Having overcome the challenges of initial implementation, companies now using cloud services from multiple suppliers appreciate a wide variety of benefits, including enhanced data privacy, boosted efficiency, better agility, and—surprise!—even tighter data security, according to a new global survey.

Executive Summary

What does digital transformation mean and what does it look like? How does a company change itself to become more competitive? A new worldwide survey produced by MIT Tech Review Custom and sponsored by VMware, provides a detailed snapshot of digital transformation in action.

The study looked at large companies that had adopted a multi-cloud infrastructure—a forward-looking IT environment that enables greater efficiency and mobility, accelerating the shift away from hardware-based IT infrastructure toward a software-defined infrastructure.

Cloud technologies are among the most advanced in the enterprise, and infrastructure environments combining both private and public clouds—known as multi-cloud environments—are currently seen as the ideal IT environment by a large majority of companies, according to the survey. These companies are at the forefront of leveraging new technologies, and the study reveals that adopting multiple clouds acts as a crucible that both challenges and, ultimately, transforms those organizations.

The study identified large companies that had adopted a multi-cloud infrastructure and asked 1,350 C-suite executives and senior IT leaders worldwide about their experiences with multi-cloud adoption: Why adopt cloud? Was it difficult? What was surprising?
The survey identified three distinct phases of multi-cloud infrastructure adoption—first-year organizations, years two through five, and years six and beyond—and pinpointed challenges specific to each. Survey highlights:

First-year organizations: Start now. You’re already behind.
These organizations are just beginning multi-cloud adoption. They are novices, compared to the overall market, and are skeptical about vendor claims. They are unsure about the technology and have heightened concerns about security. Although these organizations expect challenges with cloud, their first-year obstacles, especially regarding legacy systems and technical challenges, are heavier than anticipated, including:

- First-year progress is especially demanding.
- Tech challenges: More difficult than anticipated.
- Legacy issues.
- Heightened security concerns.

Years two through five: Patience. You’ll get through this. It’s worth it.
These organizations have completed the difficult first-year challenges of understanding and integrating new technologies with legacy systems. The majority of the overall market surveyed is in this “cocooning phase” of digital transformation. The challenges in this phase are largely defined by people and process changes. The cloud requires changes to staff composition and expertise, changes to data management and policies, and changes to opex- and capex-gearing ratios.

This phase also reveals surprising benefits, especially around security, as organizations gain expertise with cloud capabilities. It’s important to note that the beginning stages of transformation can mimic deterioration; that is, things may seem to get worse before they get better. But they will get better, and it’s worth it. Cloud benefits begin to show up during this phase. Organizations that successfully integrate cloud urge an optimistic patience during this phase of adoption, which typically features:

- People and process challenges.
- Changes to staff.
- Changes to policies.
- Data-management issues.
- Surprising tech benefits, too, especially security improvements.
- Efficiency/automation benefits.

Years six and beyond: Imagine what’s possible.
These organizations were early adopters of cloud and, therefore, are at the end of the adoption cycle. The survey revealed these organizations emerge digitally transformed by cloud. At this phase, organizations express improved confidence in security. Additionally, these organizations are able to react with more agility and bring products to market more quickly, necessitating new business processes—such as planning and project management—in order to leverage the new organizational capabilities provided by cloud. These organizations emerge with a “cloud-first” strategic mindset and are prepared for advanced technologies such as AI and IoT. Also seen at this phase:

- Organizational posture: cloud-first.
- Increased/new agility, automation, and innovation capabilities.
- New capabilities demand new planning and business processes.
- Confidence and control with security.
- Ready for AI and IoT.

The research shows that cloud adoption requires comprehensive changes across the organization. Cloud integration necessitates and drives changes in technologies, policies, staff, and business processes that, over time, transform the entire organization.

“Why would I go spend a million dollars on storage in my data center when I can push it out to the cloud and have reasonable expectation that it will be safe and not have the major investment in resource and staff?”
DIRECTOR OF TECHNOLOGY ARCHITECTURE, HEALTHCARE COMPANY, AMERICAS
A number of factors are driving the move to a multi-cloud environment. Companies understandably are reluctant to get “locked in” to one vendor, spreading out the work among cloud providers as a hedging strategy. Some companies might need to run cloud instances in different regions for data sovereignty reasons. Some pursue vendor diversity in aid of innovation. Another factor: different providers can often provide optimal services for specific workloads. These variables have led many large enterprises to operate multi-cloud environments — a mix of both public and private cloud — according to the survey conducted by MIT Technology Review Custom, in collaboration with VMware.

