

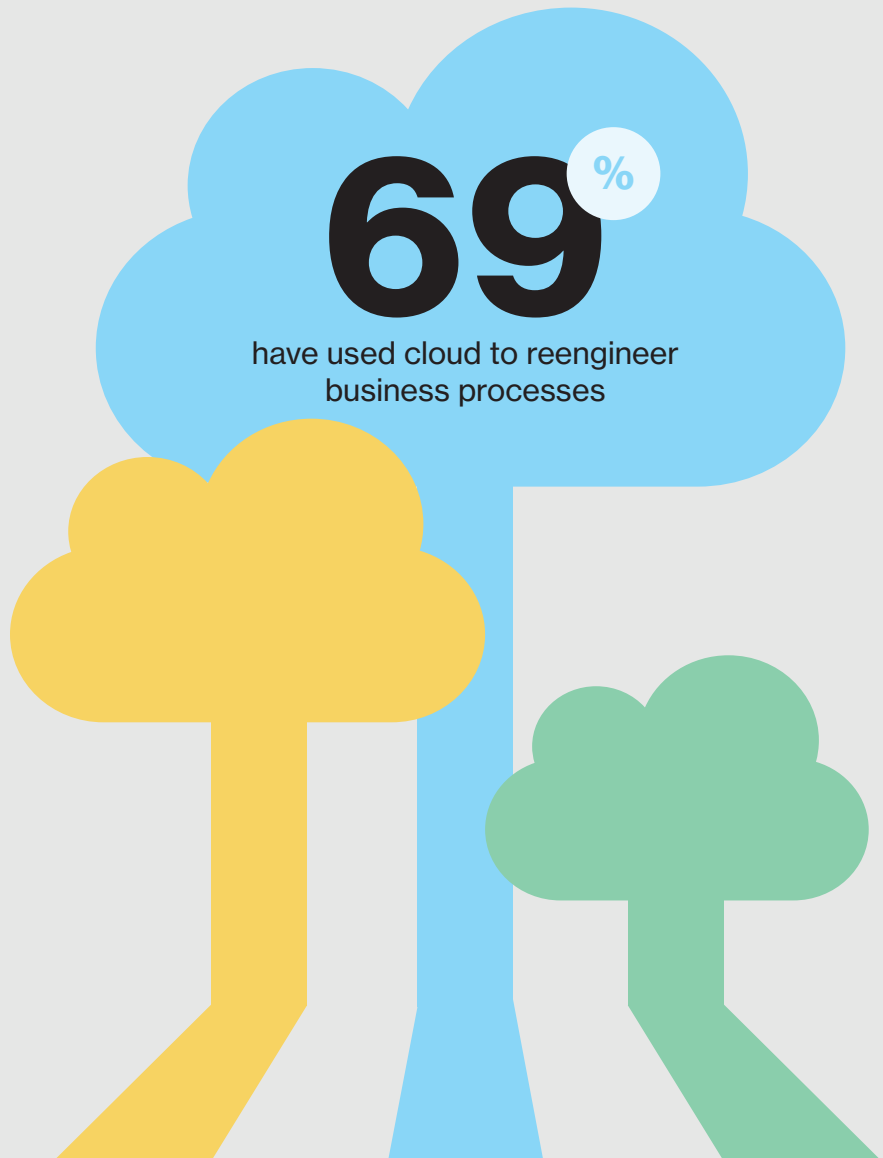
State of the Market: Enterprise Cloud 2016.

From adoption to transformation.

verizon[✓]

69%

have used cloud to reengineer
business processes



The evolution continues. Last year the news was that cloud was being used for mission-critical workloads. Cloud's now firmly established as a reliable enterprise workhorse, and what's most interesting is how it's driving transformation. Organizations are using cloud to create new customer experiences, reengineer their business processes and find new opportunities to grow.

