



Cloud Trends and Expectations

NOVEMBER 2016

COMMISSIONED BY

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About this paper

A Black & White paper is a study based on primary research survey data which assesses the market dynamics of a key enterprise technology segment through the lens of the 'on the ground' experience and opinions of real practitioners – what they are doing, and why they are doing it.

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Executive Summary

Cloud has become an agent for digital transformation, with 'cloud-first' strategies (an approach where a cloud solution is considered or prioritized for all workload deployments) becoming the new norm. The adoption of cloud is accelerating as enterprises find that they can 'build faster and run better at a lower cost.'

Enterprises are getting started with cloud and 'as-a-service' deployments wherever possible, instead of starting new datacenter builds or developing infrastructure services that offer no differentiated value than can already be found in the cloud. Early adopters have a more mature understanding of cloud technology's transformational capabilities and are using different cloud environments to meet different needs (multi-cloud approach). Success for cloud service providers will depend on their services being destinations - not only for new application deployments, but for existing applications or parts of them. The deployment opportunity is an equal measure of new applications, modernization of existing applications (as-a-service), and migration or replatforming of existing applications. Each will have somewhat different infrastructure requirements.

Cloud usage is widespread in enterprise technology deployments, with applications running across public and private clouds and with private cloud being the most widely deployed cloud environment. The biggest change we expect is the fall in the number of applications that are not running on any cloud. Organizations will continue to use cloud services more and more to improve availability, reliability, and agility.

About 70% of enterprises are using multiple clouds to meet different enterprise requirements. However, the expected usage of true hybrid architectures (single applications spanning multiple clouds) is fairly limited (10%), according to our survey. The complexity added by hybrid cloud may, for now, outweigh its perceived benefits. Moving applications and data between public and private clouds will be a typical use case, and supporting application, workload and data migration will be a necessary capability, especially as the use of multiple cloud services increases.

The key challenges facing organizations as they embark on digital transformation programs are people and process-related. Technology (including cloud computing) is the accelerant. Security continues to top the list of inhibitors to adoption and is essentially concerned with data protection: where is my data, what happens if I build or use a data center in this location, and how can I control my data when the application has components (database, web server, e-commerce) running in different locations. Security policies were pointed to by survey respondents as a top challenge to support the cloud business case.

METHODOLOGY

This study is intended to explore the adoption and use of cloud services in various European countries and the US. The survey data used in this report was collected in August 2016 by 451 Research – commissioned by VMware and Atos – using a Web survey to query 320 organizations in Belgium, France, Germany, The Netherlands, United Kingdom and United States, across a wide range of verticals, about the adoption and use of cloud services.

We surveyed organizations that have most of their IT workloads and processes delivered via cloud services (at least 3 on a scale of 5). The majority of the surveyed enterprises (95%) claim to be among either first adopters or early majority of adopters of new technology. The sample includes respondents (IT decision-makers / influencers) from mid-sized and large enterprises (over 500 employees in Europe and over 1000 employees in the US).

Cloud Adoption

The outlook for enterprise adoption of cloud deployment models is very positive. Cloud is now always considered as an option, and IT and lines of business have the responsibility to disqualify it as a viable option before considering a non-cloud alternative. Cloud-first is an important step in the development of familiarity and acceptance that is likely to lead to wider usage across a broader range of applications as the rate of cloud-first increases.

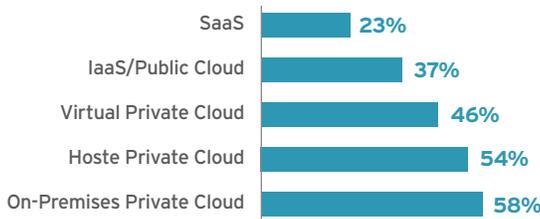
Enterprises are using multiple kinds of cloud services. The most widely deployed form of cloud is on-premises private cloud – infrastructure deployed at the customer’s datacenters). 62% of organizations indicated they are using on-premises private cloud today. The adoption of hosted private cloud is also significant – 56% of organizations are using it, according to our survey. This is consistent across the countries where the survey was conducted.

