The Changing Faces of the Cloud

Technology companies are adapting to sell cloud to the growing number of more-mainstream buyers.

By Mark Brinda and Michael Heric

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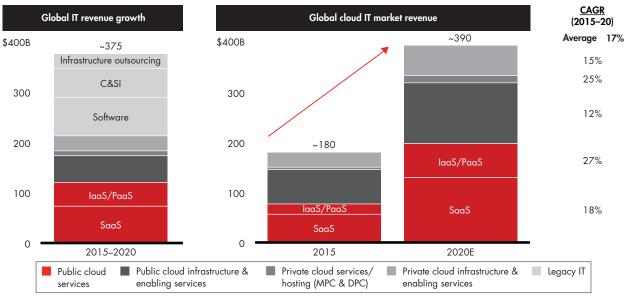
Cloud computing has taken the technology industry by storm. Bain estimates that revenues for public and private cloud hardware, software and services amount to $180 billion, or 16% of the $1.1 trillion enterprise IT industry. From 2012 to 2015, cloud demand accounted for 70% of related IT market growth, and we expect it to represent 60% of growth through 2020 (*see Figure 1*). Technology providers that fail to compete and win in tomorrow's cloud computing market risk missing out on this important source of future growth.

In 2011, when we wrote "The Five Faces of the Cloud," our first Bain Brief on this topic, few would have predicted how quickly this market would evolve. Most cloud demand was from start-ups and small and midsize businesses. Security was a major concern, inhibiting large enterprises in particular from adopting cloud computing in a meaningful way. Nearly all of the cloud profit pool was earned by technology providers that sell the components to build public and private clouds, rather than by public cloud service providers that sell to end customers.

In 2017, the picture has changed dramatically. Of the Fortune Global 50 companies, 48 have publicly announced cloud adoption plans, many of which use the cloud for a broad swath of their IT environments. Security remains the top concern, but those doubts have moderated, as have concerns over uncertain cost savings and loss of control. New concerns have emerged around compliance, vendor lock-in and data portability (*see Figure 2*). In spite of these, profits for total cloud computing from both public and private cloud services and components are four times greater than in 2012, and cloud service providers that sell to end customers now command 20% of total profits, whereas profits for these providers were nearly nonexistent in 2012.

Five years ago, it was challenging to discern the economic costs and benefits of cloud solutions, and that uncertainty kept some customers on the sidelines. Now we're seeing companies like TSO Logic emerge with solutions to help companies analyze a wide range of cloud migration paths in real time and determine what the costs and benefits would be for each work-

Figure 1: Cloud hardware, software and services are capturing 60% of IT market growth, mostly in the public cloud space
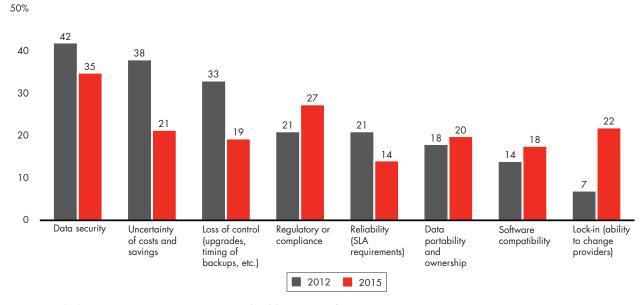

Notes: C&SI is consulting and systems integration; IaaS is infrastructure as a service; PaaS is platform as a service; SaaS is software as a service; MPC is managed private cloud; DPC is dedicated private cloud; Excludes elements of IT market not directly related to cloud computing, including devices (PCs, tablets, mobile phones, printers) and communications services (fixed and mobile connectivity)
Sources: IDC; Gartner; Forrester; expert interviews; company financials; analyst reports; Bain analysis

Figure 2: Concerns are shifting as buyers grow more familiar with the cloud

Share of respondents citing criteria as a top-three concern

	Data security	Uncertainty of costs and savings	Loss of control (upgrades, timing of backups, etc.)	Regulatory or compliance	Reliability (SLA requirements)	Data portability and ownership	Software compatibility	Lock-in (ability to change providers)
2012	42	38	33	21	21	18	14	7
2015	35	21	19	27	14	20	18	22

Sources: Bain cloud computing survey, 2015 (n=347); Morgan Stanley AlphaWise survey of IT managers (n=304)

load. The results of this analysis prove that some customers were wise to wait: At a large retail customer, for example, TSO Logic found that for 29% of the company's instances, a direct-matched solution from Amazon Web Services (AWS) would save more than 25% compared with an on-premise solution; for another 41% of instances, however, AWS would be at least 25% more expensive.

