

RightScale 2016

# STATE OF THE CLOUD REPORT

Hybrid Cloud Adoption Ramps  
as Cloud Users and Cloud Providers Mature



**RIGHT SCALE**<sup>®</sup>

## Executive Summary

In January 2016, RightScale surveyed 1,060 technical professionals across a broad cross-section of organizations about their adoption of cloud computing.

The 2016 State of the Cloud Survey identified several key findings:

### **Hybrid cloud adoption grew significantly.**

- Private cloud adoption increased from 63 percent to 77 percent, driving hybrid cloud adoption up from 58 percent to 71 percent year-over-year.
- 82 percent of enterprises have a hybrid cloud strategy, holding steady from 2015.
- 95 percent of organizations surveyed are running applications or experimenting with infrastructure-as-a-service.

### **Cloud users leverage 6 clouds on average.**

- Cloud users are running applications in an average of 1.5 public clouds and 1.7 private clouds.
- They are experimenting with an additional 1.5 public clouds and 1.3 private clouds.

### **More enterprise workloads shift to cloud, especially private cloud.**

- 17 percent of enterprises now have more than 1,000 VMs in public cloud, up from 13 percent in 2015.
- Private cloud showed even stronger growth with 31 percent of enterprises running more than 1,000 VMs, up from 22 percent in 2015.

### **Enterprises increase alignment on role of central IT teams in cloud use.**

- Enterprise business units increasingly acknowledge the role of central IT to set policies (up from 31 percent to 44 percent year-over-year), select public clouds (up from 34 percent to 42 percent), and select private cloud technologies (up from 35 percent to 44 percent).
- With greater alignment comes progress on cloud governance, as 38 percent of respondents have now established approval policies for cloud, up from 30 percent in 2015.

### **Security is no longer the top cloud challenge.**

- Lack of resources/expertise is now the #1 cloud challenge (cited by 32 percent), supplanting security (cited by 29 percent).
- Even the most security conscious respondents — enterprise central IT teams and security pros — no longer see security as the #1 challenge.

### **Cloud cost challenges increase, but optimization efforts lag.**

- 26 percent of respondents identify cloud cost management as a significant challenge, a steady increase each year from 18 percent in 2013.
- Cloud cost management provides a significant opportunity for savings, since few companies are taking critical actions to optimize cloud costs, such as shutting down unused workloads or selecting lower-cost clouds or regions.

### **DevOps grows and Docker spreads like wildfire, especially in the enterprise.**

- Overall DevOps adoption rises from 66 to 74 percent, with enterprises reaching 81 percent.
- Overall Docker adoption more than doubles to 27 percent vs. 13 percent in 2015; and another 35 percent have plans to use Docker.
- An even higher percentage of enterprises use Docker (29 percent) and plan to use it (38 percent).
- Use of Puppet and Chef also grow with each now used by 32 percent of respondents. Ansible makes strong gains, used by 20 percent of respondents vs. 10 percent in 2015.

### **Amazon Web Services (AWS) continues to lead in public cloud adoption, but Azure (IaaS and PaaS) gain ground.**

- Overall, AWS is used by 57 percent of respondents, flat from last year. Enterprise adoption of AWS grew from 50 percent to 56 percent while adoption by smaller businesses fell slightly from 61 percent to 58 percent.
- Azure IaaS grows strongly from 12 percent to 17 percent adoption, while Azure PaaS grows from 9 percent to 13 percent.
- Combined, 20 percent of respondents use Azure (IaaS, PaaS, or both) as compared to 57 percent for AWS.

### **Private cloud adoption grows across all providers.**

- VMware vSphere continues to lead with strong year-over-year growth. 44 percent of all respondents report they use it as a private cloud.
- OpenStack and VMware vCloud Suite both show strong growth and remain tied at 19 percent adoption overall. VMware vCloud Suite holds the #2 slot among enterprises while OpenStack is #2 among businesses with fewer than 1,000 employees.
- Bare-metal cloud was included in the survey for the first time and is used by 15 percent of respondents.

## Methodology

In January 2016, RightScale conducted its annual State of the Cloud Survey. The survey questioned technical professionals across a broad cross-section of organizations about their adoption of cloud infrastructure. The 1,060 respondents range from technical executives to managers and practitioners and represent organizations of varying sizes across many industries. Respondents represent companies across the cloud spectrum, including both users (17 percent) and non-users (83 percent) of RightScale solutions. Their answers provide a comprehensive perspective on the state of the cloud today.

### Key Survey Stats:

**All respondents = 1,060**

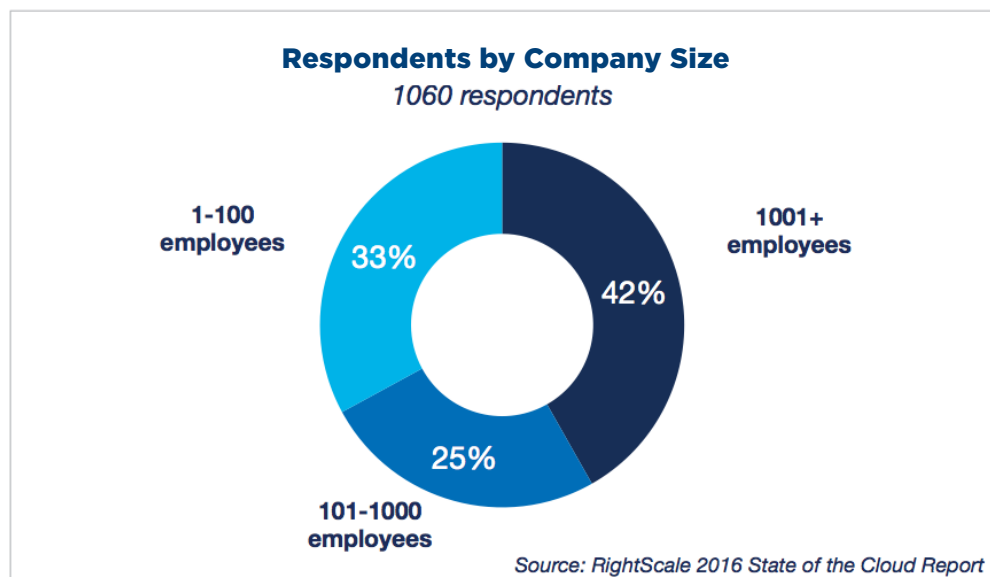
- Enterprise respondents (1,000+ employees) = 433
- SMB respondents (<1,000 employees) = 627

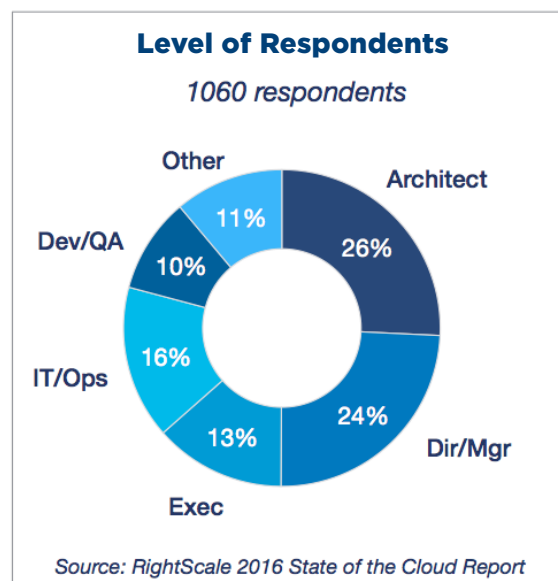
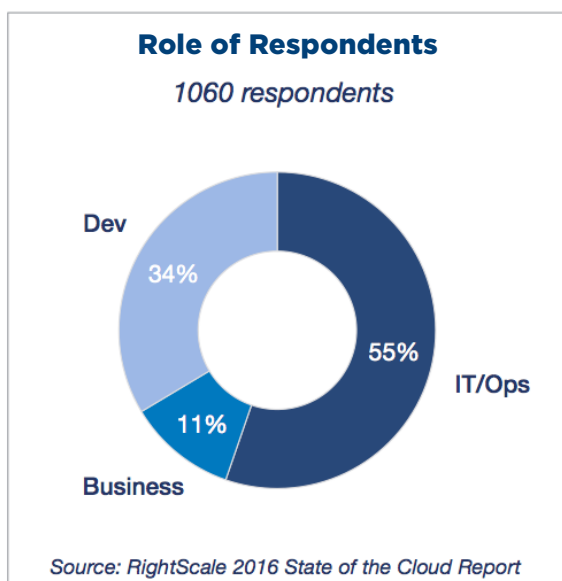
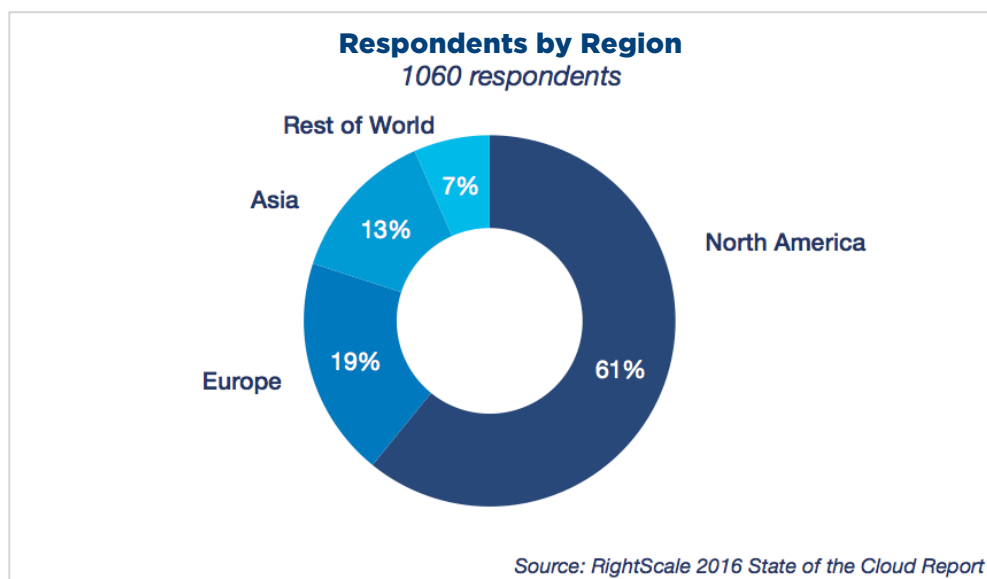
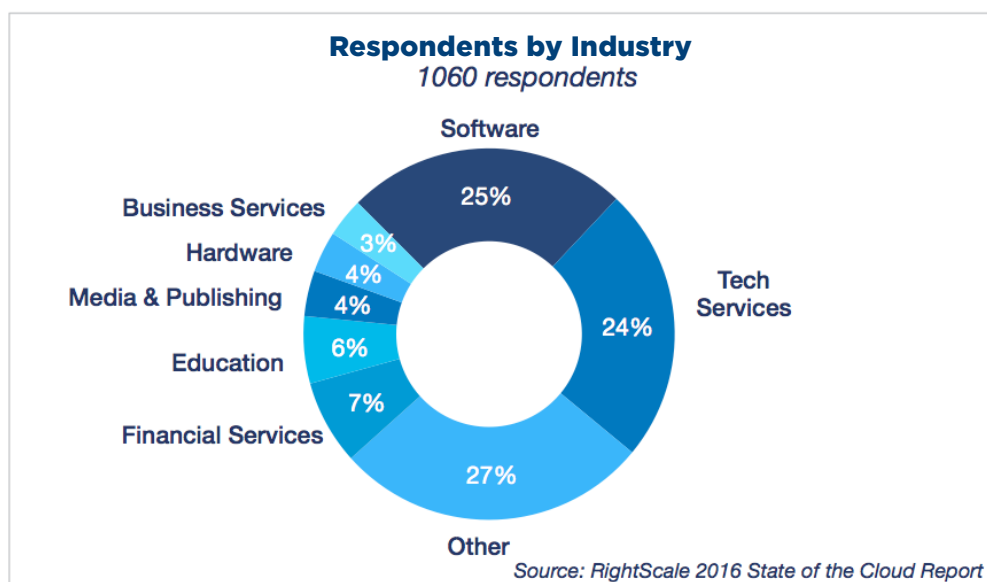
**Margin of error = 3.07 percent.**

### Use of Charts and Data In This Report

We encourage the re-use of data, charts, and text published in this report under the terms of this [Creative Commons Attribution 4.0 International License](#). You are free to share and make commercial use of this work as long as you attribute the RightScale 2016 State of the Cloud Report as stipulated in the terms of the license.

## Respondent Demographics





## The Cloud Maturity Model

In this report, RightScale uses its Cloud Maturity Model to segment and analyze organizations based on their levels of cloud adoption. The Cloud Maturity Model identifies four distinct stages of cloud maturity. Denoting cloud adoption by organizations from least to greatest experience, the four stages are:

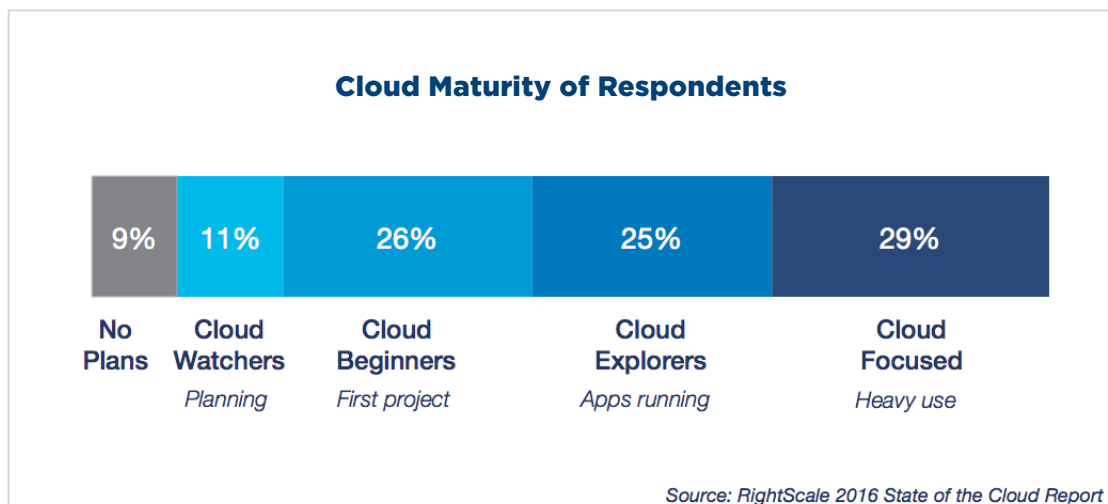
**Cloud Watchers** are organizations that are developing cloud strategies and plans but have not yet deployed applications into the cloud. Cloud Watchers want to evaluate available cloud options and determine which applications to implement in the cloud.

**Cloud Beginners** are new to cloud computing and are working on proof-of-concepts or initial cloud projects. Cloud Beginners want to gain experience with cloud in order to determine future projects.

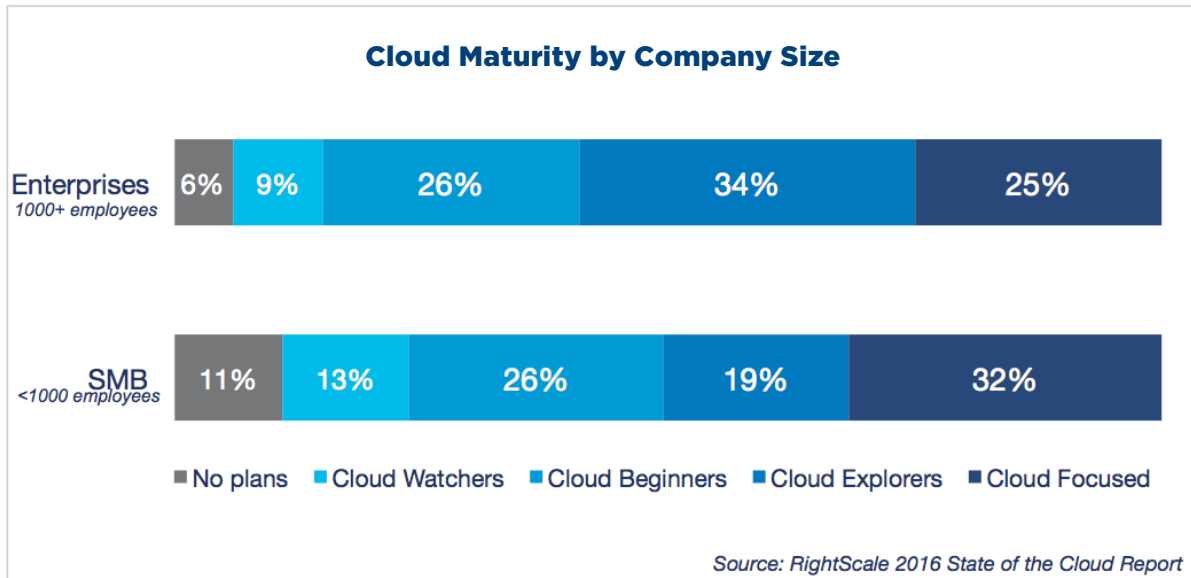
**Cloud Explorers** have multiple projects or applications already deployed in the cloud. Cloud Explorers are focused on improving and expanding their use of cloud resources.

**Cloud Focused** businesses are heavily using cloud infrastructure and are looking to optimize cloud operations as well as cloud costs.