Figure 1: Overall Cloud Adoption

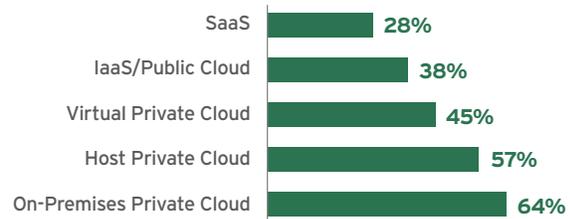
Q: Which of the following types of cloud services, if any, does your organization currently use? (Select all that apply; n=320)



Belgium



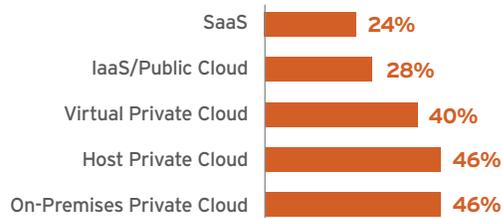
France



Germany



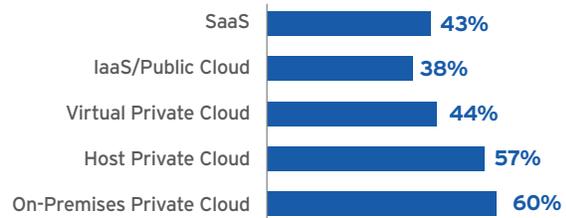
The Netherlands



United Kingdom



United States

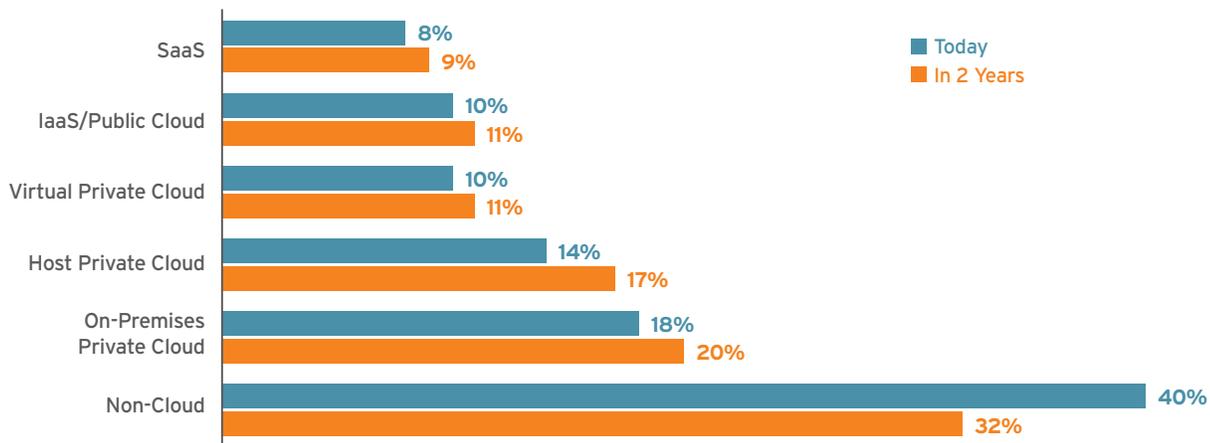


Across all the workloads and applications that enterprises have deployed, respondents indicate that 60% run in public or private cloud today, and that 68% are expected to be in cloud within two years, as shown in Figure 3. Cloud models have seen strong adoption across enterprises of all types, with enough deployment variability available in the market for individual firms to tailor their venue selections based on their own particular tolerances and requirements.

“Public Cloud Plus One” is becoming an operating principal for CIOs when they are considering a cloud strategy. It supports both non-functional requirements such as fiduciary responsibility and governance (avoiding lock-in and not being painted into a corner), as well as meeting the functional needs to match applications, workloads and service requests to the most appropriate resources.

Figure 2: Applications Running on Cloud

Q: Thinking of all the applications your organization runs, approximately what percentage is running in each of the following cloud and non-cloud venues? And, what percentage do you expect to have in each venue in two years? (n=320)



Among the various types of clouds, on-premises and hosted private clouds are used most, according to respondents, accounting for 18% and 14%, respectively, of all applications. The growth projection for both cloud models is very similar. Hosted private cloud remains a desirable alternative to public cloud for those wanting a walled-off cloud environment. The biggest change we see is the reduction in the number of applications not running on any cloud.

On-premises private cloud is often confused with a standard virtual server environment. Other research from 451 Research indicates that about one-third of enterprises consider their entire virtual server environment to be a private cloud, but most of them differentiate between the two, and think about their private cloud deployment as a subset of their virtual server environment, where additional automation and orchestration mechanisms are ‘cloud enabling’ those resources.