The early adopters that fueled the first waves of cloud adoption are being joined and overtaken by larger and more mainstream customers that, until recently, had taken a wait-and-see approach.

While the growth in cloud computing has defied the expectations of many, there is evidence that the cloud is still in the formative stages. Bain estimates that more than 90% of current customer demand for the cloud comes from replacing or upgrading existing, non-mission critical applications and from the creation of new digital businesses. Most customers are not yet using the cloud to fundamentally change or reimagine how work is done, or to connect business processes to create new value. Many customers still use public or private cloud services for a small percentage of their IT needs.

As we move into the next phase of the cloud's growth, the profile of cloud buyers is changing. The early adopters that fueled the first waves of cloud adoption are being joined and overtaken by larger and more mainstream customers that, until recently, had taken a wait-and-see approach.

Figure 3: The five types of cloud customers

	Transformational	Heterogeneous	Safety-conscious	Price-conscious	Slow-and-steady
	Early adopters	Opportunistic adopters			Later adopters
Percentage of companies	11%	12%	21%	13%	43%
2010 percentage of IT in the cloud	44%	13%	14%	5%	1%
2015 percentage of IT in the cloud	69%	36%	37%	31%	16%
2010 cloud spending	$9B	$3B	$5B	$1B	$1B
2015 cloud spending	$24B	$13B	$24B	$12B	$18B
Top IT priority	Transforming IT environment	Evolving IT over time	Balancing security with growth	Lowering total cost of ownership	Minimizing disruption
IT decision maker's perspective	Change agents on a mission	Optimize many factors for individual workloads	Both aggressive and cautious, depending on risks	See IT as a cost center; all about savings	Let early adopters take risk and see how they fare
Business needs	Business depends on efficient, flexible IT capabilities	IT is critical to business, but highly complex	IT manages particularly sensitive data	IT delivers basic functionality; not a differentiator	Barriers like regulation constrain IT decision making

Note: Cloud services spending includes SaaS, PaaS, IaaS and private cloud spending
Source: Bain cloud computing surveys

This shift has significant implications for technology providers, and executives need to understand the transformation that the cloud market is going through—and make the necessary changes to their offers, sales and marketing, support and organizations to successfully serve the customers coming off the sidelines. Only those technology providers that adapt to reach this mass market will emerge as likely winners in the next wave.

Five faces of the cloud

In 2011, to help providers navigate their way through this market transition, Bain surveyed almost 500 North American CIOs and other IT decision makers, and spoke with more than 25 cloud providers. Through this research, we identified five clusters of companies with common approaches to cloud computing. In three subsequent studies, the most recent in 2016, the clusters continue to prove an accurate and useful way of understanding how customers are adopting the cloud *(see Figure 3)*.
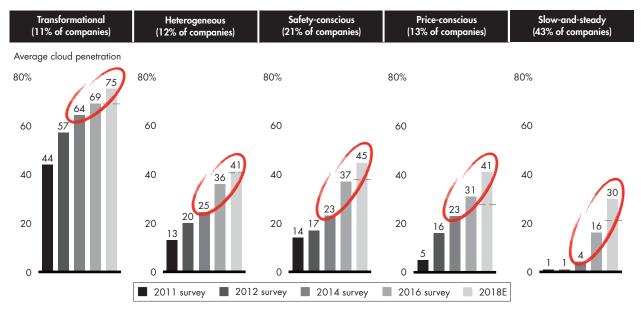
Transformational

These early adopters already use cloud computing heavily. Transformational customers are motivated to buy the cloud for performance and scalability, and focus less on cost savings. They look for innovative offerings with good support.

In 2010, these early adopters relied on one or more cloud models in about 40% of their IT environments, on average; in 2015, that percentage approached 70% *(see Figure 4)*.

Most startling is the changing role of these customers in the cloud market. In 2011, transformational customers made up 11% of companies, but generated 47% of the demand for cloud services. Today, while these transformational customers drive innovation and set the bar for many customers, they represent 26% of cloud demand. Transformational customers are no longer the fastest-growing segment, with cloud adoption slowing down as their adoption reaches its peak.