The benefits do come with some challenges. Survey respondents cited a variety of speed bumps to moving to a multi-cloud environment, including the hassles of integrating data from legacy systems, the difficulty of grasping new technology, and managing the impact of change to processes and staff roles. Over time, say survey respondents, these obstacles smooth out. Moving to a multi-cloud requires preparation, a positive attitude, and an ability to coordinate people and resources.

This research set out to explore global attitudes toward cloud — in particular, the multi-cloud environment. The survey addressed five key areas:

- View of cloud and resource priorities.
- Drivers, benefits, and challenges of moving to a multi-cloud environment.
- Experience of moving to the cloud and its impact on the business.
- Use of or openness to using a cloud management tool.
- Opinions on future innovation.

Cloud Enables the Business

In this time of digital business and the “app” economy, companies are embracing cloud and multiple clouds — private, public, and hybrid — to support their business operations across many functions and strategies. These include enhancing security and data privacy, stimulating innovation, increasing efficiencies, and improving agility. It is striking that data privacy and security rank so highly on the list of cloud benefits — the days of cloud security
anxieties appear to be gone, at least in the case of private cloud.

Survey respondents cited many of the same benefits for a multi-cloud environment as in the private cloud environment. Respondents typically use more than one provider in order to achieve improved security and in response to the varying needs of the business. Innovation also ranked high on the benefits list, with the use of multiple providers seen to support innovation.

The majority of respondents now use a hybrid cloud environment, having started with a private cloud and then added a public cloud. Private clouds are generally viewed as more secure in the marketplace, so security concerns would be a consideration with any change away from that environment.

Challenges of Moving to a Multi-Cloud Environment
Moving to a multi-cloud environment often comes with obstacles. Among the toughest challenges respondents cited are integrating legacy systems and understanding the new technology. Increased costs, changes to policy, changes to staff, and the need to choose vendors also scored highly.

Once a multi-cloud environment is established, the three greatest continuing challenges cited are managing security, changes to processes, and integrating legacy systems.

In the survey results, multi-cloud users shared unexpected or critical learnings from managing multiple clouds. The variety of answers reflects the complexity of establishing and managing these environments. More than half (57 percent) cited technical challenges and the demand for new skills/staff. Examples of technical challenges included, in select survey respondents’ words:

- **MIGRATION:** “Making sure all the data was switched over.” Director, retail company, Americas
- **INTEGRATION:** “The problems with integrating legacy systems.” Director, education organization, Americas
- **DATA MANAGEMENT:** “Difficulty of transferring data from one cloud to another.” CIO, retail company, EMEA
- **DATAPLANING:** “Data and information migration requires effective planning.” Director, financial services, APJ
- **DATA LOSS/BACKUP:** “Backup software is most definitely a necessity in this industry.” CIO, education organization, Americas
- **UNSPECIFIED DIFFICULTIES:** “The complexity to start it all.” General manager, retail company, EMEA

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**Cloud Benefits**

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**Multi-Cloud Benefits**

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Interestingly, nearly one in four (22 percent) gave a positive benefit statement as an unexpected or critical learning. This implies that a number of respondents were pleasantly surprised by the outcome. Examples included strategic business applications achievements, such as:

- “A roadmap to transformation and growth.”
  CIO, retail company, EMEA

- “Allowing excellent operational control.”
  General manager, healthcare company, APJ

The third most mentioned learning relates to the issues of staff and skills. Respondents cited difficulties of finding, training, and keeping staff, especially through the stressful startup period and then on through maintenance.

What They Wish They Had Known
Most respondents advised those considering a move to do their research and planning, take steps to ensure that everyone is on the same page internally, and move forward with a positive attitude.

Nearly a quarter of comments advised people to plan, do their research and pick the correct technology. Comments included:

- “Have a thorough knowledge about managing a multi-cloud environment before moving.”
  General manager, healthcare company, APJ

- “Good planning is key.”
  CTO, retail company, EMEA

Most learnings were centered on specific technical challenges (such as integration, data migration, security) and the required skills/staff.

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The next largest learning was the need to manage the change process within the wider organization.

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One in five learnings were actually statements of the benefits of clouds.