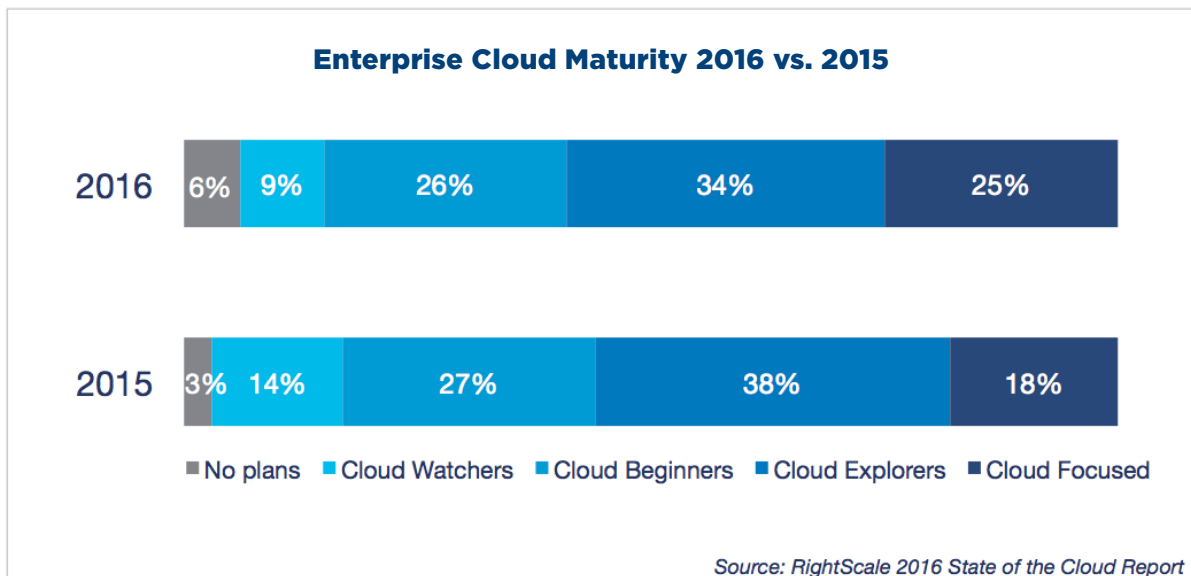
The survey on which the RightScale 2016 State of the Cloud Report is based includes organizations across all the stages of cloud maturity.



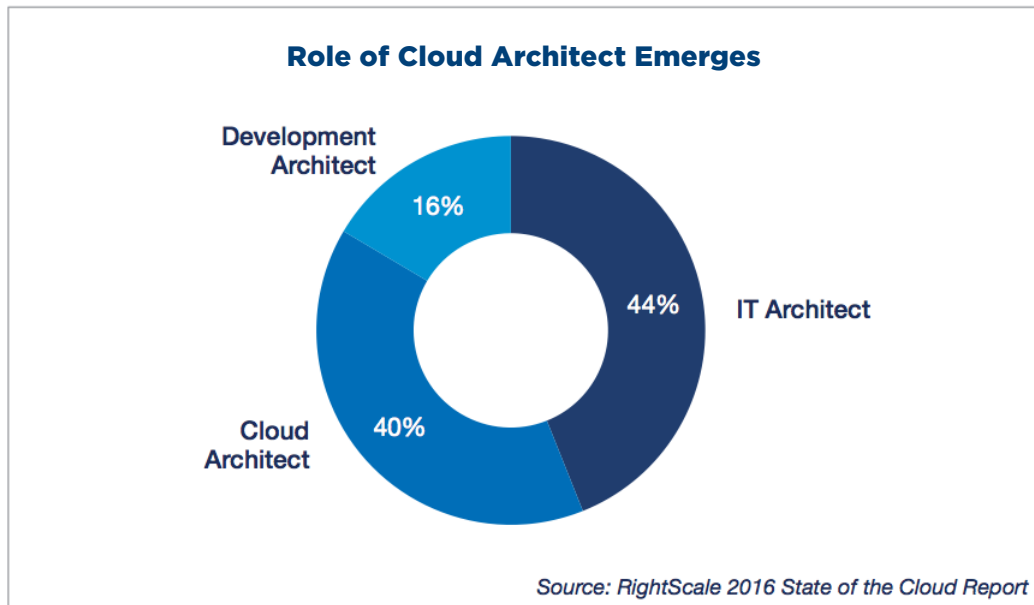
When comparing cloud adoption in large and small companies, it is interesting to note that while smaller organizations are more likely to be Cloud Focused, a larger portion of enterprise respondents are in the two most mature stages — Cloud Explorers and Cloud Focused.



In the last year, many enterprises have moved from the Cloud Explorers stage to the Cloud Focused stage — now representing 25 percent of respondents vs. 18 percent in 2015.



As cloud maturity has increased, the role of cloud architect has emerged. Among respondents with an architect role, 40 percent identify themselves as cloud architects.

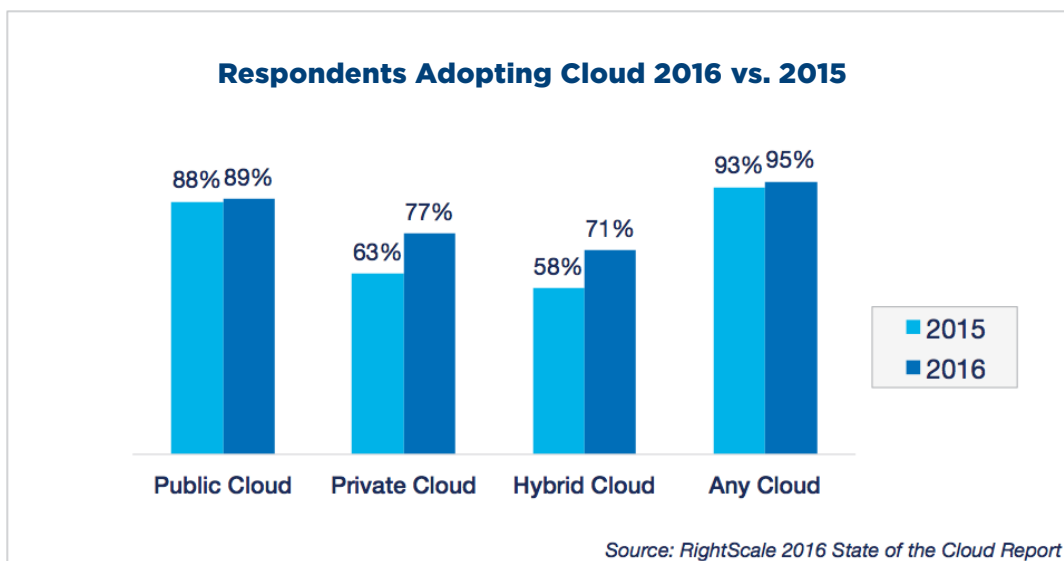
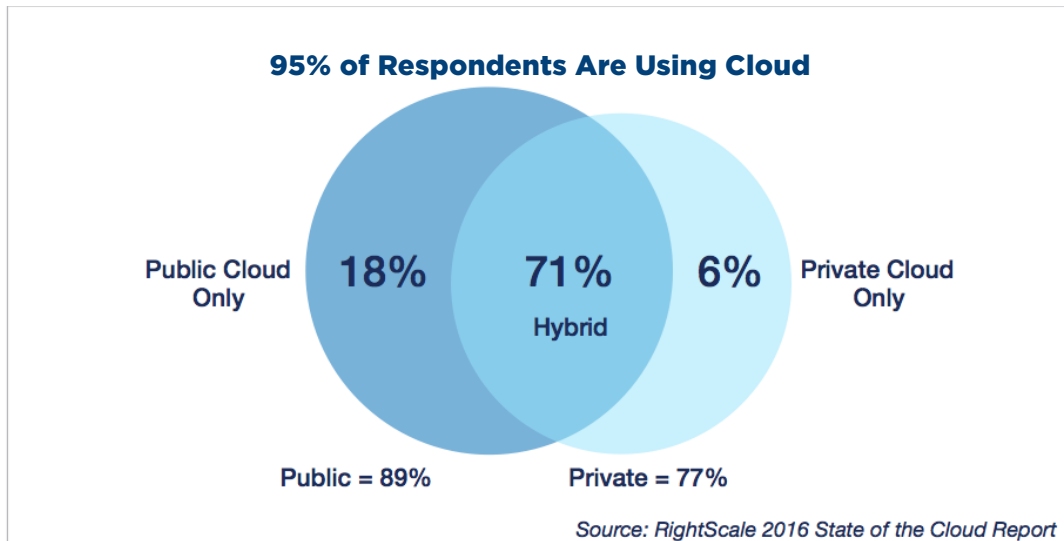




## Key Findings

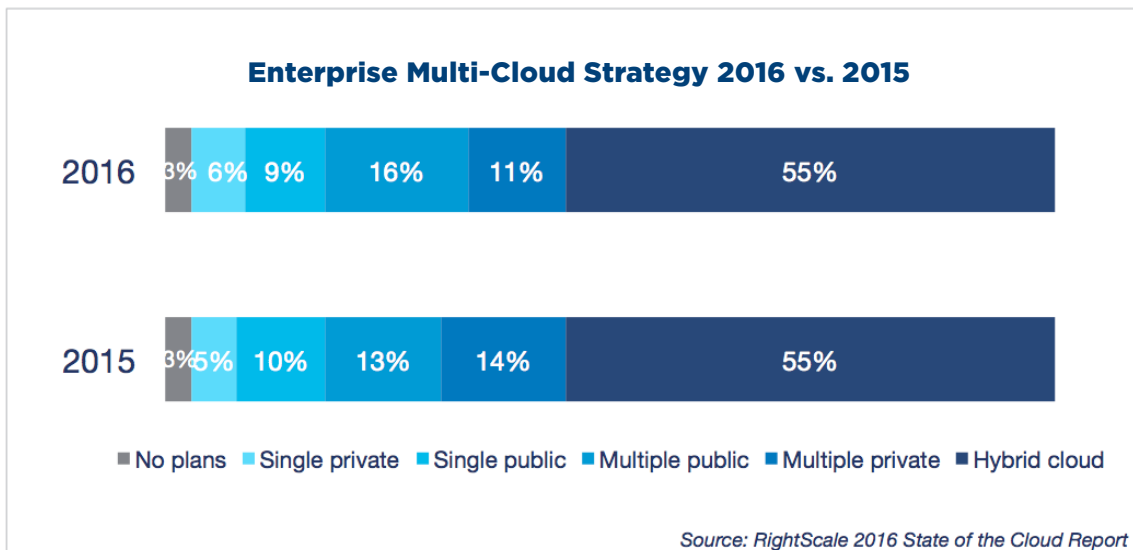
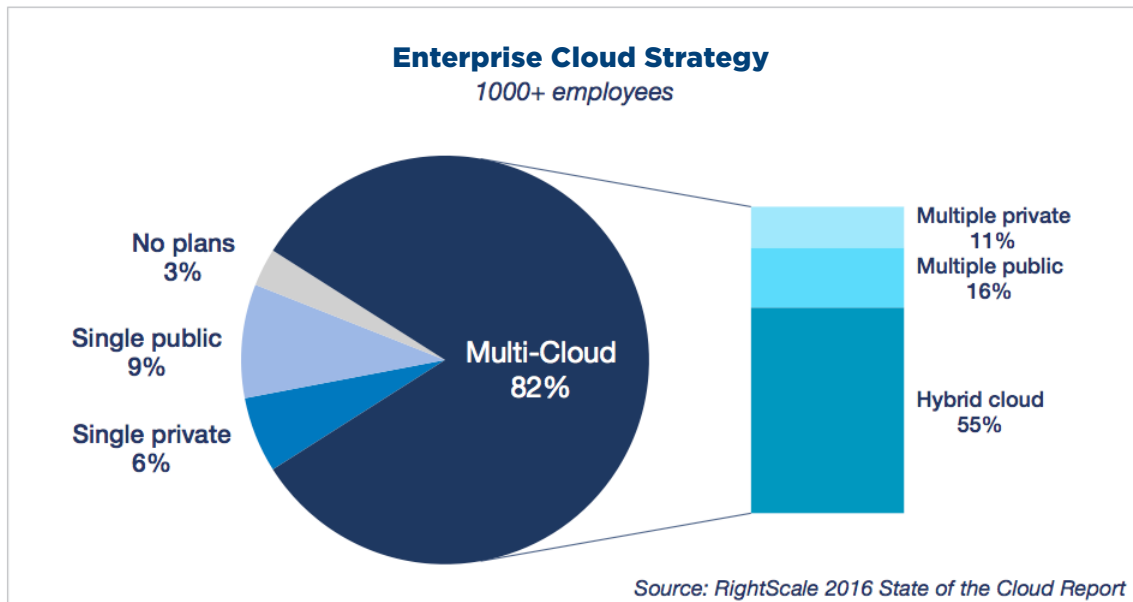
### Significant growth in hybrid cloud adoption.

In the twelve months since the last State of the Cloud Survey, we've seen strong growth in hybrid cloud adoption as public cloud users added private cloud resource pools. 77 percent of respondents are now adopting private cloud up from 63 percent last year. As a result, use of hybrid cloud environments has grown to 71 percent. In total, 95 percent of respondents are now using cloud up from 93 percent in 2015.

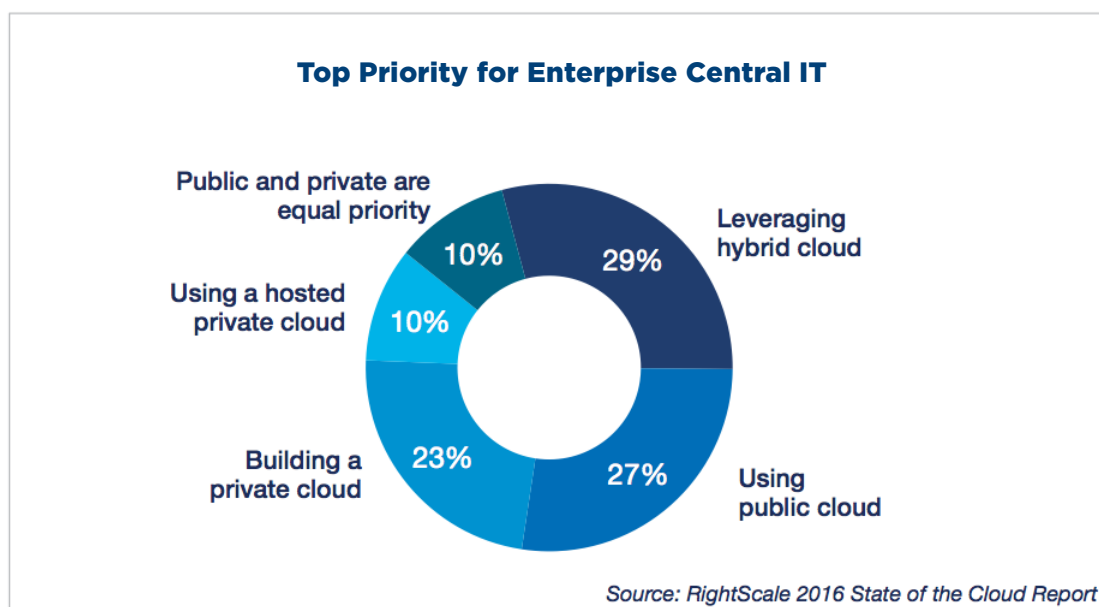


## Enterprises hold firm on hybrid cloud strategy.

The percentage of enterprises that have a strategy to use multiple clouds held steady at 82 percent with 55 percent planning on hybrid. There was a slight increase in the number of enterprises planning for multiple public clouds (up from 13 percent to 16 percent) and a concurrent decrease in those planning for multiple private clouds (down from 14 percent to 11 percent).



Among enterprises, the central IT team is typically tasked with assembling this hybrid portfolio of “supported” clouds. The top priority for these central IT teams is to leverage hybrid cloud (29 percent), which aligns with the predominant strategy.



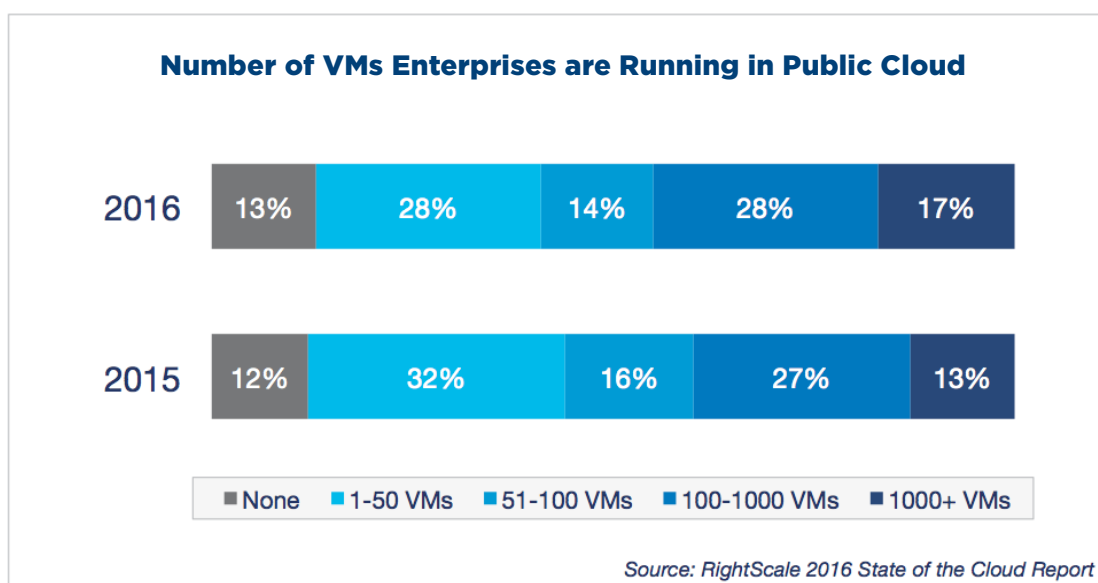
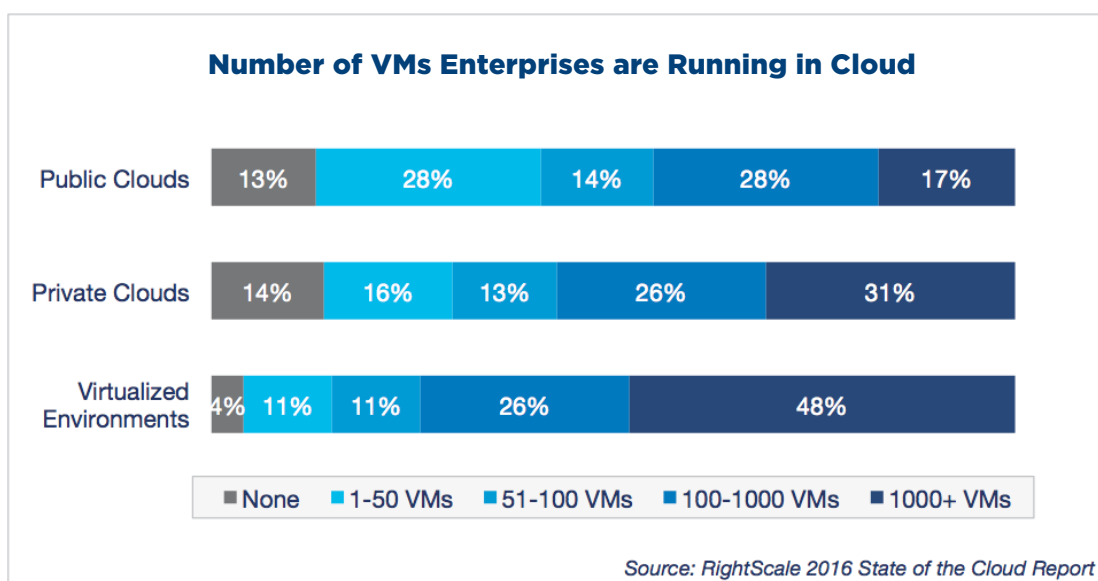
### Cloud users leverage 6 clouds on average — 3 public and 3 private.