Figure 4: As cloud adoption by transformational customers plateaus, technology vendors need to look to other customers for growth

| Transformational (11% of companies) | Heterogeneous (12% of companies) | Safety-conscious (21% of companies) | Price-conscious (13% of companies) | Slow-and-steady (43% of companies) |

Average cloud penetration

Legend: 2011 survey, 2012 survey, 2014 survey, 2016 survey, 2018E

Notes: 2012 and 2014 surveys calculated usage in million instructions per second (MIPS); 2016 survey calculated share of apps; dotted lines represent where 2014 respondents thought they would be in 2018
Sources: Bain cloud computing survey, 2012 (n=490); Bain cloud computing survey, 2014 (n=428); Bain cloud computing survey, 2016 (n=347)

When you think of transformational customers, digital businesses such as Netflix first come to mind. However, transformational customers come from many places. Take General Electric. In 2013, GE began its journey to the cloud with its oil and gas division initiating the migration of more than half of its applications to AWS. GE's transition to the cloud continues with plans to move 9,000 applications to public infrastructure as a service (IaaS) over the next three years, reducing the number of its data centers from more than 30 to just 4.

Heterogeneous

Heterogeneous customers are also leaning in on cloud use, but have set a more measured pace of adoption due to the diversity of their existing IT environments and future IT needs.

These are customers like Land O'Lakes, which have segmented their existing workloads, moved some to software as a service (SaaS), moved others to a variety

of IaaS and platform as a service (PaaS) providers, and maintained others on premise. Land O'Lakes is a significant user of Oracle, Microsoft and Google cloud solutions, choosing each for their workload-specific advantages.

Safety-conscious

Safety-conscious customers are eager to adopt the cloud, but for a range of reasons—such as industry-specific regulation, national data sovereignty rules or the size of their companies—they prefer a private, dedicated cloud environment for most of their cloud applications. They select providers based on their ability to provide a secure, dedicated cloud environment at an affordable price. This segment has consistently represented about 20% of customers and has seen its share of cloud spending grow from 22% in 2011 to 26% in 2015.

The rate of adoption for these customers is frequently underestimated, and their pace of adoption over the

past five years has consistently exceeded expectations. These customers prefer private cloud, but they are becoming active users of public cloud services as public cloud providers demonstrate an ability to meet their security requirements. While this customer segment tends to buy from large, established technology providers, they often consider emerging providers.

Progressive Insurance is an example of a security-conscious company. In 2012, Progressive began to consider the cloud, earlier than companies in the slow-and-steady segment. Progressive now uses a private version of Microsoft Office 365 ProPlus and other cloud applications that keep the company's sensitive data private. Progressive also deployed a hybrid version of Azure specifically for innovative new offerings that make selective use of public cloud resources.
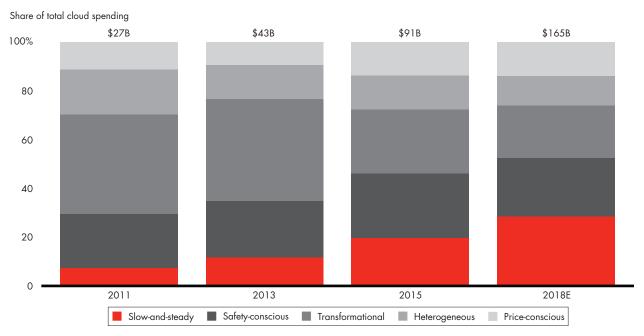
Price-conscious

Back in 2011, as prices for some cloud services were beginning to fall rapidly, we observed that price-conscious customers—those basing their decision to move to the cloud primarily on the ability of a cloud solution to save them money—were a small part of the market, roughly 12% of companies. We believed that a price war would not meaningfully change the attitudes of most customers toward the cloud, since the majority were looking for cost-neutral cloud solutions that delivered greater business flexibility and responsiveness.

After a massive jump in adoption, from 5% of total applications in 2010 to 23% in 2013, which corresponded to a period of rapid price declines by AWS, Google and Microsoft Azure, price-conscious customers have somewhat moderated their pace of adoption, increasing another 8 percentage points to 31 percentage points between 2013 and 2015. The price-conscious segment still comprises only 14% of total spending and represents about 13% of total customers. Cloud providers have realized the true motivations of most customers and have started focusing more on adding services that make their platforms more valuable and easier to use.

Halliburton is an example of a price-conscious cloud user. The company has deployed the cloud most ag-

Slow-and-steady customers, who were initially hesitant to adopt cloud computing in a meaningful way, have gone from the smallest to the fastest-growing segment.