Individual Application Deployments

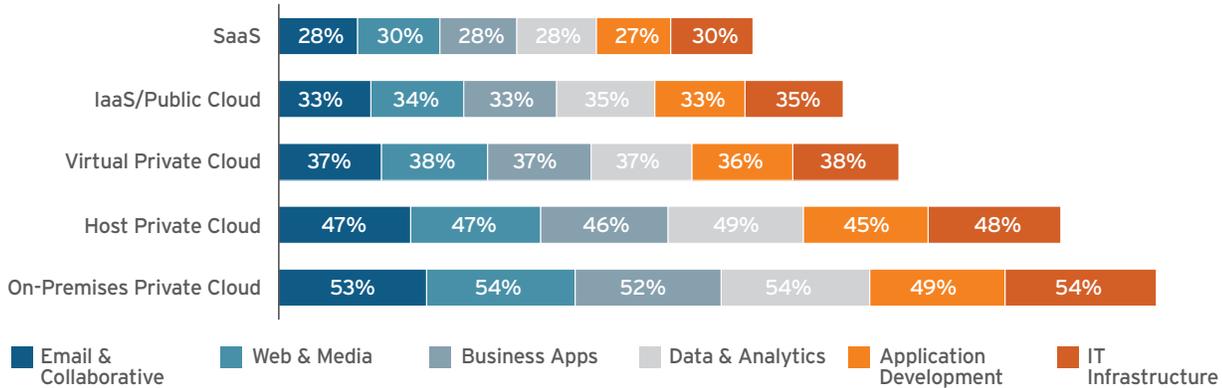
On-premises private cloud is a popular venue for most application categories, especially data and analytics, and IT infrastructure workloads such as storage and security workloads. In terms of expected changes, other research from 451 Research predicts a decline in the use of on-premises private cloud for email and collaborative applications (a fairly commoditized application), and a rise for data and analytics, and IT infrastructure workloads. Email and related applications are seen to be important but not to provide significant competitive differentiation, and there are mature SaaS options offered by trusted vendors. Big data sees wide usage across all cloud deployment models, and represents an area of significant growth as companies get more familiar with how they can drive their businesses faster and smarter through analysis of large datasets.

The perceived benefits of hosted private clouds resonate well with enterprise evaluators in spite of price cuts and increased usage of public cloud. Hosted private cloud is robustly used across a wide variety of workloads. The use of virtual private cloud is also pretty consistent across the different workload categories.

Looking at IaaS (public cloud), highest usage categories include data and analytics, and IT infrastructure workloads. Further research points to web and media, as well as application development as core workloads for public cloud (excluding SaaS). Public cloud (IaaS) growth predictions are high for all workload categories, which shows that there is an increasing level of confidence in the model as a viable enterprise option.

Figure 3: Application Categories Deployed in Different Cloud Environments

Q: Describe your current usage of specific cloud types for the following workload categories (n=320)



Note: This chart shows the percentage of respondents using specific cloud types for different workload categories.

We have also asked respondents if they have migrated any applications or data that were previously part of a public cloud to a private environment, and the rate is high both in the US and in Europe. The most popular environment is hosted private cloud with 44% of organizations selecting it as a destination for their workloads and data. Moving applications and data from public cloud to another environment will be a typical use case, especially as the use of multiple cloud services increases. This is not about turning off public cloud use, but using different clouds to meet different enterprise requirements. Being able to support application and workload migration will be a necessary capability of successful cloud service supply management strategies in addition to supporting new application deployment and application modernization.

Figure 4: Application Repatriation

Q: Has your organization migrated any applications or data that were primarily part of a public cloud environment to a private cloud environment? (n=320)

