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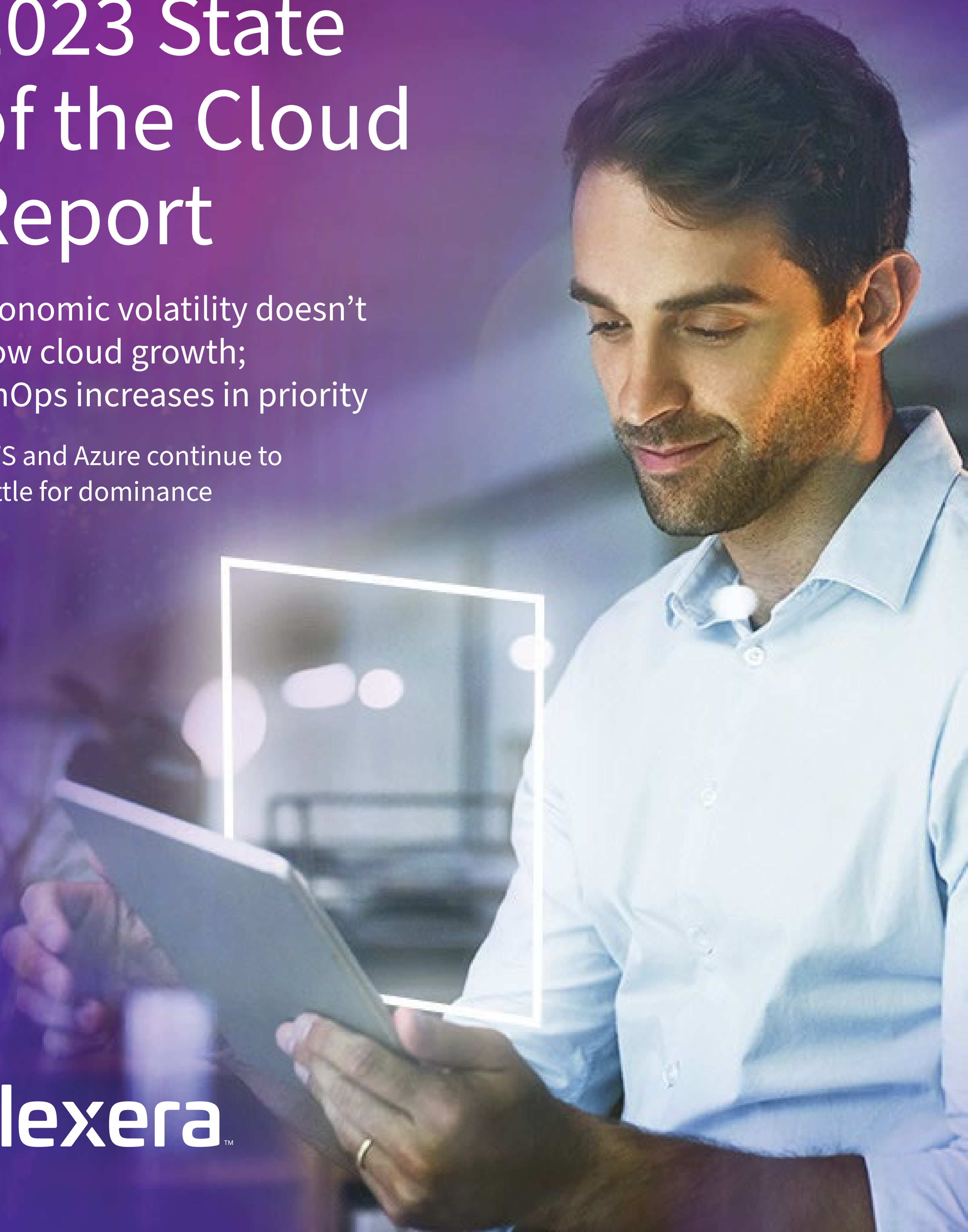
2023 State of the Cloud Report

Economic volatility doesn’t slow cloud growth; FinOps increases in priority

AWS and Azure continue to battle for dominance



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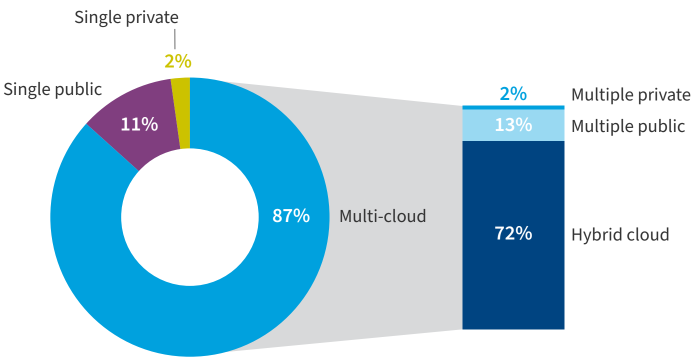
Economic uncertainty is driving a reduction in corporate spending, but the need for innovation and increased revenues remains high—and the cloud represents an engine of innovation. The *Flexera 2023 State of the Cloud Report* sheds light on the pressures facing IT professionals and the strategic initiatives they're utilizing to remain competitive in today's dynamic and evolving landscape.

Report highlights

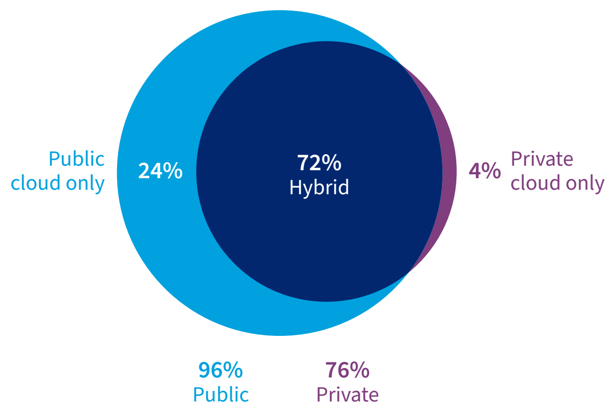
Here's a sample of key findings from this year's report based on a survey of 750 cloud decision-makers and users from around the world.

Organizations embrace multi-cloud



N=750
Source: Flexera 2023 State of the Cloud Report

Public vs. private cloud usage



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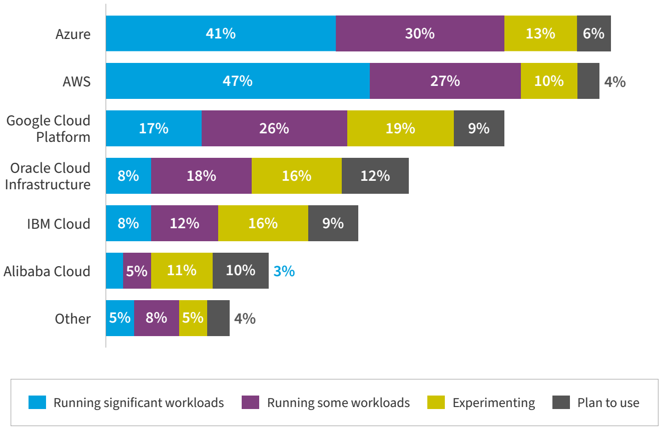
Source: Flexera 2023 State of the Cloud Report

What public cloud providers does your organization use?



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Source: Flexera 2023 State of the Cloud Report

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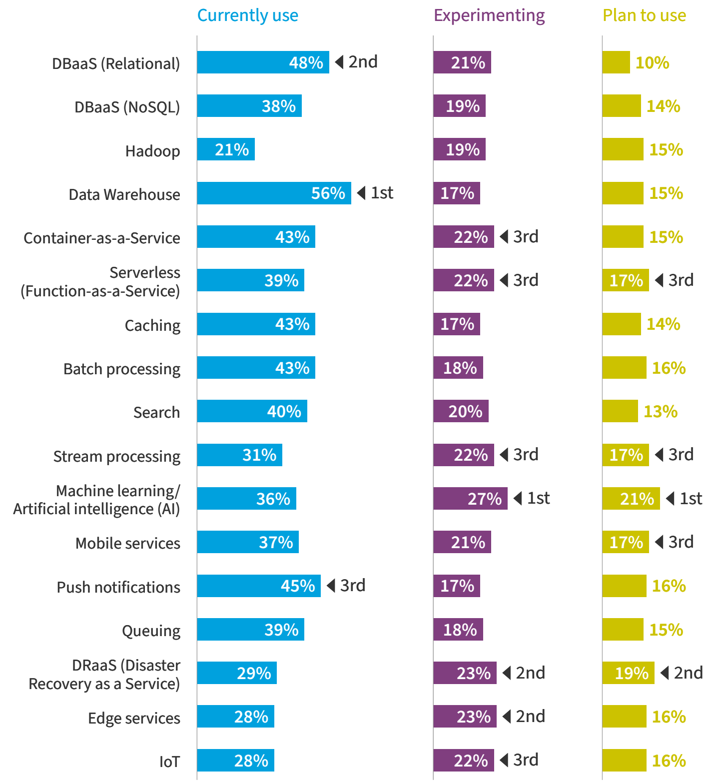
Public cloud services used for all organizations



N=750
Source: Flexera 2023 State of the Cloud Report

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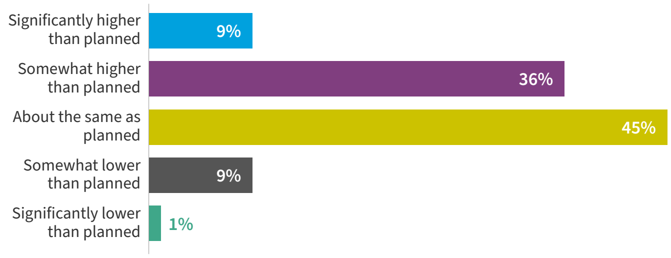
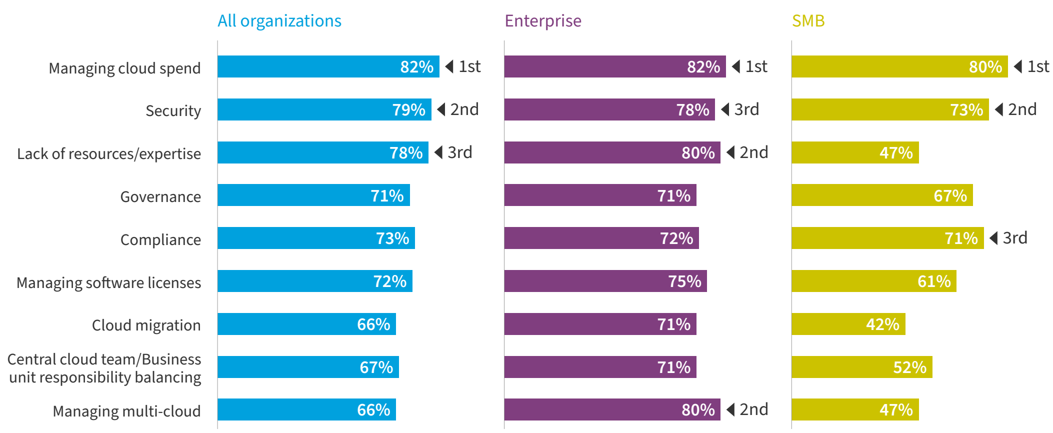
How is economic uncertainty changing your expected cloud usage and spend?



N=750
Source: Flexera 2023 State of the Cloud Report

Top cloud challenges



All organizations: N=750, Enterprise: N=627, SMB: N=123
Source: Flexera 2023 State of the Cloud Report

Seeking to control stubbornly high cloud costs, many organizations have or plan to create a cloud center of excellence (CCOE) and build mature FinOps practices. Nearly half of survey respondents indicated their organization plans to move from on-premises software to SaaS, and there's a small but growing subset of businesses that have moved to just a single cloud provider. AWS and Azure continue to lead the pack of cloud providers, further widening the gap with competitors while maintaining a neck-and-neck competition as market leaders.

You can't innovate in a digital world without the cloud. Although the threat of economic volatility hasn't slowed cloud adoption or spending, respondents are acutely aware of costs, as indicated by their prioritization of cost control efforts over security for the first time in a decade. Other means of innovation remain top of mind, with nearly half of respondents experimenting with or planning to use machine learning or artificial intelligence.

The *Flexera 2023 State of the Cloud Report* reveals:

- Organizations are embracing multi-cloud
- Public cloud adoption continues to accelerate
- Cloud initiatives and metrics
- Organizations are taking a centralized approach to cloud
- Top challenges are security, spend and expertise
- Organizations struggle to control growing cloud spend
- Container use becomes increasingly mainstream
- Adoption of cloud configuration tools is shifting
- Public cloud adoption is evolving
- Use of public cloud PaaS services is increasing
- Private cloud plays an important role
- European spotlight

Methodology

The survey tapped 750 IT professionals and executive leaders worldwide representing a broad cross-section of industries and context areas in the winter of 2022.

Flexera sources participants from an independent panel that is rigorously maintained and is comprised of vetted respondents with detailed profiles.

At numerous points throughout the report, we've provided our own interpretation of the data as Flexera Points of View.

SMBs: Businesses with fewer than 1,000 employees

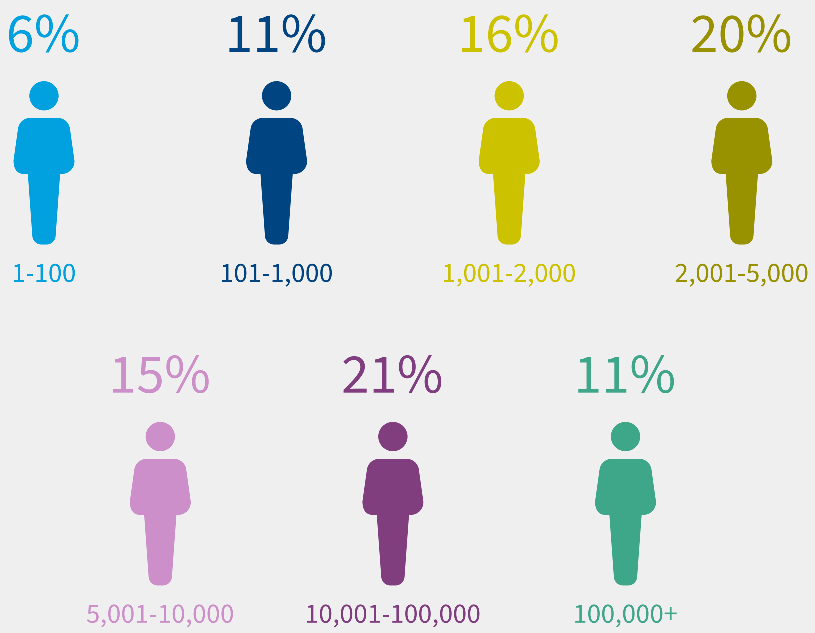
Enterprises: Organizations with 1,000+ employees

Large enterprises: Organizations with 10,000+ employees

Reuse

This year's survey leans toward larger enterprises, with 67% of respondents in organizations with more than 2,000 employees. Eleven percent have more than 100,000 employees, which is a new category this year.

What size is your organization?

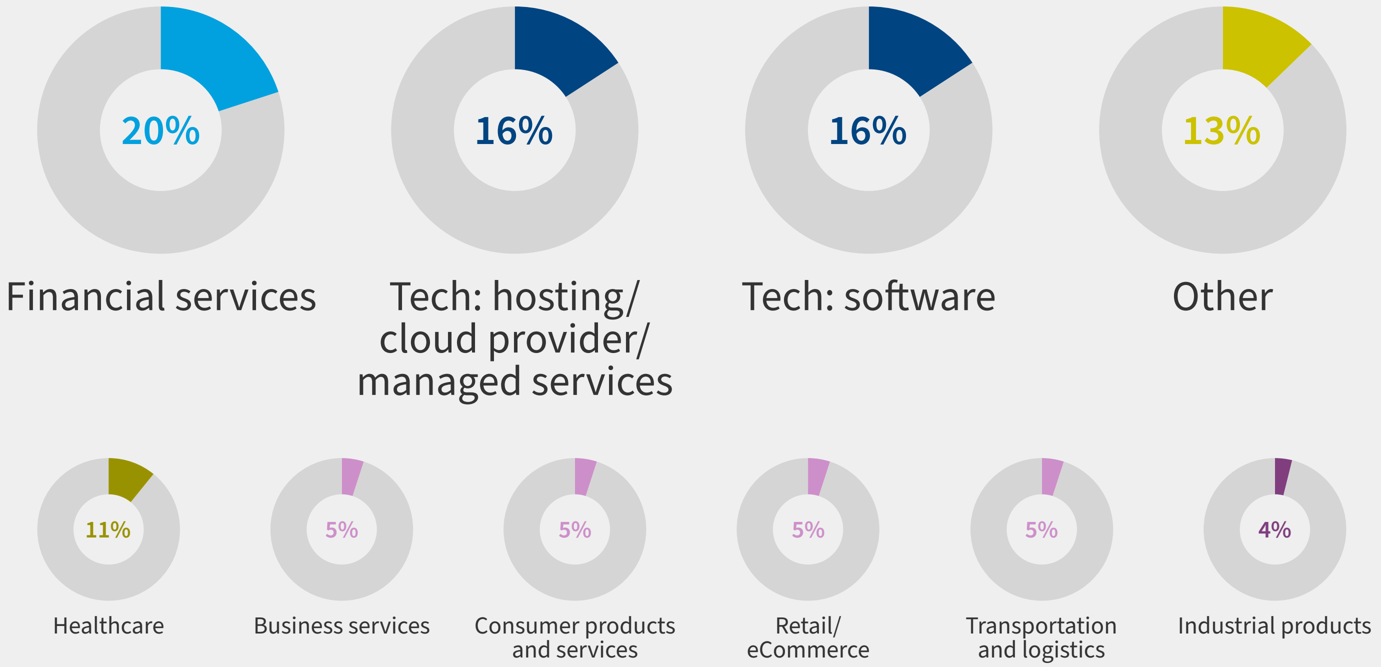


N=750
Source: Flexera 2023 State of the Cloud Report

More than two-thirds of respondents come from organizations with **2,000 or more** employees

Tech-related industries (32%) and *financial services* (20%) lead the pack, followed by *healthcare*.

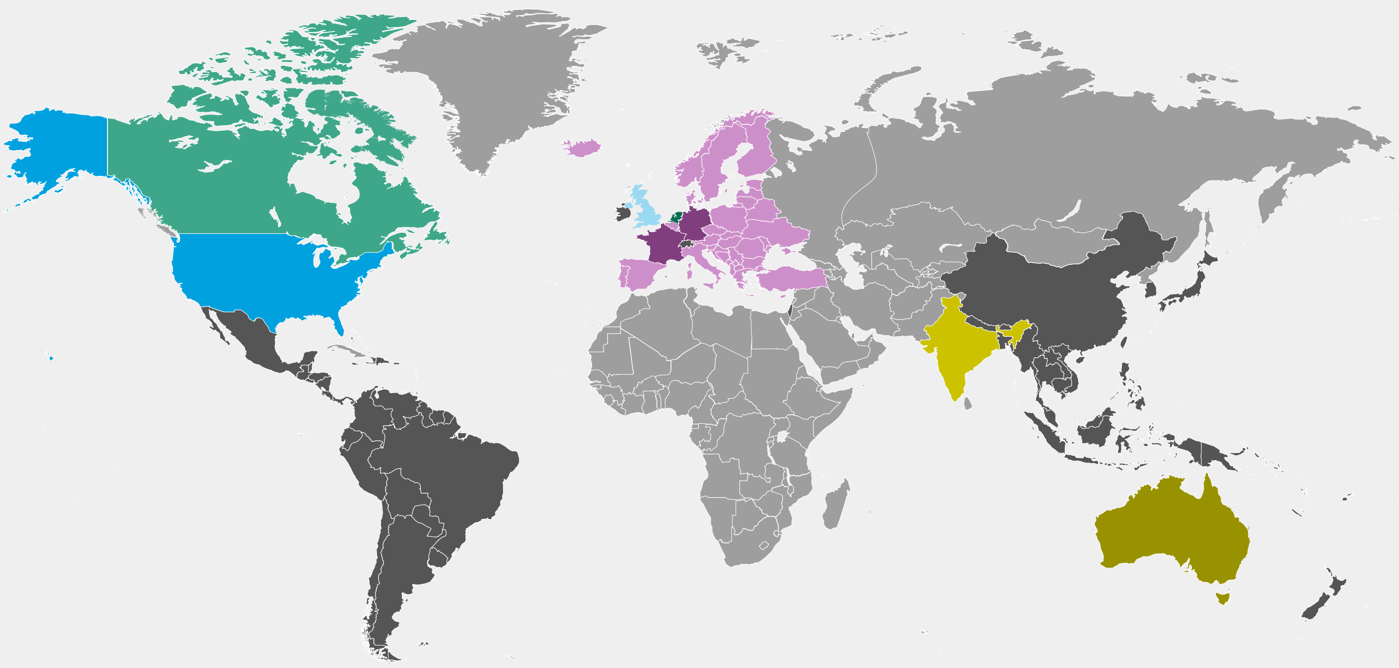
What's your company's industry?



N=750
Source: Flexera 2023 State of the Cloud Report

Similar to last year, the majority (67%) of respondents are from the United States. Respondents from Europe made up 20% of the total, with the United Kingdom accounting for 13%, an increase from last year.

Where are your headquarters located?