Sources

In writing this year's report, we've drawn on multiple data sources:

- Verizon reports: including last year's *State of the Market: Enterprise Cloud 2014* report.
- Verizon customer survey: survey of Verizon's enterprise-level cloud customers (October 2015).
- Verizon-commissioned research: Harvard Business Review Analytic Services report *Cloud: Driving a faster, more connected business*, commissioned by Verizon (2015).
- Third-party research: studies from Forrester Consulting, Gartner and IDC to add additional perspective to our findings.

Contents

From adoption to transformation	3
Everybody's doing it	4
Strategies are diverging	5
Models are changing	6
It's business as usual	8
Recommendations	10

From adoption to transformation.

In the three years we've been producing this report, we've seen cloud go from a newcomer to part of the established order. But despite the maturity of cloud, the market is still developing and most organizations are still finding new and exciting ways to take advantage of it.

In last year's enterprise cloud report¹ we talked about how cloud was redefining the role of IT. That's proceeded apace. In many organizations the IT function is now much more closely aligned with the lines of business (LOBs) and is adept at managing a portfolio of cloud providers.

Companies are combining public, private and on-premises infrastructure to create highly sophisticated, customized environments. These environments can provide the ideal mix of performance and flexibility. This can enable even the most established organization to do things in new ways, and disrupt even the most entrenched industry.

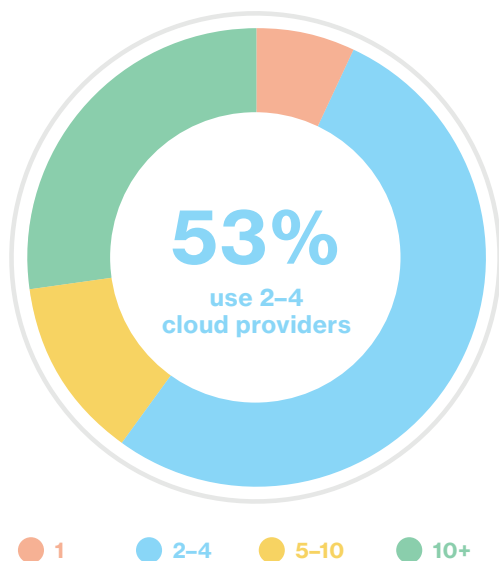


Figure 1: Number of cloud providers²

It's not just IT functions that are changing, cloud providers are too. Sophisticated new services and powerful new tools are making it possible for even the largest, most ambitious organizations to put their whole infrastructure in the cloud and transform their business.

69%

say that cloud has enabled them to significantly reengineer one or more business processes².

We've seen lots of change, but there's more to come. In this paper we'll discuss:

- How cloud use is growing more sophisticated.
- The importance of cloud in digital transformation.
- The three different personas that are emerging.
- Ways in which cloud is being incorporated into IT strategic decision-making.
- How organizations are looking to managed services to make the most of cloud.

So what's the state of cloud today? Read on.

In just a couple of years, we believe that over half of all workloads — across organizations of all kinds — will be running in the cloud.

Everybody's doing it.

Another year, another plethora of cloud adoption reports saying that cloud adoption is reaching 100%. By that we mean almost all companies are using cloud, not that all organizations are using cloud for everything.

Proportion of workloads in the cloud

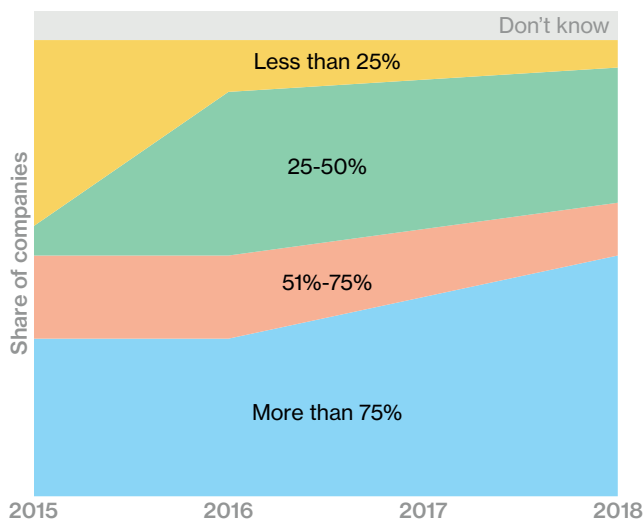


Figure 2: Shifting share of workloads in the cloud²

In last year's report¹ we found that cloud spend had grown 38% year-on-year. That phenomenal growth continues, with 84% of companies saying that their use of cloud has grown in the last year².

