cloud” refers to the Internet. The “computing” aspect of the phrase is what opens up the concept to a virtually unlimited scope of services and solutions. In this article, we focus on the taxation consequences of one particular aspect of cloud computing – the provision of communications services through a cloud-based platform. Of particular importance, are the nexus implications of adding a cloud communications component to a SaaS or cloud computing offering.

In light of the continuing economic stagnation, states face budget shortfalls and pressure is mounting for them to “plug the holes” with tax revenue from new sources. As a result, a number of states have latched onto the potential revenue that can be tapped by taxing cloud-based services. Cloud-based providers need to not only recognize that the paradigm is shifting; they need to prepare for it. Put simply, in the not so distant future, a majority of states will attempt to extract tax revenue from cloud-based services, either through rulemakings involving the current statutory scheme or through the implementation of legislation specifically targeting cloud-based services. Similarly, cloud-based providers cannot hope to avoid taxation on the notion that they lack a “physical” platform that can be linked to a particular state. This is especially true for providers of cloud-based communications solutions.

Under the traditional notion of physical presence, a Web-based hosted software or SaaS provider establishes substantial nexus,

for sales and use tax purposes, where it has a physical presence. In general, substantial nexus exists in jurisdictions where the provider has data center or server located. This is not necessarily the same locations where services are accessed by consumers. Because many remote, cloud-based companies lack physical presence, many states have sought to expand their definition of nexus through the use of concepts such as “affiliate nexus” and “economic nexus,” neither of which necessarily requires an element of physicality. The result has been a flurry of affiliate or click-thru nexus state laws, commonly referred to as “Amazon laws.” States including California, Colorado, Illinois, and New York passed laws establishing nexus for out-of-state sellers who have business referrals through links hosted from the web sites of in-state residents. Colorado and Illinois courts have since overturned such laws finding no substantial nexus, while New York courts have upheld that state’s Amazon law.

Even with the rejection of “Amazon laws” by certain states, not all out-of-state hosted software providers are in the clear from taxation in remote jurisdictions merely because their activity within a particular state lacks a traditional physical presence. Which brings us to the key point of this article: What are the tax implications of adding cloud-based communications services to a cloud computing service? The consequences might surprise you.

As it pertains to state and local communications taxes, substantial nexus exists between the service provider and any state where calls originate, provided the customer is billed for the call at a billing address in the state. Generally speaking, therefore, communications service providers are found to have nexus with states where their customers are located and originate calls. Further, under most state communications sales, use and excise tax statutes, the definition of taxable telecommunications services is broad enough to cover a variety of services, including one-

way and two-way communications that are facilitated by almost any technological means (in other words, the rules are “protocol agnostic” and apply to communications by any means or medium).

Whereas the standard for asserting jurisdiction over more traditional telecommunications providers has been extensively vetted and litigated in favor of the states’ position regarding non-physical nexus, the same cannot be said with regard to advanced and IP-based communications services. For providers of traditional, wire-line telecommunications services, state tax authorities generally establish nexus over out-of-state providers under the theory that such providers must avail themselves of network infrastructure located in the taxing jurisdictions in order to originate and terminate telecommunications traffic. The same may not be said for certain IP-based providers whose services ride over the Internet access facilities of an unaffiliated ISP. For this reason, an argument can be made that such providers are not availing themselves of infrastructure in the taxing jurisdiction in the same manner that a traditional provider does.

But, this theory has not been tested in the courts, and taking this approach is not without significant risks. In particular, this approach would face the prospect of being rejected by state taxing authorities seeking to expand the assessable tax base, thus placing the onus on the service provider to resolve the dispute through litigation with state and local governments across the country. Moreover, this approach is only defensible insofar as the CaaS provider has no other physical presence in the taxing jurisdiction. For example, the provisioning of equipment to customers in addition to the CaaS service would likely create sufficient nexus for tax purposes regardless of how the communications service is provided. Providers should also keep in mind that once nexus is established for one service offering, a

state can then extend its reach to other service offerings, even if those services would be non-taxable if sold in isolation.

Tax risks and exposures are increasingly becoming a significant issue for cloud computing providers, particularly because many are adding cloud communications as a complimentary feature. But providers must be aware of the implications and consequences of adding voice communications because next to alcohol and tobacco, there is no product or service taxed more than

telecommunications. And as Internet-based communications continue to chip away at traditional services, you can be certain the Tax Man is lurking in the shadows, waiting to pounce. 

Jonathan S. Marashlian is the managing partner at Marashlian & Donahue, LLC, a Washington, D.C.-area law firm specializing in telecom and technology matters. Allison D. Rule, co-chair of the firm's Communications Taxes and Fees Practice, assisted in the preparation of this article.

CLOUD Security

by Jon Pincus, Accellion, Inc.



Five Trend-Drivers for Cloud Security in 2013

What's ahead for the cloud in 2013?

You can expect a growing recognition of the ROI-driven value of investments in cloud security. Once considered relatively small, the global cloud security market is projected to reach more than \$6 billion in revenue by 2016, according to Transparency Market Research.

As interest and commitment to protecting data and activity in the cloud increases, here are five key trends that will help frame the decisions of industry leaders for the next year – and beyond.

1. Increased convenience will translate to increased exposure. From a practicality standpoint, it's incredibly satisfying to have a heavily integrated cloud system that supports all of your file-sharing, email, voice and data functions. But, because everything you depend upon every day is connected to this one system, cyber criminals now have a singular pathway to disrupt all of these services – and a much bigger “attack surface” to find vulnerabilities to exploit. In 2013, expect greater concerns to be voiced about our expanding dependencies upon a single cloud structure; however – as is standard practice for technology advancement – continuing innovation will address these concerns through better information security solutions.

2. Data breaches will not write the cloud's obituary. Every significant data

breach in the cloud leads to questions whether the cloud can ever be adequately secured. Public clouds are huge, complex, popular systems, and so, attract more attackers – and garner more media attention whenever there's an issue. But even though you're more likely to hear all the details about any public cloud breach, there are plenty of lower-profile breaches within traditional, private-network enterprises that you won't hear about. In 2013, a clearer understanding of this reality will emerge, and we'll focus on how to better protect data in the cloud instead of resigning ourselves to ill-conceived notions that we'll never be able to do so.

3. The global economy will expose significant complexities about privacy. The beauty of the cloud is that data can live anywhere. And this applies to international organizations that make use of the cloud from nation to nation. Yet, each country applies its own “rules” on privacy; for example, strong European rules on data protection clash with the Patriot Act's requirements on cloud companies that do business in the U.S. No one standard can satisfy all of these rules. Thus, as global commerce continues to gain momentum in the cloud in 2013, companies will face increasing challenges trying to remain within the good graces of local privacy regulations.

4. Enterprises will turn to multi-factor authentication as S.O.P. At one time, multi-

factor authentication seemed a novelty. In 2013, it will increasingly be the norm, as the market is expected to grow by over 20 percent annually through 2015, according to research from TechNavio. Highly targeted attacks such as social engineering and spear phishing are getting far, far too sophisticated for cloud-dependent enterprises to settle for anything less. At the very least, “two-factor” authentication will be required, supplementing passwords with SMS codes, soft tokens and/or card readers.