USA	67%	Germany	2%	Japan	<1%
UK	13%	Canada	1%	Netherlands	<1%
India	6%	Singapore	1%	Other Americas	<1%
Australia	5%	China	<1%	Other APAC	<1%
Other Europe	3%	Ireland	<1%	Switzerland	<1%
France	2%	Israel	<1%		

N=750
Source: Flexera 2023 State of the Cloud Report
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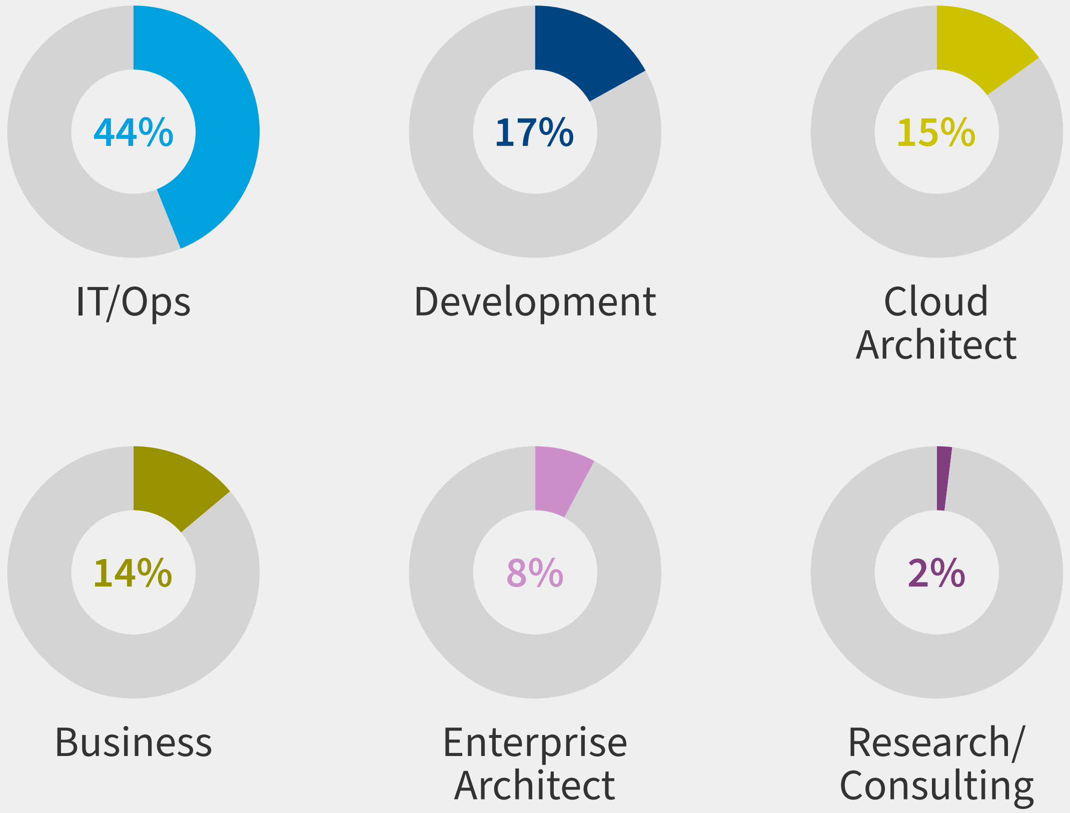
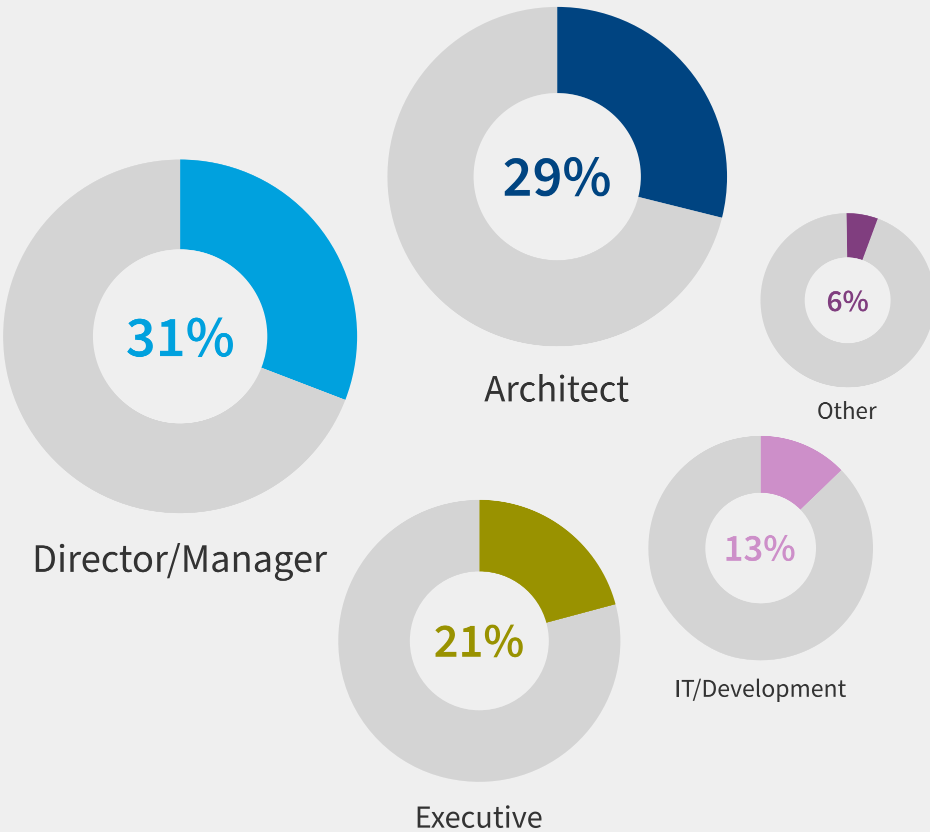
The following figures indicate the breakdown of respondents by business role, level and where they work within their organization. The majority (59%) are close to the cloud, either as IT/operations (44%) or cloud architects (15%). This is the first year we asked whether respondents were part of a FinOps team (9%) and if their organization has a FinOps team (72%).

What's your role?



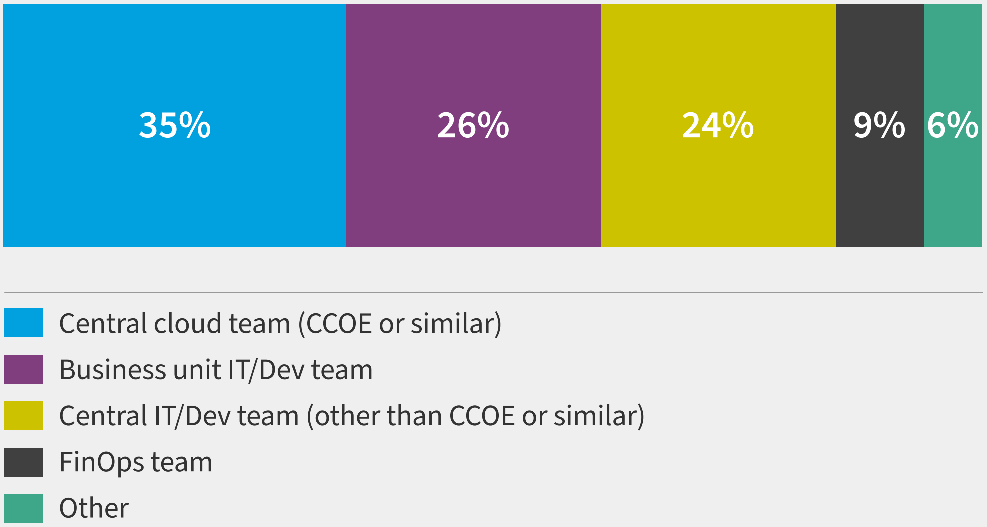
N=750
Source: Flexera 2023 State of the Cloud Report

What's your level?



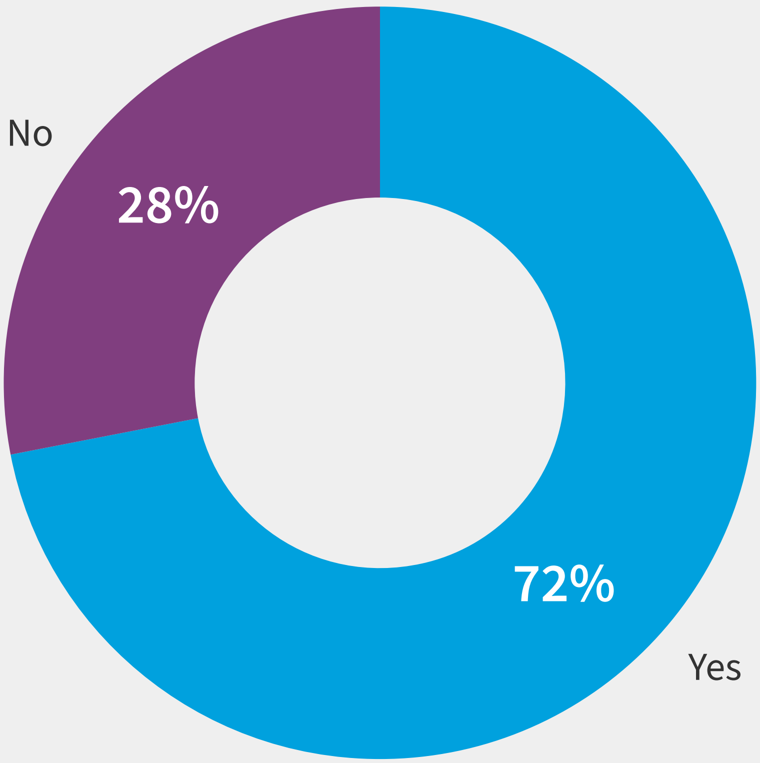
N=750
Source: Flexera 2023 State of the Cloud Report

Where in the organization do you work?



N=750
Source: Flexera 2023 State of the Cloud Report

Does your organization have a dedicated FinOps team?

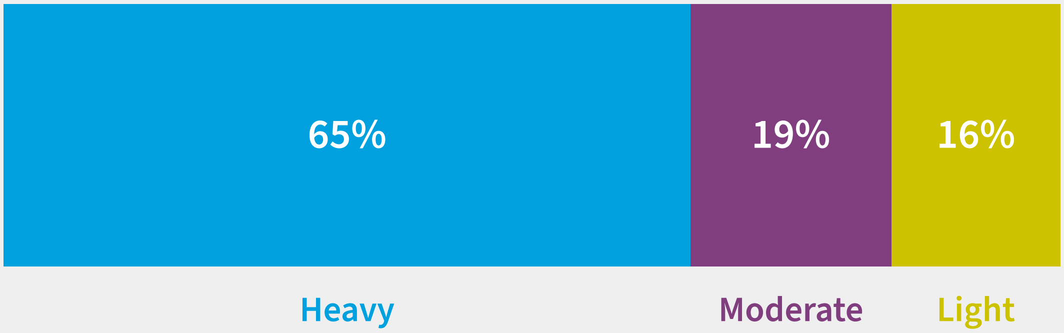


N=750
Source: Flexera 2023 State of the Cloud Report

72% of organizations have **dedicated FinOps teams**

Cloud adoption continues to become more mainstream. Heavy users now represent 65% of respondents, up from 63% last year.

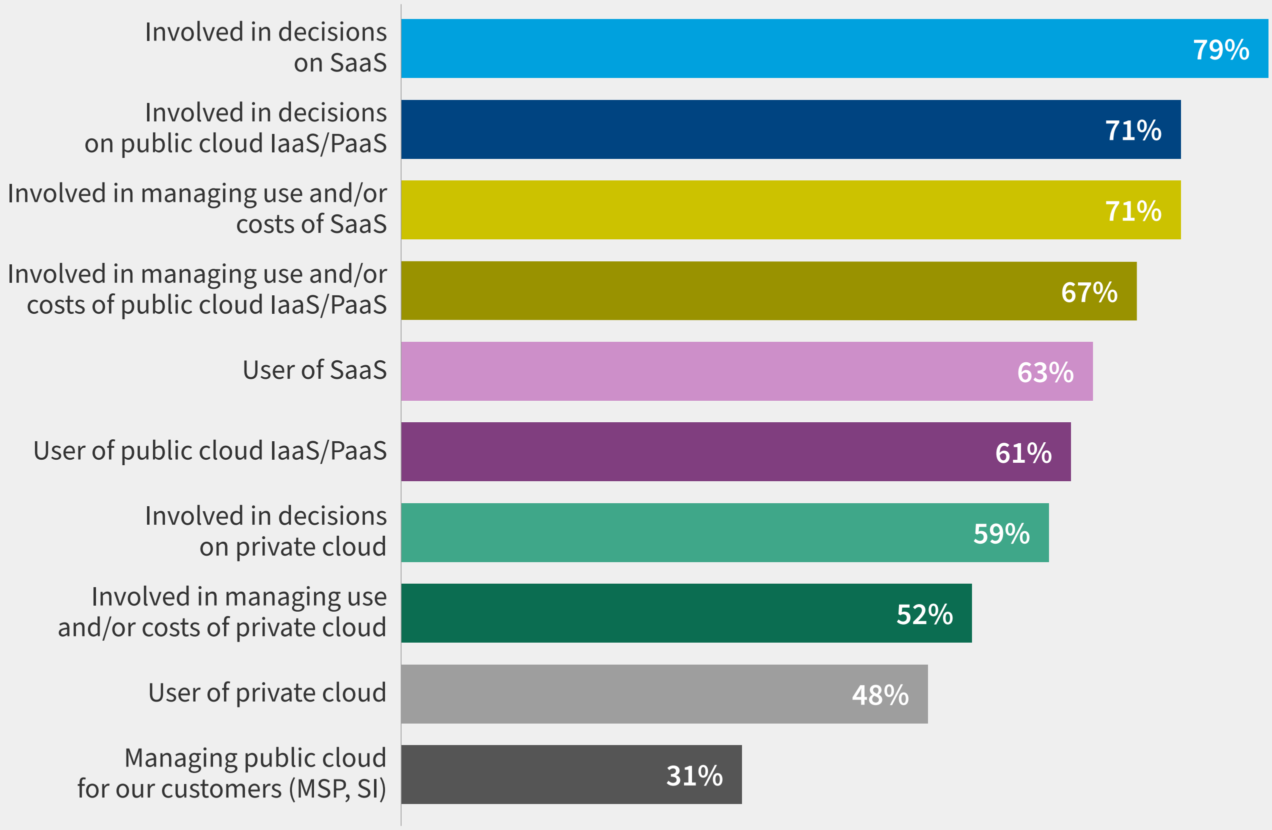
What's your company's usage level of public cloud?



N=750
Source: Flexera 2023 State of the Cloud Report

The majority of respondents have a significant influence on both SaaS and IaaS/PaaS, especially regarding decision-making, usage and costs.

What's your involvement with cloud in your organization?



N=750

Source: Flexera 2023 State of the Cloud Report

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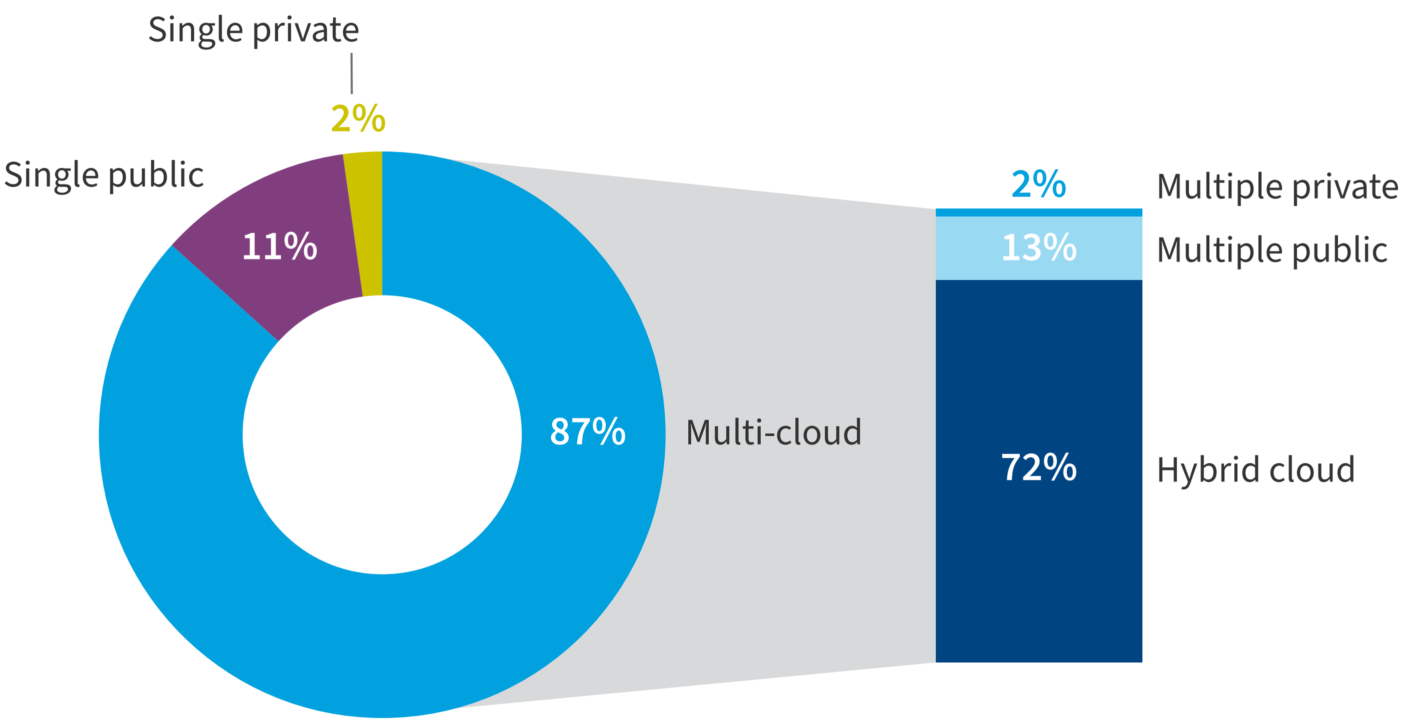
Organizations are embracing multi-cloud

Respondents indicated a slight drift toward single public cloud usage, with multi-cloud decreasing from 89% last year to 87% this year. Single public cloud usage has increased to 11%, up from 9% last year.

Organizations embrace multi-cloud



N=750
Source: Flexera 2023 State of the Cloud Report
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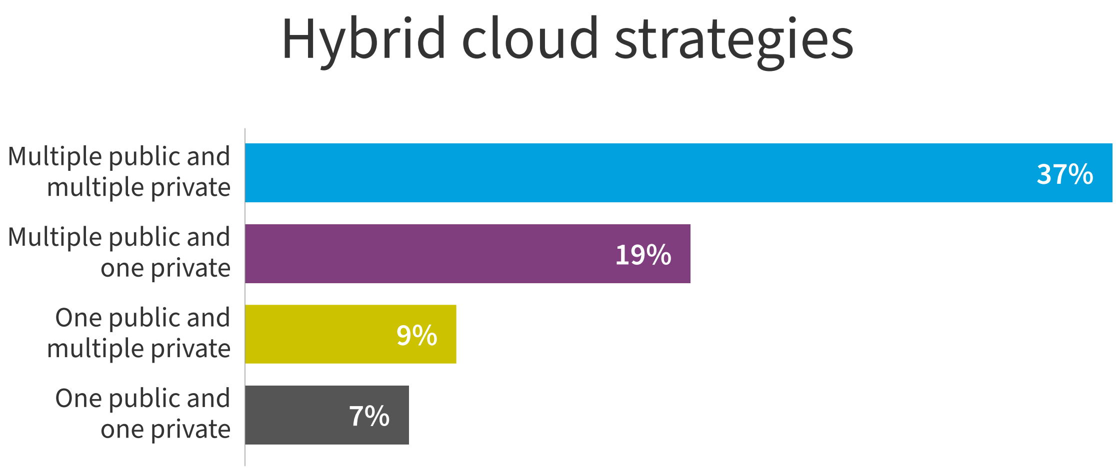
» FLEXERA POINT OF VIEW

Movement away from multi-cloud may be due to organizations consolidating on a single public cloud provider.

A decrease in hybrid cloud strategies also indicates organizations may be consolidating on a single cloud.

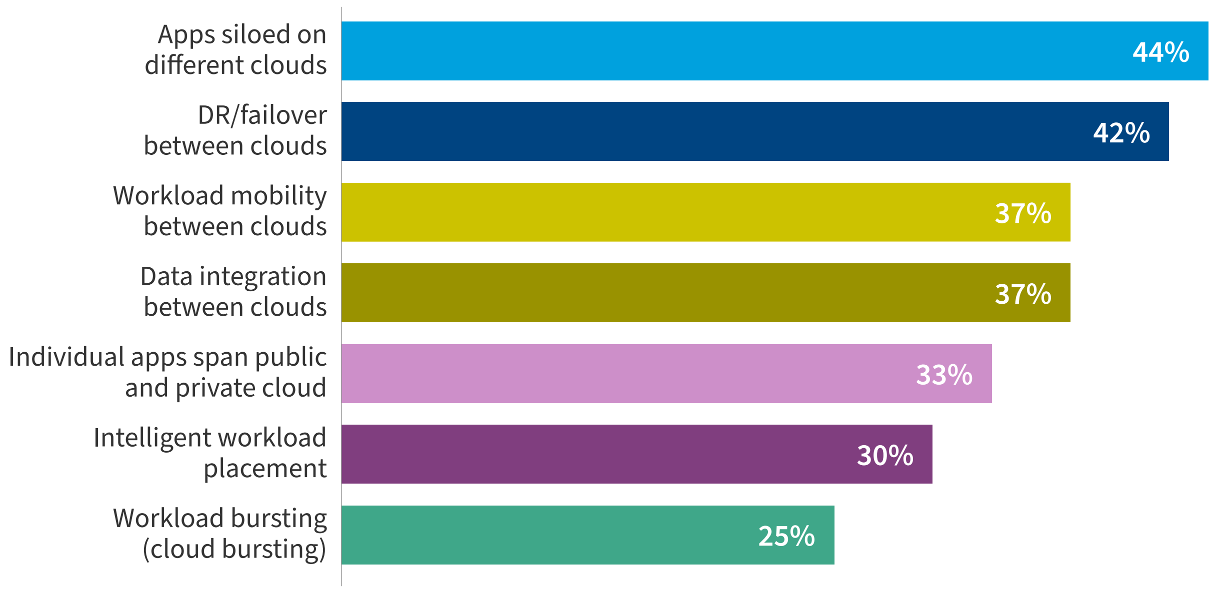


N=750
Source: Flexera 2023 State of the Cloud Report

More than half of respondents use multiple public clouds; and **16%** have consolidated onto a single public cloud

Apps siloed on different clouds and *DR/failover between clouds* have remained the top two multi-cloud implementations. *Intelligent workload placement* is increasing the fastest (up 20 percent year over year).