84%

of respondents say their use of cloud increased in the past year³.

Around half of companies say that they will be using cloud for at least 75% of their workloads by 2018. In just a couple of years, we believe that significantly over half of all workloads — across companies of all kinds — will be running in the cloud.

Using cloud isn't enough anymore

As cloud increasingly becomes the norm, the edge it gives a company is falling. It still has a major role to play in delivering competitive advantage, but using cloud is now just table stakes.

Competitive advantage of using cloud

% saying cloud gives competitive advantage has risen



% saying that cloud gives significant advantage has fallen

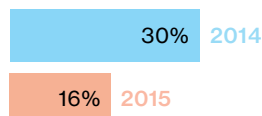


Figure 3: Competitive advantage of using cloud, 2015 versus 2014³

It's not enough to think "cloud first". To derive significant competitive advantage from cloud you need to think how you can leverage it to enable digital transformation, change how you do business, and disrupt your market.

Has cloud enabled you to adapt business model?

(for instance, moving to usage-based pricing)

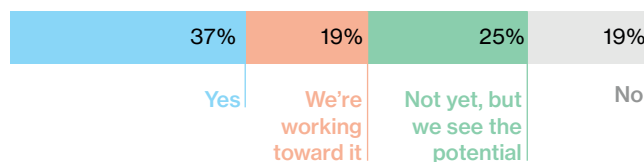


Figure 4: Organizations using cloud to adapt their business model²

Our research shows that more than a third of organizations have already adapted their business model using cloud — for example, creating new customer experiences or radically changing their cost base. A further fifth are in the process of doing so².

Is your strategy fit for the future?

Which persona fits you best?



Strategies are diverging.

As the use of cloud has matured, the ways in which companies are using it have diverged. While every company is different, they fall into three personas: the skeptics, the natives and the pragmatists.

The skeptics

It's now widely recognized that technology is key to competitiveness, even survival. And so it's unsurprising that today it's very unusual for us to find an organization that hasn't adopted cloud to some degree. Only 6% of respondents in our survey said they think their company will have less than 25% of workloads in the cloud by 2018, shown in Figure 2.

It's not that these companies – we call them skeptics – don't see the potential benefits of cloud, it's that they are yet to be fully convinced. Companies in this group aren't rejectors, they almost certainly use SaaS, and probably lease hardware and software stacks from vendors. While this doesn't give them demand-based pricing, it does give them some insulation from upfront capital costs.

Skeptics' reluctance is often due to corporate attitude toward risk management, governance, or capital investment. Some industries, like financial services, are home to more skeptics than others. As cloud becomes more established and skeptics see what their competitors are able to do with cloud, their numbers are dwindling.

The natives

It's not just the unicorns – those highly distinctive businesses like Uber and Spotify, often cited as examples – many businesses are now cloud-first or even cloud-only. We call these companies the cloud natives.

You don't have to be small or a start-up to be a cloud native. With everything from spreadsheet to enterprise resource planning (ERP), customer relationship management (CRM) and payroll software available in the cloud on a subscription basis, many companies are choosing to buy services rather than servers.

The pragmatists

The skeptics and natives form the ends of a wide spectrum. The majority of organizations are taking a measured approach, striving to create an enterprise-class infrastructure using standard components from cloud providers tied together using APIs and orchestration services. We call these companies the pragmatists.



Typically these companies have a thorough understanding of what's involved in a cloud project and what options are available.

Even when faced with an extremely demanding workload with complex requirements, they will work with specialist enterprise service providers to build the infrastructure they need. This might include sophisticated load-balancing and acceleration, and highly resilient, ultra-high bandwidth connections between systems.

In a sense, these organizations are the true believers. Even though they have large estates and complex legacy applications, they are so convinced by the benefits of the cloud approach that they are rewriting the rulebook.