Figure 5: Slow-and-steady customers are poised to have the largest share of cloud spending by 2018

Share of total cloud spending

Source: Bain cloud computing surveys

gressively in new business ventures where the cost of deploying new premise-based capacity combined with the risk of investing too much in resources in an un-predictable demand environment make the cloud's value proposition particularly compelling. Halliburton's DecisionSpace Well Engineering software, a free prod-uct provided to engineering schools to build awareness and engagement with the brand, was an ideal fit for a public PaaS environment. The company has deployed cloud-based software tools in Microsoft and IBM clouds in order to optimize return on investment on new business investments.

Slow-and-steady

These customers, for a range of reasons, were not yet ready to adopt cloud computing in a meaningful way. They are interested in the benefits of cloud computing, but want to minimize disruption and are careful in evaluating whether the benefits are worth the risks of new technology. Slow-and-steady customers are the largest segment of customers.

In the past five years, as cloud offerings have matured and the number of customer successes have grown, slow-and-steady customers have gone from the small-est to the fastest-growing segment, with the potential to become the largest segment in overall cloud spend-ing in the next few years *(see Figure 5)*. In 2011, slow-and-steady customers had only 1% of their applica-tions, on average, in the cloud. By 2015, they had 16% in the cloud, and it is expected to grow to 30% by 2018.

Many providers who had preexisting relationships with slow-and-steady customers assumed that these later moving customers would migrate to the cloud with them, if and when they ever did. These providers should take notice if they haven't already. Slow-and-steady customers are as likely to use new providers as they are their incumbent providers. While they state a significantly higher preference for private cloud solu-tions, they are not waiting for compelling offers to hit the market to begin migrating. They are moving to public cloud in spite of these preferences.

Take Boeing, a company that was not considering the cloud in a significant way back in 2012. By 2014, the company had created a proprietary, on-premise PaaS solution based on open source code. Then it began to use AWS for some new applications. By 2016, it had begun moving select existing applications, like aviation analytics, to the public cloud.

Winning in the next phase of cloud evolution

The demand for cloud computing services has shifted from a small number of transformational customers to later adopters coming off the sidelines. This shift creates profound implications for technology providers as they pursue growth with these later adopters with different needs. Technology providers need to rethink their offers and operating models, from their go-to-market models and their organizations to their people, processes, incentives and systems.

Over the past five years, incumbent technology providers adapted their operating models to enable them to compete more effectively. Many created greater transparency and accountability by splitting out the cloud in their financial reporting, or as separate business units. Many hired new talent and overhauled their sales compensation systems to sell cloud services.

Many incubated new businesses, entered into strategic alliances and made billions of dollars in acquisitions. The results, however, have been mixed.

New entrants that emerged with the advent of cloud computing had fundamentally different operating models from the start, which were often better tuned to new market conditions created by the cloud. Their operating models were built for speed, with flat management structures, empowered teams and more efficient processes. However, their models will also be challenged, as new cloud buyers will have different needs.

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- **Invest to win big in a focused set of cloud battle-grounds.** Saying you're selling the cloud is like saying you're in transportation. That could include everything from automobile manufacturing to managing taxi fleets or running airlines; all require different capabilities and focus. Traditional cloud market definitions, such as IaaS, PaaS, SaaS or private cloud, are blurring and reconfiguring. New battlegrounds are emerging in the cloud market, with distinct rules of the game and profit pools. Providers first need to define the cloud battlegrounds correctly. Then they need to pick the critical few where they can win and invest differentially. Today, many providers have either defined battlegrounds too broadly or are competing across too many to win big in any single one.

- **Target the customer segments that best fit with your assets and capabilities.** Slow-and-steady or safety-conscious customers have very different needs from the transformational customers that have been driving the market. Choosing which segments to go after, as well as which customers within those segments, will be essential for success.

- **Reassess your offers, go-to-market model, organization and people, processes, incentives and systems for the next wave of cloud computing.** Now is not the time to be complacent or assume that past changes will be sufficient to compete and win in this next wave of cloud computing. Incumbent technology providers should challenge themselves on whether the changes made to their operating models have been enough. Successful new entrants will increasingly be challenged, requiring them to adapt, even reinvent, their operating models.

The next chapter in cloud computing is being written now. The industry shakeout is under way, with several high-profile exits and business model redefinitions of technology providers. Over the coming years, the shakeout will intensify as new buyers increasingly drive demand for cloud services and new competitive battlegrounds replace old market definitions. Technology providers that recognize these trends early and adapt their offers and operating models most effectively will emerge as the winners. ◔

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