Use of multi-cloud architectures by all organizations



N=750
Source: Flexera 2023 State of the Cloud Report

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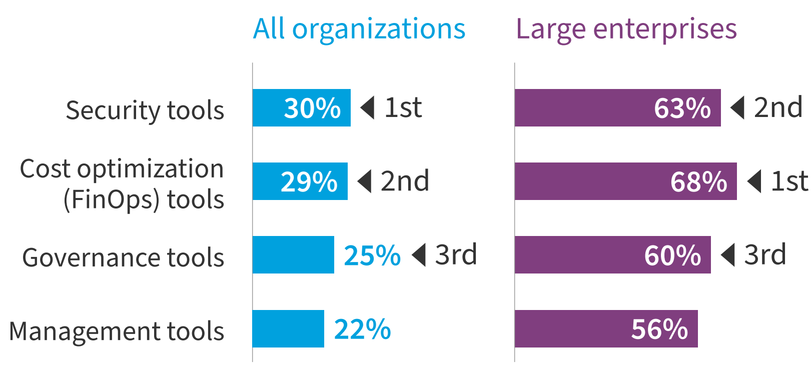
The old "lift and shift" mentality is becoming more antiquated as organizations factor in cost and performance when finding the most appropriate place for workloads in the cloud.

Across the board for all organizations, multi-cloud *security tools* continue to lead, followed closely by multi-cloud *cost optimization (FinOps) tools*. However, large enterprises reverse the order, with 68% using multi-cloud *FinOps tools* and 63% using multi-cloud *security tools*.

Use of multi-cloud tools

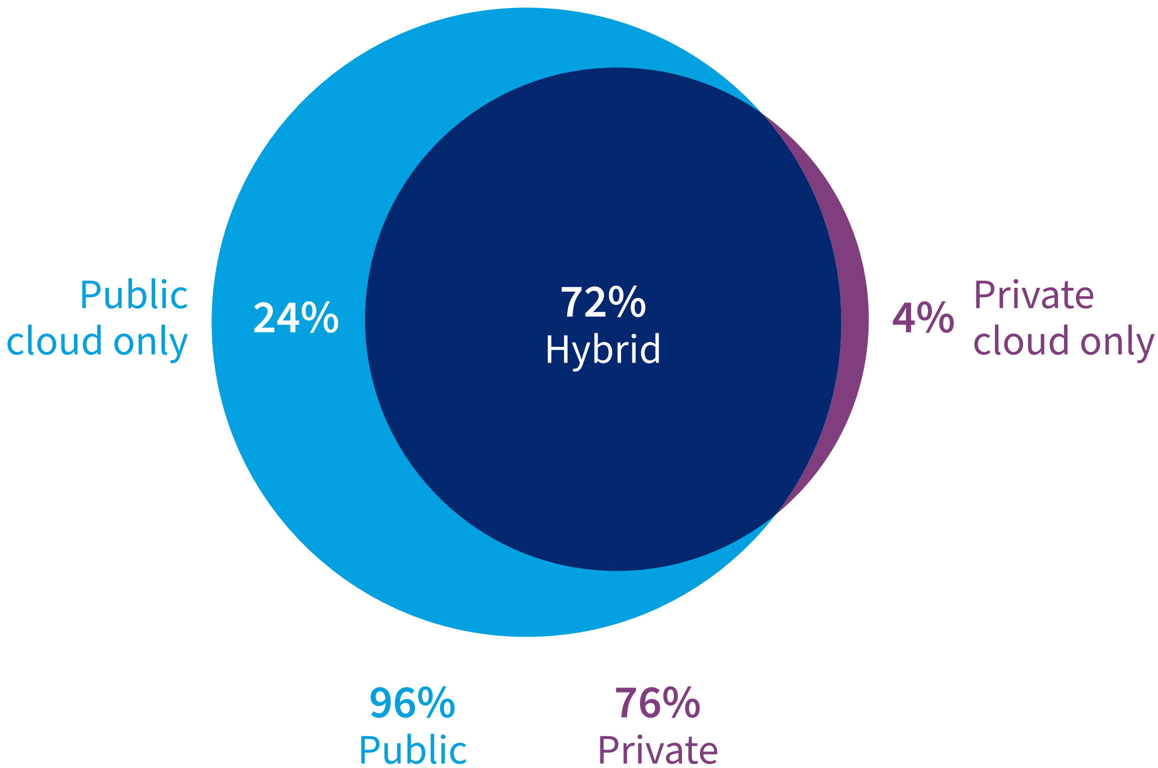


All organizations: N=750, Large enterprises: N=242
Source: Flexera 2023 State of the Cloud Report

Large enterprises are more likely to use **multi-cloud FinOps tools** than multi-cloud security tools

The increased usage of *public cloud only* is evidenced here as well, with an increase to 24% (up from 16% in 2022).

Public vs. private cloud usage



N=750
Source: Flexera 2023 State of the Cloud Report
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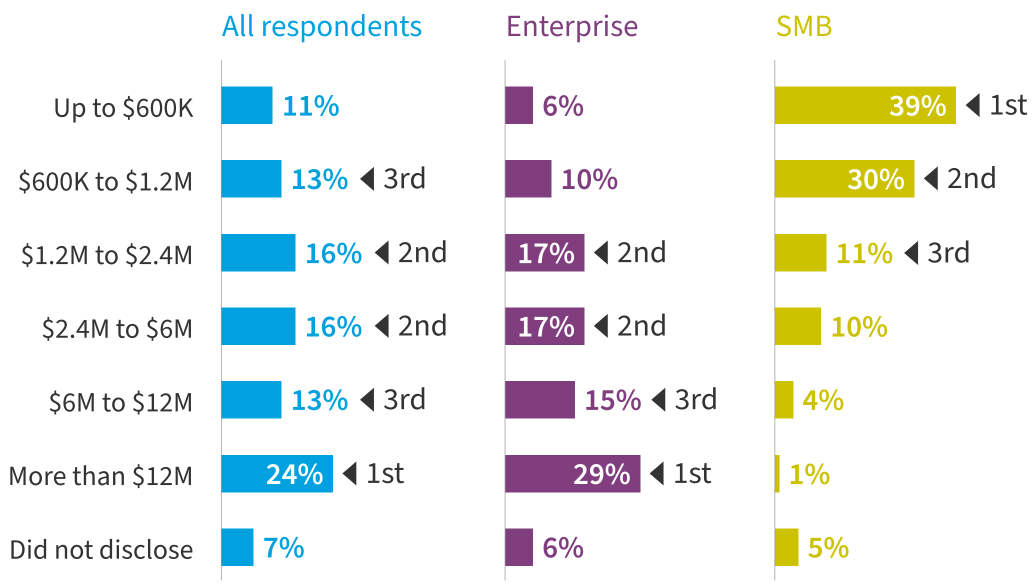
Hybrid cloud usage **decreased from 80% to 72%** year over year as a result of an increase in public cloud-only usage

Public cloud adoption continues to accelerate

Nearly a quarter of respondents (24%) are currently spending more than $12 million per year in public cloud.

What's your current annual public cloud spend?



All respondents: N=750, Enterprise: N=627, SMB: N=123
Source: Flexera 2023 State of the Cloud Report

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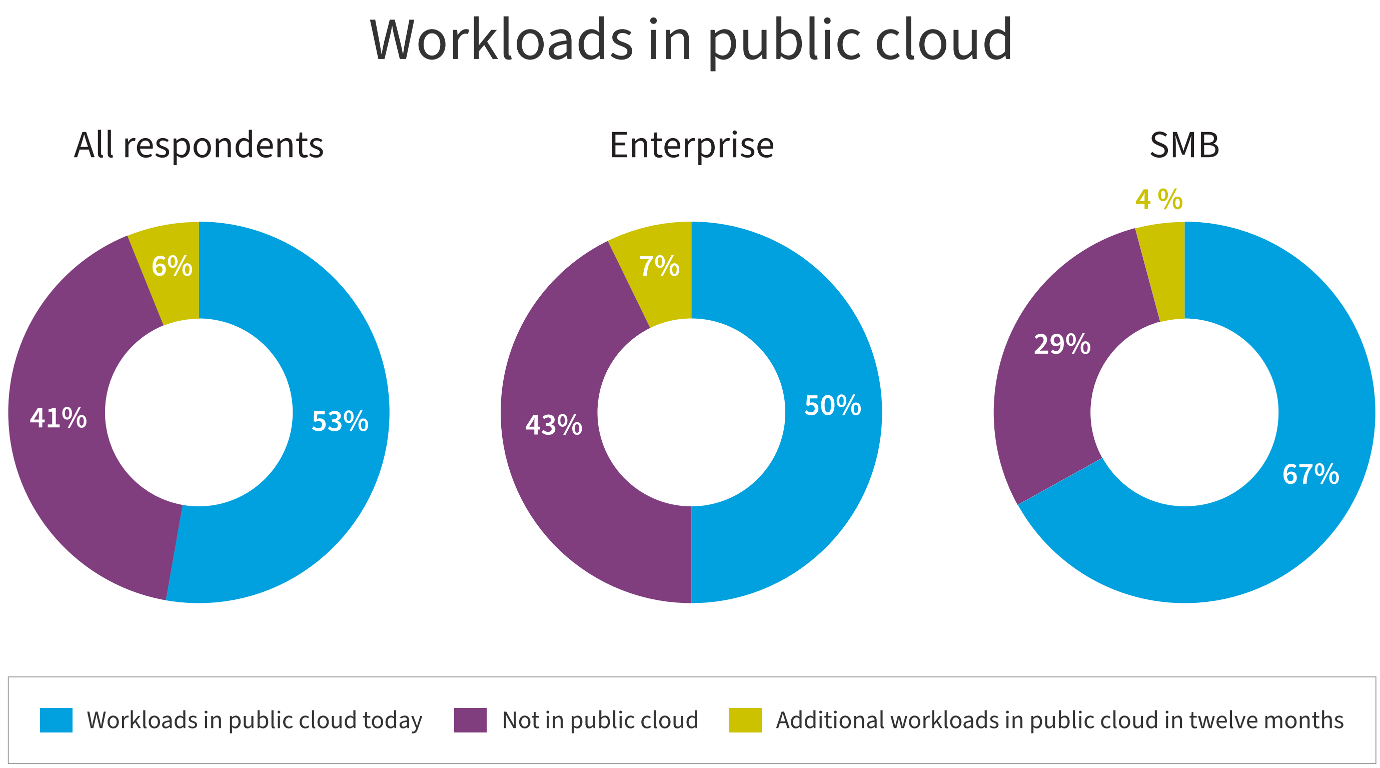
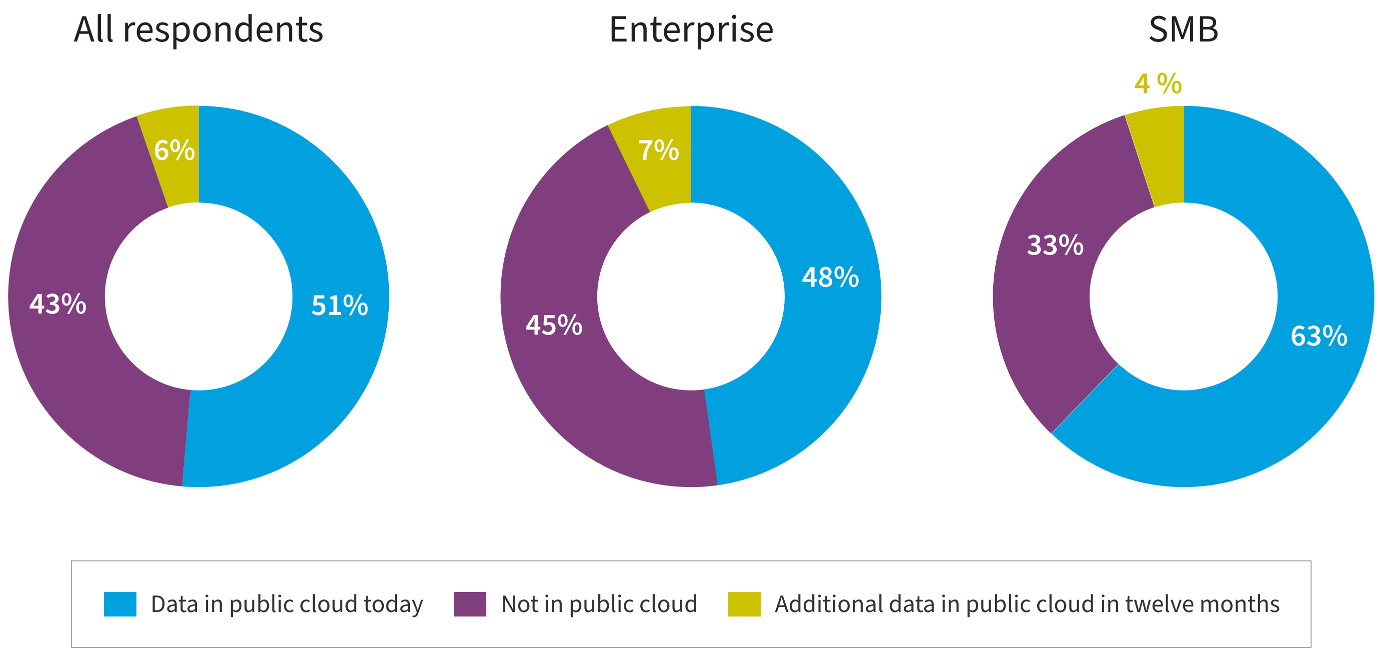
For all respondents, more than half of workloads and data are in public cloud today. Enterprises, which have more complex environments and tend to move more slowly, have 50% of workloads and 48% of data in public cloud.

By contrast, SMBs exceeded targets for workloads and data in public cloud year over year and now have more than two-thirds of their workloads and 63% of data in public cloud. This may be due to their tendency to use a single vendor, which offers less complexity.



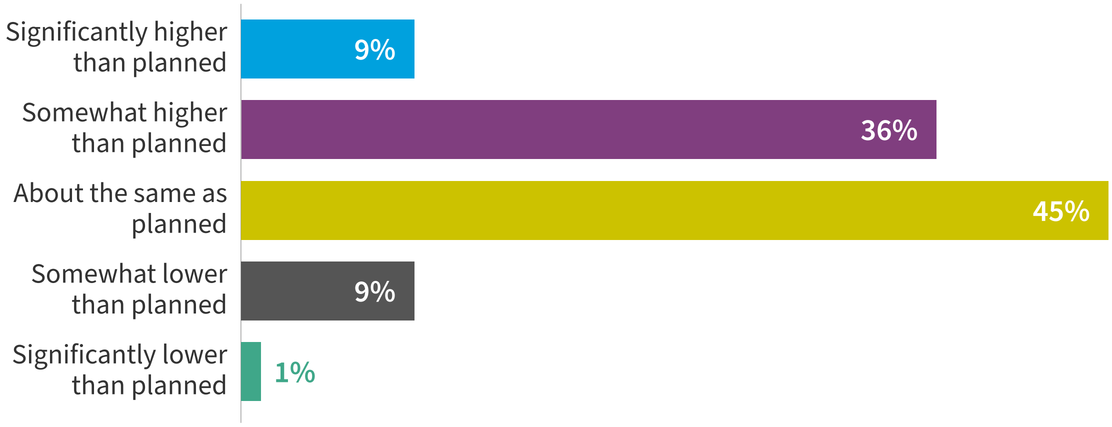
All respondents: N=750, Enterprise: N=627, SMB: N=123
Source: Flexera 2023 State of the Cloud Report

Data in public cloud



All respondents: N=750, Enterprise: N=627, SMB: N=123
Source: Flexera 2023 State of the Cloud Report

How is economic uncertainty changing your expected cloud usage and spend?



N=750
Source: Flexera 2023 State of the Cloud Report

45% of respondents said **economic uncertainty would have very little impact** on cloud usage and spend

More than half of respondents said they'll consider moving at least some sensitive *consumer data* or *corporate financial data* to the cloud. Seventeen percent said all sensitive consumer data will move to cloud/SaaS (up from 13% year over year), and 18% said all corporate financial data will move to cloud/SaaS (up from 11% year over year).

What's your approach for migrating data to public cloud/SaaS?

	Consumer data (PII/PHI, etc.)	Corporate financial data	Order/Sales data	IoT/Edge data	Nonsensitive data for analytics	Other nonsensitive data
All stays on-premises	15%	17%	8%	8%	5%	5%
Mostly stays on-premises	23%	20%	15%	10%	9%	9%
Mix of on-premises and in cloud/SaaS	28%	25%	27%	25%	22%	22%
Mostly will move to cloud/SaaS	16%	17%	22%	19%	25%	25%
All will move to cloud/SaaS	17%	18%	24%	21%	34%	33%

100 %

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N=750

Source: Flexera 2023 State of the Cloud Report

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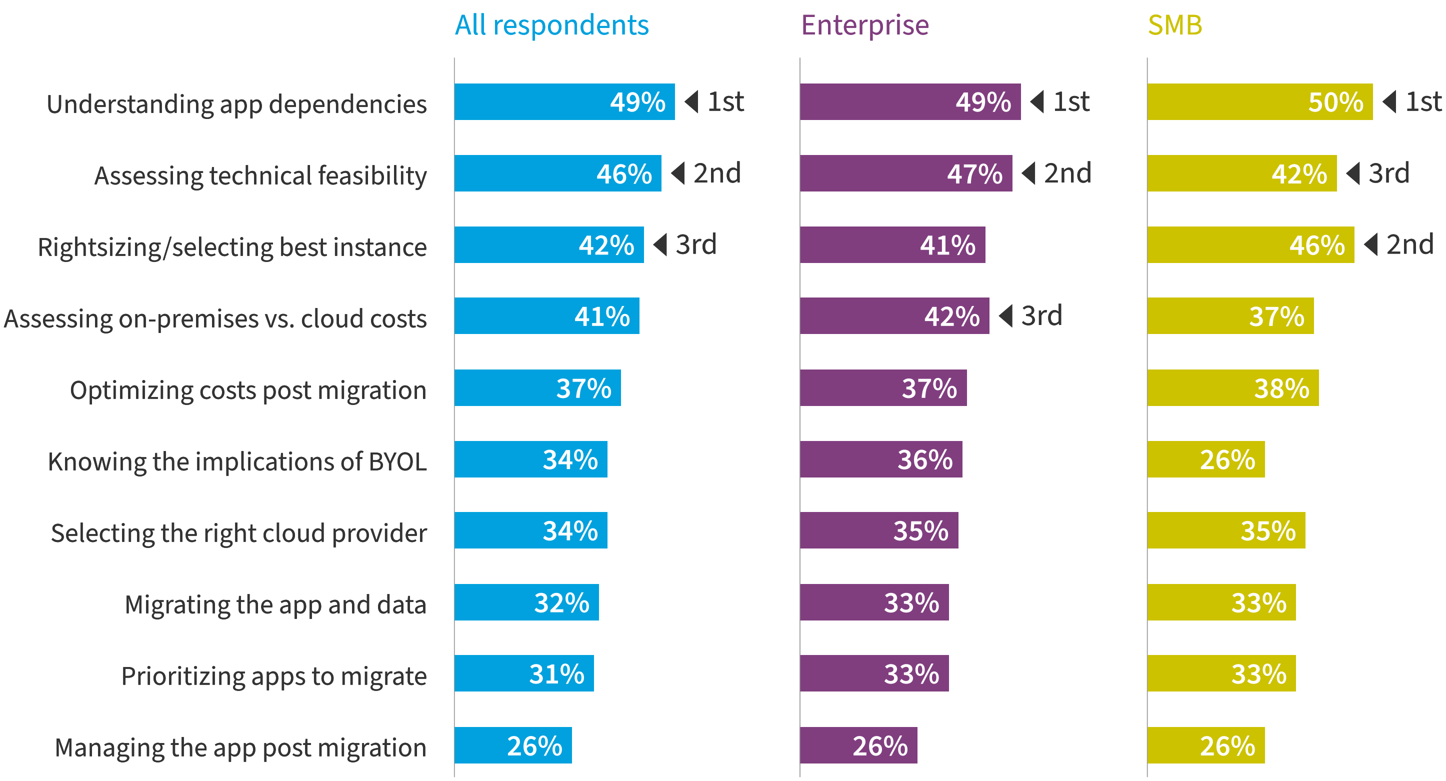
A year-over-year analysis of *corporate financial data* shows a movement away from on-premises toward cloud and SaaS, indicating organizations are becoming more confident in the security controls that cloud provides.

Mapping all the relationships across apps, hardware and networking devices for each IT-delivered service is notoriously difficult to do. Similar to last year, 49% of respondents reported *understanding app dependencies* and 46% reported *assessing technical feasibility* as the top two cloud migration challenges.

What challenges do you face in migrating workloads to public cloud?



All respondents: N=750, Enterprise: N=627, SMB: N=123
Source: Flexera 2023 State of the Cloud Report

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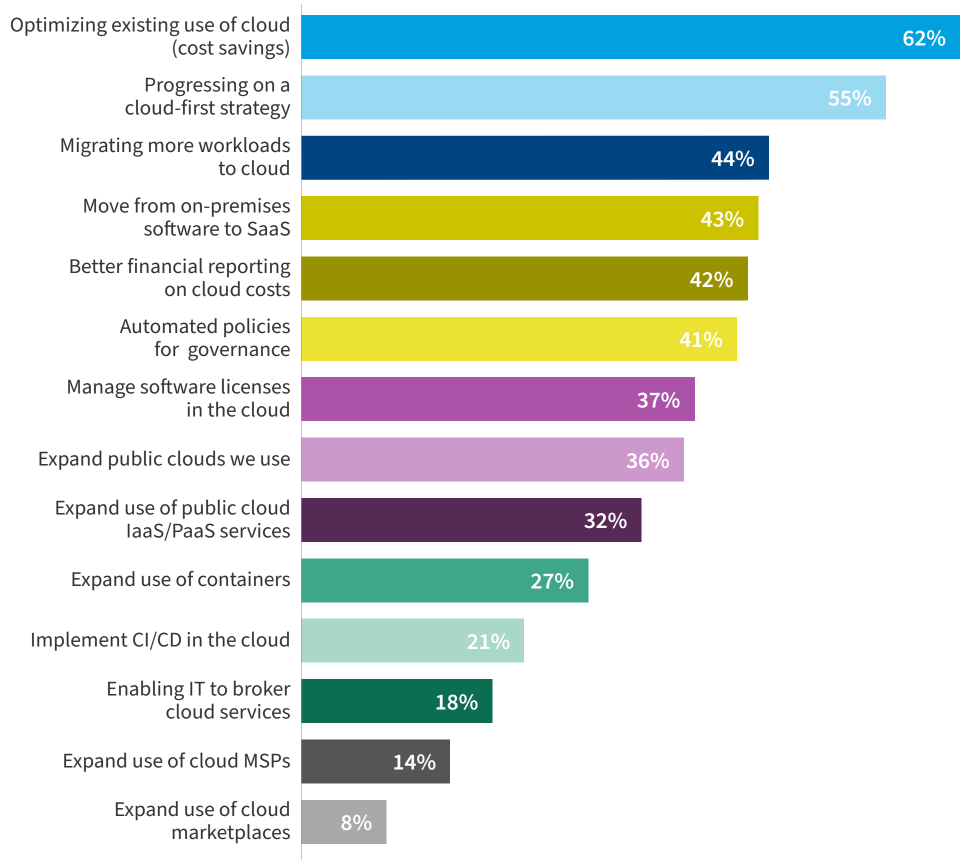
Understanding app dependencies remains the top challenge for cloud migration

Cloud initiatives and metrics

This is the seventh year in a row that *optimizing existing use of cloud (cost savings)* is the top initiative (62%). Notably, *progressing on a cloud-first strategy* jumped to 55% this year from 40% in 2022.