The next largest learning was the need to manage the change process within the wider organization.
“Investigate requirements and carefully choose vendors.” Senior VP and President, financial services, EMEA

The third largest area of advice was to ensure that internal resources are aligned:

“Make sure financials have been considered.” VP, retail company, Americas

“Think about and act in a timely manner with regard to more staff and personnel costs.” Department head, government agency, EMEA

“Changes in staff and changes in procedures must be monitored during implementation.” Senior VP, financial services, EMEA

Confidence Grows Over Time

Perhaps unsurprisingly, the length of time an organization has been involved with cloud informed its point of view toward cloud more than its specific industry or geographical location did. An extended experience within the cloud environment positively influences how organizations view and use the technology. The survey identified three distinct phases in the relationship with cloud and a mixed cloud environment:

PLANNING AND IMPLEMENTATION. The majority agreed there are challenging issues to overcome when moving to a multi-cloud environment, as covered in the previous section. One in five cited planning and research as critical before moving into a multi-cloud environment. Respondents recognized that moving to a multi-cloud environment requires confidence to overcome challenges.

PERFORMANCE. Everyone in this study had already entered a multi-cloud environment. Five percent of the respondents were in their first year of adoption. The research indicated that there are significant differences between first-year users and more established users. For those with multi-cloud experience under their proverbial belts for six-plus years, confidence grows along with benefits.

This chart (left) shows that those in the first year rated the importance of all cloud benefits lower than respondents whose companies have used a multi-cloud environment for six or more years. This may indicate that new adopters are not sure of the technology, and therefore underplay the importance of benefits achieved. Significant differences between the established users and the new adopters occur in views on increasing efficiencies, ease of scalability, improved security, increased agility, and improved data privacy.

There are other signs that first-year users have less confidence in the technology. They are less sure than established users that they are able to detect a security breach. They are also more likely to say that the biggest impact of moving to a multi-cloud environment is in the area of data governance. As discussed later in this report, data privacy, a major component of governance, is a significant concern of IT decision makers. First-year users are also more likely to want a tool to automate security, possibly to compensate for their lack of experience or skills.

MASTERY. Interestingly, most significant differences in user attitudes are observed in the first year. After a year, confidence in the technology grows, and the difference in performance ratings fades.

But there is still a learning curve. It takes time — more than a year, at least — to establish a culture that can make an immediate change. And it can take more than five years to get a good under-
standing of the data and the possibilities for its use. Once the technology is finally mastered, however, the survey results show that users will embrace it.

“The concerns that people have about protecting data — [cloud] is going to evolve to a point where it wouldn’t make sense not to take advantage of it. Why would I go spend a million dollars on storage in my data center when I can push it out to the cloud and have reasonable expectation that it will be safe and not have the major investment in resource and staff?” Director of technology architecture, healthcare company, the Americas

The confidence of established cloud users extends to their vendors. Established users are more likely to trust that an individual vendor can be a credible provider of a management tool. Established users cited Microsoft, IBM, and VMware as noteworthy providers.

Established users start to see the business benefits of multiple cloud. They rate efficiency and agility that comes from a multi-cloud environment more highly than first-year users. They also see tremendous value in being able to offer better user experience.

As experience grows, so does technology use. More established users tend to use a hybrid of private and public cloud. They are more likely to use a tool to help manage multiple cloud. To build trust the technology must perform every time, emphasized one respondent:

“[Cloud technology] has to be rock solid, because you can’t have your environment go away … [and end users] expect technology to be like a refrigerator. You open the door, the light goes on, and your beer is cold. I don’t know how that’s carried out. I just know that happens every single time.” CTO, financial services company, the Americas

Impacts to the Organization: Data Governance, Changes in Skills Needed

Respondents recognized that moving to a cloud environment — whether private cloud or multiple-cloud — impacts their people and processes. After all, they are adopting a new technology.

The largest impact cited to an organization that has moved to the cloud was seen in data governance; followed by skills, policies, and a broader vendor set.

Some respondents increased staff, some decreased staff, and a small percentage saw increases in errors as a result of the change. Organizations adopting cloud reported that they could, to some degree, anticipate the impact of data security and privacy issues on their IT departments. The focus on data security and privacy is a recurring theme. Some of the change in skills represents a move from a technology
infrastructure point of view to a service oriented-vendor management approach, as this respondent
describes:

- “The change really took place in [needing] fewer infrastructure-type people in-house and
[needing] more of the cloud manageability, serviceability type of person…We were able to
put some infrastructure-type people on the cloud provider team so we probably kept around the
same number, but it’s just a different mix of talent right now.” CIO, financial services company,
Americas

Another respondent adds, “I have somebody who makes a phone call and stays on top of the
issue — managing the vendor instead of actually troubleshooting and managing the issue.”
Director of technology architecture, healthcare company, Americas

Multi-Cloud Brings Need for New Security Protocols, Training and Budgeting Processes

There were also broader changes reported in the organizations. Respondents cited the need
for new security protocols, training, budgeting, and processes creating changes across the
organization. This may be expected when considering the impact on people and process
already reported.

