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IT as a service: From build to consume

Telecommunications September 2016

The cloud debate is over—businesses are now moving a material portion of IT workloads to cloud environments. The impact will be considerable, for consumers and vendors of technology alike.

In the next three years, enterprises will make a fundamental shift from *building* IT to *consuming* IT. That's according to McKinsey's IT-as-a-Service (ITaaS) Cloud and Enterprise Cloud Infrastructure surveys. The big takeaway: enterprises are planning to transition IT workloads at a significant rate and pace to a hybrid cloud infrastructure, with off-premise environments seeing the greatest growth in adoption. While cost is often perceived to be the main driver of this shift, our research shows that benefits in time to market and quality are driving cloud acceptance, while security and compliance remain key concerns for adoption, particularly for large enterprises.

McKinsey's ITaaS Cloud Survey covered approximately 800 CIOs and IT executives worldwide across a variety of industries, providing a unique, global view of the transition to the cloud. Participants ranged in size from small companies to Fortune 100 enterprises. The survey gauged the pace of the migration to the cloud at a workload level, the resulting impact on the enterprise IT industry, and the key decision criteria for enterprises in selecting providers of cloud infrastructure services.

The survey showed an overall shift from build to consume, with off-premise environments expected to see considerable growth (Exhibit 1). In particular, enterprises plan to reduce the number of workloads housed in on-premise traditional and virtualized environments, while dedicated private cloud, virtual private cloud, and public infrastructure as a service (IaaS) are expected to see substantially higher rates of adoption.¹ Interestingly, on-premise private cloud environments, which have been adopted by nearly half of enterprises, are likely to stay nearly flat.

A deeper look into cloud adoption by size of enterprise² shows a significant shift coming in large enterprises (Exhibit 2). More large enterprises are likely to move workloads away from traditional and virtualized environments toward the cloud—at a rate and pace that is expected to be far quicker than in the past. This is reflected in declines in the share of enterprises planning to have workloads in traditional and virtualized environments, while all cloud environments are

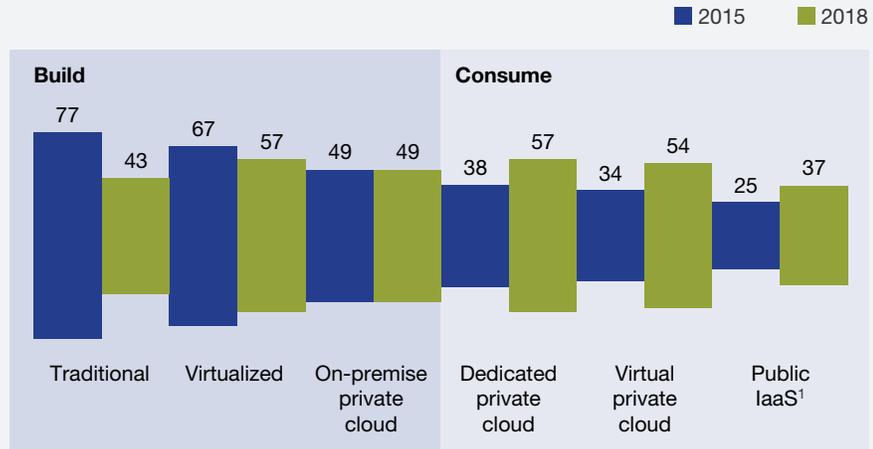
¹ Dedicated private cloud comprises off-premise cloud services with a private cloud implemented within a single-tenant infrastructure. In this model, customers do not share space with other companies. CSC's dedicated private cloud is an example of a dedicated private cloud provider. On the other hand, virtual private cloud consists of an off-premise cloud service with the logical isolation of customer environments and security (including subnets and firewalls) with secure connectivity (for instance, via an Internet Protocol virtual private network, or IP VPN) within a multitenant architecture. Amazon Web Services (AWS) is an example of a virtual private cloud provider. In the public infrastructure-as-a-service (IaaS) category, vendors include AWS and Microsoft Azure. IaaS can provide a company's compute, software, and storage capabilities.