There appear to be headwinds around *migrating more workloads to cloud*, as this dropped to 44% from 57% year over year. Moderate and light users remain focused on moving more workloads to the cloud.

Which of the following initiatives are you planning to make progress on in the next year?



N=750
Source: Flexera 2023 State of the Cloud Report

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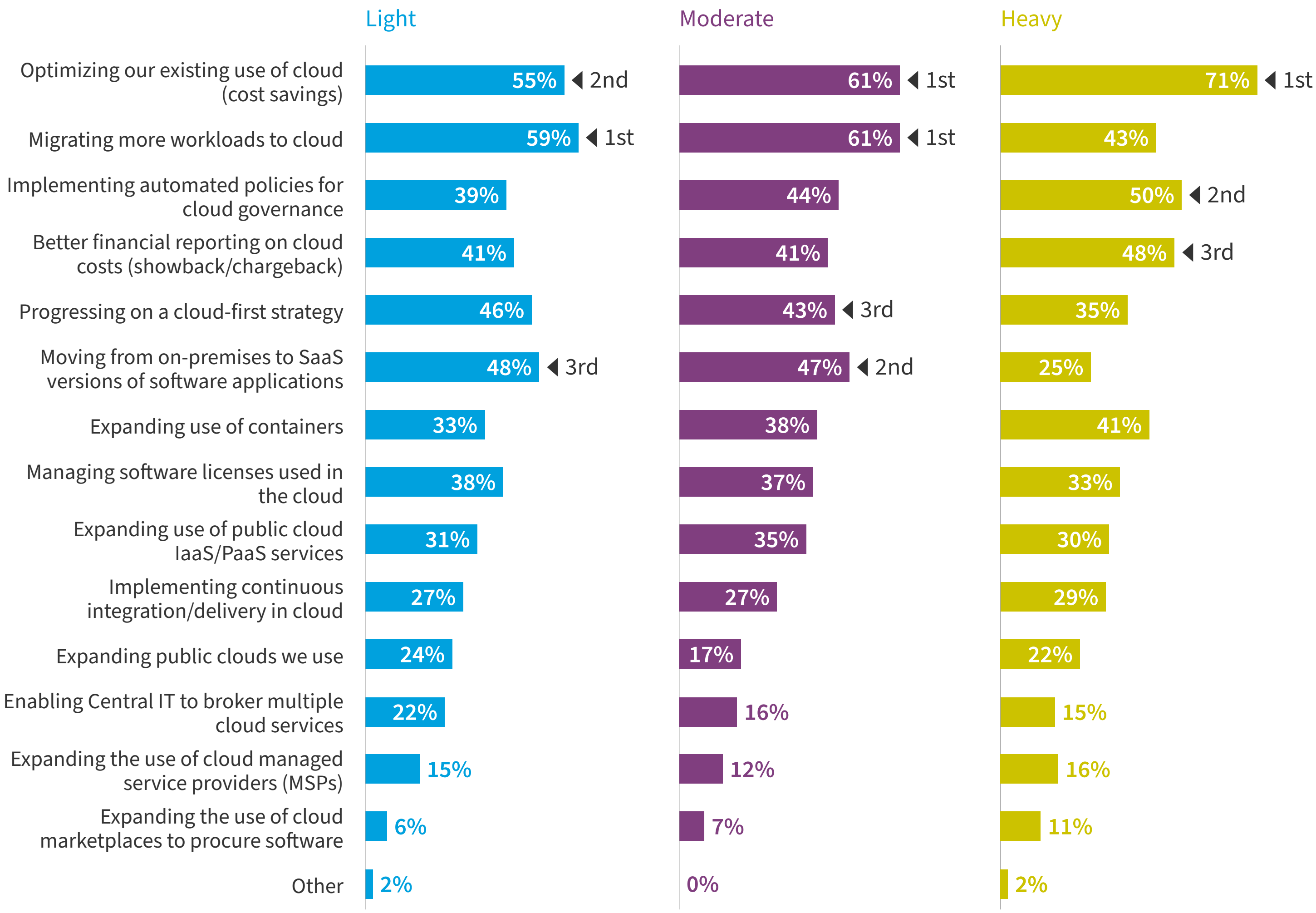
Cost savings and cloud-first strategies
are the top two initiatives across the board

Top cloud initiatives by cloud usage for all organizations



N=750
Source: Flexera 2023 State of the Cloud Report

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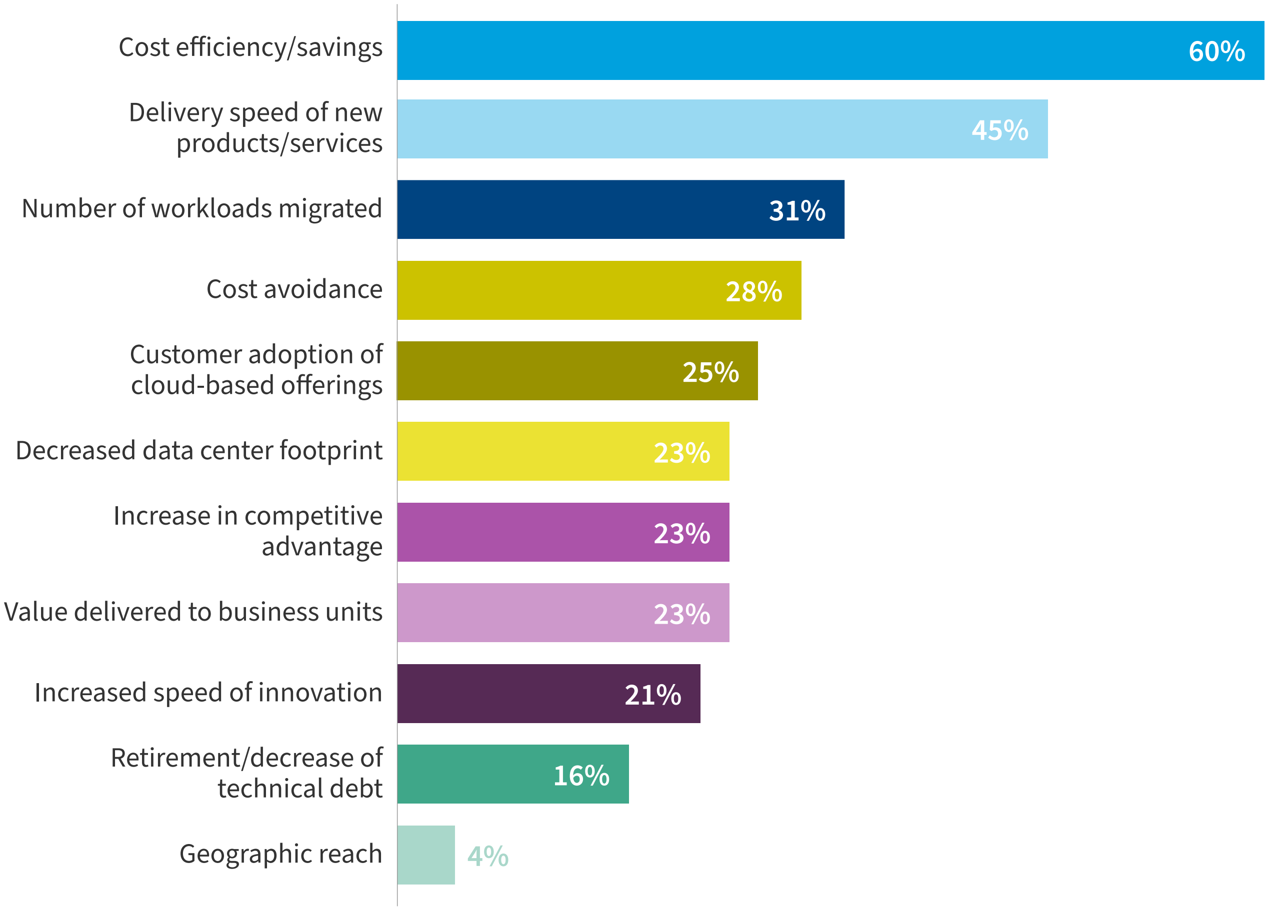
71% of heavy cloud users will prioritize optimizing existing use of cloud (cost savings)

Cost efficiency/savings (60%) and *delivery speed of new products/services* (45%) continue to be the top two metrics for measuring progress in the cloud.

What are your top metrics for assessing progress against cloud goals?

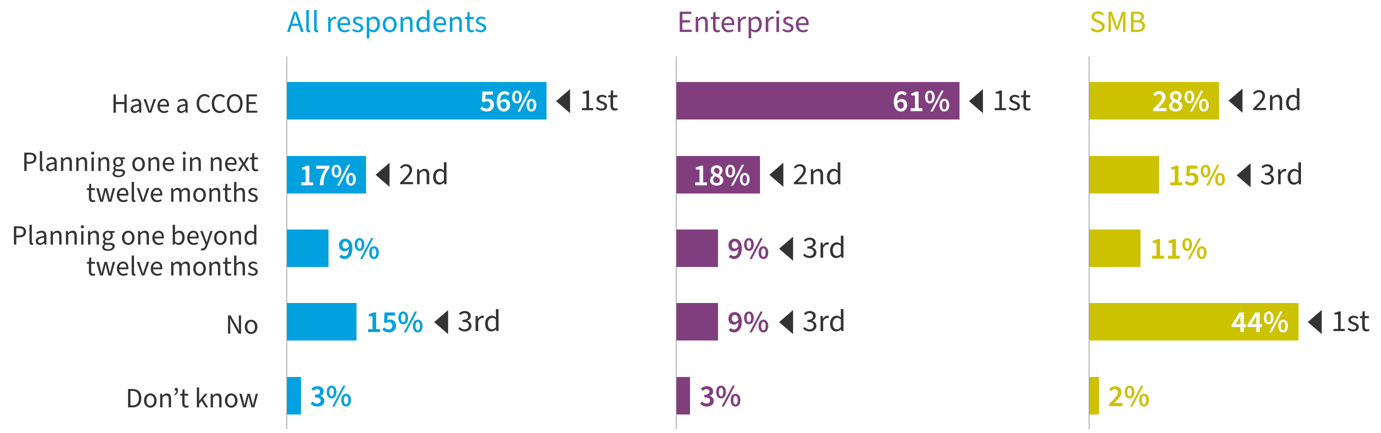


N=750
Source: Flexera 2023 State of the Cloud Report

Organizations are taking a centralized approach to the cloud

Most organizations have a CCOE (56%) or plan to within the next year (17%). Not surprisingly, enterprises (61%) are more likely than SMBs (28%) to have a CCOE.

Does your company have a central cloud team or CCOE?



All respondents: N=750, Enterprise: N=627, SMB: N=123
Source: Flexera 2023 State of the Cloud Report

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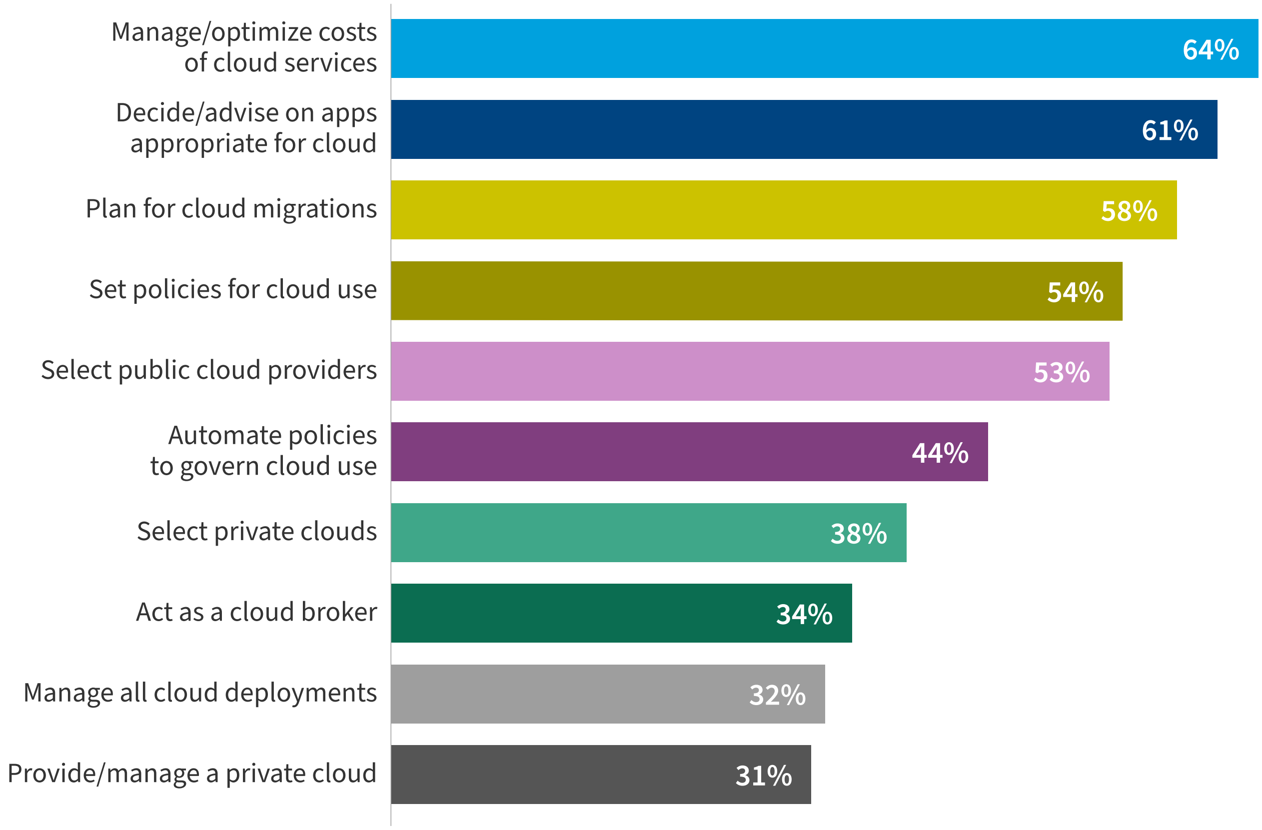
Manage/optimize costs of cloud services was the third priority for central IT teams in the 2022 report, and this year it jumped to the top spot (64%).

Central IT responsibilities in cloud (IaaS) adoption



N=750
Source: Flexera 2023 State of the Cloud Report

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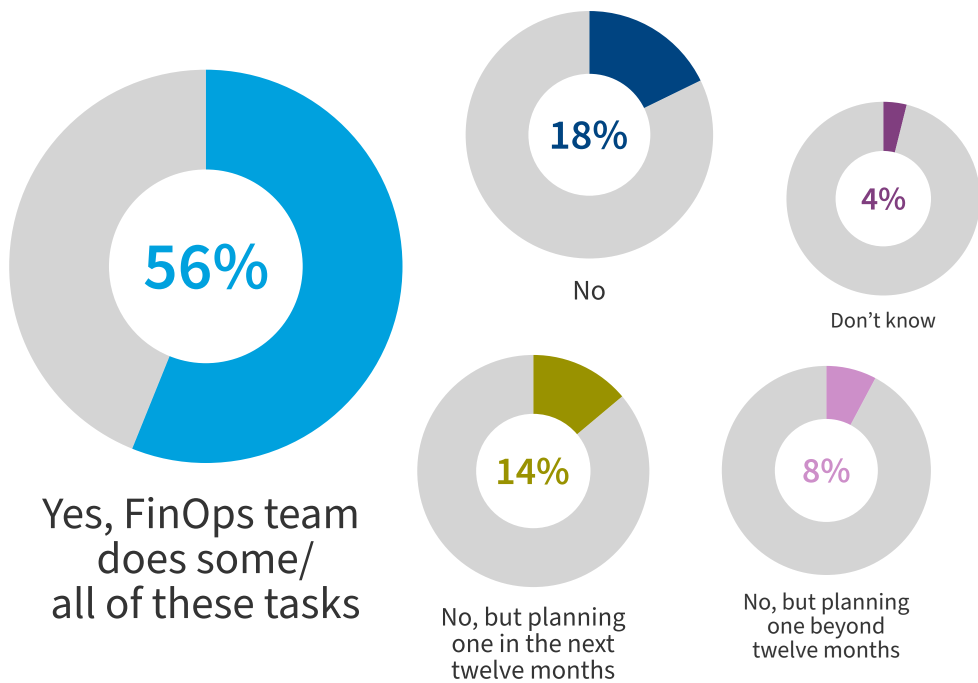
Manage/optimize costs of cloud services was the biggest change this year as cloud usage and the associated costs continue to rise and gain visibility.

The majority of organizations (56%) have a FinOps team, and others (14%) plan to create one in the coming year.

Does your company have a FinOps team to advise, manage or execute cloud cost optimization strategies?



N=750
Source: Flexera 2023 State of the Cloud Report

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As usual, *infrastructure and ops team* and *cloud team or CCOE* lead the charge. *Govern IaaS/PaaS usage/costs* dropped to 41% from 53% year over year, while *FinOps teams* increased that responsibility to 35% from 24%.

Who in your organization leads cloud cost management responsibilities?

	Infrastructure and Ops team	Cloud team or CCOE	FinOps team	Business units	Application teams	Finance/ Accounting	Vendor management team	SAM team
Govern IaaS/PaaS usage/costs	50%	41%	35%	22%	21%	18%	10%	4%
Optimize SaaS usage/costs	49%	36%	28%	22%	25%	17%	8%	5%
Govern software licenses in IaaS/PaaS	48%	33%	22%	21%	23%	16%	12%	7%
Define cost management policies	41%	31%	28%	25%	17%	25%	9%	6%
Chargeback of cloud costs	37%	27%	25%	21%	18%	29%	7%	6%
Report/analyze cloud costs	41%	31%	30%	22%	19%	27%	9%	6%
Own cloud budgets	42%	27%	24%	27%	18%	21%	5%	6%
Optimize cloud spend	47%	34%	26%	17%	26%	15%	6%	6%
Forecast cloud costs post migration	46%	33%	27%	25%	22%	23%	7%	5%

100 %

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N=750
Source: Flexera 2023 State of the Cloud Report

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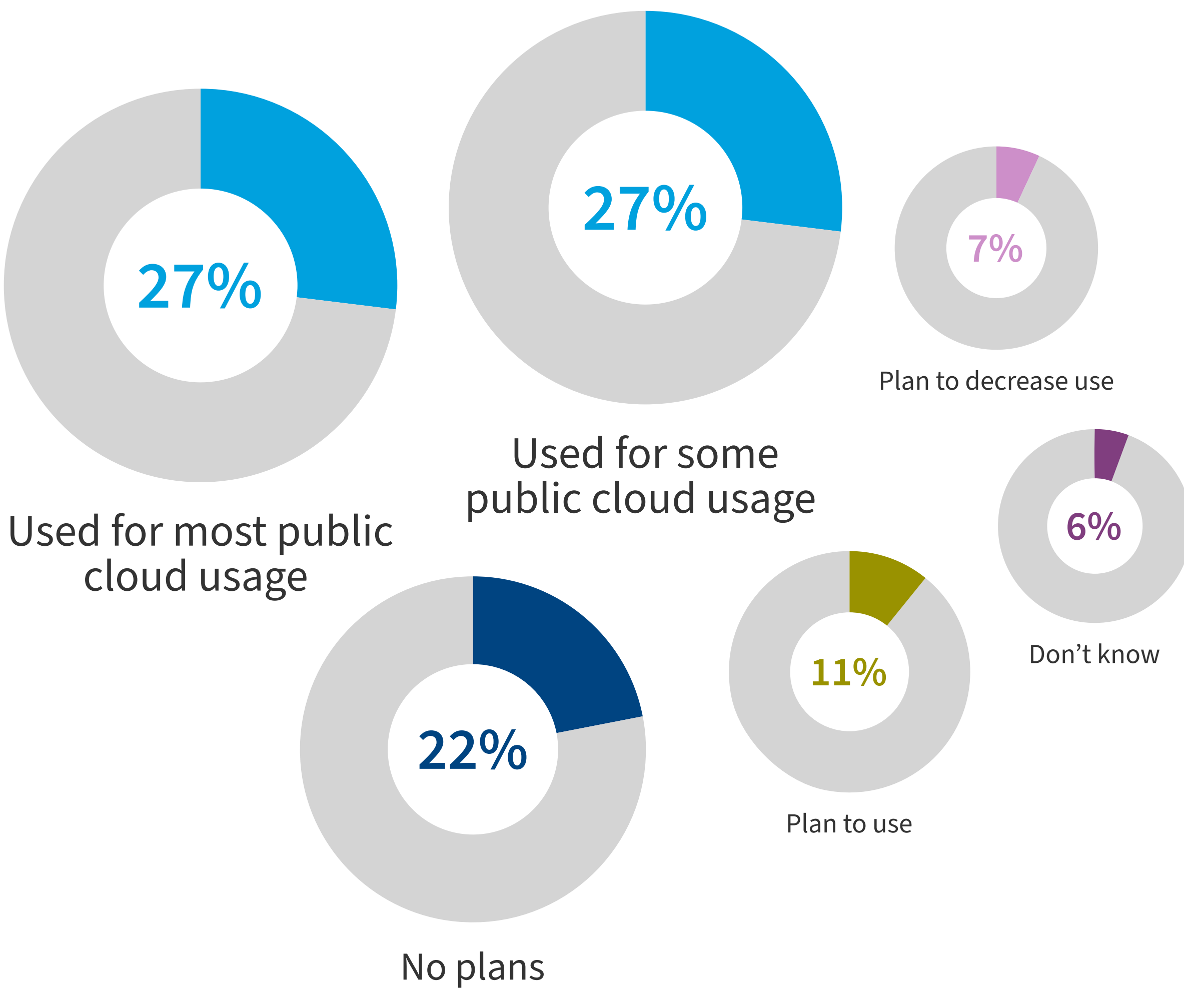
Year over year, finance/accounting and vendor management teams have less responsibility over cloud costs; these responsibilities are shifting to FinOps teams as they emerge and mature.