More than half of companies also report major changes in staff and culture. Indeed, nearly one
in six respondents advised companies considering a move to a multi-cloud environment to not
forget the importance of coordinating internally.

- “It’s an organization-wide shift, not just IT.”
  Vice president of IT, financial services firm, EMEA

The initial implementation and learning curve are the most difficult to surmount but, once
implemented, cloud changes more than the IT infrastructure of the organization:

- “I think that the biggest learning curve is in the individual setup and integration as opposed
to managing multiple cloud.” CTO, financial services company, Americas

- “The cloud frees up a lot of internal resources.”
  CIO, financial services company, Americas

Perhaps unsurprisingly, successful cloud implementation tends to lead to a “cloud-first”
organization:

- “We have a vision. We say we want to be a cloud-first campus where with any new solution,
we analyze it and kind of determine can it be in the cloud, is there any reason why it shouldn’t
be in the cloud and then we move forward with that direction.” Director of IT, Education sector,
Americas

- “When we’re looking at a service, we look at what we can get into the cloud so we don’t have
to manage it in our own data center, because it lowers our cost. I don’t need a footprint in my
data center. I don’t need staff in my data center. I can call and use the cloud and take advantage
of that.” Director of technology architecture, healthcare company, Americas
Security and Data Privacy Play a Major Role in Vendor Selection

Advances in cloud and multi-cloud journeys are meaningless unless organizations are able to adequately address data security and privacy. Ensuring the cloud provider’s security provisions and procedures is a large part of the initial vendor selection. After migrating to the cloud, respondents spend more IT resources on security than any other item. Their ability to detect security data breaches and know who has access to the data is paramount.

“The biggest challenge on our part in financial services is being able to secure our information once it leaves the premises. … Being heavily regulated, we need to be able to provide that comfort to our regulators as to what we’re doing and how we’re doing it out there in the cloud.”

CIO, financial services company, Americas

“The biggest concern we have is security. We need to be able to test [cloud provider] security. We want to see examples. We want to see penetration testing. We want to see results. We want to see any type of corrective measures they’ve had to take in the past. So, there’s a lot to do in the actual security due diligence.”

CIO, financial services company, Americas

The good news is that cloud can rise to the challenge. Security and data privacy are high-scoring benefits of cloud in general and multi-cloud specifically.
Security was a top concern of all interviewees, but the more experience they had with cloud technologies, the less they elevated security concerns. Those with the most cloud experience tended to see cloud as an improvement to security, likely because providers generally have security provisions, infrastructure, and policies in place that individual companies could not begin to match on premises.

Respondents viewed the greatest value of private cloud to be security; they expect this will continue for the next two to three years.

By contrast, respondents viewed data privacy as the greatest challenge holding back cloud technology itself. Even here, however, more established users were less concerned.

**Data Privacy and GDPR**

The General Data Protection Regulation (GDPR) will become law within the European Union in May 2018. Survey respondents from EMEA countries felt they are prepared for this particular data privacy requirement:

- “We already comply with CNIL (of the French National Commission for Information Technology and Civil Liberties) but GDPR would have had an impact if we were otherwise organized.”

  *Director of IT, financial services firm, EMEA*
**Segment Analysis: Regionality**

This section focuses on any statistically significant differences between the Americas, the EMEA, and the Asia-Pacific-Japan (APJ) regions. If a region is mentioned below it differs from both of the other regions – unless specifically indicated otherwise.

Note on potential cultural differences: respondents in India (followed by China and the U.S.) are more enthusiastic in their rating of performance benefits and importance throughout. This leads to statistically significant differences between APJ and the EMEA in particular. This segment analysis therefore focuses on differences in the relative importance of items rather than absolute scores.

Note on experience in a multi-cloud environment: Companies in the Americas have operated in a multi-cloud environment longer than other regions. The survey found that more time in the environment tends to correlate with increased confidence in the technology. Some of the Americas-based observations could be attributed to their greater experience.