Companies using cloud are leveraging 3 public clouds and 3 private clouds. On average, they are running applications on 1.5 public clouds and experimenting with an additional 1.5 public clouds. They are also running applications on 1.7 private clouds and experimenting with an additional 1.3 private clouds.

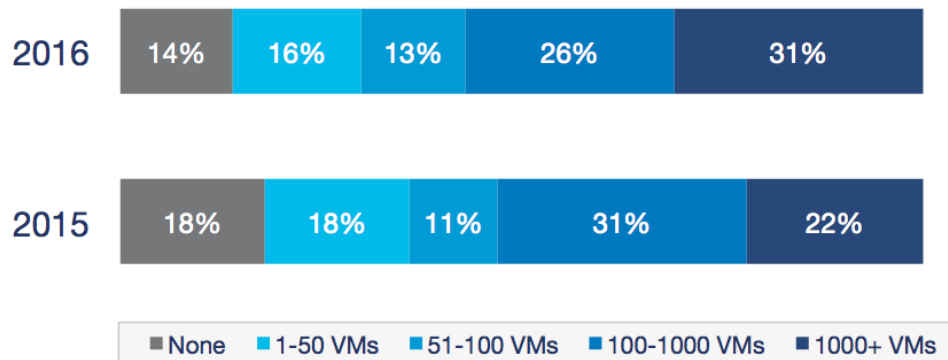
# of Clouds Used	Public Clouds <i>All respondents</i>	Private Clouds <i>All respondents</i>
Running applications	1.5	1.7
Experimenting	1.5	1.3
<b>Total</b>	<b>3.0</b>	<b>3.0</b>

### More enterprise workloads shift to cloud, especially private cloud.

More enterprise workloads moved to both public and private cloud over the last year. The number of enterprises running more than 1,000 virtual machines (VMs) in public cloud increased from 13 percent to 17 percent, while those running more than 1,000 VMs in private cloud grew from 22 percent to 31 percent. In comparison, enterprises with virtualized environments containing more than 1,000 VMs, grew from 42 percent to 48 percent. The growth in private cloud workloads also may include long-standing virtualized environments that have been enhanced and relabeled as a private cloud.

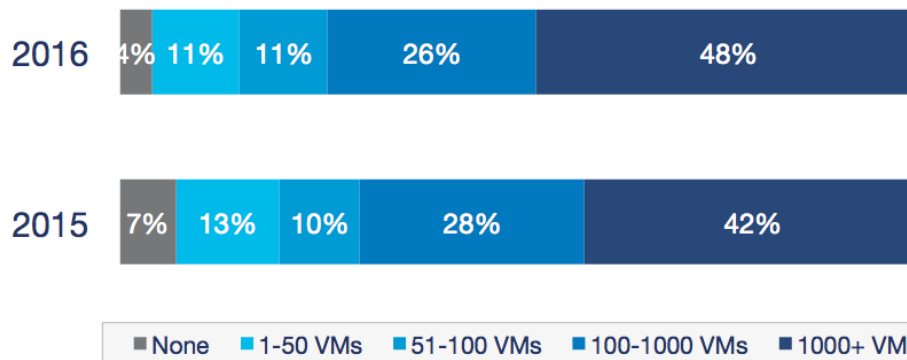


### Number of VMs Enterprises are Running in Private Cloud



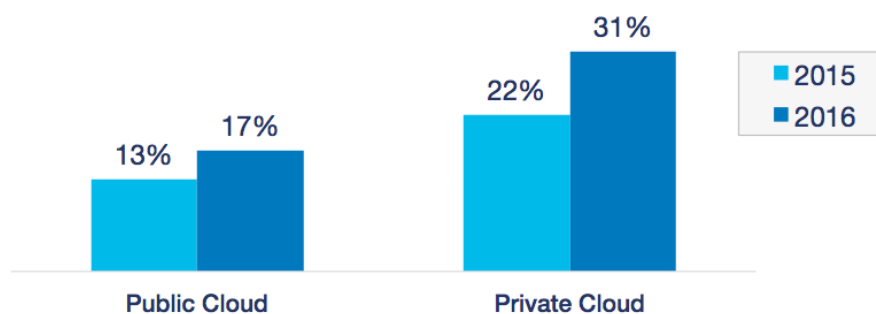
Source: RightScale 2016 State of the Cloud Report

### Number of VMs Enterprises are Running in Virtualized Environments



Source: RightScale 2016 State of the Cloud Report

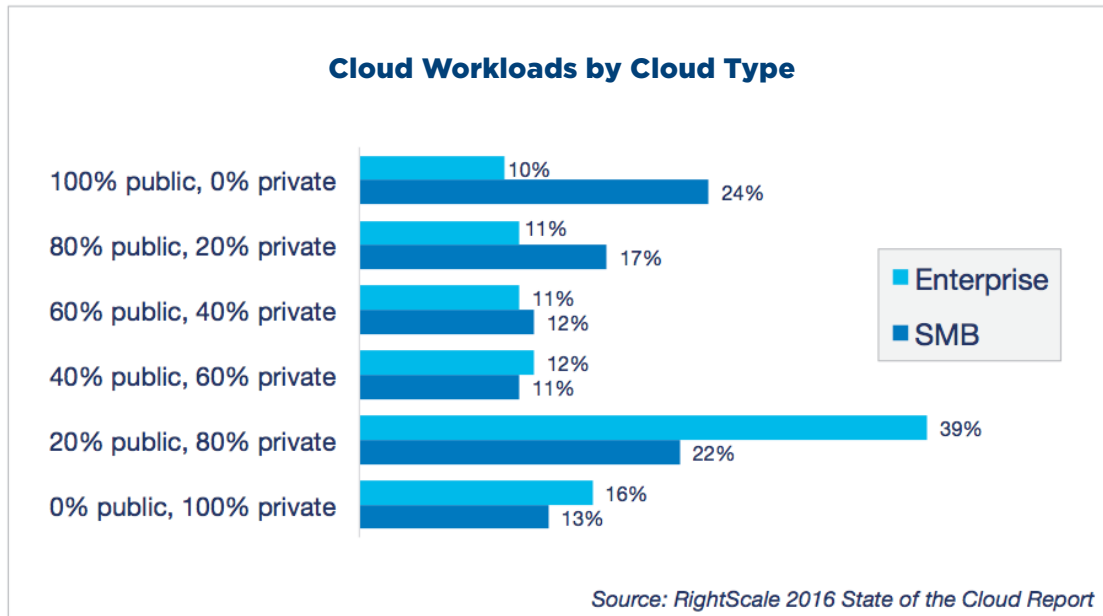
### Enterprise Respondents with 1000+ VMs in Cloud



Source: RightScale 2016 State of the Cloud Report

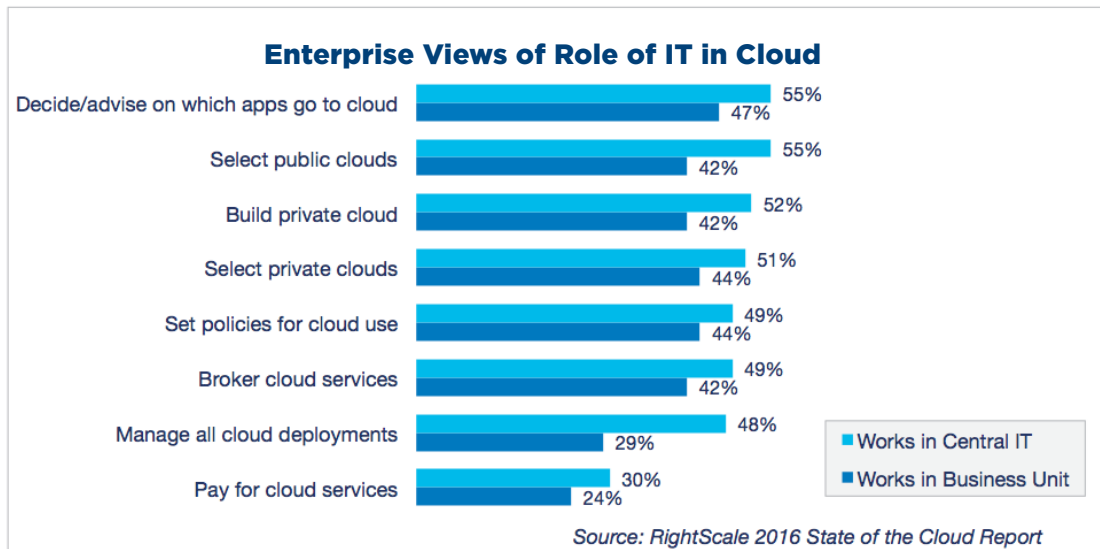
### Enterprises run more cloud workloads in private, SMBs run more in public.

Looking at the split of cloud workloads between public and private, enterprises with more than 1,000 employees are skewed toward private cloud while SMBs with less than 1,000 employees lean toward public cloud. 53 percent of SMBs run a majority of cloud workloads in public environments, compared to 32 percent of enterprises. Note that this split is only among cloud workloads and doesn't include non-cloud workloads.

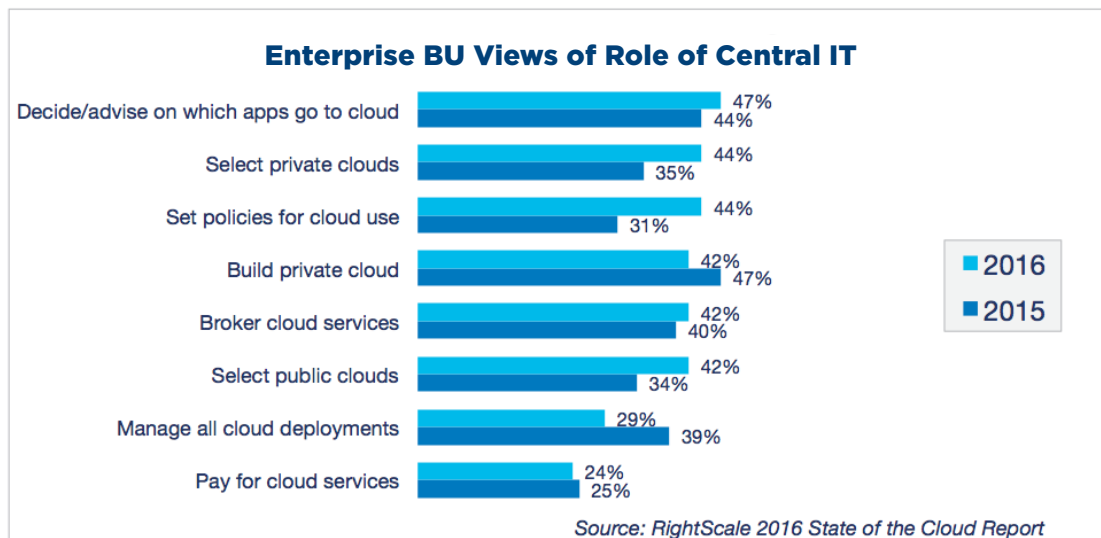


## Enterprises increase alignment on role of central IT teams in cloud use.

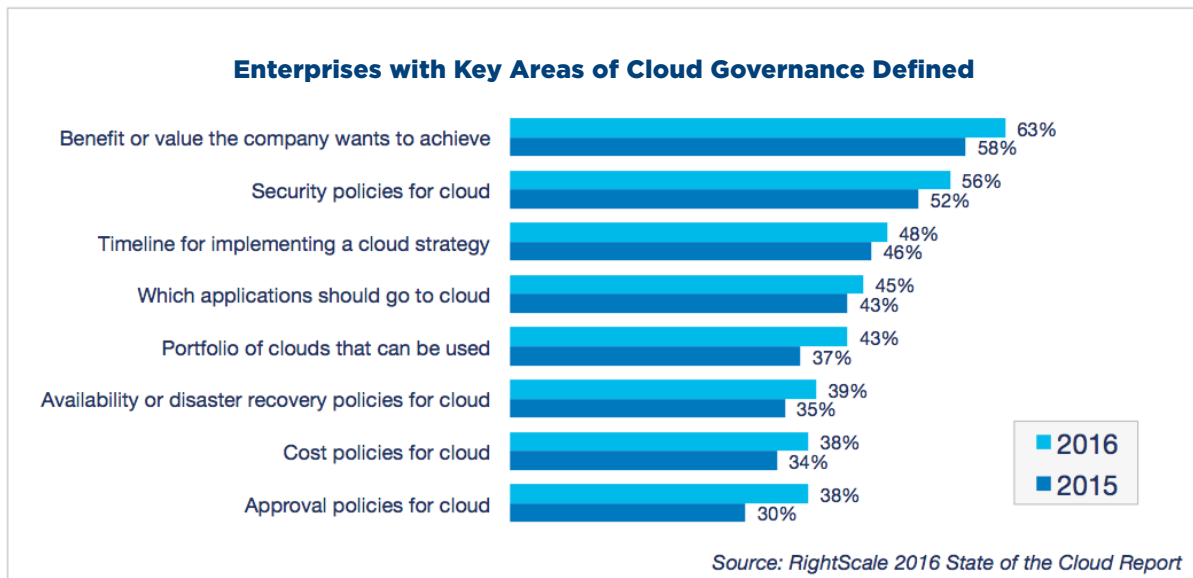
Within larger enterprises, the role of central IT teams in cloud has been evolving over the last few years. Early use of cloud was mostly driven by individual development teams using public cloud for specific applications or projects. As enterprise cloud use increased, central IT began to take the role as broker of cloud services in order to ensure appropriate management, governance, and control. However, in past years, respondents within enterprise business units expressed reluctance to secede control to central IT.



In 2016, business units within the enterprises increasingly agreed that central IT should play a role in selecting, brokering, and governing cloud services. 44 percent now believe that central IT should set policies for cloud use vs. 31 percent in 2015. They also expect central IT to select public clouds (up from 34 percent to 42 percent) and private cloud technologies (up from 35 percent to 44 percent).



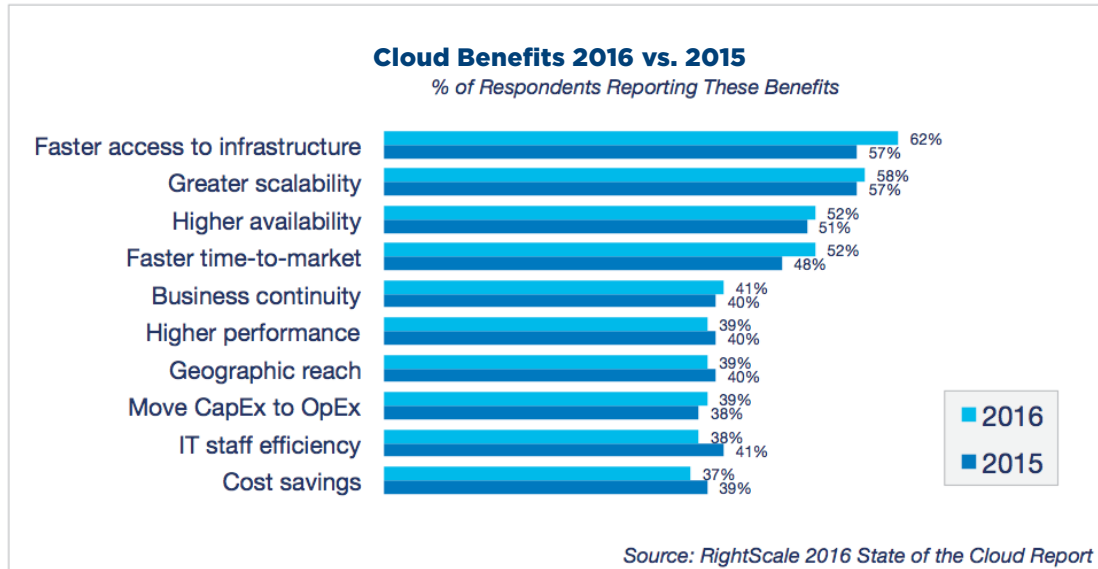
As enterprises increased alignment around the role of central IT in cloud adoption, IT organizations also made progress on cloud governance in the last year. Enterprises improved governance across a variety of areas, but the greatest gains were made in approval policies for cloud, which increased from 30 to 38 percent. Enterprises also made progress on defining the portfolio of clouds that can be used (from 37 to 43 percent) and the benefit or value the company wants to achieve (from 58 to 63 percent). There is still room for improvement, since fewer than half of enterprises have implemented many of these aspects of cloud governance.