More than half (54%) of all organizations outsource at least some public cloud work, including 27% that use cloud managed service providers (MSPs) for most public cloud usage.

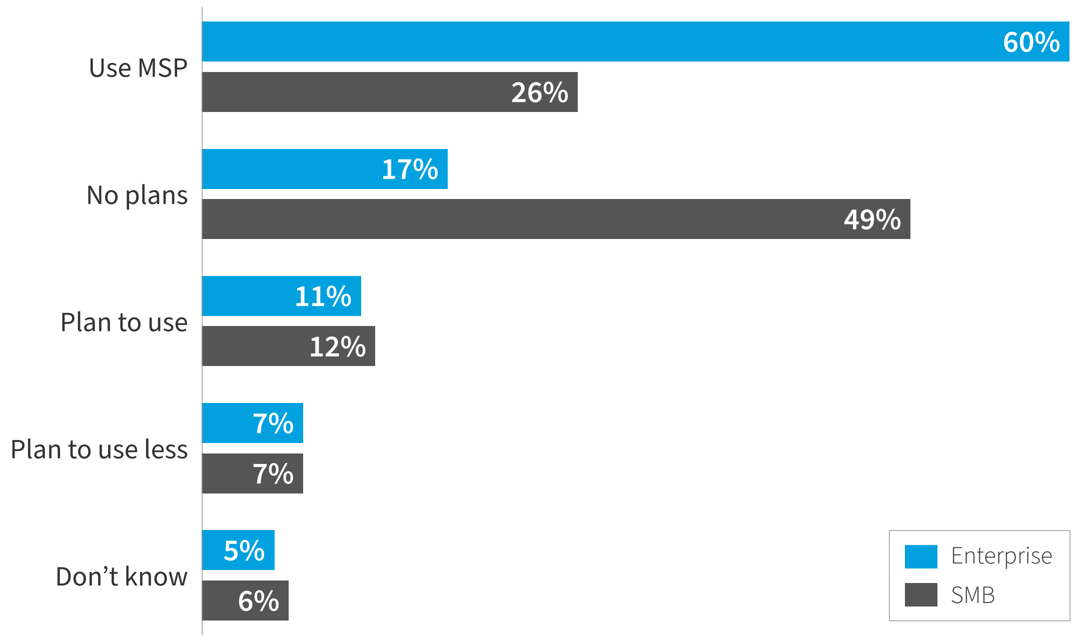
Enterprises are more inclined to utilize MSPs than SMBs (60% vs. 26%). This is expected as enterprises tend to have larger cloud environments and are more likely to have preexisting MSP relationships. On the other hand, SMBs tend to have simpler cloud infrastructures, including those that only use one cloud provider.

Utilization of MSPs for managing public cloud for all organizations



N=750
Source: Flexera 2023 State of the Cloud Report

Enterprise vs. SMB MSP utilization for managing public cloud

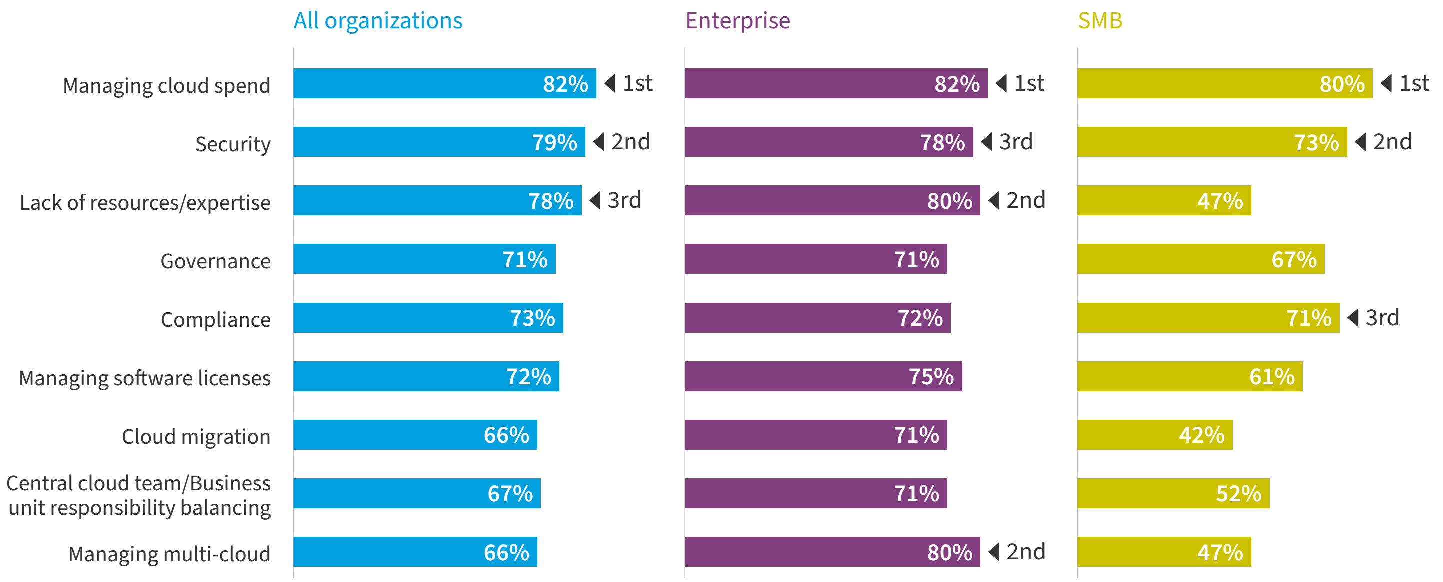


Enterprise: N=627, SMB: N=123
Source: Flexera 2023 State of the Cloud Report

Top challenges are security, spend and expertise

It's no surprise cloud spend is increasing and therefore no surprise that controlling this rapidly growing cost is a top priority. In fact, this year marks the first time in a decade that *managing cloud spend* has overtaken *security* as the top challenge facing organizations across the board. As in previous years, *a lack of resources/expertise* also continues to be a significant challenge.

Top cloud challenges



All organizations: N=750, Enterprise: N=627, SMB: N=123
Source: Flexera 2023 State of the Cloud Report

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For the first time in a decade, **managing cloud spend (82%) surpasses security (79%)** to become the number one challenge

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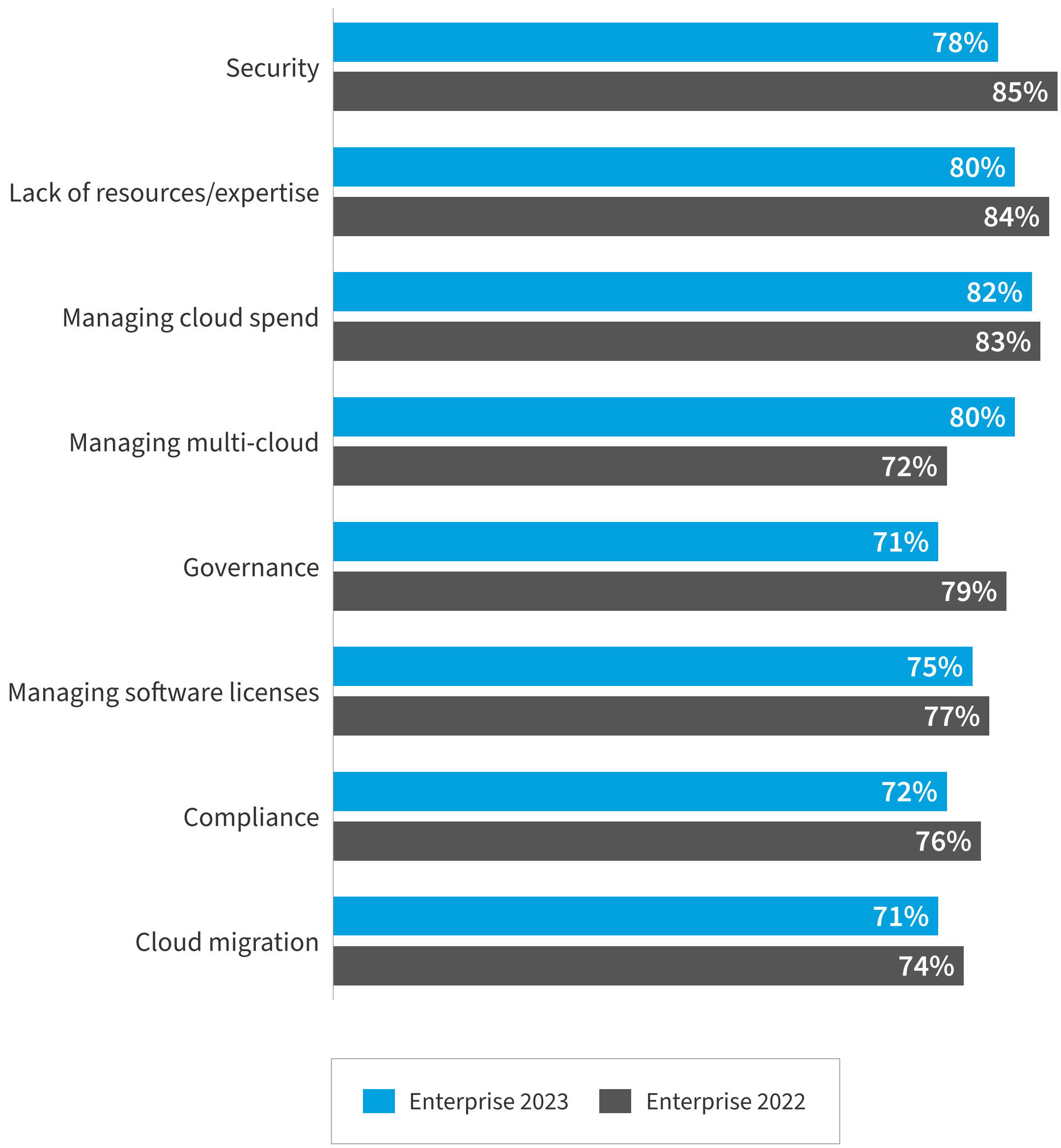
The shift in challenges may be due to organizations becoming more comfortable with cloud security combined with greater spend due to increased use of cloud services.

Interestingly, all challenges for enterprises decreased year over year with the exception of *managing multi-cloud,* which increased from 72% to 80%. As organizations consume more services from multiple cloud vendors, managing these bespoke services becomes more complex. Additionally, the percentage of enterprises facing *security* challenges has dropped from 85% to 78%.

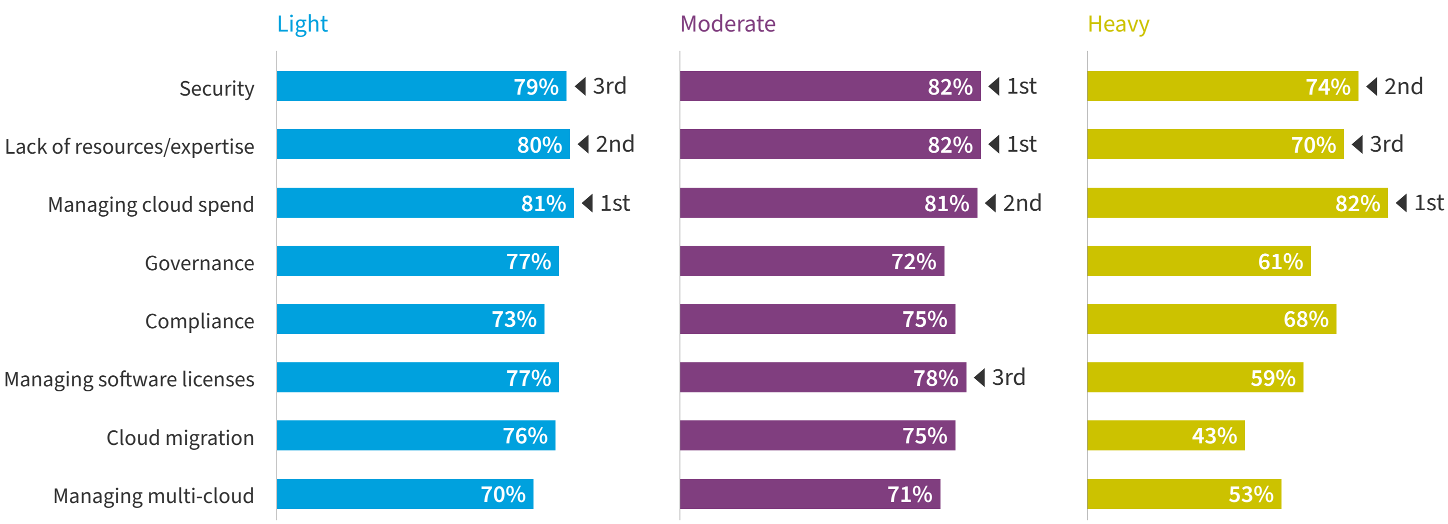
YoY comparison of top challenges for enterprises



Respondents 2023 N=627, 2022 N=597
Source: Flexera 2023 State of the Cloud Report

Managing cloud spend is a top challenge across usage levels. As organizations mature, certain functions mature as well. Respondents indicated *governance*, *compliance* and *managing software licenses* have become less of a challenge.

Cloud challenges by usage level

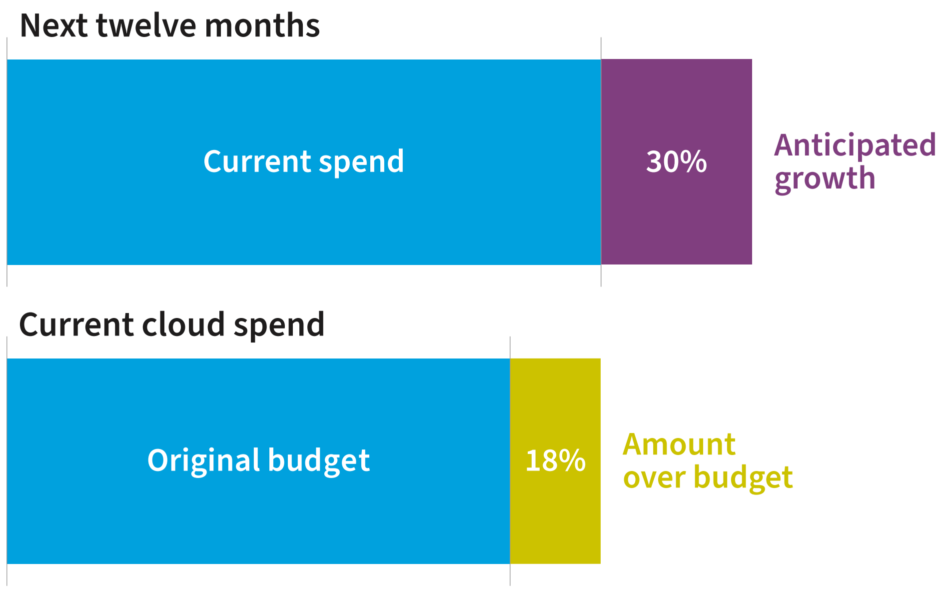


N=750
Source: Flexera 2023 State of the Cloud Report

Organizations struggle to control growing cloud spend

It's easy to see why FinOps continues to evolve and grow as a cultural practice and financial management discipline. Public cloud spend was over budget by an average of 18%, up from 13% the previous year. Respondents remain bullish on cloud, as 30% expected spend to increase in next twelve months.

What's your organizational spend on public cloud?



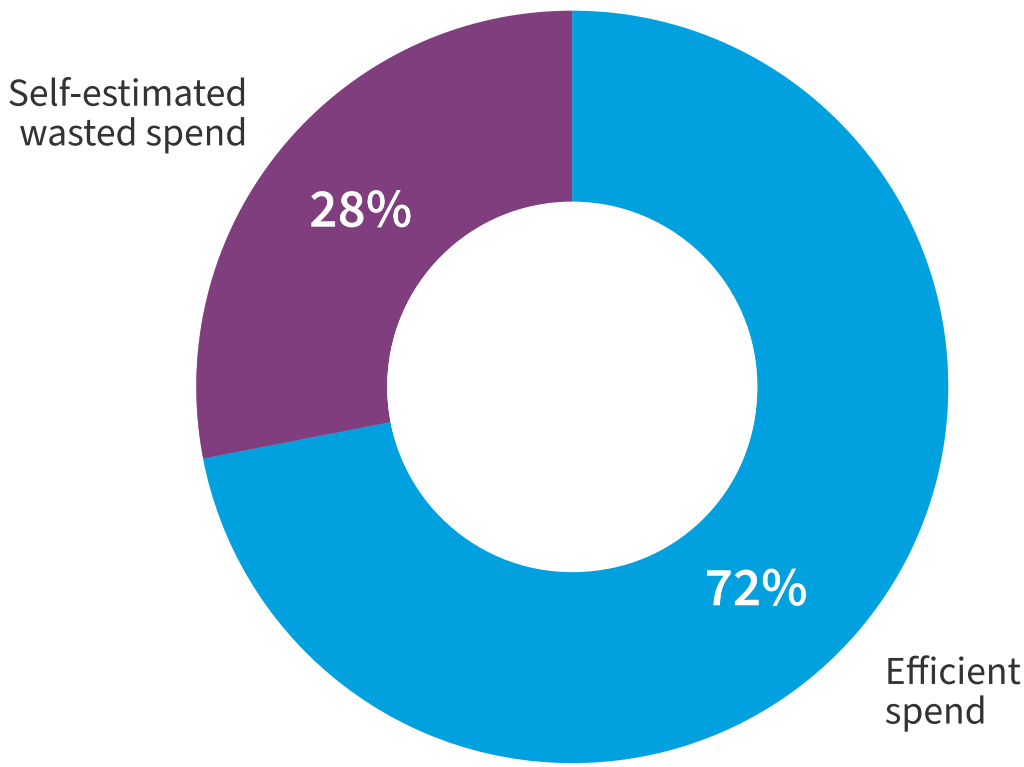
N=750
Source: Flexera 2023 State of the Cloud Report

flexera

Respondents indicated a **39% increase** YoY in the amount of cloud spend over budget

Respondents reported that public cloud waste is 28%, down slightly from 32% the previous year.

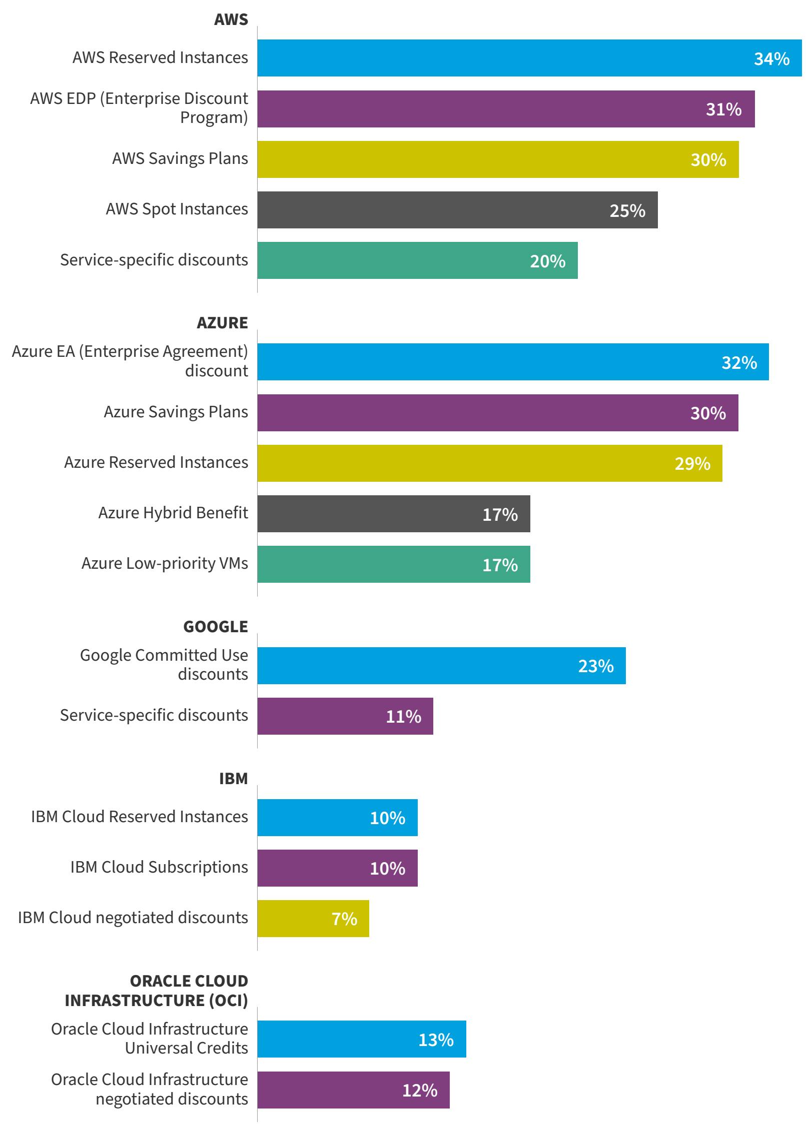
What's your estimated wasted cloud spend?



N=750
Source: Flexera 2023 State of the Cloud Report

Cloud provider pricing structures are complex and difficult to decipher, but provider discounts can identify opportunities to reduce costs. About one-third of respondents took advantage of these savings opportunities. In many cases, organizations can easily take better advantage of these discounts.