5. The private cloud presents the best of both worlds. The cloud is here to stay. But the issues detailed here speak volumes about the lack of certainty about security in the public cloud. With the rise of popularity of file sharing and other collaborative activity in the public cloud, organizational managers will have to seek a balance between the protection of their data assets and business functionality and productivity. That's why they'll create momentum for the private cloud in 2013. With the public cloud, they're resigned to operate using the security standards of a third-party cloud vendor. With the private cloud, they still reap the benefits of having their data “live anywhere,” but they set their own standards and best practices to reduce threat risk. Given this, we'll see the pendulum swing more in favor of the private cloud in 2013 and beyond. 

Jon Pincus is senior vice president of products at Accellion, Inc.



The Next Level of Application Performance Management (APM) in the Cloud

Businesses expect many benefits when they move to the cloud, including greater business agility, significant cost-savings and of course, increased profitability. Careful application performance management (APM) can be the key to achieving these benefits, in more ways than one.

Recently, there has been a lot of discussion around the importance of APM in the public cloud, particularly as it pertains to ensuring strong end-user application experiences. The cloud is opaque, meaning that cloud customers often have little insight into the inner workings and capacity management decisions of their chosen cloud service provider. The only way to know for sure that your end users are having a fast, reliable experience with your application is to measure this performance from the true end-user perspective on the “other side” of the cloud, and use these insights as a basis for establishing and upholding application performance-focused SLAs. In addition, you need end-to-end, deep-dive diagnostics to help you identify the source of performance problems, to determine if a problem is based in the cloud, your own data center or another element in the application delivery chain.

Many businesses have made significant progress in using APM to ensure a high level of cloud application performance. They may have reached a point that their applications are fast enough, but this is no time to stop doing APM in the cloud. There's tremendous benefit to be gained by having a better understanding of the inner workings of cloud-based applications. The next level of APM in the cloud is all about optimizing the cost structure of your cloud-based application, which, just like application performance, has a direct impact on cloud return-on-investment.

Put another way, at a certain point, it's no longer just about making applications faster – it's also about making applications more efficient from a cost perspective, and this needs to be taken into consideration at every step of the application development

process. Consider a search function – you need to optimize it so that it delivers better results and is not executed five or more times by every user. This can be considered functional optimization, but also lowers the operational cost, because in the cloud every transaction has a dollar value attached to it.

Making less database access calls per search transaction, while not making the search

For many companies, one of the primary perceived advantages of moving to the public cloud is elastic scaling. Elastic scaling avoids the old way of capacity planning and big expenses upfront; instead businesses can increase the size of their environments as their load increases. But elastic scaling also has a disadvantage – over-consuming planned capacity can happen easily since there is no hard limit, which

The next level of APM in the cloud is all about optimizing the cost structure of your cloud-based application.

faster at all, can save money. This is because most cloud providers charge on a per operation – e.g. per SQL – basis. Thus optimizing the number of SQLs might be more cost effective than saving CPU. In this approach, businesses completely sidestep the question of resource optimization and go straight to where it matters – cost optimization. The fact is, we don't really care about resource usage in a public cloud at all. We care about the true end-result – application SLAs and about cost effectiveness.

Another example is the purchase function. Are there any features that consume a lot of resources in the cloud – product tours or images, for example, that end-users spend a lot of time on? This could be driving up your costs in the cloud. Businesses need to know the cost structure of a transaction and how much revenue it generates in order to set priorities, and so transactions leading up to conversion can be optimized both functionally and cost-wise.

often leads to exceeding cost-estimations. It's therefore critical to directly understand how end users interact with an application (where APM in the form of end-user experience monitoring comes in) and how the application handles the load. Not having this information is operational blindness and comparable to simply passing on the company credit card.

In summary, end-to-end user experience management enables us to understand our users' behavior and how performance affects conversion rates and our business. But in a public cloud this is only half of the APM story. Only if we can accomplish both – satisfy end-user expectations for fast, reliable applications while keeping costs down – can we be successful in the cloud and improve our business performance as a result of using the cloud. 

Michael Kopp is the technology strategist of Compuware.



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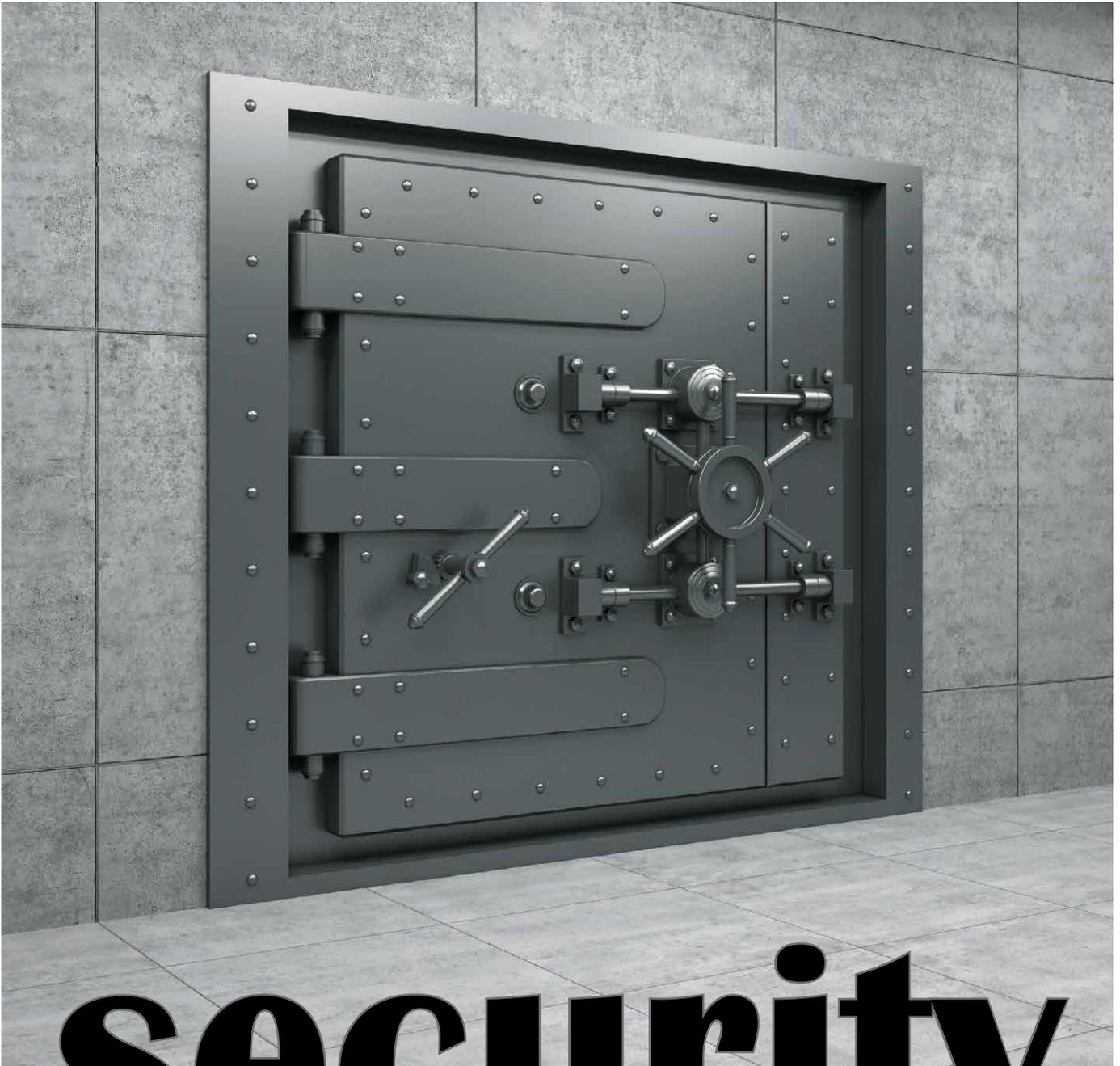
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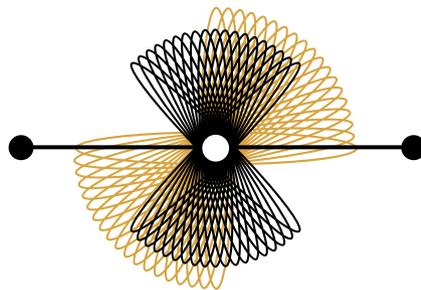
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by Erin E. Harrison

Telefónica Takes Businesses to the Cloud

Perhaps best known as a leader in the telecommunications sector, Telefónica has remained steadfast in its mission to fully support its 315 million customers by developing and providing cloud services that are designed for large enterprise and small and medium-size businesses (SMBs) as well as SoHo and consumer markets.