This model, hybrid IT, brings together cloud, both public and private, with on-premises and colo. It also recognizes the importance of the network. Tying all this together can be challenging. Many pragmatists have turned to managed services providers to help them.

The companies leading the way in this group use a sophisticated scoring system to assess each workload on characteristics like sensitivity of data stored, availability requirements, and elasticity required. Some have even automated this process so that they can spin up an appropriate environment with little manual involvement.

Some early pragmatists relied heavily on vendor-specific cloud features, making it hard to move systems as needs changed and new options emerged. Because of that, pragmatists are focusing on how to avoid vendor lock-in while increasing automation.

Most companies need a mix of different types of cloud to provide the value, manageability and security they require.

Models are changing.

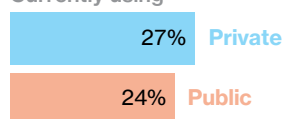
Private cloud is becoming less exclusive

“ We see companies increasingly turning to private cloud and believe that in the future public cloud will only be used in very specific circumstances.

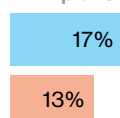
One of the biggest changes we're seeing in the cloud market is a dramatic fall in the barriers to entry of private cloud. This is largely being driven by advances in technology. Lower starting costs mean that private cloud is no longer only suitable for those with huge budgets – even a relatively small number of servers can be economically viable as a private cloud. And this narrowing of the price difference between public and private cloud is changing the value equation.

Current/near-term cloud adoption plans

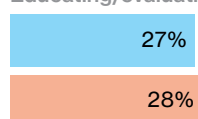
Currently using



Firm plans to implement



Educating/evaluating



No interest/don't know

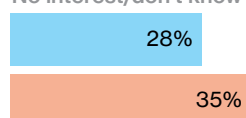


Figure 5: Enterprise expectations of cloud adoption⁴

In the past, the approach taken by many companies roughly followed a similar model: public for non-sensitive workloads; private cloud for more sensitive stuff; and traditional on-premises for difficult-to-move and highly sensitive workloads. Because the cost of private cloud is falling, it now makes sense for many companies to move more of their workloads to private cloud.

There will always be a place for public cloud, especially for workloads that need lots of elasticity but perhaps not so much in the way of risk management and governance. Many websites (but not e-commerce) and testing projects would fall into this category.

But with the cost difference falling, the additional reassurance offered by private cloud is very appealing. We see companies' reliance on public cloud declining (see Figure 5), and believe that in the future it will only be used for a narrow set of workloads.

Likewise, at the difficult-to-move (whether that's due to performance, security or refactoring concerns) end of the spectrum, the cost benefit of moving from legacy environments is now even more compelling. So for many applications destined to be sunset – perhaps five years or more in the future – the cost-benefit analysis now favors an extended life in the cloud.

“ Financial benefits (outside of potential cost savings) are significant: 40% say it has increased revenue and 36% say it has increased profit margins³.

We should stress here that the benefits aren't just financial, they also include keeping users happier, improving risk management, and enabling digital transformation. As we all know, legacy systems are one of the biggest obstacles to system integration and innovation and cloud can help alleviate this.

Hybrid cloud is now mainstream

Advances in technology are changing the cost-benefit equation and making it easier for companies to build more powerful environments in the cloud, enabling them to move more workloads and transform more processes.

It's been suggested that hybrid cloud – the use of a mix of models, including on-premises and public and private cloud – will become mainstream within five years. We think that it already is, especially for large organizations.

There are already services that enable companies to create a sophisticated environment made up of multiple clouds from multiple providers, but make it look like a seamless part of the enterprise infrastructure.

Many companies still rely on core systems built on legacy technologies that can't be moved to the cloud and which they aren't ready to refactor or replace. This can hold back transformation efforts, like improving the customer experience. With hybrid IT, these systems could be physically colocated in the same place as a private cloud, creating a reliable, high-performance solution.

75%

According to a recent survey by Cloud Cruiser, three quarters of companies said that they planned to include hybrid cloud as part of their strategy⁵.