Interestingly, EMEA respondents feel that data privacy is not the No. 1 benefit of cloud computing. That privilege goes to “increasing...
EMEA companies believe more strongly that they know who has access to data – ranking it their No. 1 organizational benefit. EMEA respondents did pick “data privacy” as the No. 2 role of private cloud, second to “security.” This contrasts with Americas-based respondents, who have “managing increase in data” as the No. 2 most valued role for private cloud in the next two to three years.

Americas-based respondents consider security a higher priority in terms of allocation of resources. Americas-based respondents felt that the impact of managing multiple cloud required more staff than did EMEA or APJ respondents. Americas-based respondents believe more strongly they have the skills to implement immediate changes to data and are able to prevent data from being transferred out of the country, putting both abilities in their top five.

As to the benefits of a multi-cloud environment, APJ respondents rate efficiency/agility as a more important benefit, putting it in the top three as opposed to No. 4 across all geographies. When it comes to organizational changes as a result of moving to multi-cloud, both EMEA and Americas-based respondents felt that process adjustments were among the top three changes. EMEA respondents dropped training out of their top three, while Americas-based respondents dropped budgeting out of the top three.

EMEA respondents are less bullish on the Internet of Things (IoT) and artificial intelligence (AI). The majority still agree that IoT will drive a larger role for private cloud and that cloud will become more AI-driven, but they are less convinced than respondents in APJ and the Americas. APJ companies are more likely to say they are currently using AI or machine learning. EMEA companies indicate it will take longer for them to adopt AI.

**Industry Snapshots**

Overall, there were almost no items where a single industry was statistically different than all others. We can, however, draw some broad conclusions by combining observations across question areas.

For example, **financial services** companies tend to be the most engaged in the cloud environment. They see more benefits in cloud technologies and the multi-cloud environment, but also see more challenges. Compliance tops the list of hurdles, but respondents from this sector also list compliance as a key benefit of cloud. These firms are clearly looking to be innovative, and they have higher adoption of AI.

In **healthcare**, compliance is an issue, and these respondents see cloud as potentially aiding with this. They don’t see as much of a challenge in managing multiple clouds but are more sensitive to cost issues.
Retail respondents seem to be less engaged in cloud technology. They see fewer benefits in using cloud technology, but also fewer challenges to using it. As an industry in transition, retailers are more sensitive to costs.

Governmental bodies see more benefits and fewer challenges of multi-cloud technology and observe less disruption to the organization as result of cloud. These organizations would like help integrating legacy systems and data.

Educational organizations were the least engaged of all industry segments represented in the survey. Respondents here were less appreciative of cloud benefits, and they had concerns over vendor selection and stability.

Cloud Perception Among Senior IT vs. Other Staff Roles
Senior IT staff have been involved in multi-cloud environments longer, and that greater degree of experience may lead to their increased confidence. They tended to agree more that they have the technology, and to a lesser extent the culture, to implement immediate changes to the data.

Senior IT staff are converts to cloud computing. They rated all benefits of cloud technology more highly than other staff. The two exceptions were security and data privacy, which were rated highly by both groups. Senior IT staff appreciated reduced costs, increased efficiencies, rapid deployment and updating, ease of scalability, increased agility, and enabled innovation/app development.
Not surprisingly, IT staff are also converts to the benefits of multi-cloud environments. Among the benefits they valued higher than other executives are data privacy/security, increased efficiency and agility, and cost savings. They are also more convinced the organization has a good handle on the data and who has access to it.

Senior IT staff are also more likely to have adopted multiple clouds for innovation, and to see innovation, efficiency, and agility as extremely important benefits. This mindset is another reflection of their confidence in the technology. Senior IT executives have a stronger belief than other staffers that IoT use cases will require cloud to play a larger role in managing data. Correspondingly, they are more likely to agree that cloud will become AI driven.

Even with this positive attitude, the survey results showed that senior IT executives are more likely to view increased cost, migration between cloud providers, and changes to staff as major challenges when moving to a multi-cloud environment. They are also more likely to see the technical challenges as “unexpected learnings.” However, they are more likely to advise potential adopters on enhanced performance benefits from using a multi-cloud environment, even though cost savings is an important benefit to this group.

**Embracing Multi-Cloud**
Changing the game of how organizations consume technology, cloud is here to stay. Companies that have been early to the multi-cloud party — the large enterprises surveyed here led the pack — have become over time increasingly optimistic about the benefits of maintaining a multi-cloud environment. This ease arises from years of experience within the multi-cloud environment as well as seniority within the IT decision-making hierarchy. The increased availability of improved management dashboards could also lead to increased comfort with operating multiple cloud environments.