Large telecommunications organizations such as Telefónica have experience with data center operations, systems integration and complex software systems, giving them a leg up in what has become a fiercely competitive segment of the industry.

With 315 million customers globally, the 85-year-old, Madrid-Spain-based company is one of the world's leaders in the

telecommunications sector, providing communication, information technology and entertainment solutions, with presence in Europe and Latin America.

Recognizing the massive potential that can be derived from "big data," Telefónica Digital recently established "Telefónica Dynamic Insights," a new global business unit dedicated to identifying and unlocking the potential opportunities for creating value from big data.

Cloud Computing recently had the opportunity to catch up with Marcelo Caputo, CEO of Telefónica USA, to discuss why the telecommunications company is expanding on its already established business model and its most promising development that is yet to come.



CC: Considering the number of vendors on the market today, what makes Telefónica USA a strong cloud computing provider?

MC: Telefónica has more than two decades in the data center business, from managed hosted services to today's cloud computing solutions. We are one of few companies that can say we have witnessed the progression in the industry, not only from the technological innovation but from a business aspect as well. Our Miami-based 176,500 square-foot data center (as part of our fully-owned worldwide Data Center network) was deployed during the dot.com bubble in September 2001 when we had the chance to mature along with our customer through the evolution and challenges required to deliver what we call today a good cloud solution. Today we service multinational corporations headquartered around the world because they trust in us their IT and cloud needs. We feel very confident as one of the top providers that we have a solution to meet stringent needs.

CC: What would you identify as the most promising development for Telefónica USA around cloud computing today?

MC: I would have to say that our global presence as Tier 1 provider gives our cloud offering a strategic advantage. This advantage comes from the lessons learned from our other global offerings. Over the decades we have learned that no platform can stand on its own, that there must be a true level of support in place to enhance the overall experience. Cloud offerings are no different: yes there is a certain level of self-automation expected, but it is important to have the correct service level implementation and overall foundation in place. Take, for example, our Global Service Management Centers, which allow for a single



“Today we service multinational corporations headquartered around the world because they trust in us their IT and cloud needs.”

point of contact for our customers or our unique Data Center Network that interconnects our data centers throughout the U.S., Latin America and the Europe. This is a foundation upon which we can build.

CC: What can we expect from Telefónica USA in 2013?

MC: We are very excited to be launching the new Telefónica Channel Partner Program at ITEXPO

East 2013 in Miami. We would like to officially welcome all our channel partners to enjoy from this amazing program to best serve their multinational demands in the U.S. We are grateful to see the interest of multiples channel partners to work with us, and we feel very lucky to represent them with all their multinational customers.

CC: What does Telefónica USA offer its channel partners?

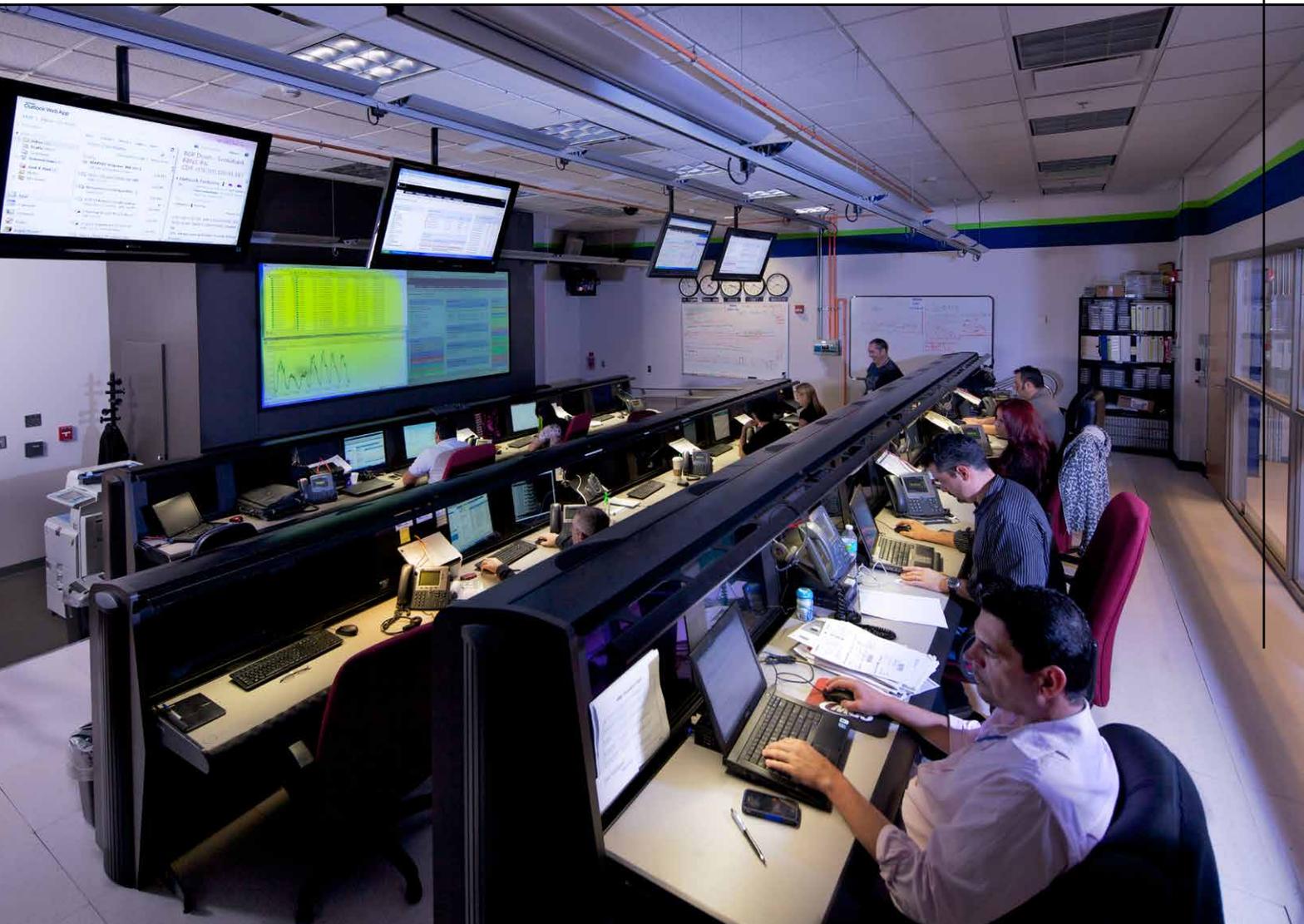
MC: The program will offer very competitive plans and our goal is to take all our partners to a higher level, where they will be able to provide Telefonica multinational services such as cloud computing, international connectivity, worldwide Machine-to-Machine (M2M) communications and many other exciting services.