Hybrid deployments can be complex to build and maintain. While the technology is already mainstream, it's still a relatively new area and there's a lack of people with the necessary skills and experience.

Many companies are turning to managed service providers to help build and manage the environment they want. Taking this approach can help overcome the challenges with moving to cloud, deliver significant cost and business-agility benefits, and reduce the risk of making the wrong technology decisions.



Around half of companies now use hybrid cloud, or can easily move workloads between clouds



Figure 6: The use of mixed cloud environments⁴

Cloud is now an integral part of many companies' IT decision-making processes.

It's business as usual.

It's prime time

Organizations aren't just using more cloud, they are using it for applications that are more demanding and more important to everyday operations and performance. This often includes multiple mission-critical applications.

Do you use cloud for mission-critical workloads?

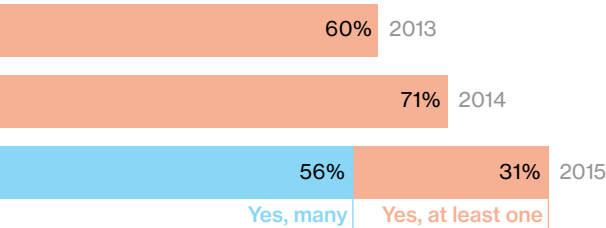


Figure 7: Companies with mission-critical workloads in the cloud²

For the types of workloads that organizations put in the cloud from early on – like web apps and dev/test – cloud is now dominant. But cloud is rapidly gaining ground even in mission-critical areas – over a third of companies have at least half their ERP workloads in the cloud.

Share of workloads in the cloud

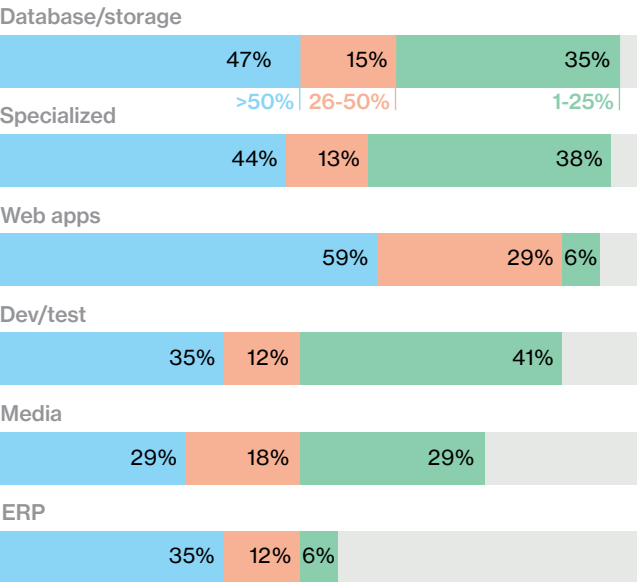


Figure 8: Workloads in the cloud by application type²

It's no longer seen as a "project"

A lot of organizations have completed their first wave of "cloud migration" projects. These projects actively sought workloads to move to the cloud and picked up all the stuff that was easy to move.

But cloud is now seen as just as reliable and secure as traditional delivery models – if not more so. And many companies are considering it alongside on-premises and other delivery options when provisioning a new app or performing a review of their current portfolio.

What's the availability/reliability of your cloud environment compared to your own on-premises infrastructure?

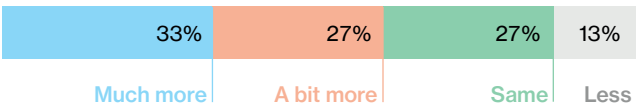


Figure 9: Reliability of cloud versus on-premises²

How secure is your cloud environment compared to your on-premises infrastructure?

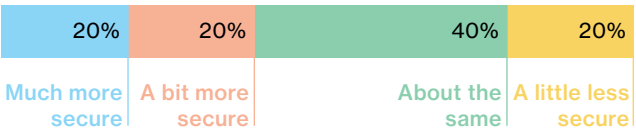


Figure 10: Security: cloud versus on-premises²

Some organizations are now targeting specific groups of apps for migration, often because they are difficult to manage or becoming a roadblock to transformation. We're also seeing more and more workloads moved as part of routine application portfolio management.