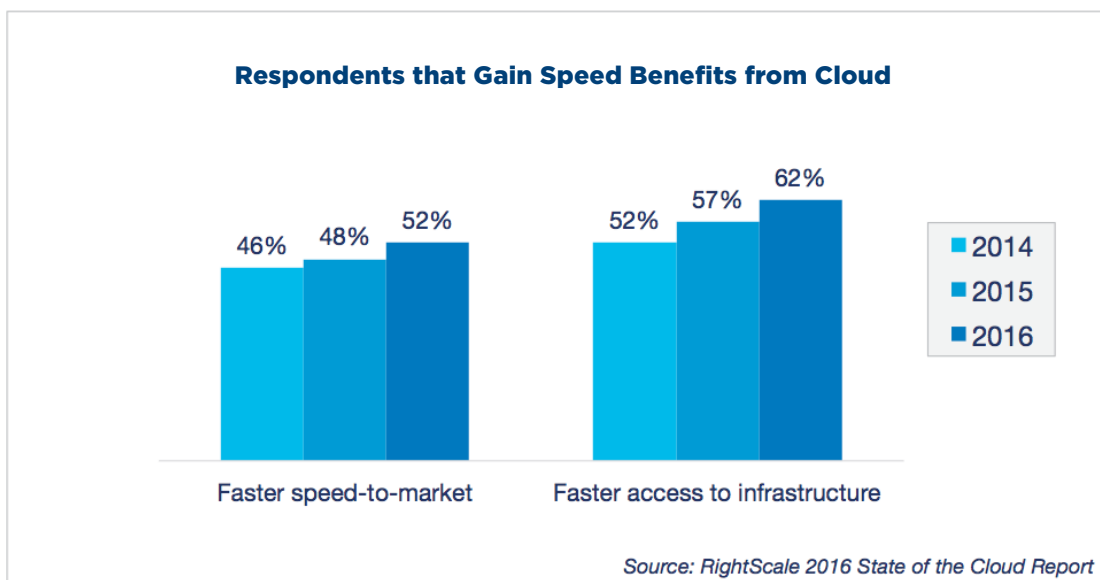


## Cloud users gain speed benefits.

In 2016, more cloud users reported speed benefits from cloud. The two benefits that had the largest increase were faster access to infrastructure, which grew from 57 to 62 percent, and faster time-to-market, which grew from 48 to 52 percent.

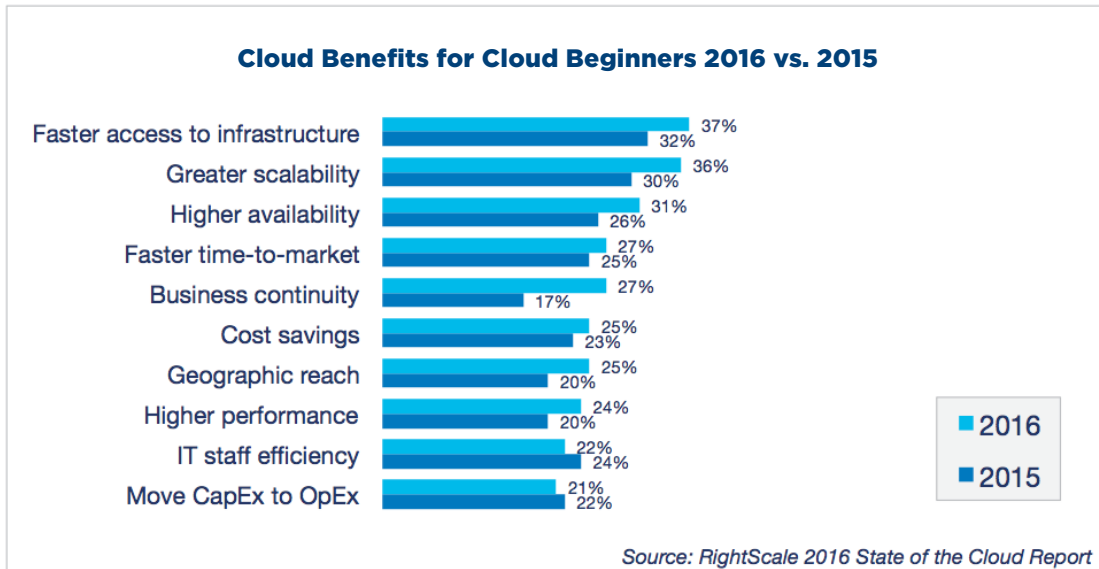


Over the last three years, the respondents reporting these two “speed” benefits have increased significantly.

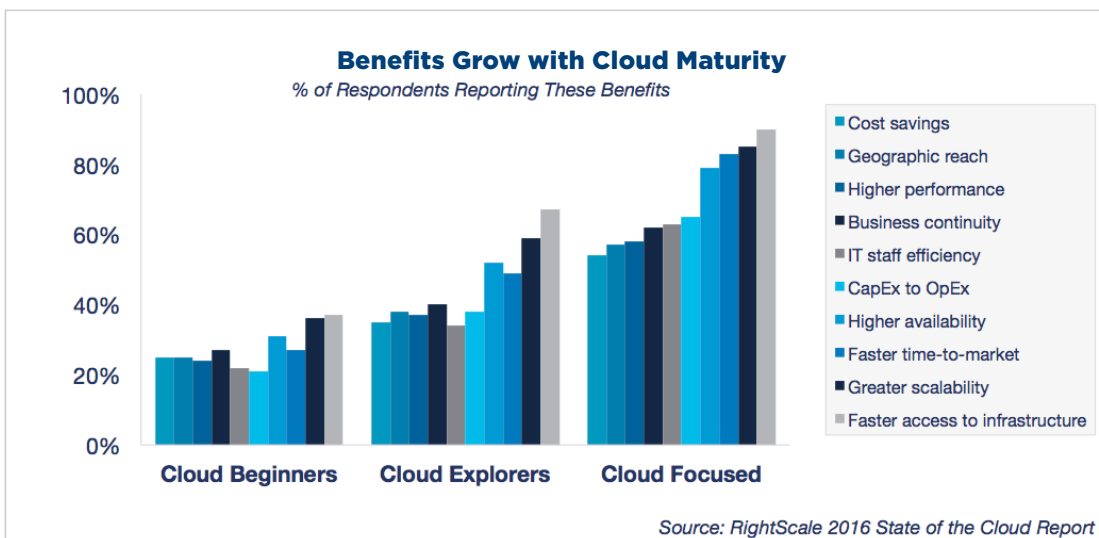


## Cloud beginners see significant gains in benefits.

In 2016, Cloud Beginners saw significant gains in cloud benefits vs. 2015. The largest gains were in business continuity (up from 17 to 27 percent), scalability (up from 30 to 36 percent), higher availability (up from 26 to 31 percent), and faster access to infrastructure (up from 32 to 37 percent). These gains indicate that as cloud providers and best practices have matured, new cloud users are able to get to value more easily.

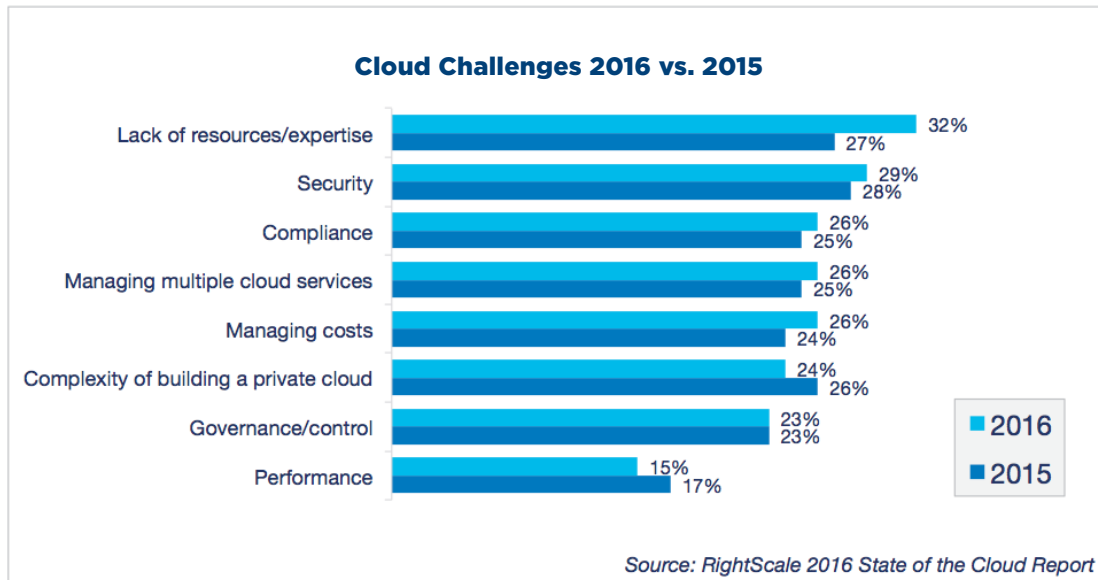


As in prior years, greater cloud experience continues to unlock increasingly greater levels of value for organizations. Respondents report a growth in the benefits that their organizations get from cloud computing as they mature.

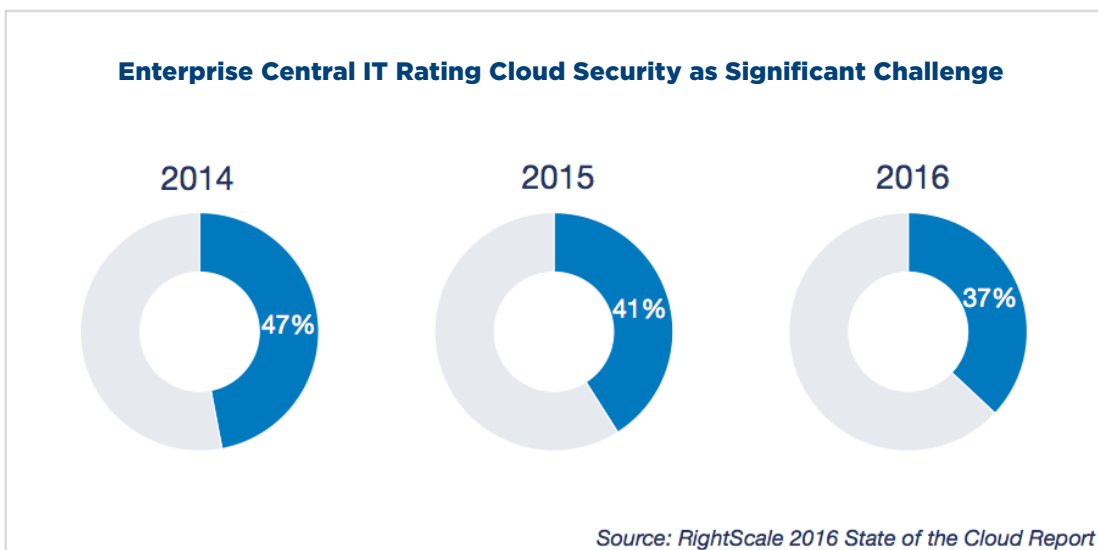


### Lack of resources/expertise supplants security as the top cloud challenge.

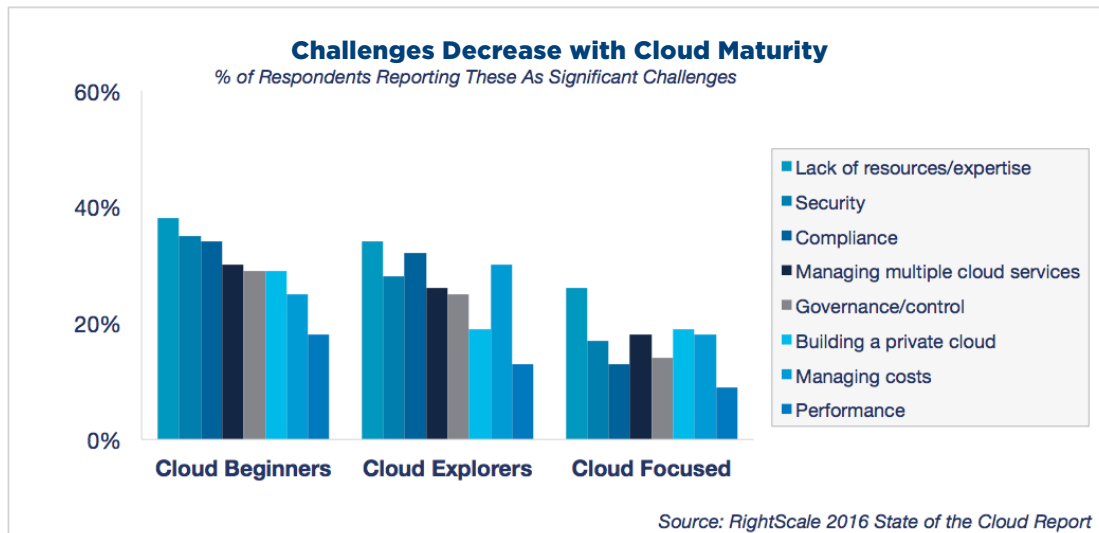
Since the State of the Cloud Report in 2013, security has been cited as the top challenge in cloud. Lack of resources/expertise increased from 27 percent last year to 32 percent this year to supplant security as the largest concern. As more organizations are placing more workloads in the cloud, the need for expertise has grown. Additional training of IT and development staff will be critical to helping address this challenge.



Enterprise central IT teams, who typically have the most responsibility for security have reported security as a significant challenge at higher rates. However there has been a significant decline in security concerns among this group over the last few years from 47 percent to 37 percent.



As in prior years, cloud challenges decline as users gain more experience and cloud maturity increases.



The top challenge, lack of resources/expertise, is consistent across Cloud Beginners, Cloud Explorers, and Cloud Focused. Security decreases as a challenge as users gain cloud experience. It is ranked as the #2 challenge by Cloud Beginners (35 percent), the #4 challenge by Cloud Explorers (28 percent), and the #5 challenge by Cloud Focused users. Slicing and dicing the data, we found that security is not the #1 challenge among any subgroup except for Cloud Watchers — those who are only in the planning stages of cloud adoption.

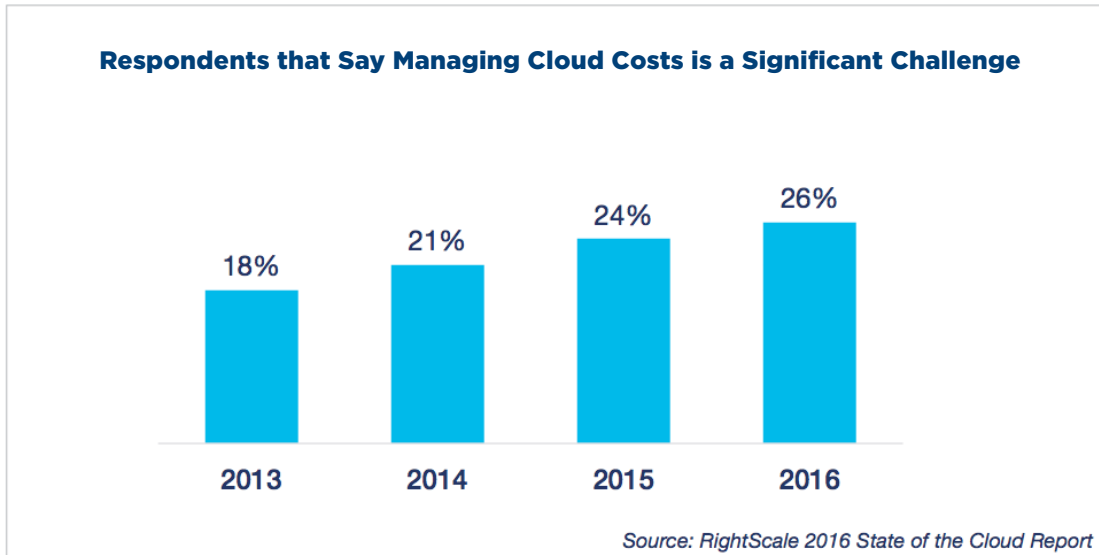
**Top 5 Challenges Change with Cloud Maturity**

Place	Cloud Beginners	Cloud Explorers	Cloud Focused
#1	Lack of resources/expertise (38%)	Lack of resources/expertise (34%) ↑ 3	Lack of resources/expertise (26%) ↑ 5
#2	Security (35%)	Compliance (32%)	Building a private cloud (19%)
#3	Compliance (34%)	Managing costs (30%)	Managing costs (18%)
#4	Managing multiple cloud services (30%)	Security (28%) ↓ 2	Managing multiple cloud services (18%)
#5	Governance/Control (29%)	Managing multiple cloud services (26%)	Security (17%) ↓ 4

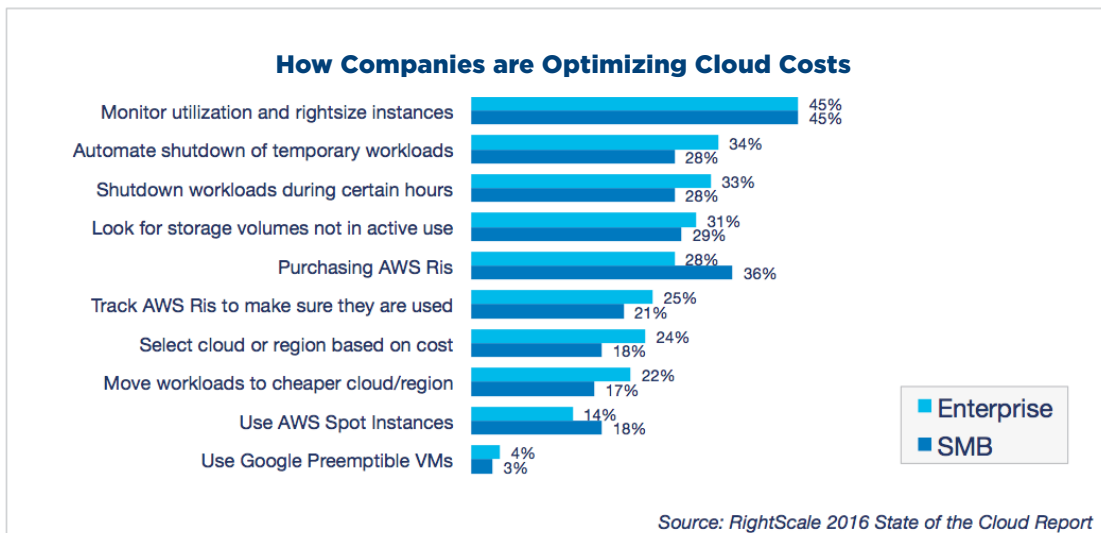
*Source: RightScale 2016 State of the Cloud Report*

### Cloud cost challenges increase, but optimization efforts lag.

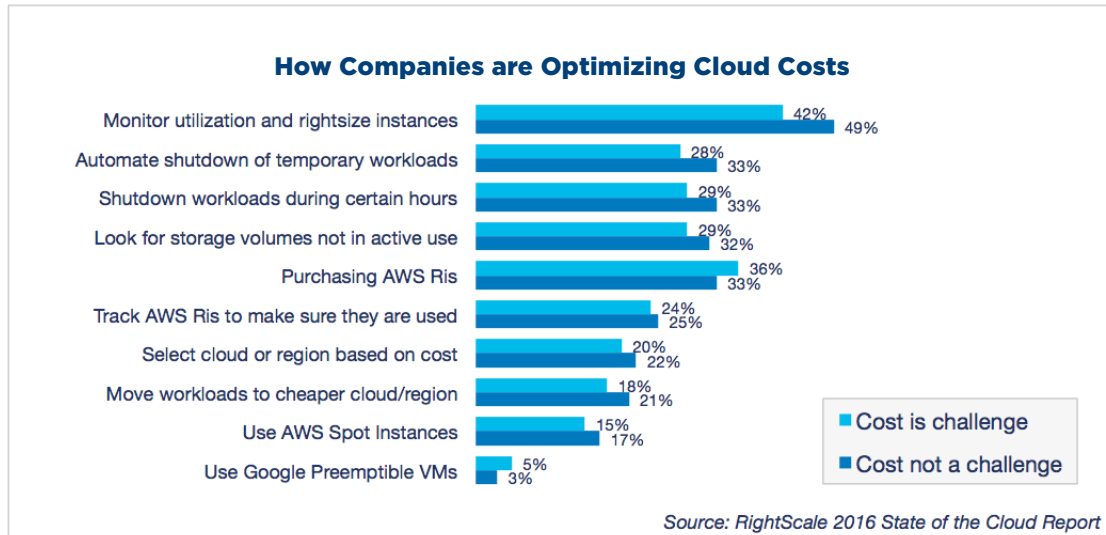
26 percent of respondents identify cloud cost management as a significant challenge in 2016, a steady increase each year from 18 percent in 2013.