CC: What other services beside cloud computing do you see Telefónica USA offering to meet today's communications demands?

MC: Telefónica has been a top player in the international connectivity industry where we operate in 44 countries with 21 full networks allowing us to provide one of the most complete state of the art international MPLS networks with more than 300 destinations in all continents. Much like we are doing with our digital services, Telefonica has put a vast effort into developing solutions aligned to our customer's demand for cloud computing services, offerings focused on leveraging the infrastructure, M2M platform, security services, financial services and the development of our new content delivery methods that will allows us to meet customer demands for access to video content on an ever-expanding range of devices.

CC: To summarize, why is Telefónica is smart choice for businesses looking to deploy cloud computing or cloud communications?

MC: Our focus is all about being where our customers are, and providing the services they need. We have the scope, expertise and scale required to ensure that all the parts of our global business are always connected. This is our highest priority. 



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Interconnection: A Key Element for Successful Cloud Computing

As cloud computing continues to evolve, there have been a number of predictions about the impact “the cloud” will have on the colocation business. With more customers increasingly interested in either providing cloud services or consuming cloud services on some level, Cologix, a network-neutral colocation and interconnection provider, is indeed enabling the growth of cloud.

In fact, over the past year, the Denver-based company has added or grown its relationship with numerous cloud service providers, which have selected Cologix due to its reliable environment, dense carrier neutral connectivity and its neutrality position that it will not compete with them for direct cloud service customers.

In a recent interview with Cologix Chief Operating Officer Todd Coleman, he explained how the colocation industry is growing as a result of the cloud, and how Cologix in turn is helping its customers to implement scalable public and private cloud environments according to their business model or cloud focus.

“We are seeing significant growth in the space as a result of the cloud. Cologix is enabling the cloud whether it’s public or private,” explained Coleman. “Depending on how you define cloud-based services, there are two commonalities: Servers need to physically sit somewhere and there are big pipes required to connect them. What is sometimes forgotten is that those connections are physical too and sit in a data center with significant connectivity and redundancy requirements. Our participation in the public cloud is really around the distribution – and we are finding distribution nodes moving closer to the edge of the Internet where the eyeballs and end users are.”

As for private cloud, Coleman says there are a number of providers that offer private cloud services on a dedicated model. Like the public cloud space where Cologix remains neutral to allow its customers to provide services to end customers without competition, Cologix is neutral to private cloud providers and technology partners. For technology partners, Cologix partners with best-in-breed building-block providers to pre-certify their technology and infrastructure for those types of applications. As an example, this past fall, Cologix announced a partnership with Appcore, which



Cologix Chief Operating Officer Todd Coleman

provides an automated cloud-computing platform. The collaboration between the two companies is aimed at enabling customers to deploy Appcore Onsite within Cologix’s 11 data centers across North America.

“Typically, private cloud providers have fewer distribution nodes and are deploying their own services, but latency and network risk are especially important elements for them to consider,” he explains.

Coleman also said Cologix is seeing growth in Tier 2 markets, with some of the company’s colocation sites seeing disproportionate demand.

“From our perspective, naturally the Tier 1 markets are going to get their fair share of growth. On the Tier 2 side, for us, we still believe that cloud architectures will over time look like content delivery networks, and as a result we are seeing growth in distribution nodes of Tier 2 markets like Minneapolis, Montreal and Toronto, to name a few.”

Cologix currently services over 550 customers across nearly every industry, ranging from carrier to managed services, media, content, financial services and enterprise businesses.

“We focus on customers and applications that are sensitive to network or carrier dense environments. We have a significant number of carriers across the telecom verticals as well as a number of cloud-based public and private cloud providers, MSPs, media content providers, financial segment, healthcare, sophisticated enterprises that recognize need to have diverse networks

Cologix Supports Ideal Neutral Environments For Cloud Deployments, Leveraging: Carrier Hotel Connectivity, Reliability and a Unique Footprint

Colocation & Interconnection

Cologix's reliable and network-rich facilities are ideal for cloud environments to on-ramp customer demand and optimize total cost of ownership. Cloud providers and private cloud deployments are recognizing the attractiveness of each of Cologix markets for access to: new demand, including Canadian markets, redundancy and network growth.

In addition, cloud providers are selecting Cologix to support their infrastructure, secure in the knowledge that Cologix will not directly offer cloud services. The neutral competitive environment has resonated among customers as an equally important element in site selection, to the technical and connectivity support.

Cologix currently supports over 550 customers, ranging from network providers, cloud and managed services providers, media distributors, financial services and enterprises.



11 Network Neutral Data Centers Throughout North America

MONTREAL

1250 René-Lévesque
625 René-Lévesque
3000 René-Lévesque
7171 Jean-Talon East
2341 Alfred Nobel
2351 Alfred Nobel



TORONTO

151 Front Street West
905 King Street West

VANCOUVER

Harbour Centre
(555 West Hastings Street)

MINNEAPOLIS

Minnesota Gateway
(511 11th Avenue South)



DALLAS

INFOMART
(1950 Stemmons Fwy)



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and drive costs on networking side,” Coleman explains.

As a colocation provider, Cologix focuses on being neutral as to avoid channel conflicts with its customers. “What we do is provide enabling building blocks, and knowing that there is not

going to be channel conflict allows our customers to be very comfortable choosing Cologix as their colocation and interconnection provider of choice. This is very different than our largest competitors,” says Coleman. “We provide our customers with the opportunity to choose what works best for their business model, whether self-building their cloud deployment using cloud building blocks provided through our technology partners or purchasing turn-key cloud services provided by other customers within our facilities, and everything in between. This allows us to create ecosystems in which we can bring together customers and providers within our facilities.”

Cloud providers as well as cloud services consumers benefit from presence at interconnection points versus the mega-sites that may be near inexpensive power but without significant connectivity options, adds Coleman.

“The mega sites – they all play a role, particularly in the public cloud. Public cloud providers are going to put their compute power somewhere. The natural space for significant compute power is necessarily in a carrier hotel,” he says. “But more than that – ultimately what’s core to the cloud based business is latency and optimizing network costs. From our perspective, the latency sensitive portion of the cloud architecture is naturally positioned for a carrier hotel. Cloud-based providers or their customers find their way into the same data centers. Those compute and storage resources don’t have to sit in the facility but the exchange at the distribution level has found its way into a carrier hotel.”

Looking ahead, Coleman believes the demand for cloud will continue, but the number of cloud providers will level off and only the strong will survive.

“We get more and more inquiries from our customers asking how they should think about the cloud within their business objectives, and there are a lot of options to choose

Cologix History

Operational since December 2010, Cologix has completed six acquisitions and two new market expansions:

- The Dallas Infomart data center from NaviSite
- Canix Colo located in Montreal, Canada
- Telehouse Centre Canada, located in Toronto and Vancouver, Canada
- Standard Connections located in Toronto, Canada
- The Minnesota Gateway located in Minneapolis, Minn.
- Carrier Connex located in Toronto, Canada
- 12,000-square-foot Tier 3 expansion in the Dallas INFORMART building in Dallas, Texas
- 20,000-square-foot Tier 3 expansion at 905 King Street West in downtown Toronto, Canada

from. The real question is, are all of the cloud based providers going to survive? The question is also, what level of market consolidation will take place, particularly given the capital intensity and desire for providers to reach a certain scale within their business. Consumers with a desire to have cloud-based resources are going to continue to grow. The question is at the SMB size to what extent will there be market consolidation?”