68%

say they must invest in cloud/ SaaS to achieve business priorities⁶.

It's chosen for strategic reasons

Application portfolio reviews consider the value delivered by each application versus its cost — including maintenance and support. While cost was an early differentiator for cloud, increasingly organizations are choosing cloud for the value it can add, not how much it can save them.

Main reasons for moving mission-critical workloads into the cloud

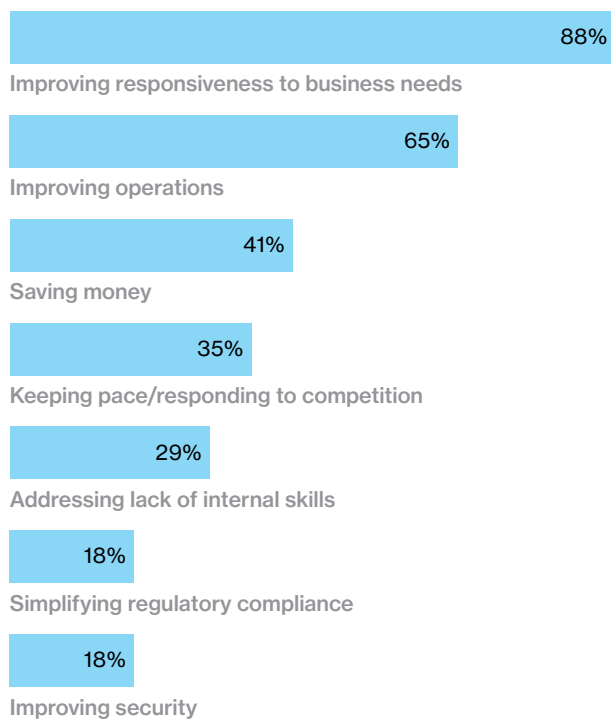


Figure 11: Reasons for migrating mission-critical workloads²

But the capabilities and economics of cloud are changing so quickly that organizations must review their decisions more frequently. Where in the past decisions about core systems might have looked 20 years ahead, today decisions made just a year ago could be no longer valid. Failure to revisit plans doesn't just risk overspending on IT, but could mean being outmaneuvered by competitors and losing market share.

It's many companies' first choice

A growing number of organizations — the US government was one of the earliest — have made cloud their preferred choice. It's not just natives, many pragmatists are now thinking "cloud first".

This reflects the fact that not only are the economics favorable, but cloud enables so many of the other things that companies are trying to achieve.

83%

say that their company sees IT as "an opportunity to differentiate/disrupt and gain market share"².

Whether it's developing internet of things services, increasing use of mobility or creating new customer experiences, cloud is often an important enabler. Bringing services together in the cloud can help organizations integrate systems and data, accelerate innovation and align business and IT strategies.

55%

say they need to invest in alignment of business and IT strategy to meet their 2015 business priorities⁶.

Just because cloud is no longer new doesn't mean it doesn't present challenges. There's plenty to do to make the most of the opportunities.

Recommendations.

Keep projects short

While it's important to take a strategic approach to cloud, with structured programs and robust measurement, it's important to keep projects short.

“Many cloud migration projects can be completed quickly and these are the most likely to be successful.

We've found that six months is a good upper limit on the length of a project. This helps maintain momentum and limits the impact of technology changes.

Don't try to do it alone

Cloud is a broad field and a rapidly moving one. Keeping abreast of the changes in technology is no easy feat. It's not just hard to recruit and train the right people, it's difficult to know what skills you'll need in a year's time.

Many companies lack sufficient experience with cloud projects, especially those involving mission-critical applications and major transformation. And while standards and frameworks are evolving, these are only part of the answer.

“In the absence of any agreed standard, many US state and local government bodies are adopting the federal government's FedRAMP framework to assess cloud services.

Managed service providers can supply specialist skills and knowledge, augment internal capacity, and free up the internal team to focus on governance and monitoring how well the cloud platform aligns to business needs.