The survey results show that as people become established cloud and multi-cloud users, their confidence in the benefits grows, they use more technology, and their attitude changes from risk averse to more positive. This is reflected, for example, in the view of more senior IT staff, who value the benefits of cloud technology while at the same time acknowledging challenges, including costs. Not surprisingly, IT staff are more confident and comfortable with multiple cloud environments than are business unit leaders, and they see the increased range of benefits more clearly.

The initial concern or anxiety toward multi-cloud seems to begin to fade after one or two years, with the confidence in using the technology continuing to elevate over time. Multi-cloud environments boost not only security strategies, but provide significant levels of flexibility, agility, and an improved posture for disaster recovery.
CHOOSING A VENDOR NOT SEEN AS CHALLENGING

Overall vendor issues did not rise to the top of the list of concerns. Choosing a vendor ranked lowest in the potential challenges presented by moving to a multi-cloud environment. However, more than half (55 percent) of the respondents still rated the choice of vendor as relatively challenging. Managing a broader set of vendors had some impact on people and processes but lagged behind the bigger concerns of data governance, skills, and policies.

A mere five percent of survey respondents mentioned vendor management as a critical or unexpected learning from managing a multi-cloud environment. Eight percent said being careful to choose the right vendor would be their single piece of advice to those about to enter a multi-cloud environment.

When it comes to the selection of cloud platform and vendor, price remains important.

- “Price is a consideration. Usually I will give an acceptable price range to the suppliers. Other than price, I value two things. One is technology capability and the other is service and response.”
  Deputy Manager of Financial IT Department, international conglomerate, APJ

- “The first thing we look at with a vendor? Price.”
  CIO, healthcare company, EMEA

Quantitatively, more established users saw price as being a greater challenge holding back cloud technologies than did first-year users. Perhaps as companies become more comfortable, the IT department sees more pressure on budgets or recognizes that the next wave of cloud adoption may be more expensive.
The majority of non-tool users were very interested in a tool that would help manage public and private cloud. The following services were the top potential new services sought by respondents:

- Automate security: 60 percent
- Better visibility: 50 percent
- Able to easily move/manage workloads: 49 percent
- Ability to run applications everywhere: 47 percent

Respondents pointed to technology capability and reputation as being important factors:

- “We tend to look at very established organizations and ones that we know have got a good balance sheet, a good record, and also are less likely to have financial problems. A young company may not have enough cash backing, they have risks as well and we need to identify that as part of our due diligence.” Vice President of IT, financial services firm, EMEA

“Reducing vendor lock-in” was the least important multi-cloud benefit, but more than 70 percent of them still considered it at least some what important.

- “The thought is that just like any other type of solution, you don’t want to be locked down to one vendor and potentially get taken advantage of with pricing or even just services availability.” Director of IT, education sector, Americas

Management Tools

The majority of respondents report that they currently use a tool or service to manage the multiple cloud environment. Users mentioned more than 100 different tools or services from a variety of vendors, led by Microsoft, IBM, and Google. (Respondents may have named cloud service providers in addition to providers of tools specifically designed to manage multiple clouds.)

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- Ability to run applications everywhere: 47 percent
Respondents were told that a number of companies were developing tools to manage multi-cloud and then asked to name which vendors they thought were developing such tools. Microsoft, Google, and IBM were felt to be the most likely. They were also the three companies with the most credibility, although all tested companies had high credibility — VMware was in the top 10 of companies named by respondents.

Respondents do seem to need a multi-cloud management tool. More than one in seven respondents named the ability to move/manage workloads across multiple cloud as their most preferred addition to current cloud-based technology, second only to improved security.
Internet of Things (IoT) and Artificial Intelligence (AI) Hasten Cloud Adoption

Respondents feel that technological advances will continue to impact the cloud environment. The vast majority – nearly 80 percent -- agree that implementing IoT will require private cloud to play a larger role in managing data. In a separate question the majority agreed that cloud will become AI driven in terms of workload. A minority report they are currently using AI or machine learning. Current non-users report that around 70 percent of their organization will adopt it within five years.

Research Methodology

The research was conducted online by MIT Technology Review Custom between July 9, 2017, and August 10, 2017. The survey targeted IT decision makers in large enterprises that were already in a multi-cloud environment. Regions covered were as follows:

- Americas (U.S. and Canada)
- EMEA (UK, Germany, Spain, France, and Italy)
- APJ (Australia, China, Japan, and India)

A total of 1,355 surveys were completed.