In addition, Coleman predicts the current trend of network users recognizing the flexibility and cost-saving benefits from broad provider choice will continue.

“We are uniquely positioned given our value proposition given that we are an enabler of 550 customers who have network choice of over 330 providers within our facilities,” he says. “Bringing those customers and providers together within a facility that is advantageous to all parties, we are going to continue to see that growth continue for some time to come.”

“We get more and more inquiries from our customers asking how they should think about the cloud within their objectives, and there are a lot of small providers out there. The real question is, are they all going to survive?”

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Helping Government **Migrate** Their Applications into the Cloud

Government organizations are constantly faced with the daunting task of doing more with less. Many have turned to cloud computing for the answer and made major investments in cloud solutions like salesforce.com. Now, they must migrate their legacy applications into the cloud in order to truly realize the cost savings, simplification and consolidation that cloud technologies can provide.

Where to Start?

Migrating your government organization's applications to the cloud doesn't have to be as challenging as it sounds. The first step to a successful migration is to find an IT partner that will help guide you through the process. Often, organizations with deep roots in enterprise cloud and implementation space can bring the experience and knowledge learned to their public sector customers. This partner can help you make informed decisions about which applications should remain on-premise, which should migrate to the cloud, which should be developed in the cloud, and all of the required system integration.

Next, you must consider which delivery method fits your needs:

1. Public – Available to everyone over the Internet.
2. Private – Behind your organizations firewall.
3. Community – Shared infrastructure between several organizations from a specific industry with common concerns (security, compliance, jurisdiction, etc.).
4. Hybrid – Any combination of public, private or community.

The Major Considerations

The next step is to look at the different factors that public sector organizations and government agencies should consider when determining an application migration strategy. Here are the main considerations:

- SLAs: Service Level Agreements (SLAs) in the cloud are much different than with traditional IT services. However, you should look for a SLA for application availability, scalability and performance with clear measurements that are current and attainable.

- Data portability: Data portability is important in terms of long-term adoption of cloud computing services. The software as a service (SaaS) vendor should provide a way to allow customers to own and control their application data.

- Compliance: Government agencies and public sector organizations must remain compliant with regulations like FISMA, HIPAA and SOX. U.S. Federal Agencies have been directed by the Office of Management and Budget to use a process called Federal Risk and Authorization Management Program (FedRAMP) to assess and authorize cloud products and services.

- Security: The SaaS application can contain sensitive data when stored on the SaaS provider's infrastructure. Your organization has the option to leverage a private cloud or hybrid cloud model.

- Interoperability: Many legacy applications are disjointed and aging and lack interoperability within the organization or with other agencies and no longer meet the organization's needs. Moving these applications to the cloud can improve application management, data quality, and more timely business processes.

- Long-term costs: The federal government is embracing cloud computing as a means to reduce IT expenditures on infrastructure and services. Cloud computing can provide significant cost savings because of the standardization and automation required for cloud services.

Migrating Legacy Applications

Whether your agency is considering a private or a public cloud as your services model, you need to determine which applications belong in the cloud. The applications chosen for migration and how you approach the application migration process can affect not only the ease and success of the migration itself, but also the user's experience.

To identify what applications are right for your organization to migrate to a cloud, it is necessary to identify and understand the factors for the migration – like cost reduction and agility.

Here are a few types of applications that have been successful in cloud environments:

- Applications that require ubiquitous login for large groups of users across diverse geographical locations; for example, email.
- Spreadsheet or Lotus notes-based applications.

- Most inter-departmental applications for project management, defect management.
- Applications that leverage custom workflows and approval processes that were developed as standalone applications.
- On the operational side, applications that require greater scalability, for example a CRM (Constituent Relationship Management) application.

Overcoming the Migration Challenges

Migrating your organization's legacy applications to a cloud environment might pose several challenges – but with the right measures in place, these challenges can be overcome. A few of the most common challenges include:

- Inconsistent or inaccurate data found in legacy applications must be cleansed and re-mapped for a migration to be successful. Start the data migration process early and keep it simple.
- Change is good – adapt an improved or re-engineered business process that meets your functionality needs rather

than trying to build a new application to replicate the legacy application.

- Pare down – eliminate obsolete applications and consolidate office-specific apps into enterprise apps as much as possible. Use this opportunity to improve underlying processes.
- Improved internal communication and collaboration can be the key to any project's success. New internal social networking tools (i.e. Chatter) can help facilitate this.

In addition, before your organization starts the migration process, identify the key individuals that will see the project through to completion: application owner(s), business process owner(s), and subject matter experts knowledgeable on the migration effort. There is no “one size fits all” cloud solution and each organization and government agency must assess their portfolio of applications and business use cases to determine the right mix of cloud services and/or providers. 

Mariam Burmawalla is director of global services at Acumen Solutions.

Each organization and government agency must assess their portfolio of applications and business use cases to determine the right mix of cloud services and/or providers.

Password:

Is the Cloud **There Yet?**

Amid Security Concerns Linger Apprehensions About Reliability, Integration and Flexibility

Cloud computing has come a long way in the past few years in terms of acceptance and implementation, however as 2013 kicks off, the barriers toward adoption – namely security and integration – still plague CIOs considering shifting to cloud-based technologies and services.

In fact, more than half (53 percent) of decision makers surveyed in a recent Trend Micro study said that data security was a key factor in their decision to put the brakes on cloud adoption.

However, perhaps even more than security, reliability, integration with existing systems and flexibility to change and customize the solution remain general concerns in the minds of buyers, which are being progressively addressed, according to Ross Sedgewick, vice president of global solutions marketing at Siemens Enterprise Communications.

“Beyond that, a general awareness of the capabilities, fit and value proposition of the cloud will continue to take some time to mature,” he says. “There are companies and environments that are not appropriate for a public environment and will always require single tenant infrastructure – fortunately on-premise and hosted private cloud options are readily available now and provide all the benefits of public cloud.”

Meanwhile, Brian Donaghy, CEO of Appcore, predicts mass adoption will grow with the build out of local cloud networks globally this year.

“Telcos, carriers, and ISPs have trust and proximity relationships with their users and are now implementing local cloud resources on those trusted networks,” Donaghy told *Cloud Computing*. “Software developers have leveraged public cloud options to their advantage of the last couple years, and are inherently early adopters. There is also a continuum of understanding the benefits of orchestrated infrastructure for the non-software developing companies, including the advantages of private cloud on premise.”