Which provider discounts do you use?

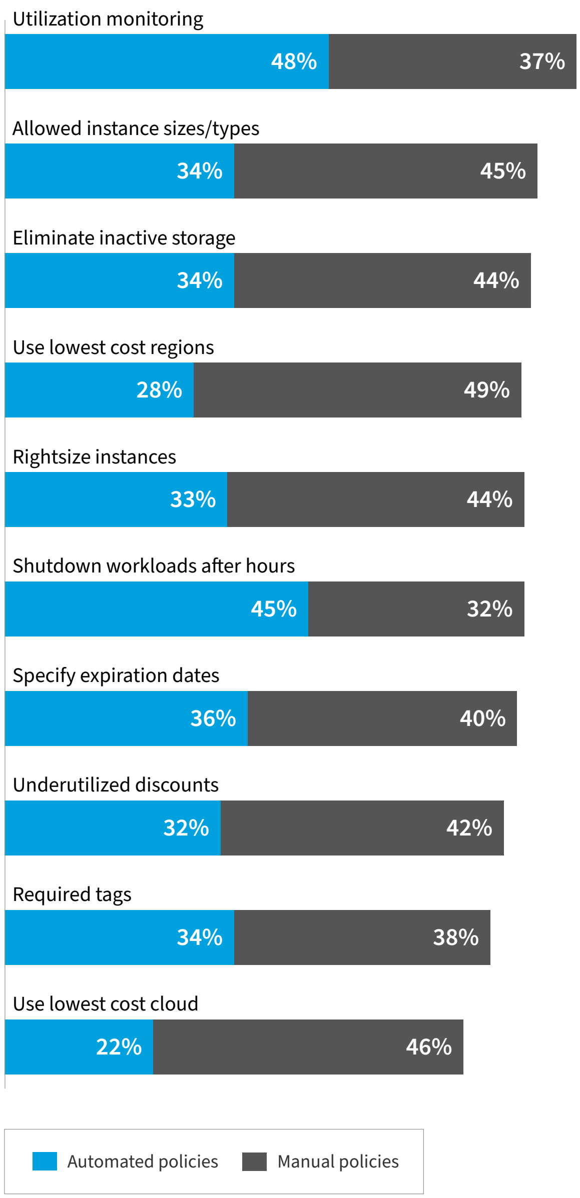


N=750
Source: Flexera 2023 State of the Cloud Report

Roughly **two-thirds of organizations aren’t taking advantage** of provider discounts to optimize cloud costs

Automated policies such as *utilization monitoring* (48%) and *shutting down workloads after hours* (45%) are the most common, whereas *using the lowest cost regions* and *allowing instance sizes/types* are the most common manual policies. Surprisingly, nearly three-quarters of respondents still don’t leverage automated or manual policies for requiring tags, a critical way to allocate and optimize costs.

What types of policies do you use to optimize cloud costs?



48% of respondents **use automated utilization monitoring** to optimize cloud costs

» FLEXERA POINT OF VIEW

Despite the fact that tags are critical to cost allocation and optimization, only roughly a third currently use policies that implement required tags.

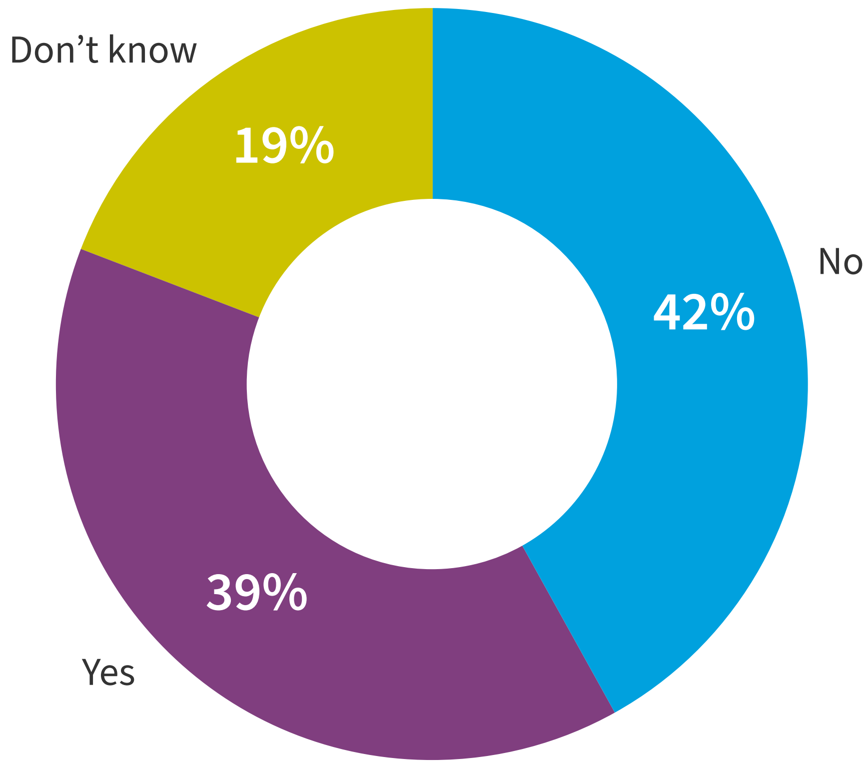
N=750

Source: Flexera 2023 State of the Cloud Report

flexera

Unit economics is a key metric leveraged in FinOps to gauge efficiency of cloud spend. However, it can be challenging to implement and therefore is not currently widely used.

Does your organization use a unit economics model for cloud cost analysis?



N=750
Source: Flexera 2023 State of the Cloud Report

» FLEXERA POINT OF VIEW

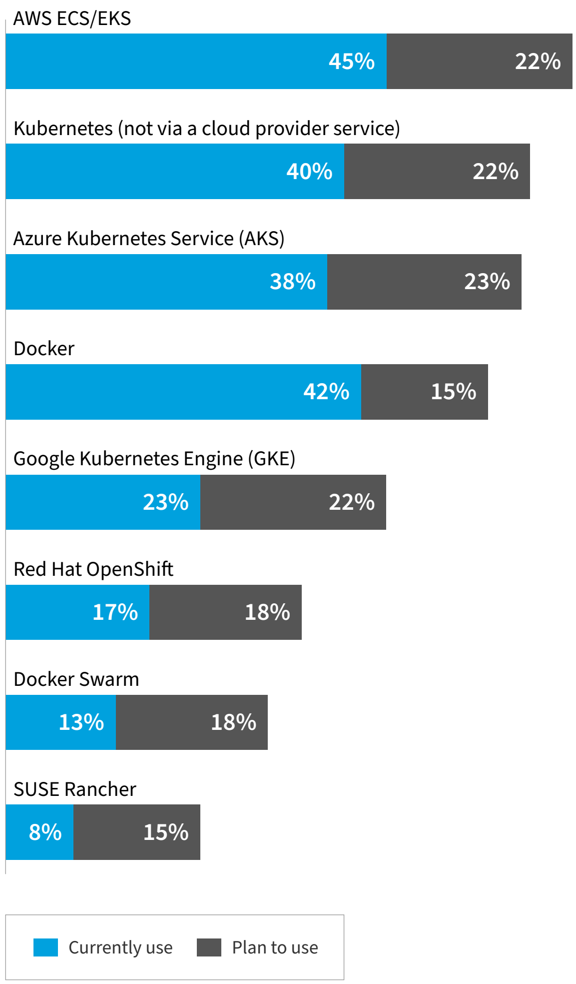
With the growth of FinOps, we expect the use of unit economic models to increase in the coming years.

Container use becomes increasingly mainstream

Kubernetes use continues to dominate, whether self-implemented or via a cloud provider service. The respondents who currently use a managed Kubernetes service, such as *AWS ECS/EKS* (45%) or *Azure Kubernetes Service (AKS)* (38%), essentially remain unchanged from the previous year.

Current use of *SUSE Rancher* decreased from 13% to 8% year over year, while *Red Hat OpenShift* decreased from 21% last year to 17%.

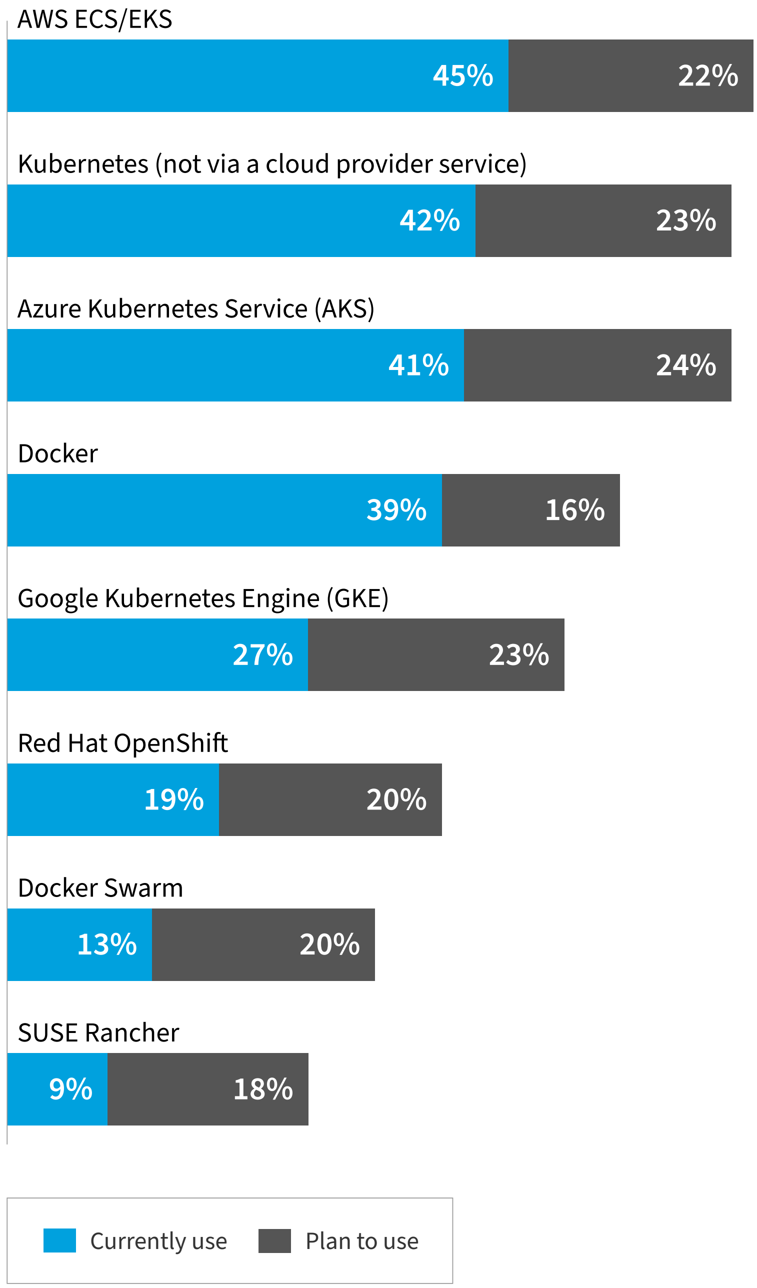
What container tools do you use?



N=750
Source: Flexera 2023 State of the Cloud Report

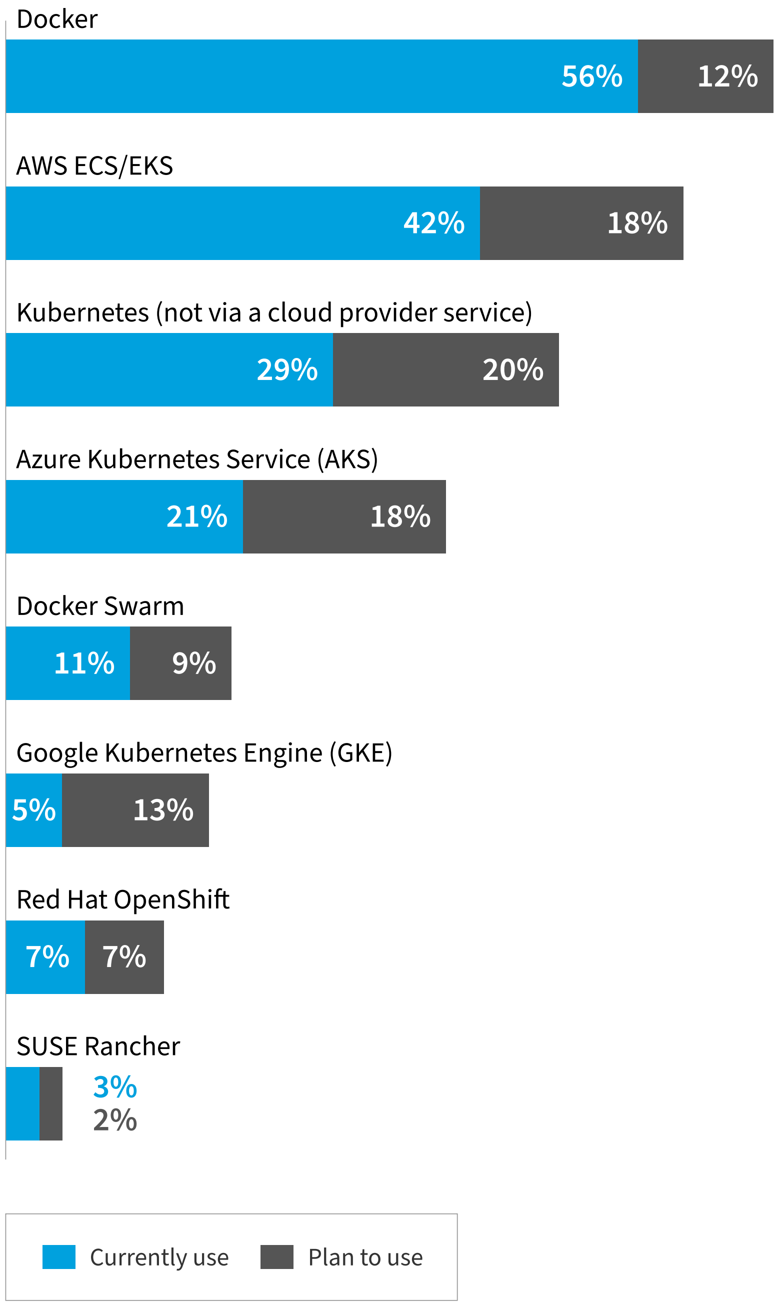
Native tools such as *AWS ECS* and *AWS EKS* are the most used container tools for both enterprises (45%) and SMBs (42%). Organizations are planning to use provider-specific, purpose-built tools along with growing interest in *Azure Kubernetes Service (AKS)* and *Google Kubernetes Engine (GKE)*.

Enterprise use of container tools



N=627
Source: Flexera 2023 State of the Cloud Report

SMB use of container tools

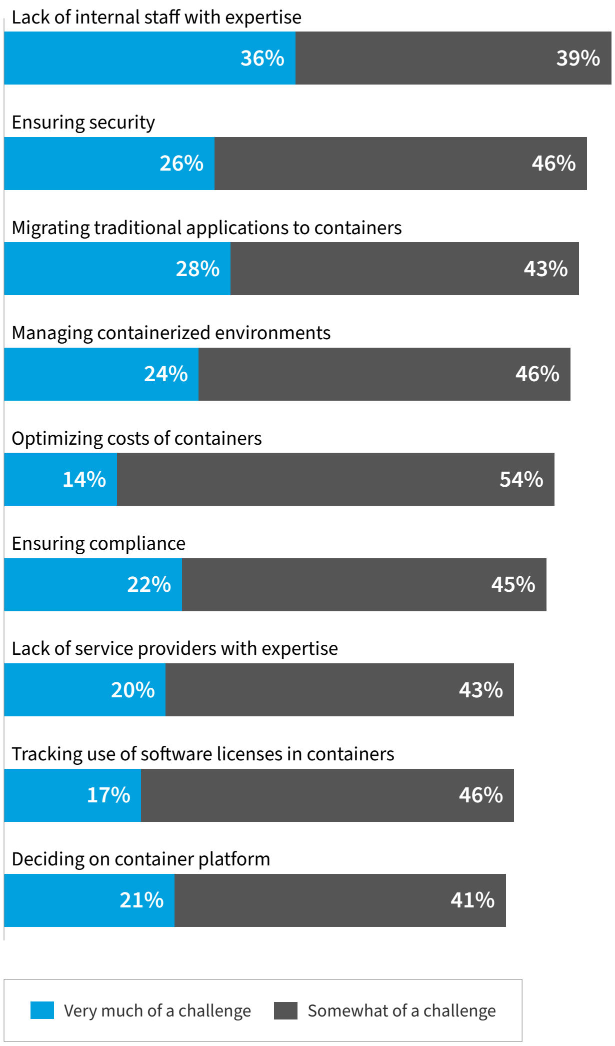


N=123
Source: Flexera 2023 State of the Cloud Report

Overall, organizations named *lack of internal staff with expertise* (36%), *migrating traditional applications to containers* (28%) and *ensuring security* (26%) as very much a challenge related to container use. More than half of respondents (54%) named *optimizing costs of containers* as somewhat of a challenge.

Organizations continue to struggle with costs and hiring, and *migrating traditional applications to containers* is more problematic, as traditional apps aren't implemented via microservices, which are more aligned to containerized deployment models.

What are the top container-related challenges for your organization?



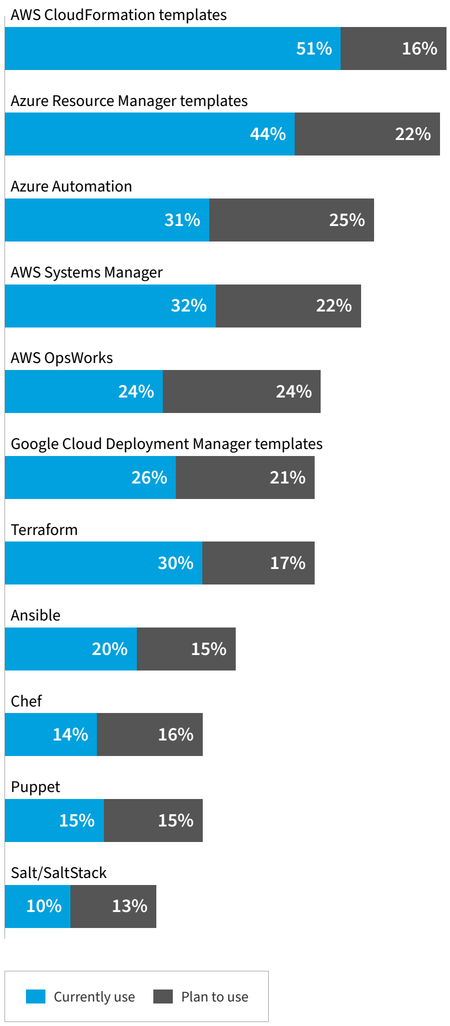
68% of respondents say **optimizing container costs is a challenge** (54% somewhat, 14% very much)

N=750
Source: Flexera 2023 State of the Cloud Report

Adoption of cloud configuration tools is shifting

Native cloud tools—including *AWS CloudFormation* (51%), *Azure Resource Manager templates* (44%) and *AWS Systems Manager* (32%)—are most commonly used. This is the first year *Azure Automation* made the list, coming in at 31%, with the highest number of respondents (25%) planning to use. Cloud provider tools are well suited to their respective environments.

What are your current and planned configuration tools?

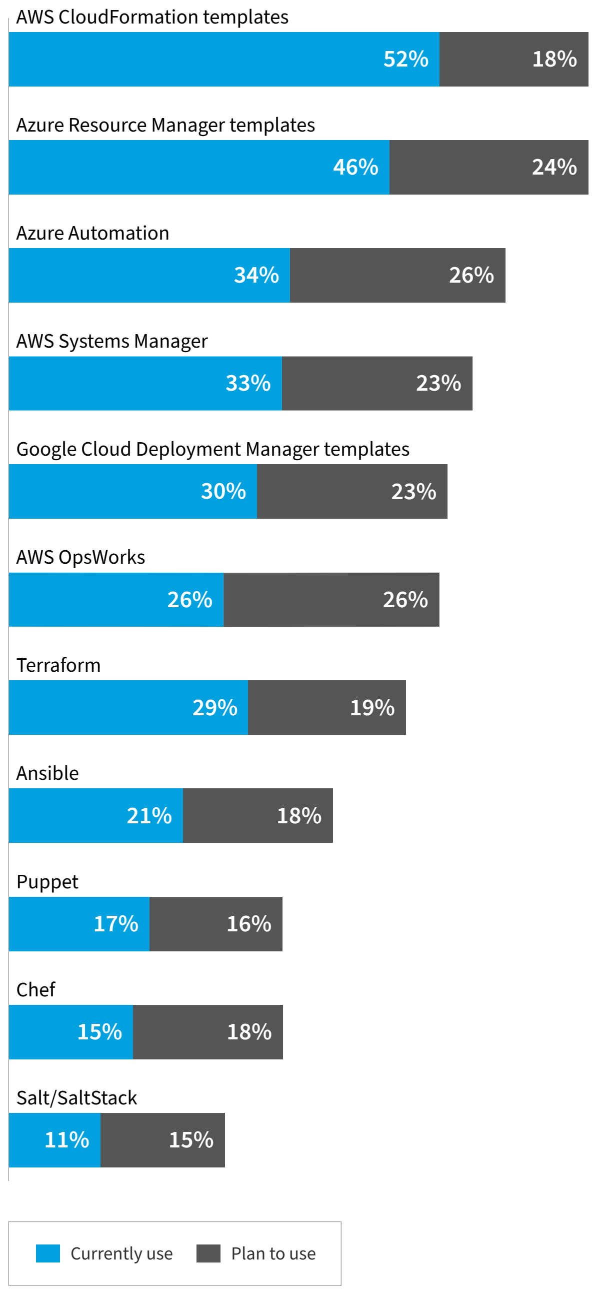


For the first time, **56% of respondents** either currently use or plan to use Azure Automation

N=750
Source: Flexera 2023 State of the Cloud Report

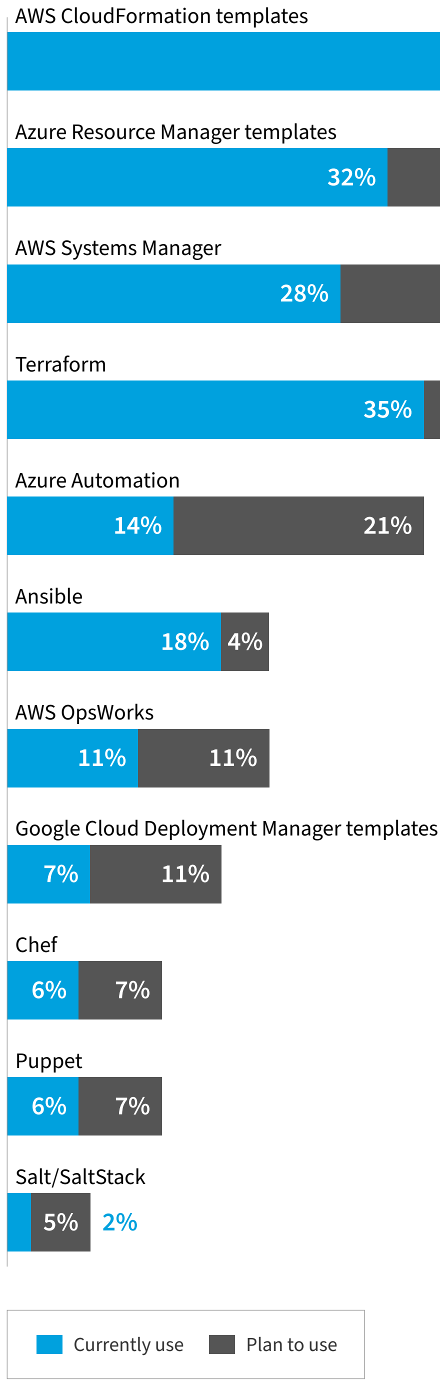
Similar to overall numbers, enterprises tend to use provider-specific templating tools. The use of cloud-agnostic tools such as *Terraform, Puppet* and *Chef* continues to decline as the provider tools increase in usage. SMBs are more likely to use Terraform than enterprises (35% vs. 29%).