Improving cloud cost management provides a significant opportunity for savings, since few companies are taking critical actions to optimize cloud costs, such as shutting down unused workloads or selecting lower-cost cloud or regions. The most common optimization action is monitoring utilization and rightsizing instances (45 percent of enterprises and SMBs). 36 percent of SMBs are purchasing AWS Reserved Instances (RIs) to save money, but only 21 percent are tracking purchased RIs to make sure that they are being fully utilized. When purchased RIs are not fully used, the savings decline, and the RI can end up costing more than on-demand instances.

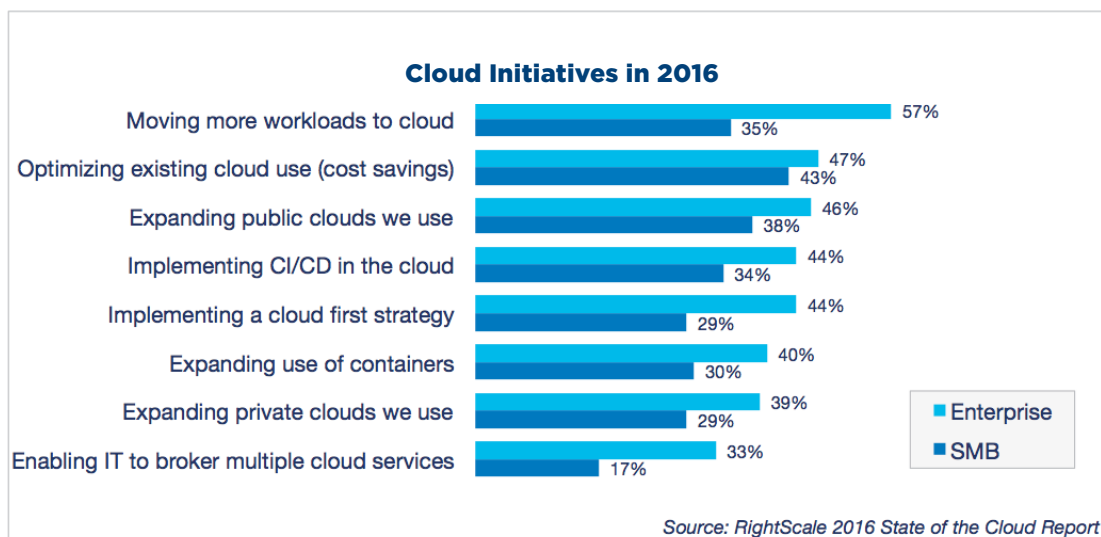


When we slice respondents based on whether they believe that cloud cost management is a significant challenge, we find that those who see cloud costs as a challenge are actually doing less to optimize cloud costs. For example only 42 percent of those who say cost is a challenge are monitoring utilization, compared to 49 percent of those who say cost is not a challenge.



## Cloud Beginners plan to do more in cloud; Cloud Focused plan to optimize.

Looking forward to 2016, the top 3 initiatives are moving more workloads to cloud, optimizing existing cloud use (cost savings), and expanding the public clouds used. Enterprises, who generally have a larger number of applications, are more focused on moving more of those workloads to cloud (57 percent). SMBs cite optimizing existing cloud use to gain cost savings (43 percent) as their #1 initiative.



2016 priorities differ based on cloud maturity. Cloud Beginners are focused on moving more workloads to cloud (43 percent), implementing a cloud first strategy (40 percent), and expanding public clouds used (37 percent). The top priorities of Cloud Focused respondents are optimizing existing cloud use to save costs (62 percent), CI/CD in the cloud (52 percent), and expanding public clouds used (50 percent).

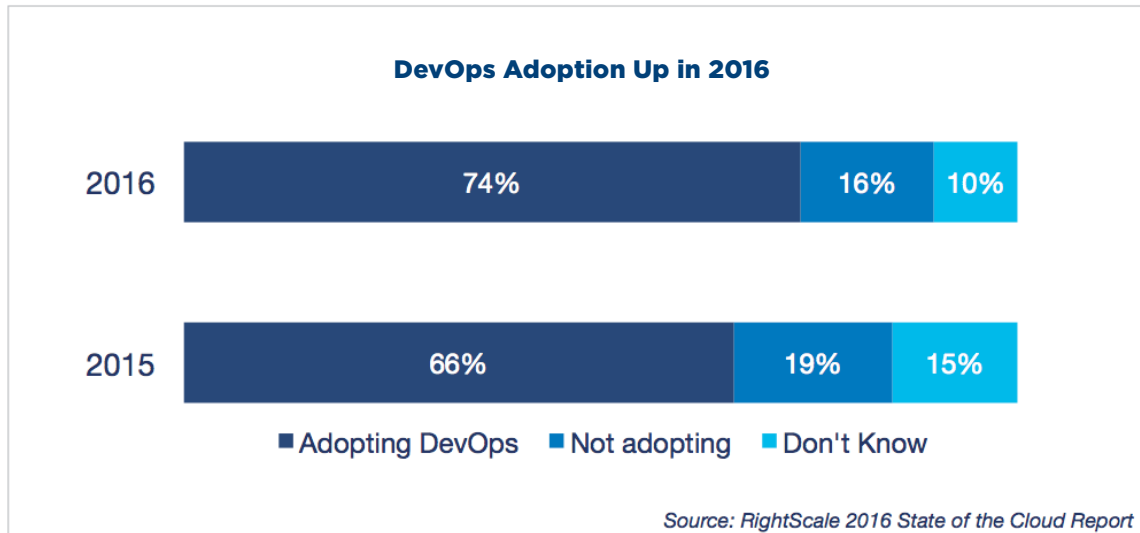
**Top 2016 Initiatives Depend on Cloud Maturity**

Place	Cloud Beginners	Cloud Explorers	Cloud Focused
#1	Move more workloads to cloud (43%)	Move more workloads to cloud (63%)	Optimizing existing cloud use/cost savings (62%)
#2	Implement a cloud first strategy (40%)	Optimizing existing cloud use/cost savings (53%)	CI/CD in the cloud (52%)
#3	Expand public clouds we use (37%)	Expand public clouds we use (51%)	Expand public clouds we use (50%)
#4	Expand private clouds we use (36%)	CI/CD in the cloud (46%)	Expand use of containers (48%)
#5	Optimizing existing cloud use/cost savings (34%)	Expand use of containers (41%)	Move more workloads to cloud (44%)

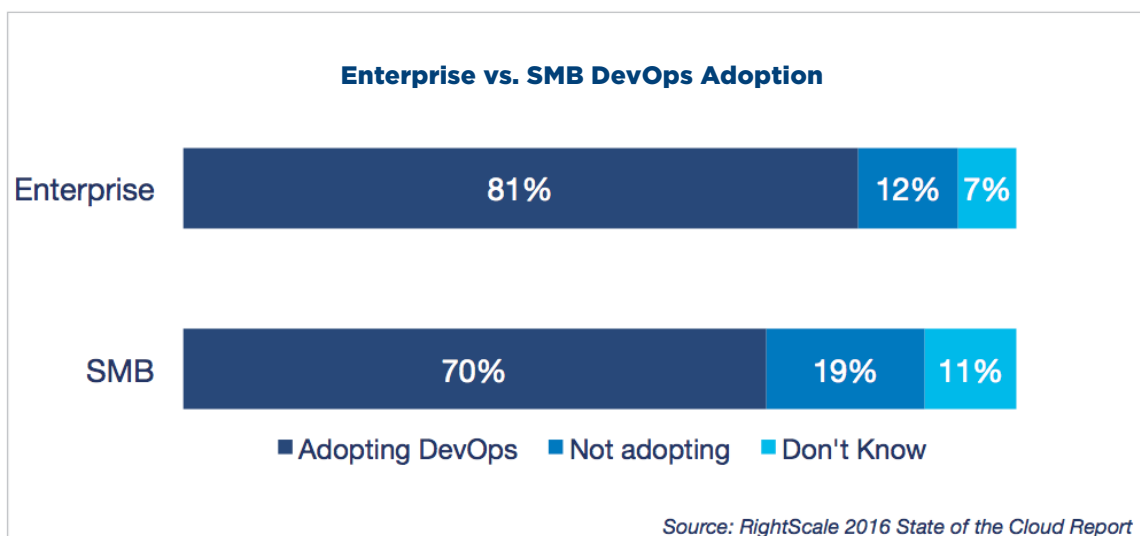
Source: RightScale 2016 State of the Cloud Report

### DevOps grows and Docker spreads like wildfire, especially in the enterprise.

The twin trends of DevOps and cloud adoption are closely linked. As companies seek to drive digital business by delivering new software applications and features more quickly, they look to both DevOps and cloud as key enablers. DevOps is now being adopted by 74 percent of organizations, up from 66 percent in 2015.

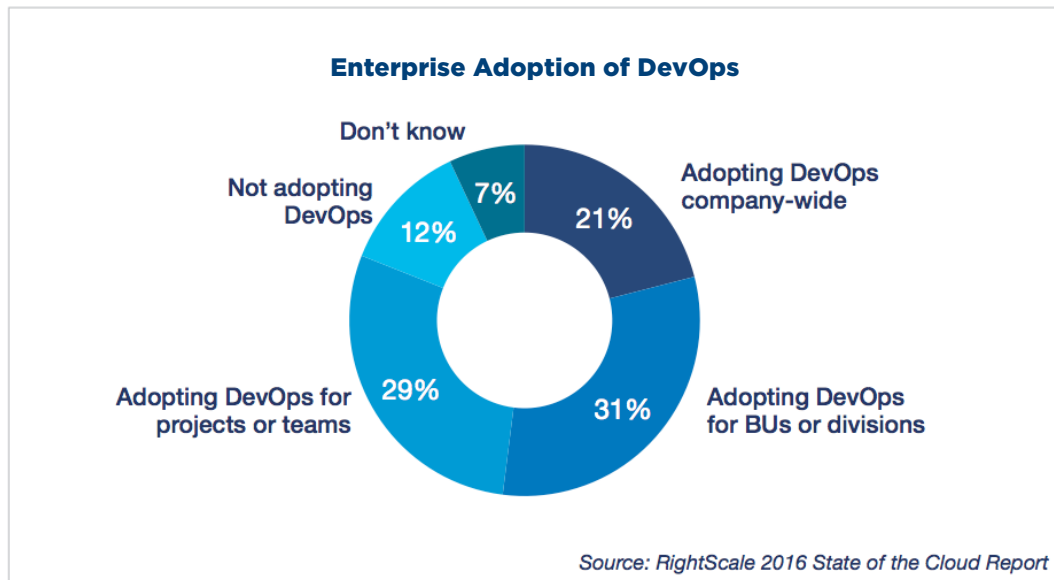


Larger organizations are embracing DevOps at even higher rates, with 81 percent adopting DevOps vs. 70 percent of SMBs.





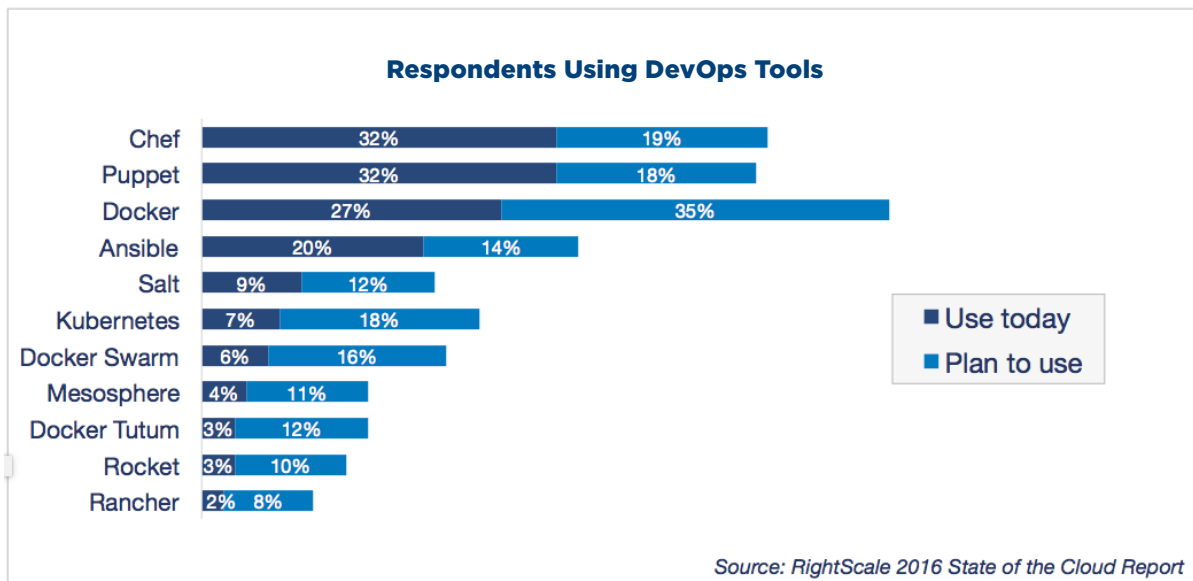
However, within the enterprise, DevOps adoption may not be ubiquitous. 21 percent of enterprises are adopting DevOps company-wide, 31 percent adopt at the business unit or division level, and 29 percent by individual projects or teams.



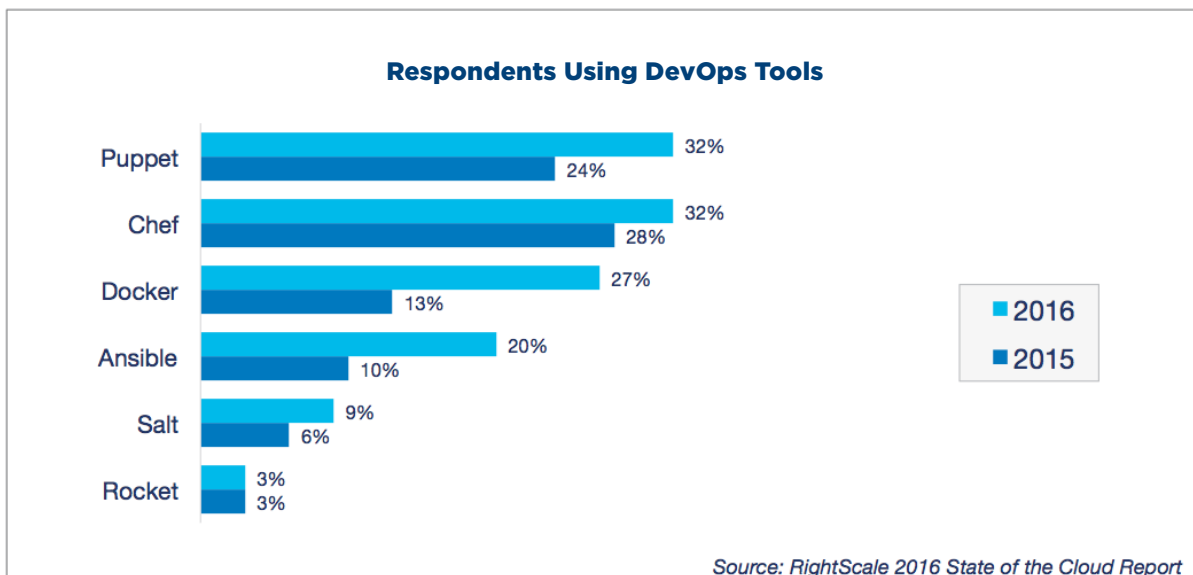
As part of adopting DevOps processes, many companies choose to implement configuration management tools that allow them to standardize and automate deployment and configuration of servers and applications. In the last two years, companies have also begun to embrace container technologies, such as Docker, to help them standardize and streamline the way they package and deploy code.

Chef and Puppet are now each in use by 32 percent of respondents, while Docker is being used by 27 percent and Ansible by 20 percent. An additional 35 percent of respondents plan to use Docker, which is evidence of the level of attention and interest that Docker has garnered in a very short time period.