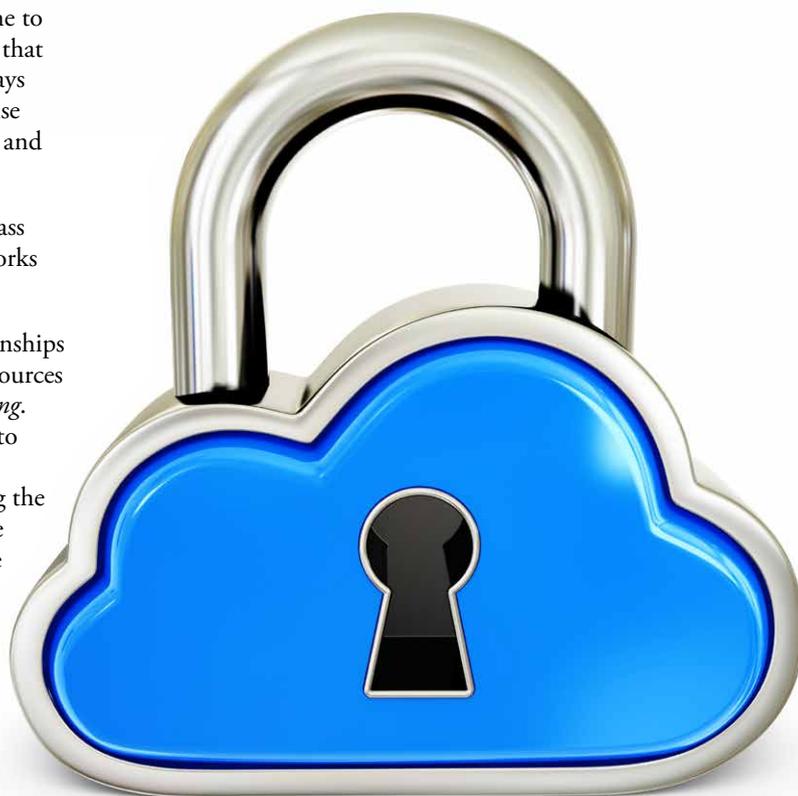
Donaghy says vendors can continue to educate their customers about cost benefits of orchestrated cloud – especially as it relates to their higher end system admins and programmers.

“Cloud can provide automation that frees IT personnel from mundane tasks,” he explains. “Solutions sets and mi-

gration paths that are simply to understand and implement, such as DR, are great places to get started in either a public or private cloud environment.”

But the greatest risk to customers, both large and small, is assuming that cloud solutions are the only way to go – realistically, flexible deployment options is the discussion that should be visited first, according to Sedgewick.

The criticisms surrounding cloud-based services differ among senior-level decision makers at large enterprises versus small and medium-sized businesses (SMBs), but they share a common denominator in their views on service level agreements (SLAs). In the New Year, vendors will be driven to better distinguish their services, adds Donaghy.





“As it relates to service level agreements and utility grade compute services, we will see service providers better distinguish their services based on quality. Not all clouds are created equal,” he says. “There are commodity environments where IOPS and failure rates are less important and then there are utility grade enterprise environments that are mission critical. Both environments can provide pay-as-you-go, self-service and scalability – but provide different quality SLAs and pricing.”

Vendors can overcome service challenges by providing balanced and realistic advice on flexible deployment options – from premise-based, private, hybrid or public cloud, explains Sedgewick.

“One size does not fit all so this type of dialog with customers is a first priority,” he says.

In terms of these specific adoption trends, Sedgewick predicts that disaster recovery usage scenarios – given recent weather emergencies hitting North America – and also Bring Your Own Cloud (BYOD) scenarios for content sharing and “on the fly” storage will expand over the next 12 months.

“Beyond what we’ve said about flexible deployment options, other best practices include looking for an integrated application suites or breadth of solution in the cloud offerings, rather than picking up a number of disconnected point solutions that don’t work together,” says Sedgewick. “Beyond that, larger enterprises should think about private cloud, along with managed services, as a deployment model – we are seeing huge growth and customer acceptance on the private cloud model.”

Overall the way to get started on a cloud strategy is to decide where data should be hosted physically; for example, DR and web hosting is best hosted in an off-premise data center, Donaghy adds.

“Move these services to the cloud first. Then look at ROI on internal systems and all new IT purchases should begin with an internal private cloud infrastructure. This hybrid approach is where the majority of companies will accomplish their IT objectives.” 

Cloud Computing Cuts Major Expenses for SMB: A Case Study

Small and medium-sized businesses (SMBs) are always looking for ways to remain competitive, especially during a financial crisis and economic downfall. Virginia-based Cetrom Information Technology, Inc., a provider of custom cloud computing services for global SMBs, helped DPR Group, Inc., a public relations and marketing agency serving a broad range of technology companies, save over \$120,000 in one year.

The Problem

With both of its offices utilizing a traditional on-site IT setup, DPR Group often ran into problems with accessibility, integration and lost productivity due to extensive downtime and daily IT maintenance issues. With the rapid pace of news today, it’s imperative for this public relations and marketing firm’s account executives to have a reliable method to electronically communicate with clients and the media, while accessing files to support the execution of time-sensitive projects. Additionally, DPR Group was working with a managed services provider that functioned in a reactive break-fix model resulting in excessive downtime, reduced productivity and unnecessary time spent on IT maintenance.

The Solution

DPR decided to move to the cloud and selected Cetrom as its cloud computing service provider because of the

company’s system and track record of zero downtime in over a decade. Cetrom says the company has built its cloud on a best-in-class technology infrastructure to provide flexible mobile workforce capabilities and a high level of IT support services to its clients through a front-line customer support staff of senior-level, certified engineers. DPR Group decided to implement Cetrom’s hybrid cloud model, which enables the company to take advantage of a full cloud deployment, while maintaining the peace of mind that comes with an extra layer of redundancy through backup on a local server. This solution enabled employees to access all of DPR Group’s IT resources anytime, anywhere, and from any device with only an Internet connection.

The Result

With a reliable telecommuting option now in place, DPR reduced operating costs by over \$70,000 annually by consolidating to one physical office in Maryland, while retaining staff in home-based offices throughout the East Coast. DPR also saved \$50,000 in lost productivity with Cetrom’s customer service and 99.99 percent uptime guarantee. With increased mobility and flexibility, traveling executives and sales teams now have easy access to all applications and data on the road. These savings totaled over \$120,000 in a one year with significant return expected each year going forward.

Defining Your Cloud Strategy

The Road Toward a 'Cloud-Enabled' Organization is Paved with Good Intentions, But What Are They?

The hype around cloud (yes, it still exists) has made it difficult for senior IT executives to know where to start, let alone begin to understand the benefits of what it means to be a "cloud-enabled" organization. The choices, the jargon and the frenzy around cloud is, well, jarring for IT leaders who are in earnest looking to make the right decision for their respective organizations.

First, to be a cloud-enabled organization requires a clearly defined and comprehensive strategy to obtain the benefits that cloud can deliver. The range and quality of cloud-based IT services available on the market continues to grow as new and traditional service providers continue to invest heavily, according to John Sepple, global managing director of cloud computing for IT consulting firm Accenture.

"We believe in the game changing capabilities of cloud – driving everything from lowering costs to bringing new services to market. Clients are responding, adding cloud to their legacy IT," Sepple recently told *Cloud Computing*. "As such, we are seeing the adoption of a hybrid model. Our clients continue to see that by living in a hybrid world, their legacy systems and cloud services can co-exist."

A hybrid model – with mission critical systems like ERP at the core and cloud-based innovation and on-demand services at the edge – promises organizations the best of both worlds, says Sepple.

"The hybrid model allows an organization to take advantage of the benefits offered by the new solutions in terms of cost and flexibility, while preserving those of the traditional enterprise systems," he explains.

Cloud can do more than help reduce the existing technology cost base, according to Accenture. A cloud strategy can help IT leaders identify ways to improve the way their business runs and propel top-line growth through new business opportunities.