Enterprise use of cloud configuration tools



N=627
Source: Flexera 2023 State of the Cloud Report

SMB use of cloud configuration tools



N=123
Source: Flexera 2023 State of the Cloud Report

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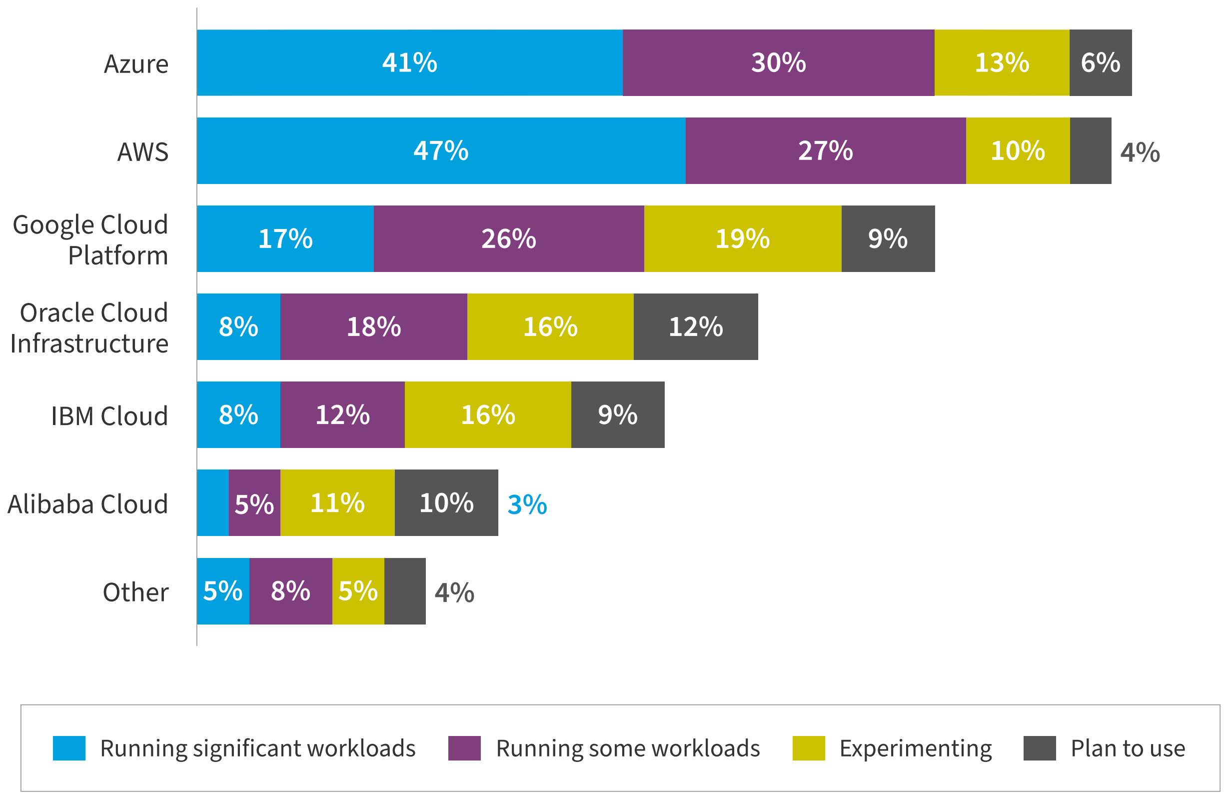
Public cloud adoption is evolving

Last year was the first year Azure surpassed AWS in adoption rates, but this year respondents indicated *AWS* is back on top, with 47% using the provider in significant workloads and 41% using *Azure*. *Oracle*, *IBM* and *Alibaba* cloud services remained relatively unchanged.

What public cloud providers does your organization use?

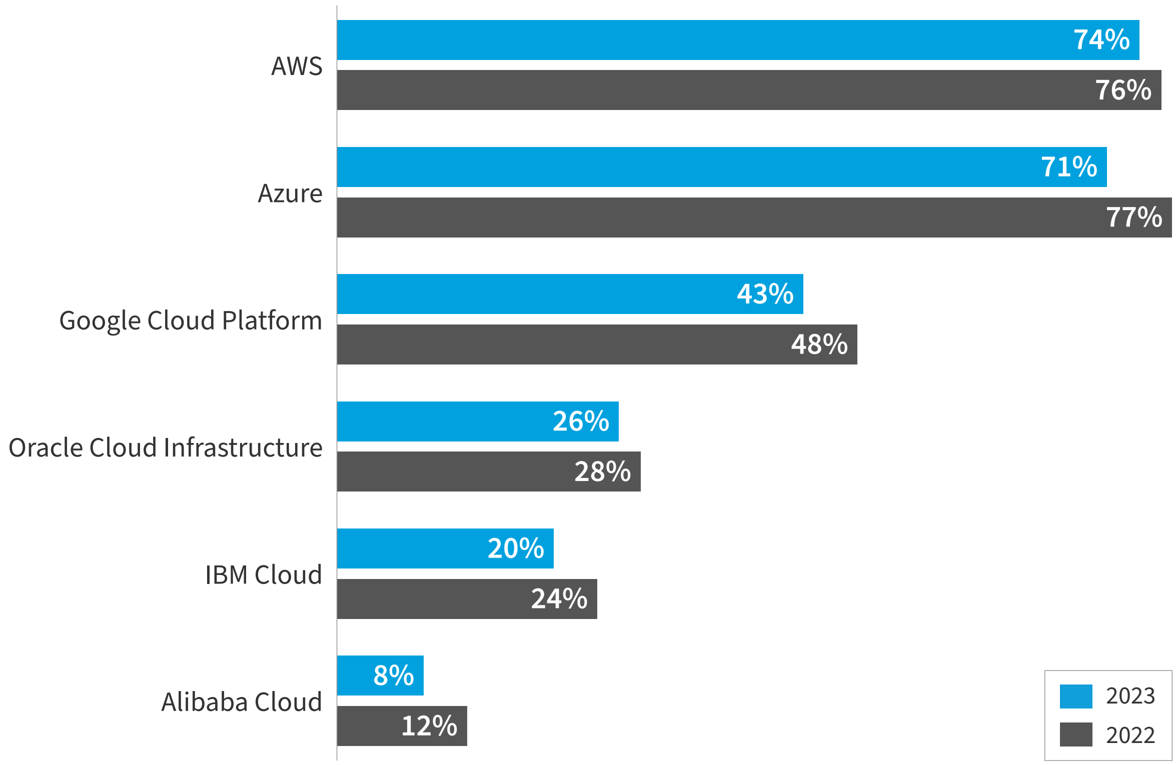


N=750
Source: Flexera 2023 State of the Cloud Report

28% of organizations are experimenting with or plan to use Oracle Cloud Infrastructure or Google Cloud Platform

AWS and Azure remain the most widely adopted cloud providers, ahead of *Google Cloud Platform, Oracle Cloud Infrastructure, IBM Cloud* and *Alibaba Cloud*.

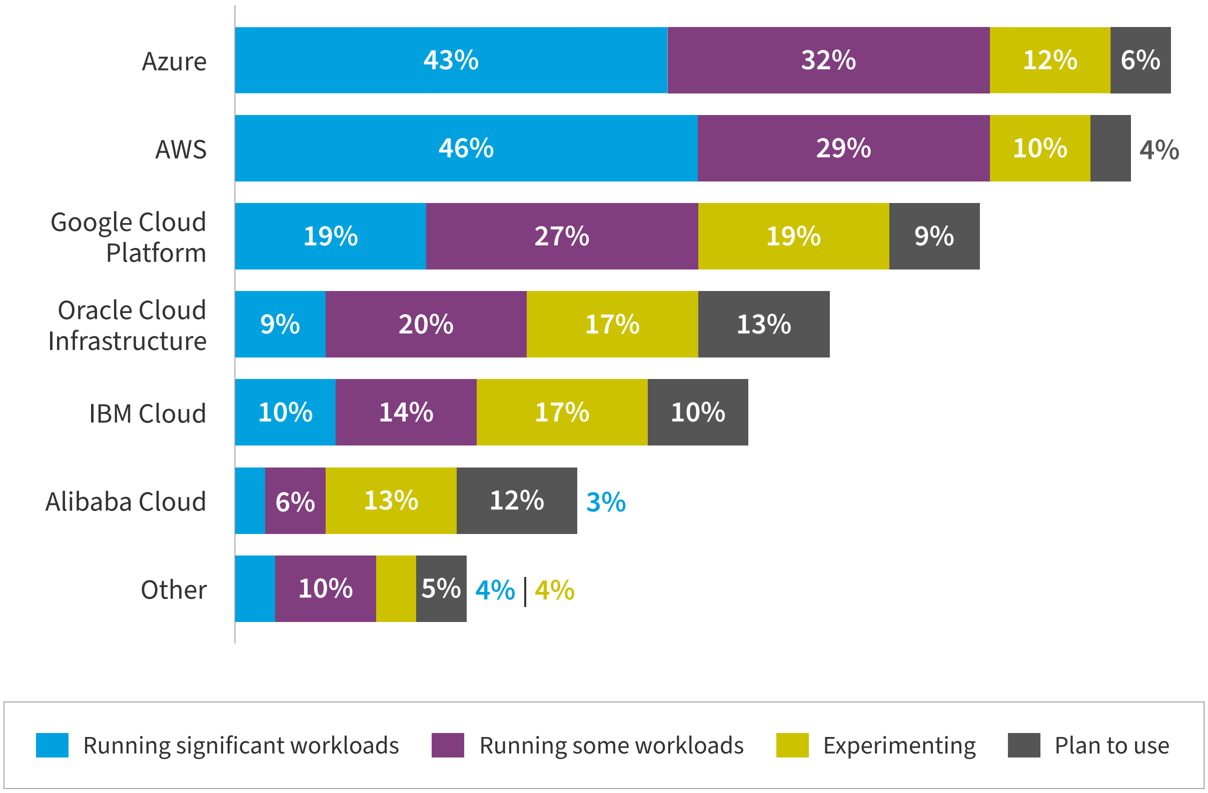
YoY public cloud provider adoption rates for all organizations



2023: N=750, 2022: N=753
Source: Flexera 2023 State of the Cloud Report

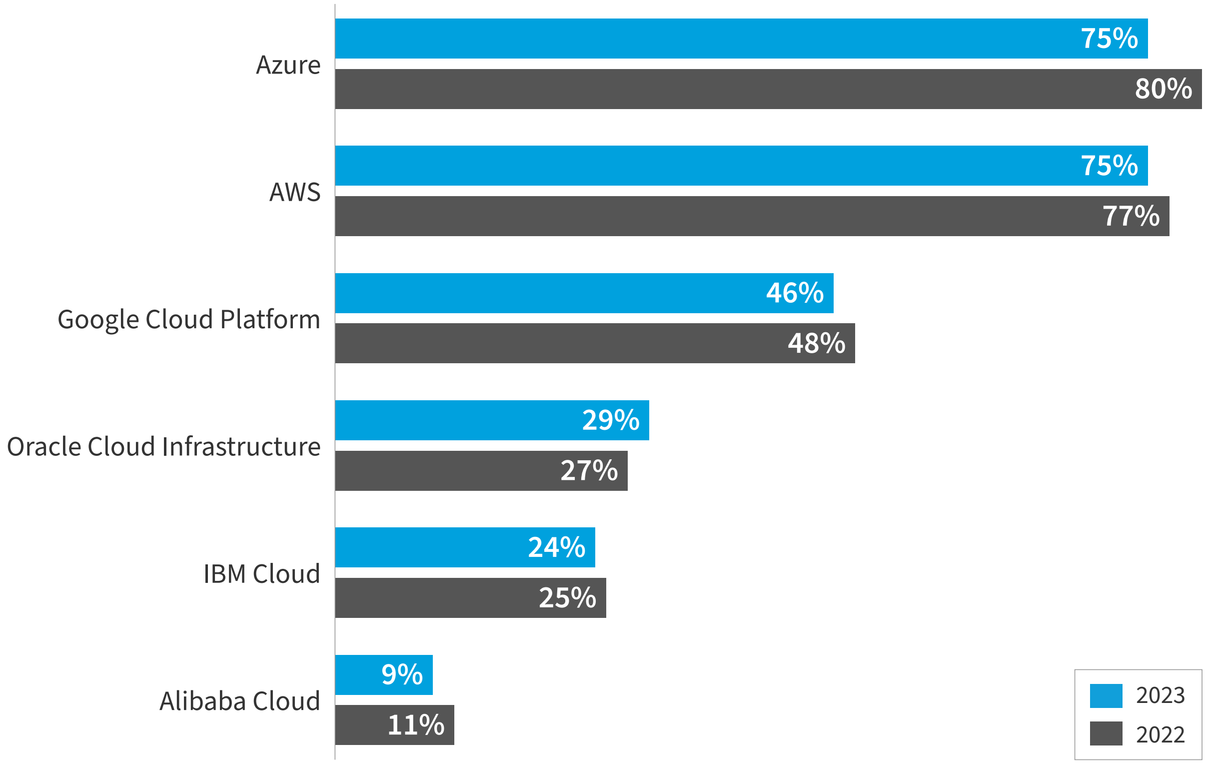
In last year's report, enterprise adoption of *Azure* surpassed that of *AWS* for the first time, by a 3% margin. This year the two are tied at 75%.

Enterprise use of public cloud providers



N=627
Source: Flexera 2023 State of the Cloud Report

YoY enterprise public cloud adoption

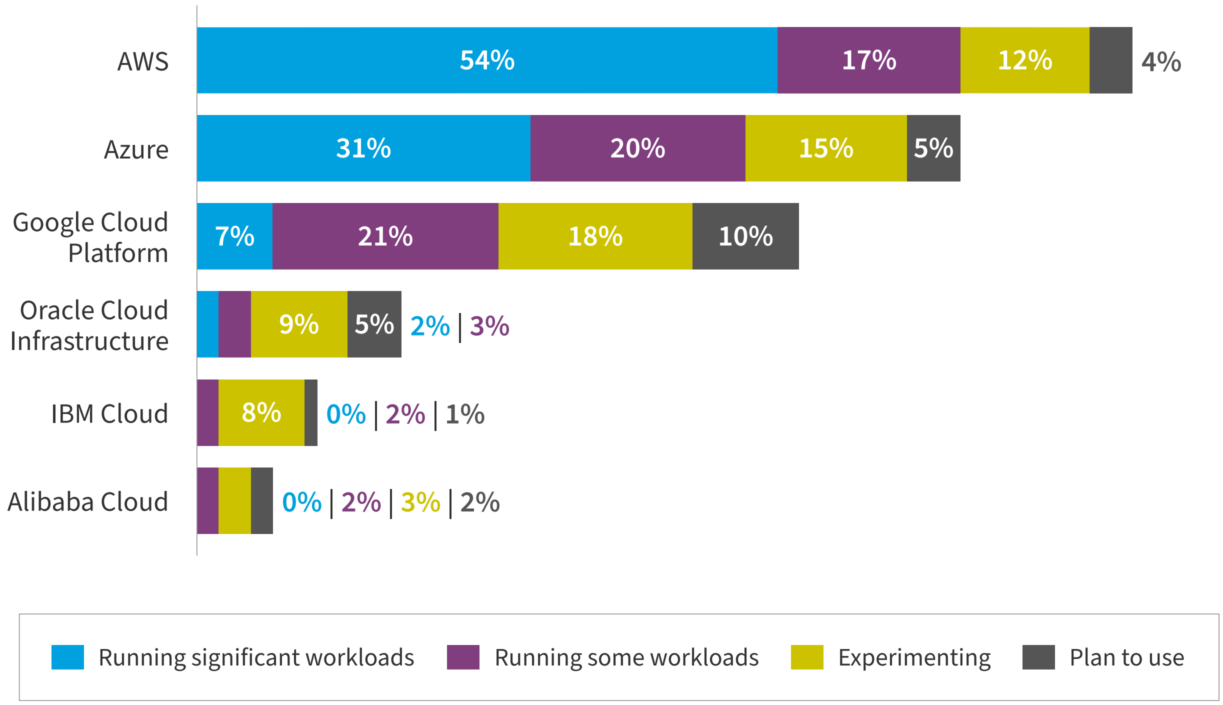


2023: N=627, 2022: N=597
Source: Flexera 2023 State of the Cloud Report

SMBs continue to favor *AWS* over other cloud providers, with 71% using *AWS* and 51% using *Azure*. Usage of *Google Cloud Platform* has significantly decreased from 43% last year to 28% this year. *IBM Cloud* usage remains low, as it's primarily adopted by larger organizations with existing contracts for various IT services.

Additionally, usage of all other cloud providers has significantly decreased among SMBs, indicating that they're increasingly choosing to use either AWS or Azure.

SMB use of public cloud providers



N=123
Source: Flexera 2023 State of the Cloud Report

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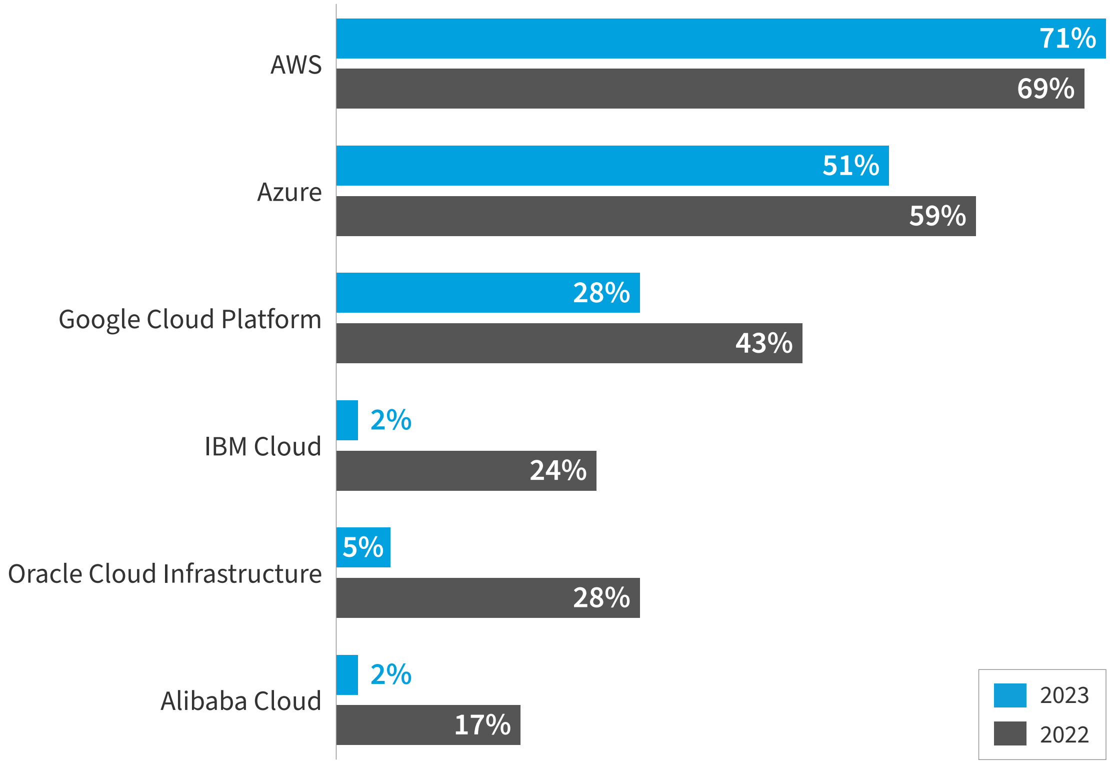
YoY SMB public cloud adoption

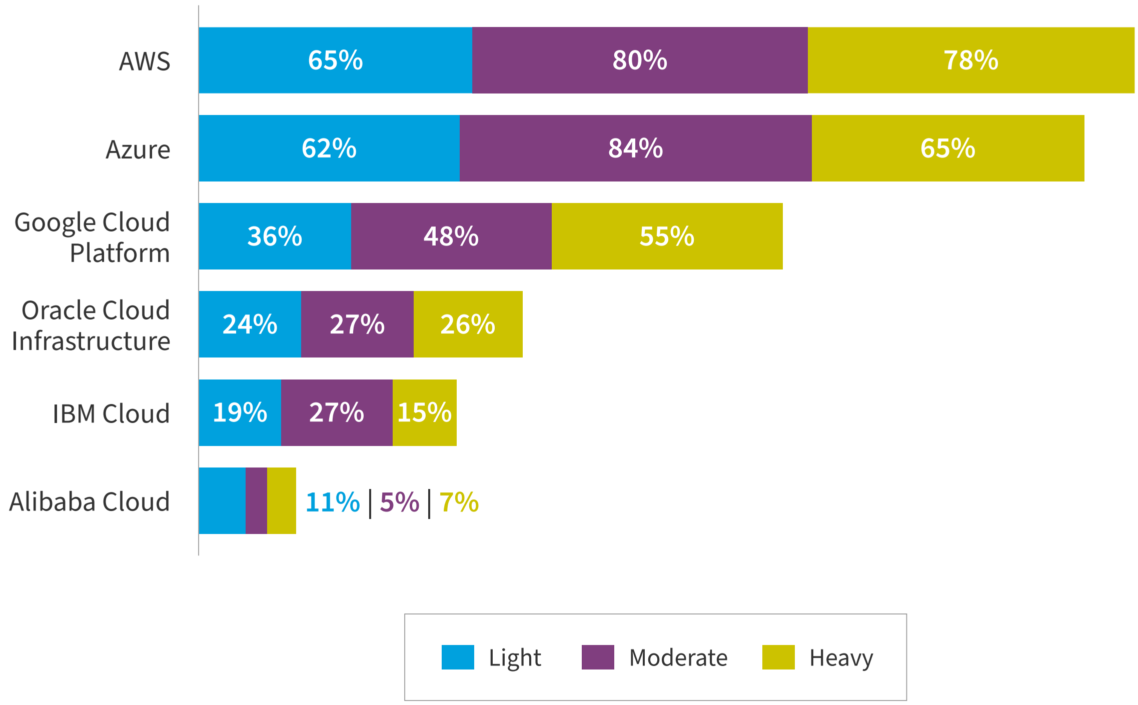


2023: N=123, 2022: N=156
Source: Flexera 2023 State of the Cloud Report

SMB usage of **Google Cloud Platform significantly decreased** year over year

Public cloud provider adoption is influenced by the organization's cloud usage level. As organizations mature, they tend to gravitate toward market leaders. As was the case last year, *AWS* is used more frequently by organizations that have been using the cloud over a longer period and are heavy cloud users.