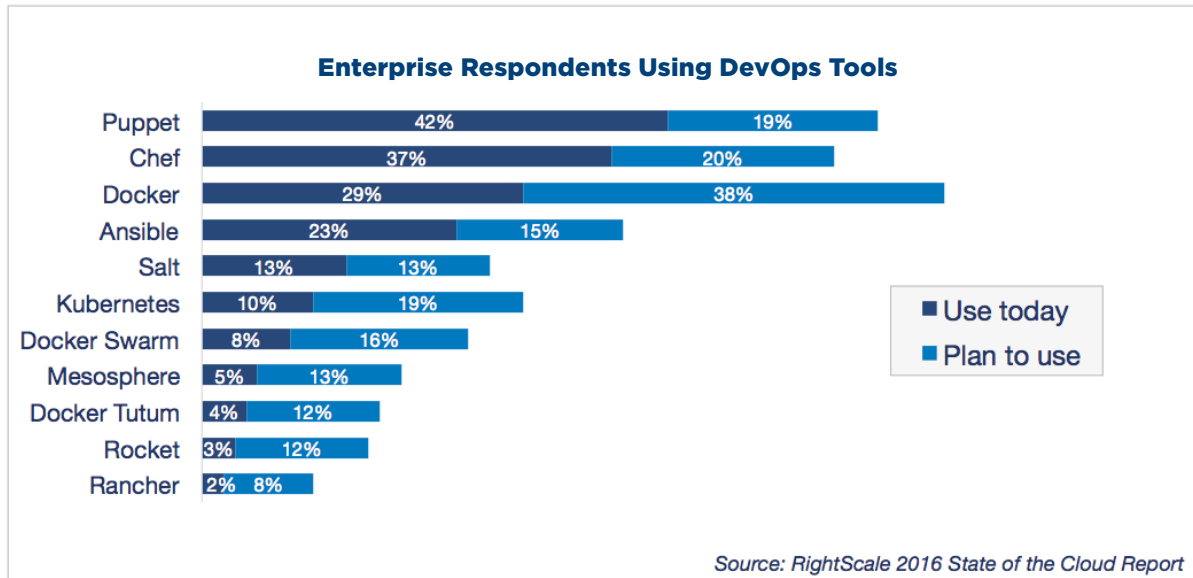
Container orchestration tools are still in the early phases of adoption with the top 3 being Kubernetes (7 percent), Swarm (6 percent), and Mesosphere (4 percent).



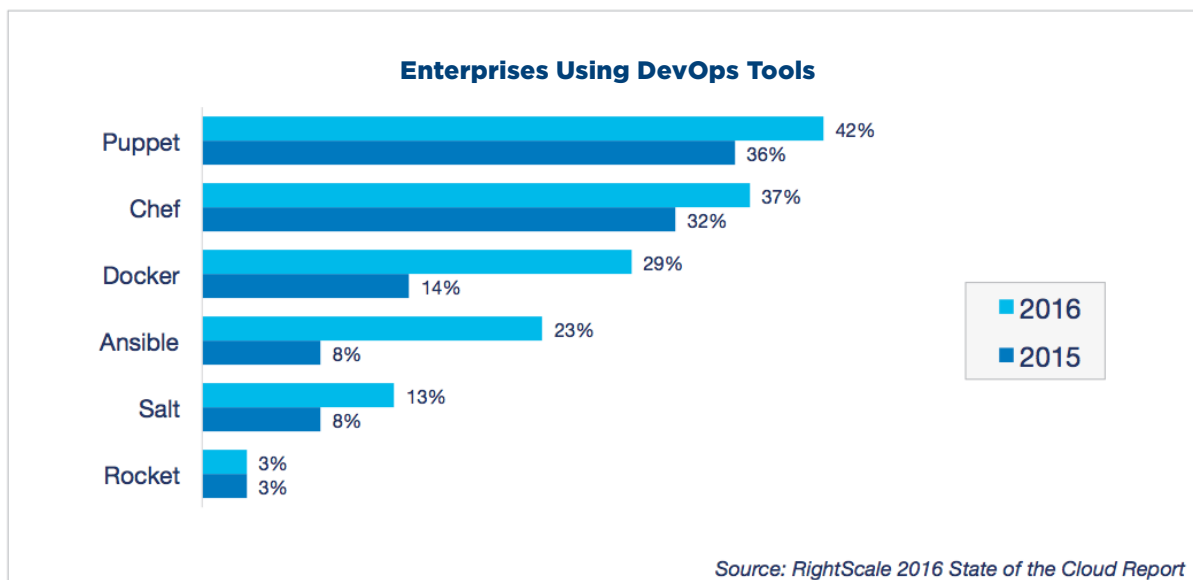
Docker has shown phenomenal growth year-over-year, with more than double the number of respondents using it (13 to 27 percent). Ansible also doubled (10 to 20 percent), Puppet showed strong growth (24 to 32 percent), and Chef grew as well (28 to 32 percent).



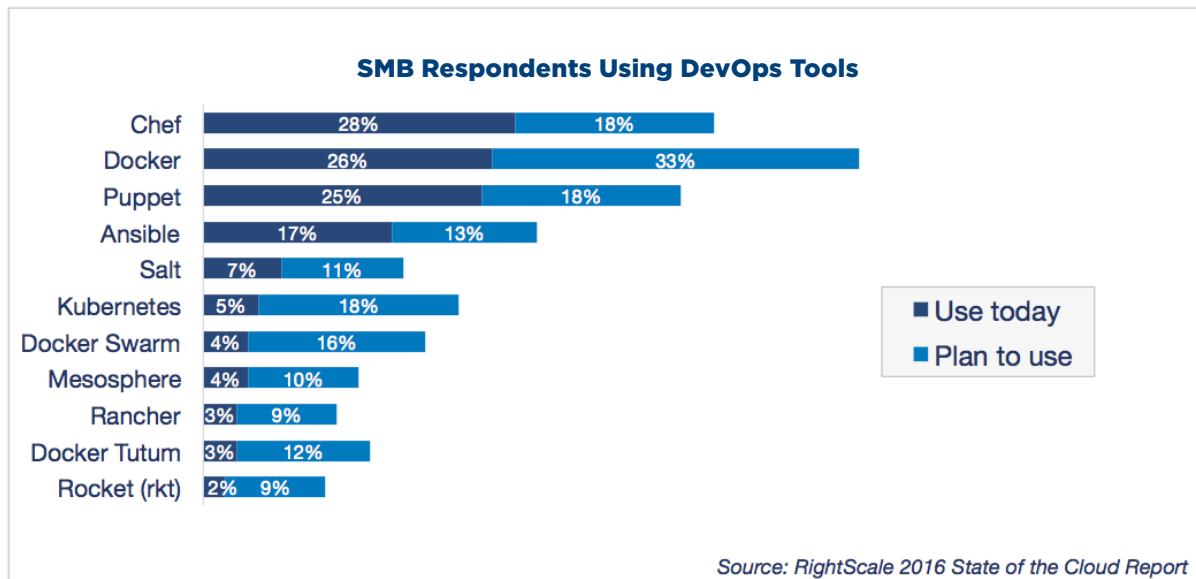
Among enterprises, Puppet (42 percent) leads Chef (37 percent) for configuration management, with Ansible at 23 percent. Docker, which offers a different approach to code delivery, is used by 29 percent of enterprises with another 38 percent planning to use it.



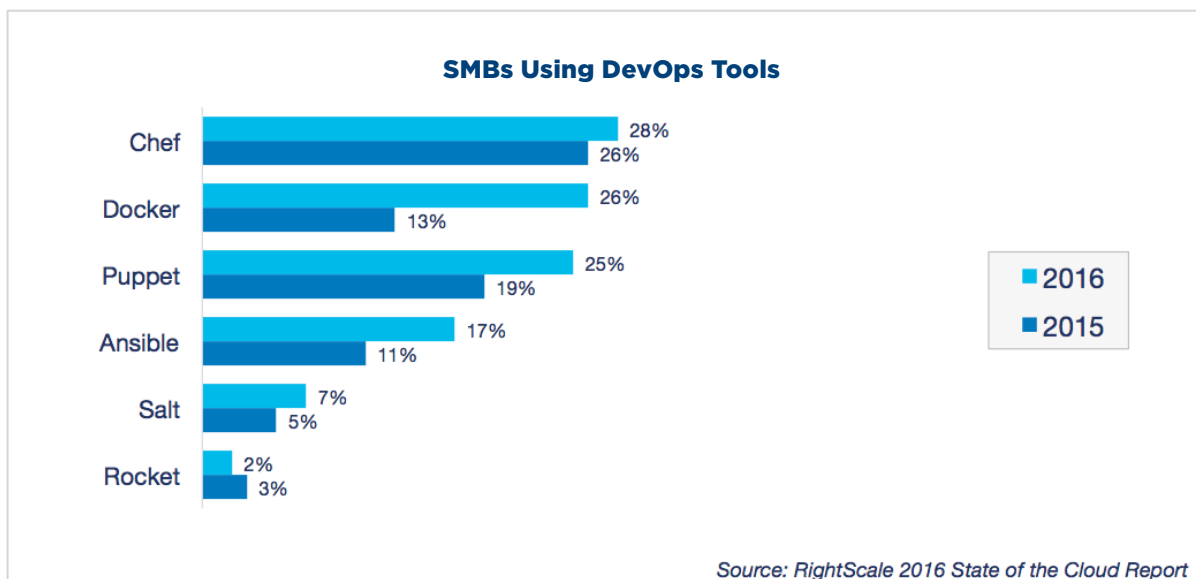
Year-over-year, Ansible showed the strongest growth among enterprises (8 to 23 percent) while Docker doubled on a larger base (14 to 29 percent). Puppet, Chef, and Salt also showed solid growth over the last 12 months.



Among SMBs, Chef (28 percent) has a slight lead over Docker (26 percent) and Puppet (25 percent). Interest in Docker is strong, with another 33 percent planning to use it.



In comparison with last year, Docker doubled (13 to 26 percent), Puppet (19 to 25 percent) and Ansible (11 to 17 percent) showed strong growth, while Chef grew slightly (26 to 28 percent).



## Public Cloud Adoption Expands Across Clouds and Private Gains Steam

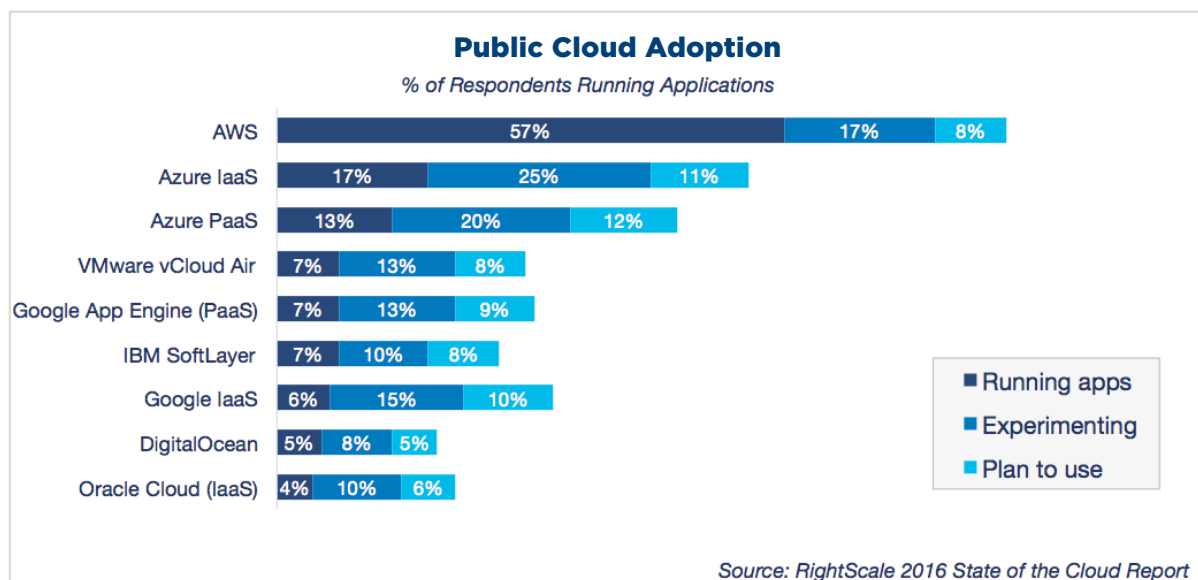
2015 was a big year for major public cloud providers and private cloud technologies. Cloud providers continued to add services, costs continued to drop, and overall adoption of cloud increased.

We asked respondents to tell us which clouds they were using and whether they were running applications in the cloud, experimenting with the cloud, planning to use the cloud, or had no plans to use the cloud. Most respondents are using more than one cloud so totals will add up to more than 100 percent. These results indicate whether a respondent is using any cloud but do not specify the number of applications that are running in each cloud.

### AWS still leads in public cloud; Azure gains ground.

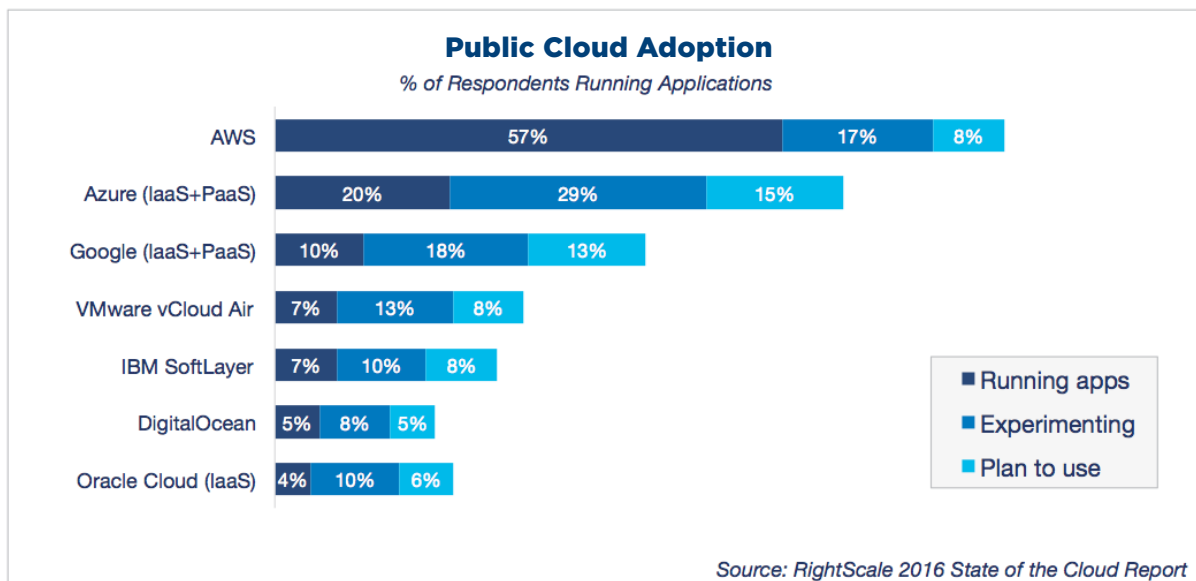
As expected, AWS continues to lead in public cloud adoption, with 57 percent of respondents currently running applications in this cloud. The percentage of respondents running applications in AWS was flat this year although, per reports from Amazon, the number of workloads in AWS (and hence the revenue) is increasing. Azure IaaS and PaaS both showed increased adoption, narrowing the gap with AWS. Due to its strategy change toward managed cloud services, Rackspace was not included in this year's survey. DigitalOcean (5 percent) and Oracle Cloud (4 percent) were added to the survey for the first time this year.

We can also gauge interest and potential for future adoption by measuring respondents that are experimenting or planning to use particular clouds. This year Azure IaaS and PaaS stand out with a higher percentage of respondents experimenting or planning to use those clouds. This could indicate potential for Azure to increase adoption in future years as these experiments and plans come to fruition.

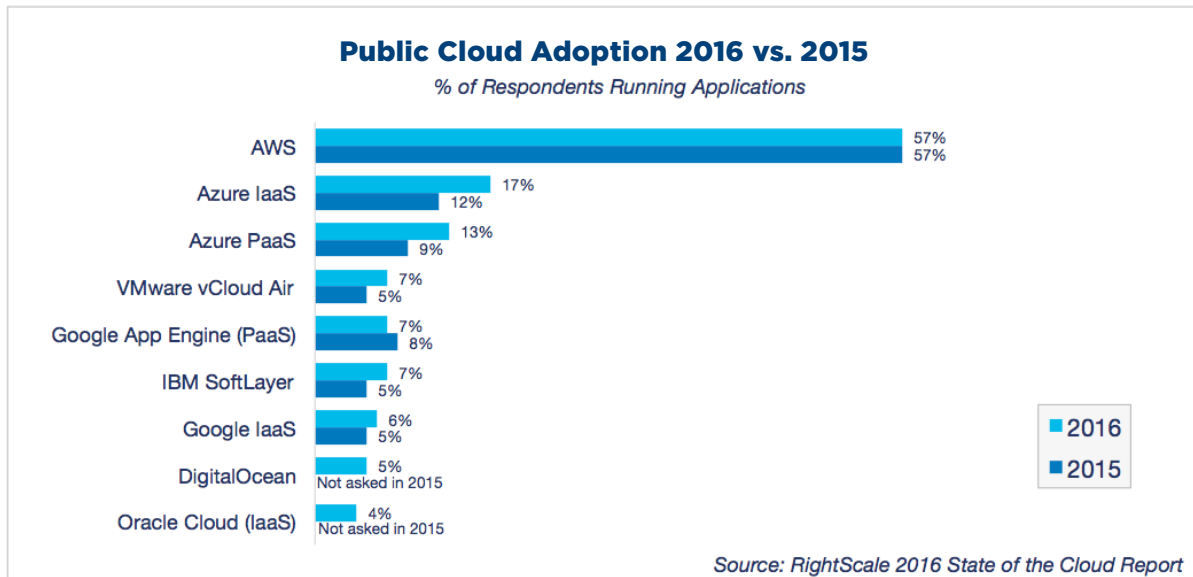


This year, we looked at IaaS and PaaS for Google and Azure separately as well as combined. The separate IaaS and PaaS numbers reveal how each service is doing on its own, while the combined numbers show the number of unique respondents that use any Azure (IaaS or PaaS or both) or any Google (IaaS or PaaS or both) service. Because many users leverage both IaaS and PaaS offerings from these vendors, the combined adoption is less than the sum of the adoption numbers for each individual service.