The Journey to Cloud

Overall, enterprise cloud adoption is at the very beginning of a decade-long shift from "mostly" on-premises to "mostly" cloud computing. But many businesses are taking a cautious approach to

"the cloud" by typically identifying 1 to 3 IT workloads that should move from local to cloud as a test, according to Greg Arnette, chief technology officer at cloud archiving and search provider Sonian.

A workload under consideration for migrating to the cloud must pass a justification test, like by moving "this" workload to the cloud will the business save money? Be more reliable? Be more secure? Benefit from better performance? Saving money and at least one additional incentive must be in place, he says.

According to Arnette, enterprises are moving to the cloud in phases, which are as follows:

Phase 1: "Indirect cloud usage" – Businesses use the cloud indirectly when they subscribe to software-as-a-service (SaaS) that uses the cloud. Some examples are Sonian Archiving, DropBox, and ESRI GeoSystems. Business do not deploy or directly control the cloud infrastructure in this phase, but they get comfortable with cloud economics, security and performance.

Phase 2: "3 Workloads to the Cloud" – In this phase, enterprises will consider directly utilizing the cloud for small projects. They may or may not use a third-party service to broker their direct usage (companies like RightScale, EngineYard, Heroku are examples of "cloud brokers"). Early workloads will be backup, disaster recovery, test and development, and second-tier IT systems. Critical systems (file, print, core storage) will stay on-premises. Phase 2 may include "cloud bursting" ... using the cloud as a temporary burst of infrastructure for research and special projects.

Phase 3: Core IT starts using the cloud – Primary systems may shift to the cloud and secondary or backup may stay local. This phase is still five to seven years away.

Across the cloud stack, Accenture helps enterprises plan, implement and manage their infrastructure, platforms and applications in the cloud. The firm also provides cloud strategy and security services across all of these areas.

"In the area of cloud strategy we've rapidly evolved our services with the development of tools as well as diagnostic capabilities, which help guide discussions around living in a hybrid world," Sepple says.

To help clients develop their cloud strategy, Accenture aims to answer the following key C-suite questions:

- How do I separate the realities of the cloud from the hype?
- What steps should I take to get started in the cloud?
- How concerned should I be about privacy and regulation?
- Which of my mission-critical applications are candidates for cloud?
- How does my operating model need to evolve to support a cloud strategy?
- How do I procure for the cloud?

“To give you an example, a European telco came to us to evaluate how cloud services could deliver top-line incremental revenues for the B2B segment. Accenture aligned the various departments behind a common B2B Cloud Vision, and delivered a set of tools that will further support the implementation, including a roadmap to launch new services, an operating model and a go-to market strategy,” explains Sepple. “The result was a common view across the organization on how cloud computing can contribute value and a roadmap to get there.”

Cloud computing offers organizations a range of benefits, from lower costs to higher speed, agility and scalability, all enabled by flexible access to applications and processing power on a pay-per-use basis.

In particular, cloud enabled-businesses have agility that is so important in today’s hypercompetitive and connected world. It does so by supporting the following key dimensions of agility:

- Connectivity and integration everywhere across every device – something that the next generation of consumers and employees demand and expect.
- Quick, seamless and real-time collaboration between and among stakeholders across the value chain.
- Improved speed – the cloud allows IT departments to respond to new circumstances in hours, not months or years.
- The ability to derive greater value from data and knowledge, using advanced, real-time analytics to drive business decisions.
- Cost reduction and the capacity to do more with less
- And importantly, the use of cloud to introduce new business models for the enterprise

“While the concept of cloud is simple, determining how cloud best fits with the business strategy and organizational structure is incredibly complex,” explains Sepple. “It changes the way the business and IT interacts at a strategic level. ITs



role must shift dramatically and quickly, lest the business move forward without it.”

For a business to truly benefit from cloud computing a fundamental reshaping of the IT operating model and the whole relationship between IT and the business is required. This transformation enables the business and IT to escape the restrictions of its physically constrained past.

Best Cloud Strategy Practices

In terms of best practices, Arnette advises organizations consider the following when developing their cloud strategies:

- Make a plan that stages cloud adoption. Take it slow and thoughtful.
- Trial 1 to 3 sample workloads that can return quick payback in either cost, security or performance.
- Understand “you” may already be using the cloud indirectly with cloud email, cloud file storage, cloud syncing, and cloud archiving. These services are seeping into the enterprise at the business department level and not necessarily vetted by enterprise IT.

“The cloud has allowed companies to fundamentally change the approach to programs/projects to a ‘test and learn’ methodology based on lower costs and speed of implementation,” adds Sipple. “This is opening new opportunities and accelerating adoption.”

However, to some, cloud is nothing more than a different way of arranging resources for a company’s applications to run on – either on premise or off premise.

“IT still has to understand what the business goals are and deliver resources to support those goals. Looking at how business and IT view each other is always an interesting study that most companies do not take the time to examine,” Kevin Gruneisen, senior director of data center solutions at Logicalis, recently told Cloud Computing.

Organizations are starting their cloud journey at different entry points and with various initiatives. If they are to realize the full potential of cloud, they will need to complete the following actions:

- Revisit the IT strategy to incorporate cloud.
- Design and implement new governance, IT organization, IT architecture and service catalog. Select strategic ecosystem partners.

- Establish the cloud integration services capability.
- Select and implement chosen software-as-a-service (SaaS) solutions.
- Replace/replatform existing applications and build new applications.
- Design and implement a hybrid cloud-based infrastructure.

Slow and Deliberate – or Trial and Error?

While many businesses have taken a “trial and error” approach to cloud over the past few years, in 2013 and beyond they will be more strategic, according to Arnette.

The reason for the cloud is either “best cost” or “best performance,” he says, and with the cloud, there is the opportunity to have both. For on-premises IT, these two goals were always at odds with each other.

However, a reasonable internal ROI analysis should find a few IT pain points that might be better deployed to the cloud.

“Priority should be given to the pain point that can save budget, or deliver a faster result. Typically an IT solution that has bursty activity is a priority for moving first to the cloud. The cloud is best for dynamic workloads, and worse for static workloads,” explains Arnette. “An application that needs to spin up for a few hours or few days a month would be a good example. Or an application that needs lots of storage and CPU for a month and then never used again is another example. Many large IT shops have a few of these in the search, analytics, reporting area.”

With many organizations already reaping game-changing benefits by using the cloud, remaining on the sidelines waiting for the right moment to commit to the cloud isn’t an option, warns Sipple. “Strategically planning cloud adoption and evaluating where cloud plays a role is fundamental in order to generate the desired business benefits.”

Logicalis is seeing a lot of companies that have the understanding that cloud means “off premise” and initially get turned off on the idea.

“Reaction is often tied to the industry that the company is in. Healthcare for example is very anti-public cloud but the technology of on-premise IT automation still makes sense,” explains Gruneisen. “What I see most is customers treating cloud solutions as point solutions and missing the need to strategize. Companies think they are just too busy and it could come back to haunt them. Our recommendations are to take a step back and spend time understanding the service models and the types of clouds and how they map back to the goals of the business.” 

Cloud Storage Excellence Awards

Storage – it's the one thing you are certain to outgrow with time. The massive volumes of multimedia content being produced and consumed are overwhelming traditional storage facilities, leading to an increase in the use of cloud-based storage. From individual consumers to large multinational corporations to service providers, new volumes of data, content, applications and services are being stored, accessed, analyzed, run, and managed in a cloud environment. The instant scalability, deployment flexibility, and ease of use and access have made it a natural alternative for users, while the ability to create economies of scale have built the business case for storage vendors. Furthermore, in the wake of multiple widespread and long-lasting outages, cloud has also provided the foundation for BC/DR services for countless businesses.