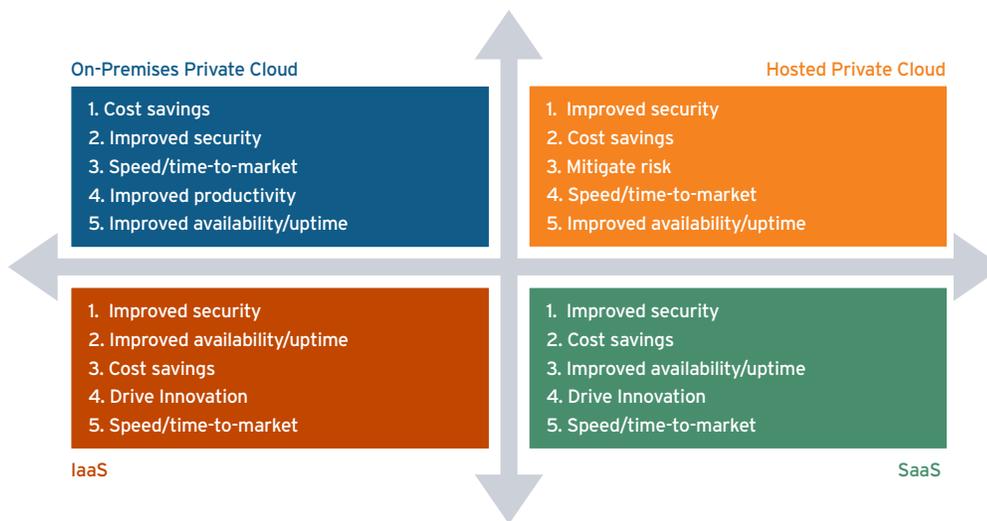


The Business Case for Cloud

The business case for using cloud has economic, organization, and technology dimensions across all models. Unsurprisingly, improved security is often at the top of the list, and Europeans are in general more cost-conscious than their American counterparts.

Figure 5: Business Case for Cloud - Key Factors

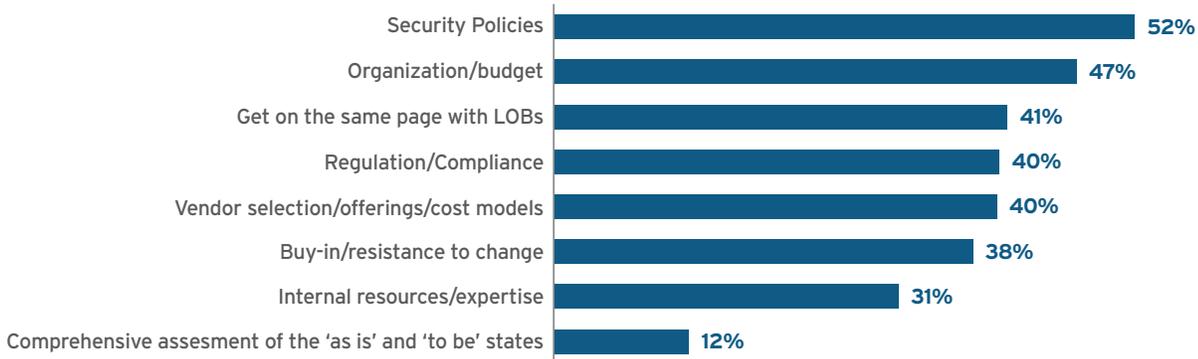
Q: What are the key factors in building a business case for the following cloud types at your organization? (Select top five, n=320)



There are some challenges inhibiting organizations from reaching the next phase of their digital transformation. These challenges are primarily human- and business-related rather than technology-related. Figure 6 shows the key factors organizations consider when building a business case for different cloud environments. Many organizations are being held back by non-IT barriers, such as data security, cultural resistance, vendor selection issues, and regulatory compliance.

Figure 6: Challenges to Support the Cloud Business Case

Q: What demands/challenges do IT teams face to support the cloud business case? (Select top three, n=320)



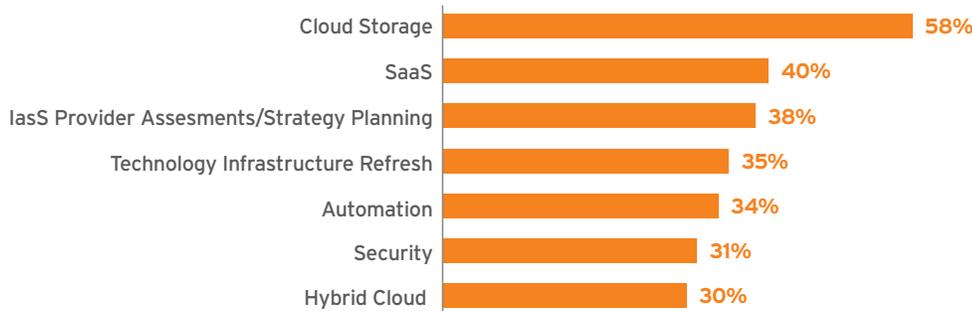
Cloud applications have been so attractive and easy to adopt, that many organizations never considered the security risks unique to the cloud, or the amount of control and visibility relinquished. In many cases, individuals, rather than the central IT organization, migrate data and workflows to the cloud. These individuals are not accustomed to performing the proper due diligence, and in many cases, security, compliance and governance considerations are not taken into account. Companies must deal with the legacy of a relatively ungoverned cloud adoption.