² Large enterprises are defined as companies with \$5 billion or more in revenue; small and medium businesses (SMBs) are defined as companies with fewer than 1,000 employees; all other companies are categorized as midsize enterprises.

Exhibit 1

A fundamental shift is under way from a 'build' to 'consume' model for IT workloads.

% of companies planning to have following environments as primary environment for at least 1 workload type in 2015 and 2018



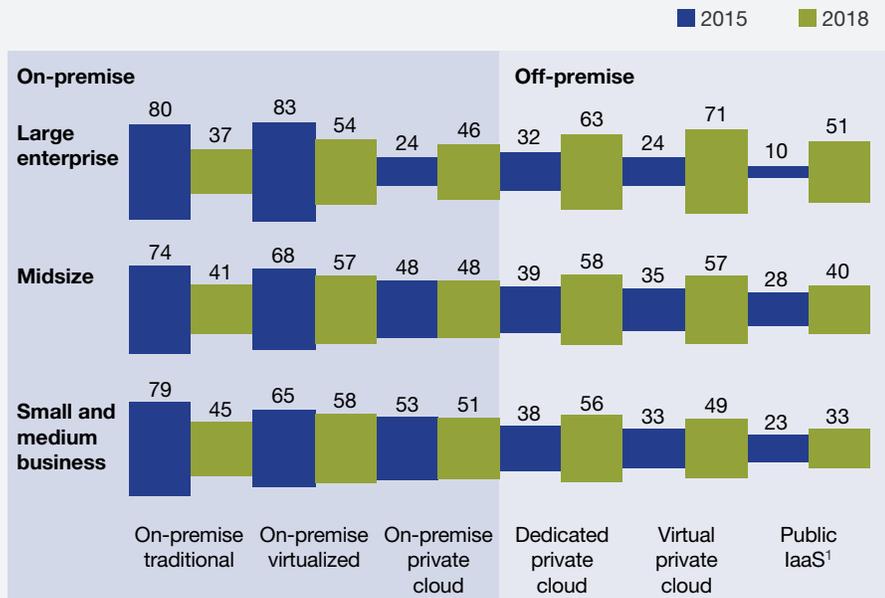
¹Infrastructure as a service.

McKinsey&Company | Source: McKinsey IT-as-a-Service (ITaaS) Cloud Survey

Exhibit 2

Companies of all sizes are shifting to off-premise cloud services.

% of companies worldwide planning to have following environments as the primary environment for at least 1 workload type in 2015 and 2018



¹Infrastructure as a service.

McKinsey&Company | Source: McKinsey IT-as-a-Service (ITaaS) Cloud Survey

expected to see notable growth. A similar trend can be seen in midsize enterprises, but to a lesser degree, as they have been ahead in cloud adoption so far, relative to large enterprises.

Given that large and midsize enterprises form the majority of revenue and profits for the traditional enterprise IT industry, the rate and pace of this shift portends greater headwinds for on-premise IT vendors. At the same time, this transition means larger gains lie ahead for cloud-service providers of off-premise cloud infrastructure services.

Large-enterprise cloud adoption is set to accelerate

To better understand large-enterprise cloud adoption, we can look at insights from McKinsey's Enterprise Cloud Infrastructure Survey, a close examination of the cloud transitions of more than 50 large enterprises globally.

Between September 2014 and March 2016, a team from McKinsey surveyed large organizations in Europe and North America to find out more about their adoption of cloud and next-generation infrastructure. Most respondents were from regulated industries, such as banking, insurance, and healthcare, and faced significant pressure to introduce digital capabilities. The cloud is a critical foundation for enabling this digitization. McKinsey asked these organizations about the structure and management of their cloud programs, the technical capabilities they've implemented to this point, the benefits realized, and future plans.

While most large enterprises have the intent and are showing progress in cloud migration, this study revealed insights into the extent of migration and the drivers of and barriers to cloud adoption. In fact, we found that although many organizations have multiyear programs focused on the cloud, their adoption rate—as measured by the number of x86 workloads in the cloud—remains less than 20 percent today (Exhibit 3).