Recognizing not only the growth, but the natural value in cloud-based storage, Cloud Computing magazine has launched its Cloud Storage Excellence Award. The companies selected have driven the maturity and expansion of the cloud storage market through innovation and product quality. We congratulate the winners of Cloud Computing magazine's inaugural Cloud Storage Excellence Award.

Company	Product
AirWatch	AirWatch Secure Content Locker
Basho Technologies	Riak CS
Citrix	Citrix ShareFile
Datto, Inc.	SIRIS
Hitachi Data Systems	Hitachi Content Platform (HCP)
Panzura	Panzura Global Cloud Storage System v3.0
Radware	Radware Cloud ADC Solutions
Red Hat, Inc.	Red Hat Storage Servers for Public Cloud and Hybrid Cloud
SurDoc	SurDoc TruPrivacy technology
Xyratex	ClusterStor

**SPECIAL
Feature**



by Erik Linask

Is Cloud Adoption Dissipating?

When you look at what's happened in the cloud computing space in the last 12 months, it's nothing short of remarkable. A year ago, I noted that the increase in mobile app usage in the consumer segment, as well as enterprise adoption in a range of use cases, would help sustain its growth.

The consumer market will continue to support service provider cloud utilization – it's the only way they can support subscriber demand, and also the only way they can efficiently and cost effectively store, analyze, and monetize the incredible amount of data those users generate.

On the corporate side, while cloud will continue to grow – 82 percent of businesses are using software-as-a-service (SaaS) applications in some capacity already, according to the 2012 Future of Cloud Computing survey by North Bridge Venture Partners. A JP Morgan study earlier in 2012 indicated that 55 percent of corporate CIOs planned to increase their SaaS spending this year.

Largely, this is a function of mobility, which has become an inseparable component of today's business environment. Business agility and mobility were two of the top five drivers of cloud growth, according to the North Bridge study.

However, while cloud is changing the way we define software, and the way we are able to perform our daily activities, the coming year will bring a slowdown in the growth of cloud.

First, we are past the early adopter stage. While cloud is, in fact, a mainstream technology that recognition also means the next stage of growth, while sustainable, will not be as sharp as initial adoption. It rarely is. The benefits of cloud computing have been widely documented by vendors, customers, and media alike.

So, why will growth slow?

- Existing investments – as with any technology, one of the key factors in delaying adoption is a desire to maximize ROI on existing investments. Why pay a recurring fee for cloud services when your existing software is still able to support your needs?

erability between those providers, which, due to a lack of complete and ratified standards, is not yet reality.

- Service Quality – Cloud services need to be monitored, just as any other service. Most of today's monitoring tools are not capable of incorporating multiple clouds or hybrid cloud/on-premises environments, making it difficult and costly to have end-to-end visibility.
- Access – We are still nowhere near ubiquitous reliable access – signal strength and bandwidth limitations still plaque

There is no question cloud helps reduce CAPEX, but whether it is most cost effective than traditional alternatives in the long term is debatable.

- Long-term costs – There is no question cloud helps reduce CAPEX, but whether it is most cost effective than traditional alternatives in the long term is debatable. Proving the TCO benefit will prove difficult for many. In fact, the North Bridge study suggests that some businesses are finding that cloud does not lower TCO.

- Security – Significant strides have been made, but breaches serve as a constant reminder that the hacker community is half a step ahead of the vendors, causing some businesses to shy away altogether and others to limit what they migrate to the cloud.

- Standards and Interop – Because businesses will often prefer to use multiple cloud providers, for redundancy as well as specialized services, they require interop-

public access points. If you're outside your home or office, this means access to cloud resources is still hit or miss in many cases, causing many to still lean towards traditional deployments.

- Vendor vs. User – In many cases, there is a significant gap between user and vendor sentiment regarding and or all of these factors, which must be reduced in order for adoption rates to be maximized.

None of this should be viewed negatively. Rather, they are signs of maturity in a market that, only a year ago, was faced with more questions than it could answer. Today, organizations are doing real business in the cloud. More will continue to adopt cloud services. They will just be cautious and make their cloud investments wisely. 



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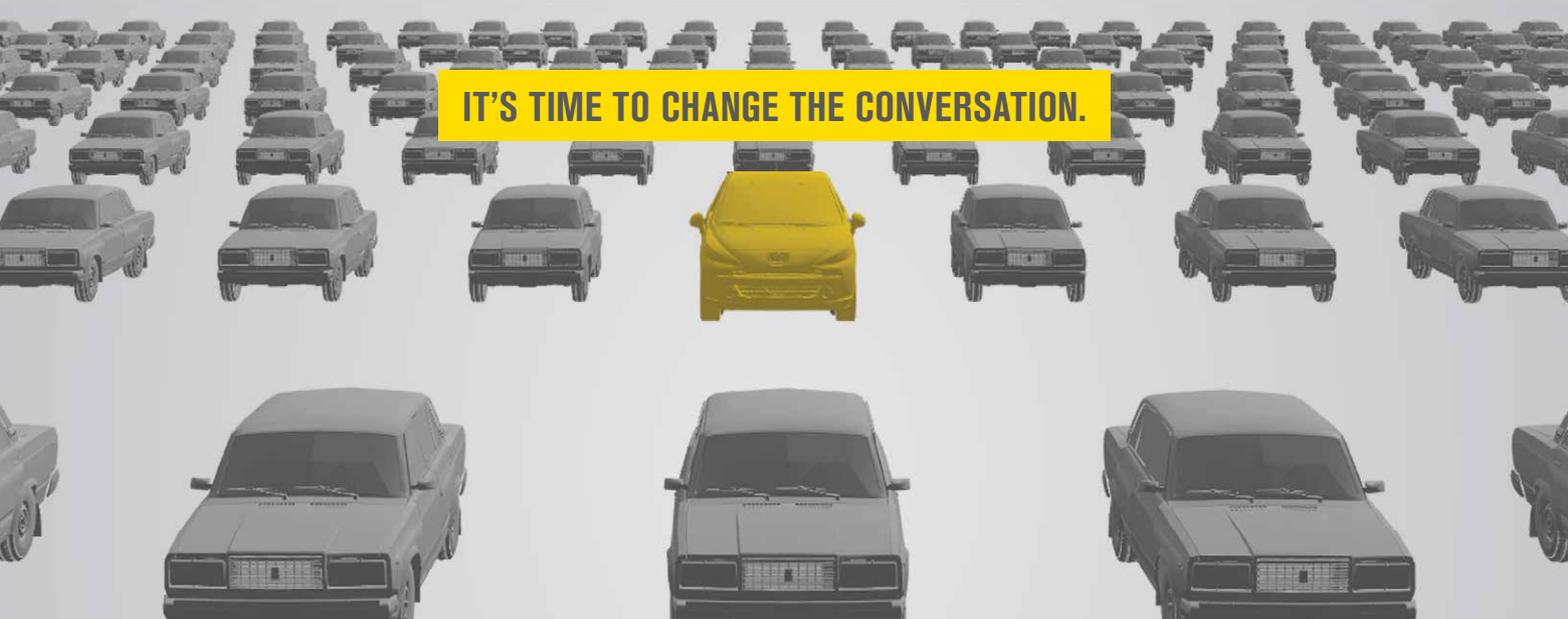


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