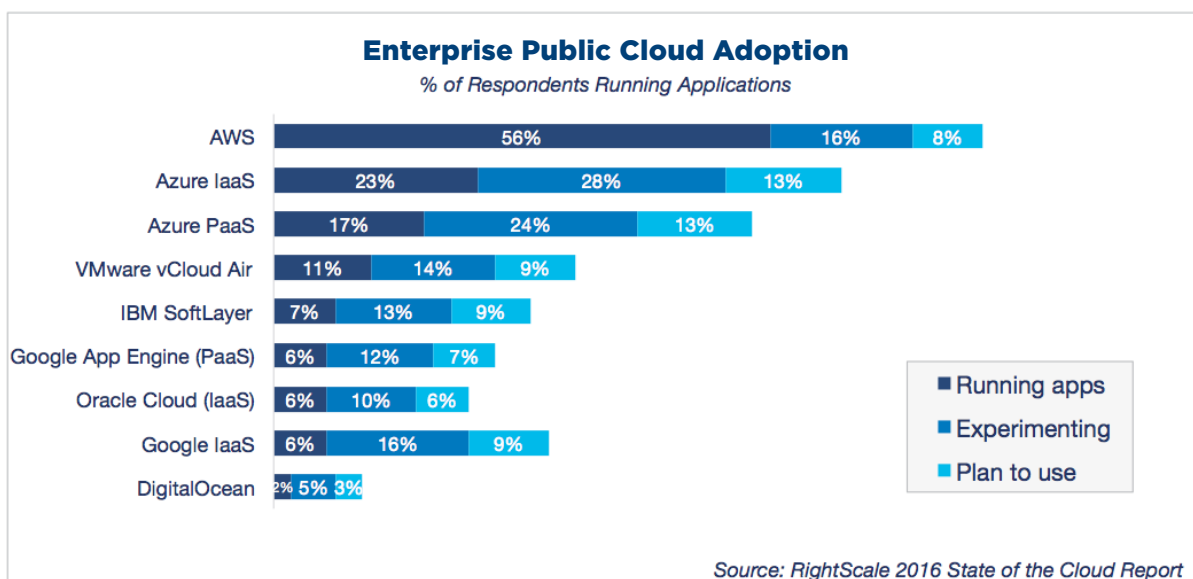
Whereas 17 percent are using Azure IaaS and 13 percent are using Azure PaaS, 20 percent are using either or both Azure offerings. 7 percent are using Google App Engine and 6 percent are using Google IaaS, while 10 percent are using either or both of Google IaaS/PaaS.



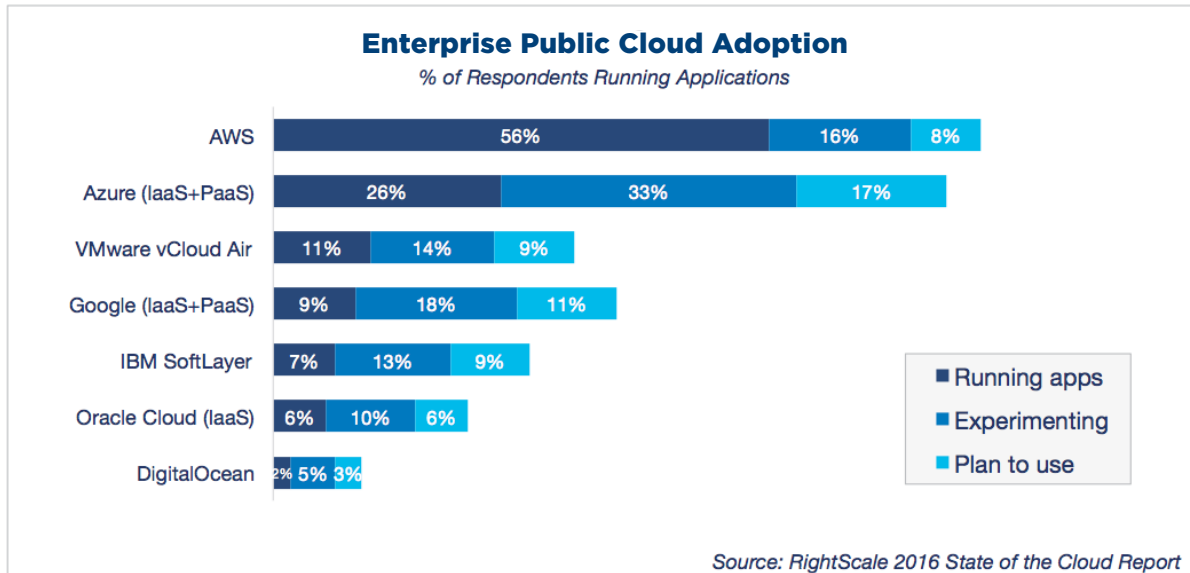
Comparing this year's data with last, we see that the percentage of respondents using AWS remained flat. Azure IaaS and Azure PaaS made the largest gains, helping to shrink the gap with AWS. VMware vCloud Air and IBM SoftLayer both showed small increases (up 2 percent), which are within the margin of error.



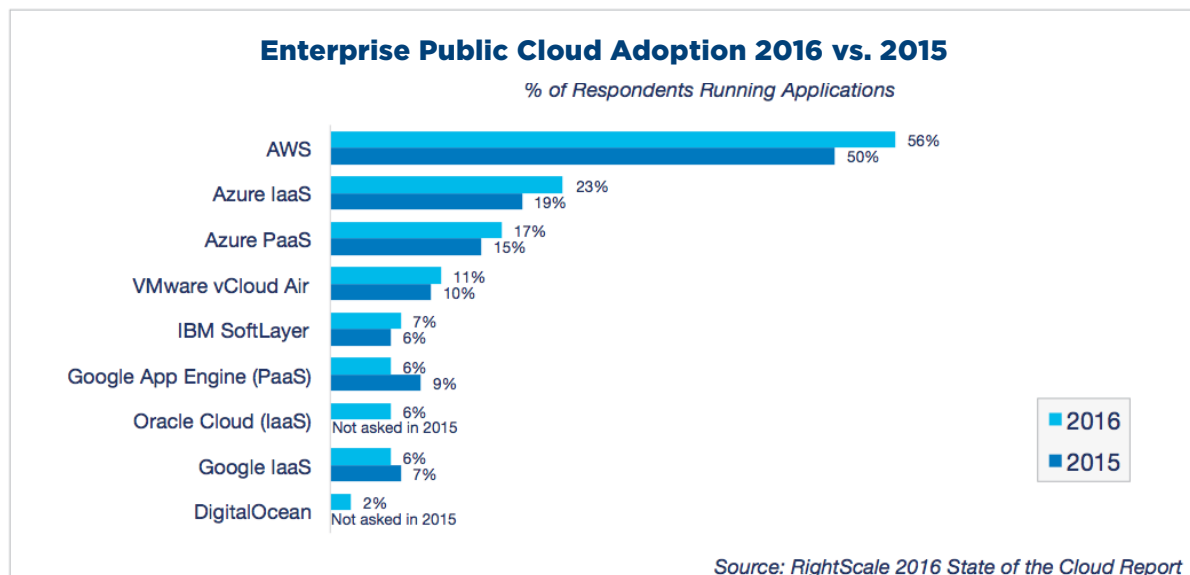
Among enterprises (1,000+ employees), AWS grew its lead over last year, now with adoption at 56 percent compared to 50 percent last year. Microsoft Azure IaaS and PaaS are in 2nd and 3rd place at 23 percent and 17 percent. Interest in future projects (the combination of experimenting and planning to use) shows the most interest in Azure IaaS (41 percent) and Azure PaaS (37 percent).



Whereas 23 percent of enterprises are using Azure IaaS and 17 percent are using Azure PaaS, 26 percent are using either or both. 6 percent are using Google App Engine and 6 percent Google IaaS, while 9 percent are using either or both Google IaaS and PaaS. After combining IaaS and PaaS, the gap between AWS and Azure narrows, with Azure at almost half the AWS adoption.

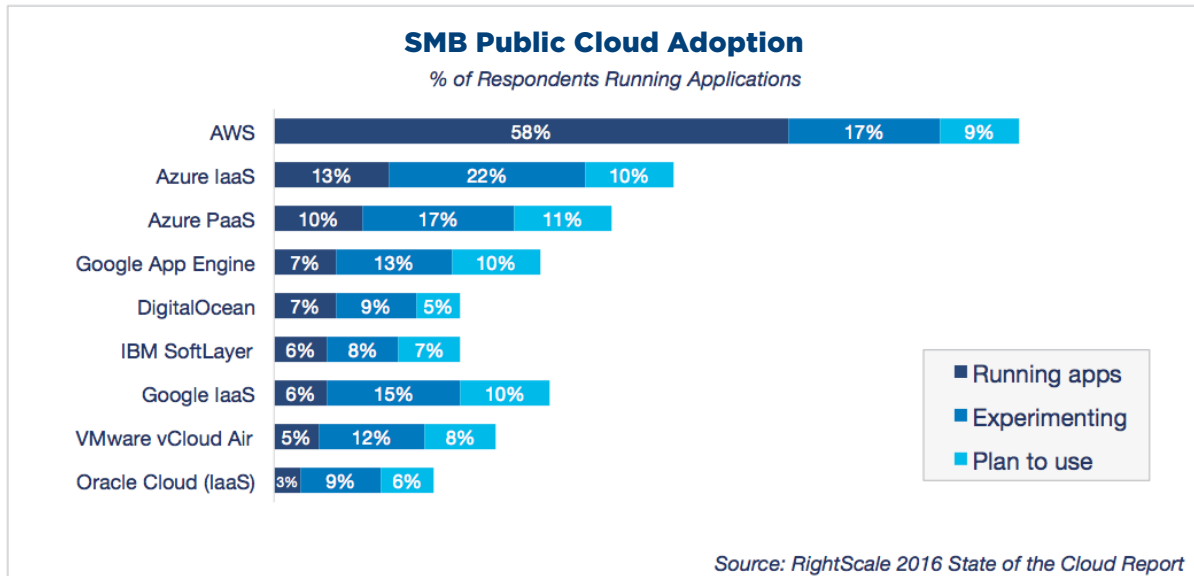


AWS saw the largest year-over-year gains in the enterprise, going from 50 to 56 percent. Azure IaaS also saw gains from 19 to 23 percent. Other public clouds showed only small changes up or down, within the three percent margin of error.

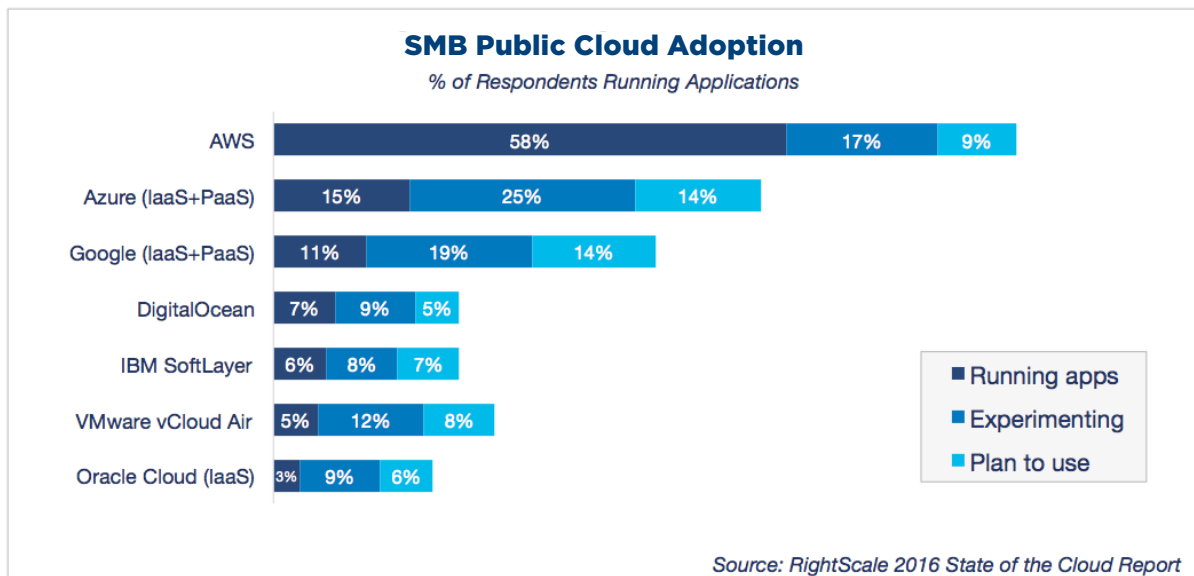




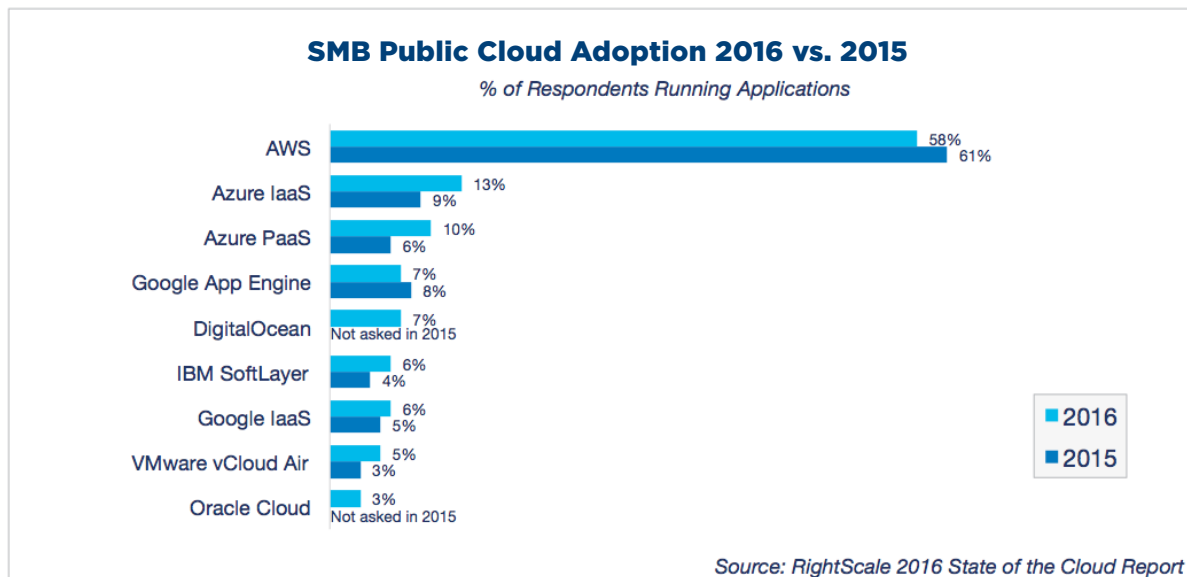
Among smaller organizations (less than 1,000 employees), AWS is in first (58 percent), followed by Azure IaaS (13 percent) and Azure PaaS (10 percent). Interest levels for future adoption are highest in Azure IaaS (32 percent) and Azure PaaS (28 percent).



Whereas 13 percent of SMBs are using Azure IaaS and 10 percent are using Azure PaaS, 15 percent are using either or both. 7 percent are using Google App Engine and 6 percent are using Google IaaS, while 11 percent are using either or both of Google IaaS and PaaS.



AWS saw a small dip (61 to 58 percent) year-over-year in adoption by SMBs which is right at the 3 percent margin of error. There were significant increases in adoption of Azure IaaS (9 to 13 percent) and PaaS (6 to 10 percent). Small increases in VMware vCloud Air and IBM SoftLayer (+2 percent) were also within the margin of error.



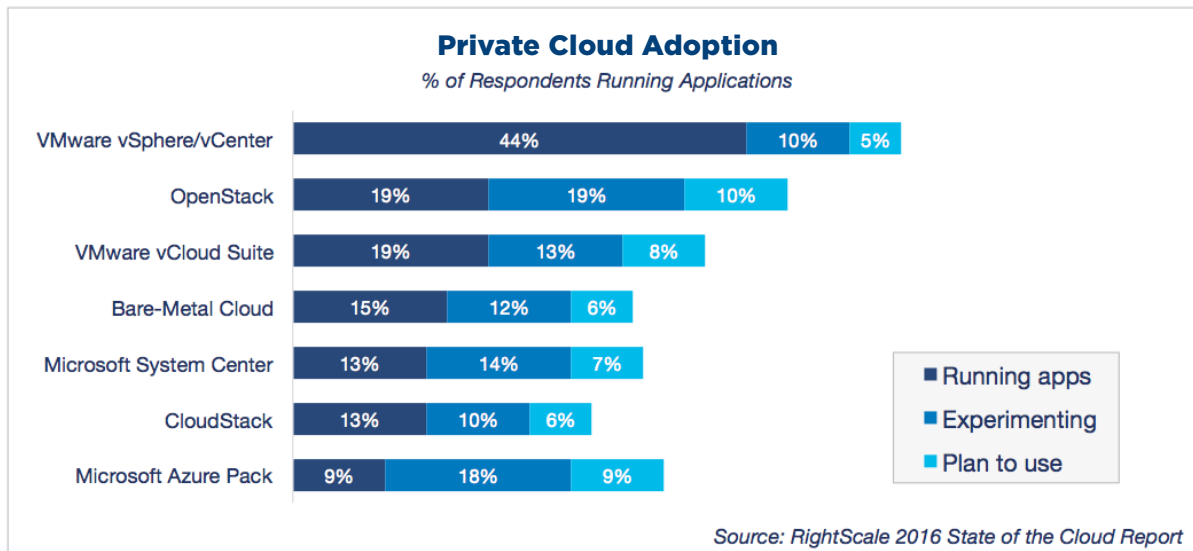
Public cloud adoption patterns remain different between larger enterprises and smaller organizations. AWS remains in first place across both segments, followed by Azure IaaS and Azure PaaS. The remaining rankings have significant differences. In the enterprise, VMware vCloud Air is #4 and IBM SoftLayer is #5, with SoftLayer moving up 3 positions in the rankings over last year. In the SMB segment, Google AppEngine is #4 followed by DigitalOcean at #5.