At the same time, this year, survey participants from large enterprises showed greater openness to adopting public cloud services, with leaders planning to migrate up to 20 percent of all x86 workloads to public infrastructure-as-a-service or platform-as-a-service environments within two to three years. Large enterprises are expected to significantly increase their adoption of private cloud services as well, nearly doubling workloads in the private cloud by 2018.

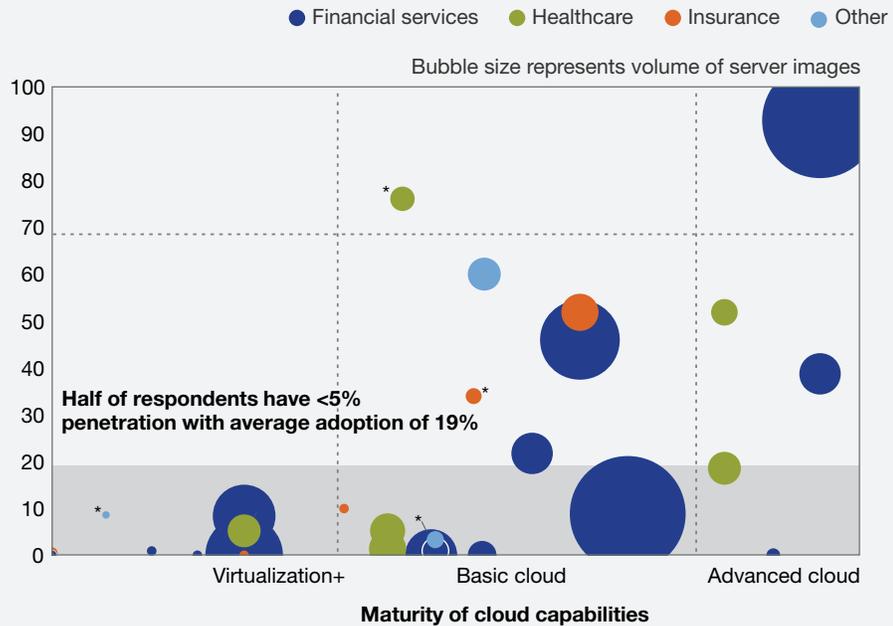
Drivers of and barriers to cloud acceptance

Benefits in time to market and quality drive considerations for cloud solutions, outweighing the benefits in cost. The Enterprise Cloud Infrastructure Survey revealed that security and compliance top the list of barriers to broader public cloud adoption and are the most important considerations when selecting service providers. Cost is the third most important element. Finally, interoperability with on-premise private cloud solutions is also an important criterion.

Exhibit 3

Average adoption rate for x86 workloads in the cloud is less than 20 percent.

% of server images deployed in private or public cloud



*2015 responses shown where 2016 adoption data is not available.

McKinsey&Company | Source: McKinsey Enterprise Cloud Infrastructure Survey

Our research shows that when it comes to selecting a cloud-service provider, companies are likely to choose “hyperscale” providers,³ such as Amazon, Google, and Microsoft, which have the largest capacity. According to our ITaaS survey, nearly half (48 percent) of large enterprises with off-premise workloads have handed off at least one workload to a hyperscale provider, and that number is expected to rise to roughly 80 percent by 2018. Enterprises have a clear preference for hyperscale providers because of the capabilities they offer, balanced with concerns about vendor lock-in.

Nearly half of survey participants also plan to use tier-two and tier-three IaaS providers, such as Rackspace, and traditional vendors for at least one off-premise workload. Additionally, the lack of cloud talent in-house and the need for hybrid cloud models may drive broader adoption of managed cloud offerings.