Improve transparency

The concept of shadow IT still comes up in many articles on cloud. But in our experience it's more of a media fascination than a reality. While the LOBs have more technical expertise than before, they still rely on IT.

Despite the advent of cloud, managing enterprise infrastructure remains a highly specialized task and even IT departments are struggling to attract and retain the right talent. Most organizations believe that achieving digital transformation requires a well-thought-out, companywide approach — not mavericks with credit cards.

“Another interesting data point revealed that 44% of the respondents do not have any means to employ chargeback or showback for their delivery of IT services, but 56% indicated that they were planning to provide service cost transparency to their businesses⁵.

Most IT functions have adapted to meet the demand to be more responsive and flexible, but there's still room for improvement. Studies suggest that IT budgets are only growing slowly, if at all, and most of that money is still being spent on keeping the lights on.

The provisioning and movement of environments will eventually be highly automated based on business rules. Until then, the IT function must serve as a center of excellence for scoping and management. Improving reporting on performance and internal recharging will help IT demonstrate the value that it's adding and get the money it needs to fund transformation.

Continually reassess security

Managing risk remains a “go to” topic when discussing cloud. Few articles fail to highlight the perceived dangers. But in the last two surveys that we’ve undertaken, fewer than 5% of companies had experienced a significant data breach that was directly attributable to a cloud-based service – and that includes SaaS applications².

As cloud became more pervasive within organizations, IT had to step in and make sure that it was properly managed from a policy, control and compliance standpoint. The result has been a decline in shadow IT projects, clearer definitions of expectations and greater service-provider transparency. So now when we ask about cloud, most companies say that their cloud environment is as secure, if not more secure, than their traditional infrastructure.

In the past, studies have shown that many companies keep paying for security services that have been shown to be ineffective – a bit like sticking to your lottery numbers. The shift to cloud forces companies to reassess the focus of their security and governance spend, and this can lead to greater effectiveness and better value for money.

Reporting has a key role to play. When assessing cloud providers, ask them about their reporting capabilities. Choose one that’s able to provide extremely granular and reliable information on demand and performance, consistently across applications and functions. As well as providing valuable inputs for planning, this information can help you keep reassessing your security needs.

Some vendors have launched specialized solutions tailored to specific security and compliance needs. Consider options, like PCI-DSS- or HIPAA-friendly services, to accelerate solution development and reduce the burden of managing governance and compliance.

Don’t forget the network

IT and the LOBs, and even analysts, agree that connectivity is critical to the success of cloud projects.

“The network is critical to the success of cloud projects”

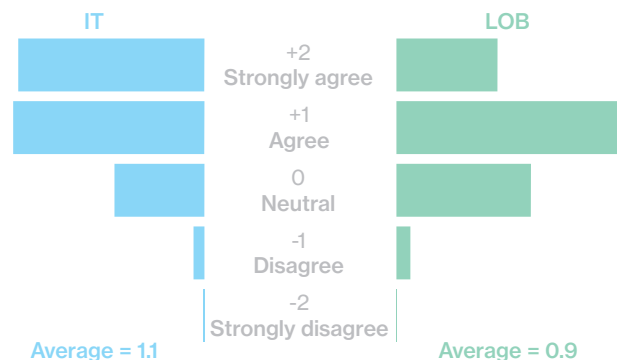


Figure 12: Agreement with the statement “the network is critical to the success of cloud projects”, split of respondents⁶

As more companies have come to rely on cloud services for mission-critical workloads, the importance of connectivity has grown. Many companies have already switched to dedicated cloud connection services to improve performance and reliability.

“Through 2015, at least 50% of cloud deployments will suffer from business-impacting performance issues, requiring extensive network redesign to address them⁷.”

Software-defined networking (SDN), promises to bring many of the same benefits to networks that cloud has to hosting. While SDN is still in its infancy, it’s something you should take into account when making network decisions.

To find out more about how our managed cloud services can help you move more complex workloads, create an effective hybrid IT environment, and allow you to focus on innovation, not infrastructure, visit:

verizonenterprise.com/cloudreport2016

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