Top Public Clouds Used		
Place	Enterprise (1000+ employees)	SMB (Under 1000 employees)
#1	AWS	AWS
#2	Azure IaaS	Azure IaaS ↑ 1
#3	Azure PaaS	Azure PaaS ↑ 2
#4	VMware vCloud Air ↑ 1	Google App Engine
#5	IBM SoftLayer ↑ 3	DigitalOcean
#6	Google App Engine (PaaS)	IBM SoftLayer ↑ 1
#7	Oracle Cloud (IaaS)	Google IaaS ↓ 1
#8	Google IaaS ↓ 1	VMware vCloud Air
#9	DigitalOcean	Oracle Cloud (IaaS)

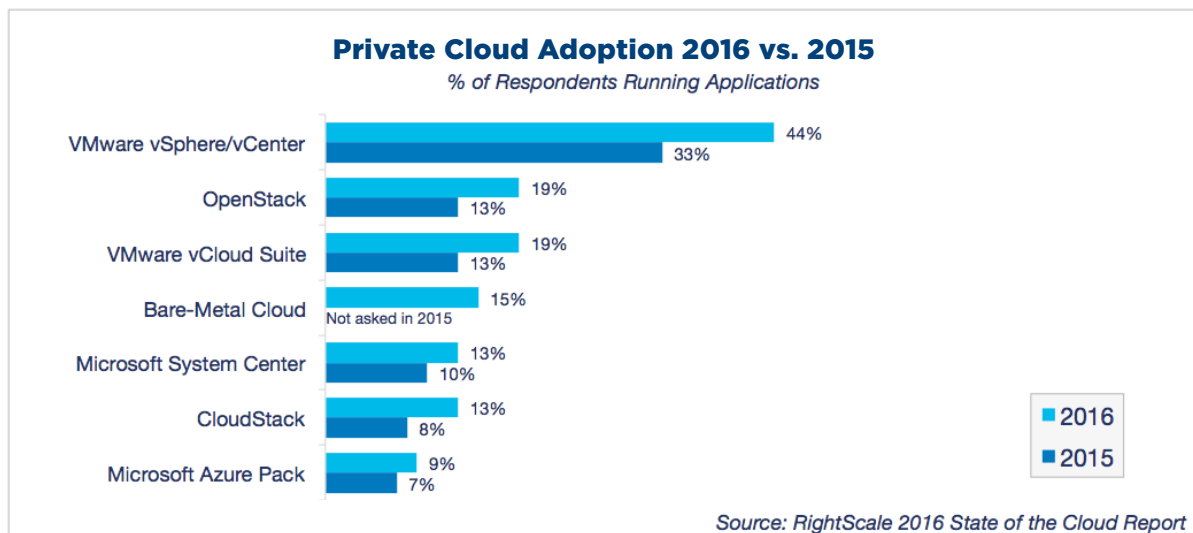
*Source: RightScale 2016 State of the Cloud Report*

## Private cloud adoption grows across all providers.

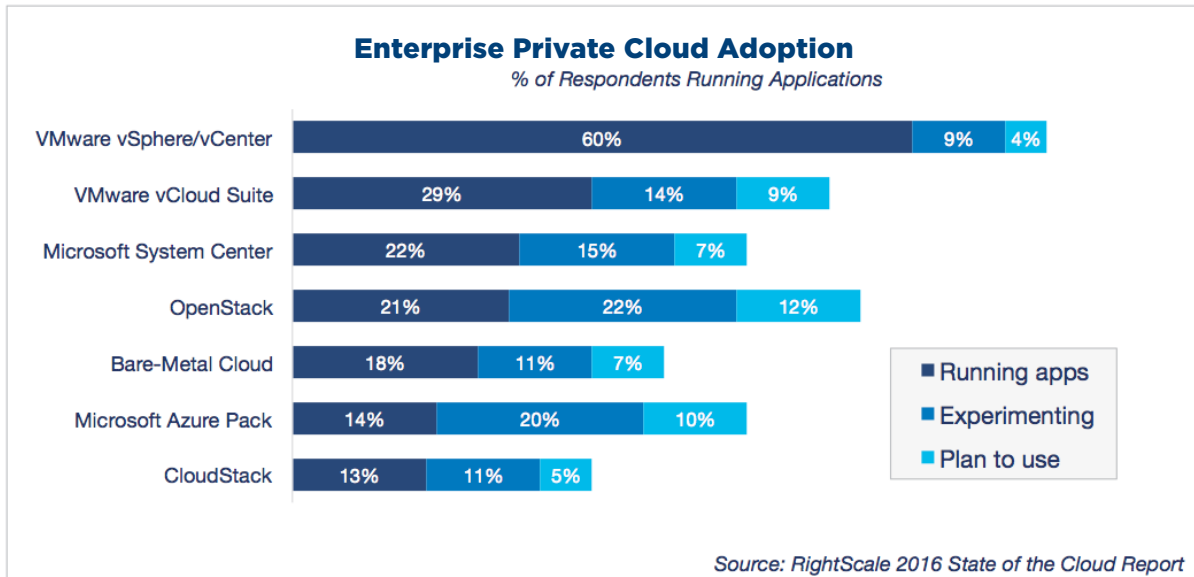
The 2016 State of the Cloud Survey reveals that adoption of private cloud is growing across all providers. Across all sizes of organizations, 44 percent percent of respondents leverage vSphere environments as private clouds. OpenStack and VMware vCloud Suite tied for second at 19 percent. In its first year on the survey, bare-metal clouds are being used by 15 percent of respondents. 29 percent of respondents are experimenting with or planning to use OpenStack, and 27 percent are planning to use Microsoft Azure Pack.



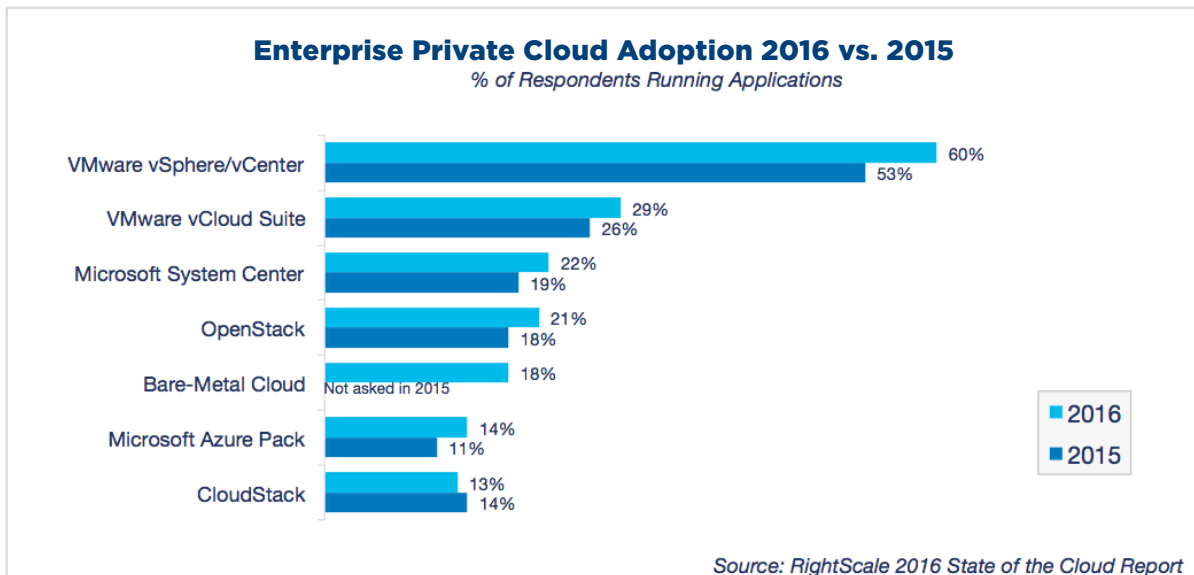
In comparison to last year, there were noticeable increases in adoption rates of every private cloud technology. VMware vSphere/vCenter went up eleven percent (33 to 44 percent). OpenStack and VMware vCloud Suite both increased six percent (13 to 19 percent).



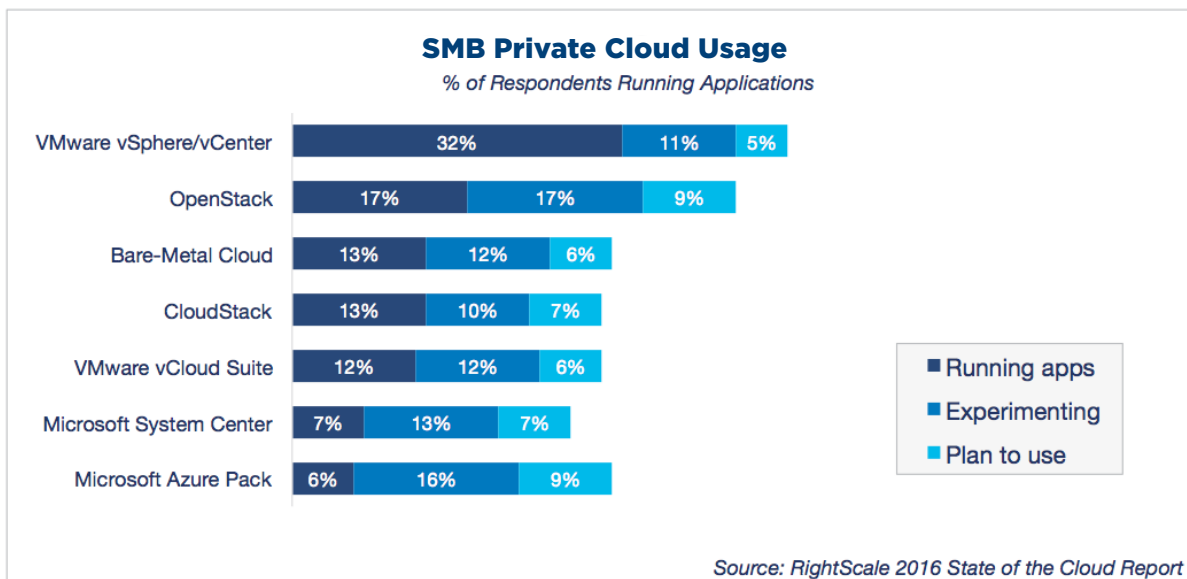
Among enterprises, current private cloud usage was skewed toward traditional vendors — VMware vSphere (60 percent), vCloud Suite (29 percent), and Microsoft System Center (22 percent). This includes respondents who view their vSphere environment as a private cloud — whether or not it meets the accepted definition of cloud computing. While OpenStack ranks fourth in current usage by enterprises, it still leads the way in experiments and plans for use at 34 percent.



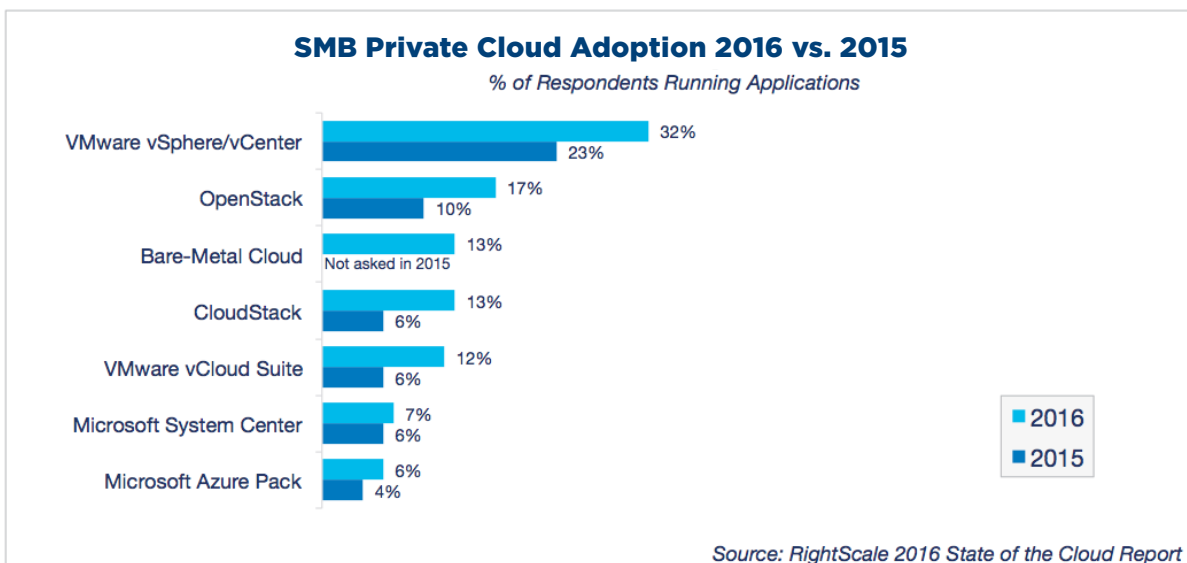
Compared to last year, all private cloud providers showed growth in enterprise adoption, with the exception of CloudStack, which saw a slight decline (within the 3 percent margin of error).



Private cloud adoption by smaller organizations is lower overall than enterprises. While VMware vSphere/vCenter (32 percent) is still the top option, OpenStack took second place in this group with 17 percent already running applications. Bare-metal cloud, in its first year on the survey, was the third option for SMBs. Once again, OpenStack has gained mindshare with 26 percent of SMBs experimenting or planning to use it, and Microsoft Azure Pack also garners strong interest with 25 percent of enterprises experimenting or planning to use.



Year-over-year, several vendors made strong gains. VMware vSphere/vCenter was up from 23 to 32 percent, OpenStack rose from 10 to 17 percent, CloudStack more than doubled (6 to 13 percent), and VMware vCloud Suite doubled (6 to 12 percent).



Comparing enterprises and SMBs, VMware vSphere/vCenter is in the top position for both groups. OpenStack and bare-metal clouds rank next in SMBs, as compared to VMware vCloud Suite and Microsoft System Center for enterprises.

Top Private Clouds Used		
Place	Enterprise (1000+ employees)	SMB (Under 1000 employees)
#1	VMware vSphere/vCenter	VMware vSphere/vCenter
#2	VMware vCloud Suite	OpenStack
#3	Microsoft System Center	Bare-Metal Cloud
#4	OpenStack	CloudStack ↑ 1
#5	Bare-Metal Cloud	VMware vCloud Suite ↓ 1
#6	Microsoft Azure Pack	Microsoft System Center ↓ 3
#7	CloudStack ↓ 2	Microsoft Azure Pack ↓ 1

Source: RightScale 2016 State of the Cloud Report

## Summary: Hybrid Cloud Adoption Hits Its Stride

The 2016 State of the Cloud Survey shows that cloud adoption is growing and hybrid cloud adoption has now hit its stride. The strong growth in the use of private cloud, combined with the ubiquity of public cloud means that a super-majority of organizations are now operating in a hybrid environment

Cloud benefits continued to grow, with the strongest gains in speed-to-infrastructure and speed-to-market. Cloud Beginners saw the greatest gains this past year as cloud best practices became more established and cloud providers improved their offerings.

With increasing maturity of both cloud users and cloud providers, we are seeing a reduction in concerns about cloud security, but IT organizations are challenged by a shortage of trained resources that they will need to fuel this growth. As adoption grows, cloud bills and cost concerns are also growing, but most organizations are doing little to implement cost management and optimization strategies. This represents an opportunity to reduce costs and further improve cloud ROI.

Within larger enterprises, the shift is well underway from shadow IT driven by individual teams to a centralized approach that enables cloud consumption by brokering cloud services to the entire organization. As enterprises gain alignment on the role of central IT, they are also improving their cloud governance capabilities.

In the coming year, enterprises and newer cloud users are looking to move additional workloads to cloud, while more experienced cloud users plan to optimize existing cloud usage to reduce costs.

The use of DevOps practices and tools continues to increase. Configuration management tools from Ansible, Puppet, and Chef are growing, while Docker is spreading like wildfire.

Among public cloud providers, AWS maintains its lead, but Azure continues to make inroads in the percentage of respondents running applications as well as those who have plans to use it.

All private cloud technologies saw growth in the 2016 survey, with VMware vSphere maintaining its lead while OpenStack and Microsoft are generating strong interest. Bare-metal cloud is coming onto the scene, especially among smaller organizations.

## **RightScale: A Universal Console to Manage All Your Clouds**

In this multi-cloud world, organizations are looking for ways to broker and manage cloud applications and services from a single pane of glass.

The RightScale Universal Cloud Management Platform enables you deliver self-service provisioning and control to your cloud consumers, govern and manage all your cloud workloads from a single console, and track and optimize your cloud usage and spend. In addition, RightScale supports your DevOps and Docker initiatives by integrating with your existing tools to provide automated infrastructure through the entire application lifecycle.

RightScale Services provides you with experts who can help you architect, implement, and automate your cloud strategy. Our consulting team can help you choose the right cloud strategies, architect your cloud environments, deploy cloud applications at scale, and automate the provisioning and management of cloud workloads. They are here to share the lessons learned from years of experience deploying thousands of cloud applications.

### **About RightScale**

**RightScale Universal Cloud Management enables leading enterprises to accelerate delivery of cloud-based applications that engage customers and drive top-line revenue while optimizing cloud usage to reduce risk and costs. With RightScale, IT organizations can deliver instant access to a portfolio of public, private, and hybrid cloud services across business units and development teams while maintaining enterprise control. RightScale Consulting Services help companies develop cloud strategies, deliver cloud projects, and optimize cloud usage. RightScale was named a “100 Best Places to Work in 2015” by Outside Magazine and was listed in “The Best Enterprise Cloud Computing Startups to Work For in 2015” by Forbes. Since 2007, leading enterprises including Audi, Pinterest, and Yellow Pages Group have launched millions of servers through RightScale.**

## Become a Cloud Services Broker

In the white paper *IT as a Cloud Services Broker: Provide Self-Service Access to Cloud*, we explain how IT can become a critical driver of business results through delivering cloud services.

Learn the benefits of becoming a cloud services broker for your enterprise and get actionable advice including:

- 7 use cases for a cloud services portal
- A plan for providing developers with virtually instant access to infrastructure and platform services
- Success factors for accelerating application delivery to drive growth and profitability

**Download White Paper**

Or call us at **1.888.989.1856**



[www.rightscale.com](http://www.rightscale.com)