The ripple effects of the cloud will continue across the enterprise IT vendor landscape

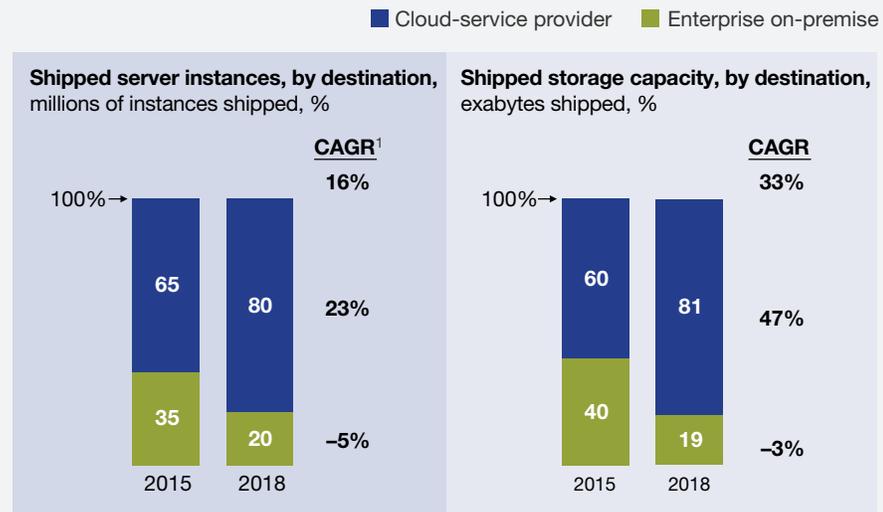
To understand the implications of the shift from build to consume on the enterprise IT vendor landscape, consider the evolution in server instances and storage capacity shipped into on-premise enterprise data center environments, compared with off-premise cloud-service provider environments (Exhibit 4).

The data reveal that a notable shift is under way for enterprise IT vendors, with on-premise shipped server instances and storage capacity facing compound annual growth rates of -5 percent and -3 percent, respectively, from 2015 to 2018.

³“Hyperscale” providers include Alibaba, Amazon, Apple, Baidu, Facebook, Google, Microsoft, and Tencent.

Exhibit 4

Compute and storage is shifting massively to cloud-service providers.



¹Compound annual growth rate.

McKinsey&Company | Source: IDC; McKinsey IT-as-a-Service (ITaaS) Cloud Survey

An interesting element here is that the growth of shipped server instances and storage capacity for off-premise environments is expected to be led by hyperscale cloud-service providers. These hyperscale providers are buying infrastructure to support consumer workloads (for example, search, social media, e-commerce, and video streaming), which are critically important to build out their enterprise cloud businesses.

The impact across the enterprise IT vendor landscape is expected to be considerable. We expect enterprise IT hardware and software vendors focused on on-premise environments will experience growing headwinds as on-premise enterprise spending slows. Vendors focused on selling to cloud-service providers, however, are likely to see meaningful growth.

Further, hyperscale cloud-service providers are expected to continue to increase their engagement with semiconductor, memory, and storage component vendors as they leverage their scale to develop workload-specific architectures.

IT services vendors are likely to see a shift in their service mix, with traditional IT services seeing a slowdown, while cloud-related migration and managed services could increase significantly.

We expect that traditional IT distributors and value-added resellers (VARs) will see their businesses change, as well. The VAR landscape may undergo consolidation; at the same time, new, cloud-specific VARs are likely to emerge (Cloud Sherpas, which was acquired by Accenture, is an early example). Distributors would likely need to evolve their business models to establish a role for themselves in the new “consume” world, with a spectrum of options from the potential consolidation of traditional businesses through M&A (for instance, of other distributors or large VARs) to a doubling down on new opportunities in the cloud era, such as becoming managed-service providers.

Cloud adoption will have far-reaching effects

McKinsey's global ITaaS Cloud and Enterprise Cloud Infrastructure surveys found that the shift to the cloud is accelerating, with large enterprises becoming a major driver of growth for cloud environments. This represents a departure from today, and we expect it to translate into greater headwinds for the industry value chain focused on on-premise environments; cloud-service providers, led by hyperscale players and the vendors supplying them, are likely to see significant growth. [□](#)

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The authors wish to thank [Adithya Banavar](#), [Nagendra Bommadevara](#), [Bertil Chappuis](#), [Zongjie Diao](#), [Abhijit Dubey](#), [James Kaplan](#), and [Loralei Osborn](#) for their contributions to this article.