Top Cloud Projects

Top cloud computing projects organizations are planning on implementing in the next 12 months include cloud storage, SaaS, and IaaS provider assessments and strategy planning, as shown in the Figure below. The latter two point to an increased adoption of public cloud (both SaaS and IaaS deployment models), and a strong determination towards application and infrastructure modernization/optimization in the enterprise.

Figure 7: Top Cloud Computing Projects

Q: What are your organization's top cloud computing-related projects in the next 12 months? (Select up to three, n=320)



Top drivers for these projects include the desire to improve availability and reliability, increase agility, and have scalability for peak demand when needed. Cost is always used to build a business case for cloud adoption within an organization. However, almost without exception, enterprises 451 Research speaks with say it is the additional benefits of agility, reliability, scalability and flexibility that are the drivers for increased adoption thereafter. Working with suppliers that can turn things off and on, deploy different resources to meet particular needs, and those that put users in the driver's seat when it comes to the data locality, security and recovery demanded by different workloads, is a best practice. Moreover, having a secure, highly available and low-cost service is key, and the inner workings of service delivery are far less important.

Figure 8: Key Drivers for Planned Cloud Projects

Q: What are the key drivers for your planned cloud projects? (Select top three, n=320)



Cloud Deployment Trends

Hybrid cloud deployments are widely discussed, especially among enterprises and systems integrators as they work to enable smooth transitions, address concerns around security, and preserve skillsets and investments in legacy infrastructure. Figure 10 shows data on the expectations for usage of multiple clouds, and points to the fact that while most respondents anticipate using more than one cloud, the expected usage of truly hybrid set-ups, with single applications spanning multiple clouds, is fairly limited.

Figure 9: Cloud Usage Expectations

Q: Which of the following best describes how your organization will use different on-premises and off-premises cloud environments over the next two years? (n=320)

We will have multiple cloud environments, but there will be little to no interoperability between the cloud environments

32% Multi-Cloud

We will focus primarily on a single cloud environment, not multiple clouds

30% Single Cloud

We will have multiple cloud environments to migrate workloads or data between different cloud environments

28% Multi-Cloud Plus

We will have multiple cloud environments where the delivery of a single business function across the different cloud environments is seamless

10% Hybrid

The majority of respondents (70%) say that they will use multiple cloud environments to meet different enterprise needs. 30% will focus on a single cloud, 32% expect to use multiple clouds with little to no interoperability between them, while 28% say that they expect to have the ability to migrate workloads and data among multiple clouds over the next two years. Only 10% indicate that they expect to have individual applications that are built to span multiple clouds – what 451 Research would call truly hybrid. The most common hybrid cloud, as indicated by our survey respondents, is a combination

of on-premises private cloud with public cloud, followed by hosted or virtual private cloud with public cloud. The most common use of multiple clouds are one-time deployments to meet particular application needs or service requests rather than splitting tasks between clouds or sharing data between them.

451 Research finds that three types of application deployment for cloud will be equally important: deploying new applications, modernizing existing applications, and migrating existing applications. Success for cloud service providers will depend on their services being destinations for all these deployments.

451 Research believes that hybrid clouds are complicated, and this added complexity may, for now, outweigh the potential benefits. There is a challenge in execution even for organizations desiring the capability. That said, cloud vendors are improving their hybrid capabilities, making it easier to use common toolsets across cloud and on-premises environments, and third-party cloud brokers are also offering tools to make it easier to analyze, optimize and deploy consistently across multiple cloud environments.

Cloud has a significant role to play as an agent for transformation. But, it brings with it a lot of change and complexity. With the use of multiple cloud services becoming the de facto reality of IT today, helping enterprises achieve and manage an optimal mix of resources and service types will be a key opportunity for suppliers that can act as cloud service brokers, enabling users to find, access and use a much wider range of cloud services than they would otherwise be able to take advantage of. In this role, the cloud service broker can act as aggregator and integrator, taking care of delivery, fulfillment, APIs handling, configuration management, resource behavior differences and other complex tasks. Indeed, if cloud is the on-demand version of computing, cloud service brokering is the on-demand version of IT procurement.