Cloud providers used by cloud usage level

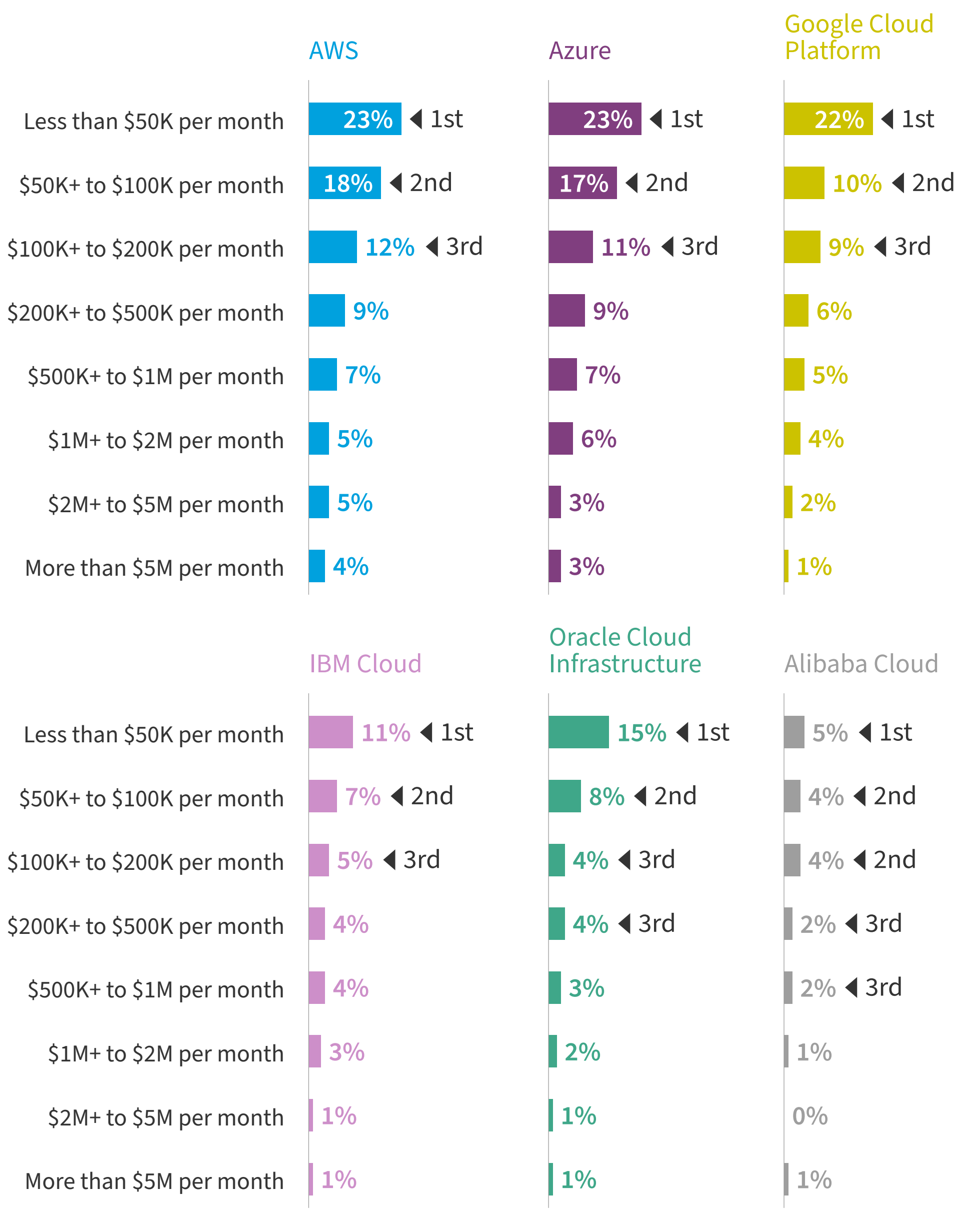


N=750
Source: Flexera 2023 State of the Cloud Report
flexera

Heavy cloud users are **more likely to use AWS**

With all respondents, *AWS* leads (or is tied) in most spending tiers with the exception of those spending $1 million - $2 million per month. Fourteen percent of *AWS* users spend more than $12 million a year, compared to 12% for *Azure* and 7% for *Google Cloud Platform*. *IBM* and *Oracle Cloud Infrastructure* are a distant fourth and fifth. Fifteen percent of *AWS* and *Azure* enterprise users each spend more than $12 million a year.

How much do you spend on each cloud provider?



N=750
Source: Flexera 2023 State of the Cloud Report
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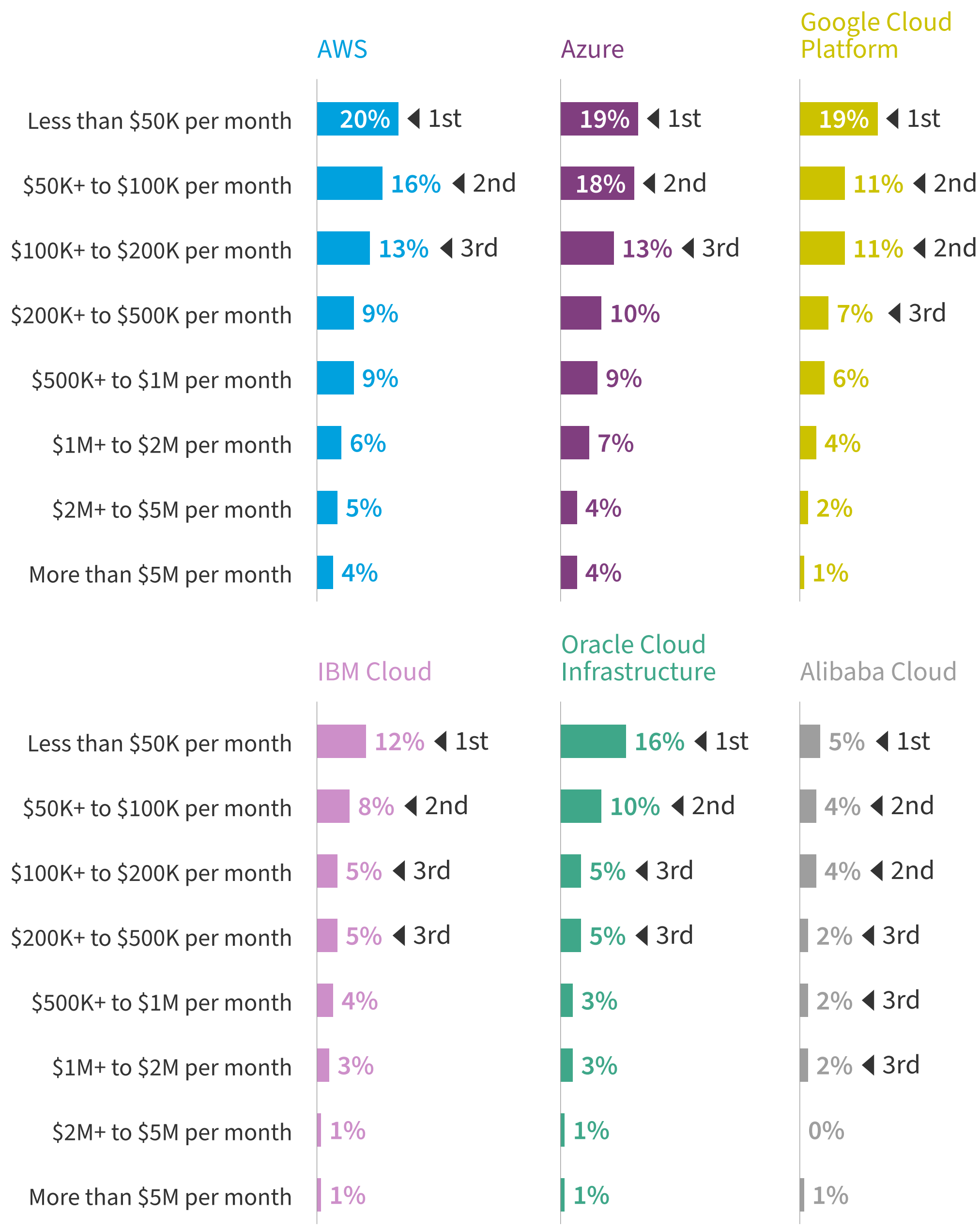
Enterprise public cloud spend



N=627
Source: Flexera 2023 State of the Cloud Report

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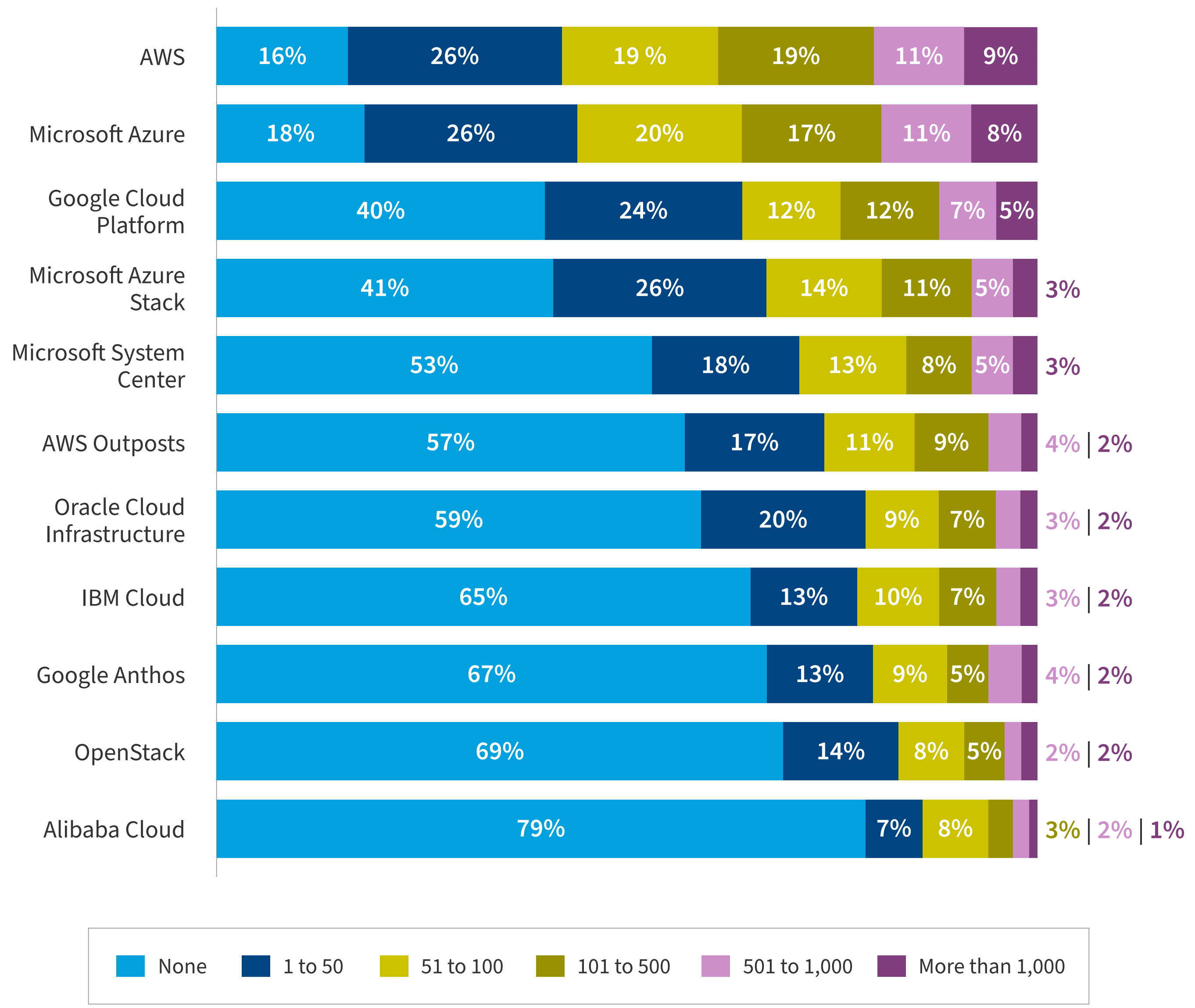
The number of virtual machines (VMs), or instances running in each cloud, provides additional insight into the size of an organization's footprint within them. *AWS* and *Microsoft Azure* lead among the larger footprint sizes of 500+ instances. *Microsoft Azure Stack* has more large-footprint deployments than either *AWS Outposts* or *Google Anthos*.

How many VMs do you have in each cloud provider?



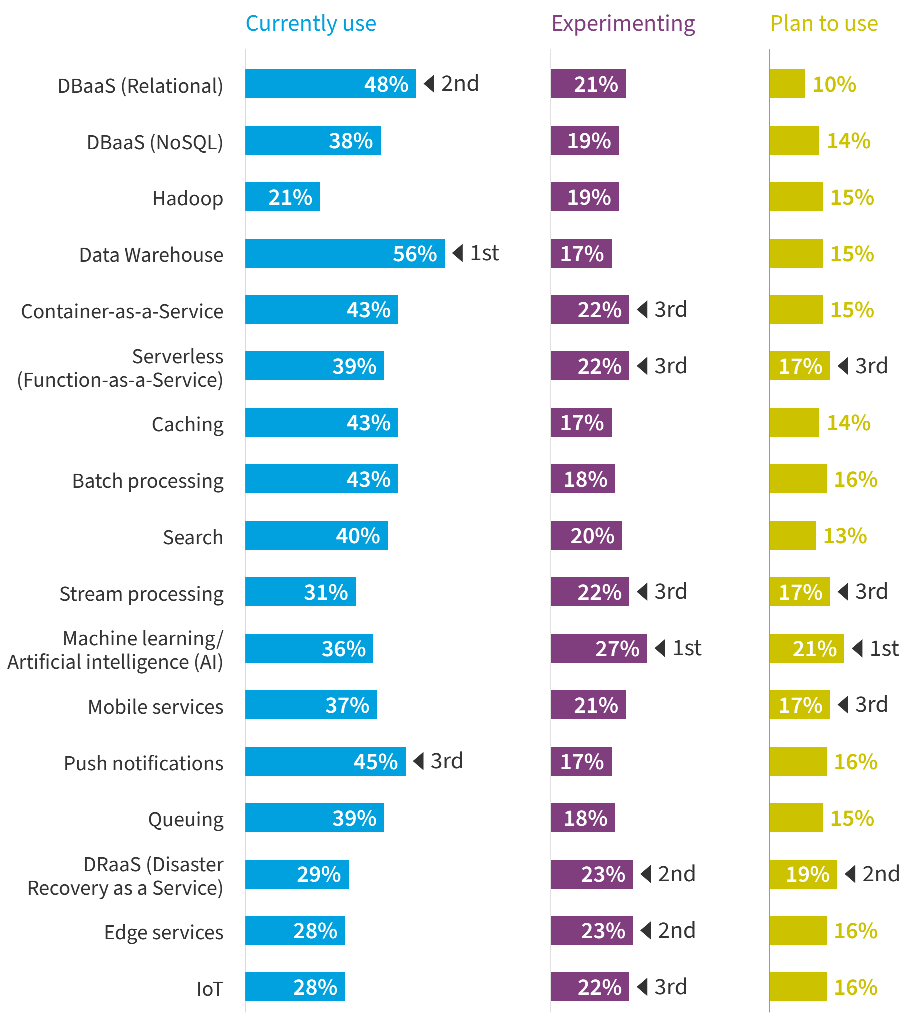
N=750
Source: Flexera 2023 State of the Cloud Report

Use of public cloud PaaS services is increasing

Similar to last year, *data warehouse* is the most commonly used PaaS offering, followed by *DBaaS (relational)*. *Machine learning/artificial intelligence* is being experimented with more than any other service and, not surprisingly, it's the leading PaaS offering that is being planned to use.

The highest percentages of enterprises report experimenting with or planning to use *machine learning/artificial intelligence, edge services* and *stream processing.*

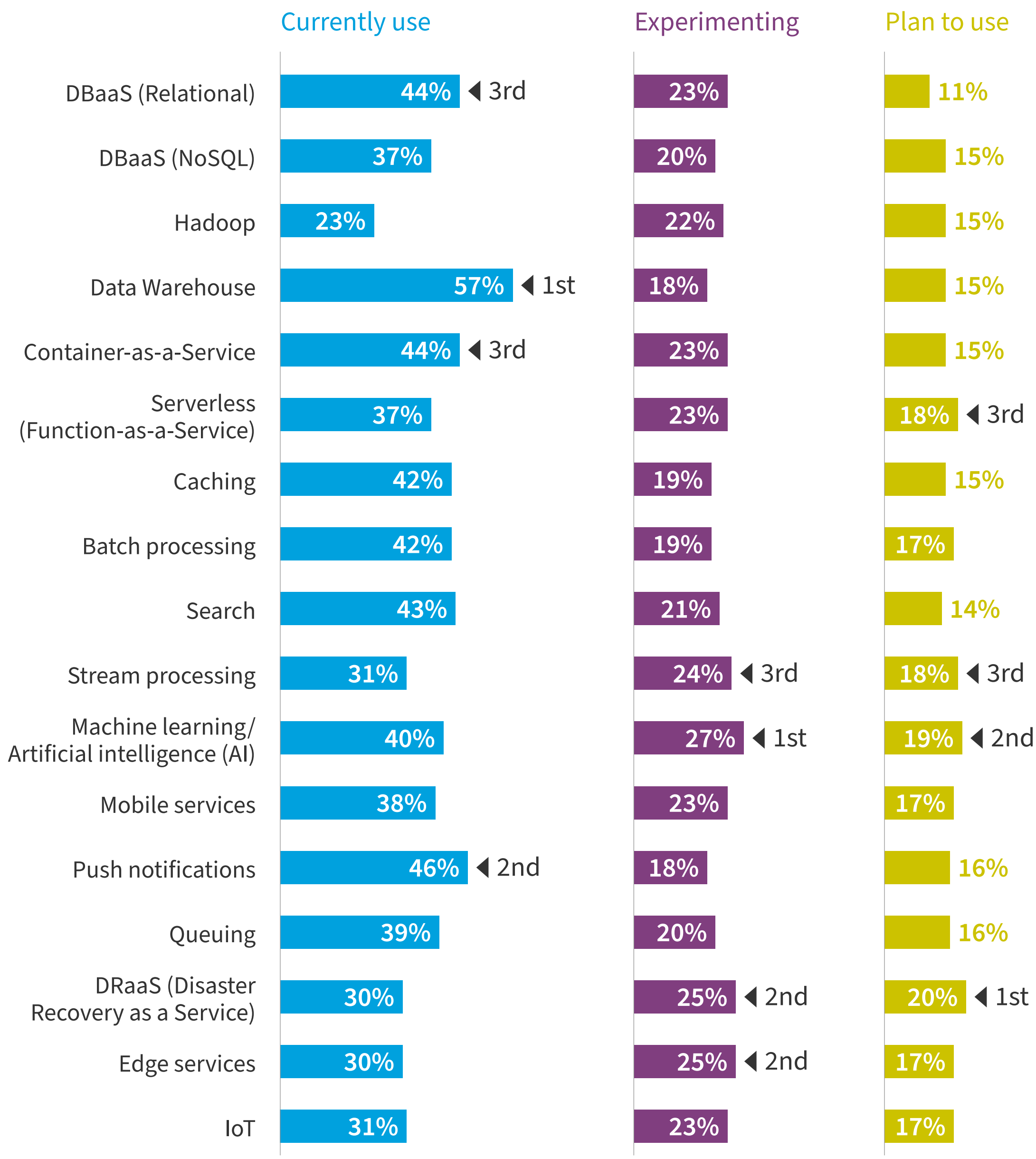
Public cloud services used for all organizations



Nearly half (48%) of respondents are experimenting or planning to use machine learning/artificial intelligence (AI)

N=750
Source: Flexera 2023 State of the Cloud Report

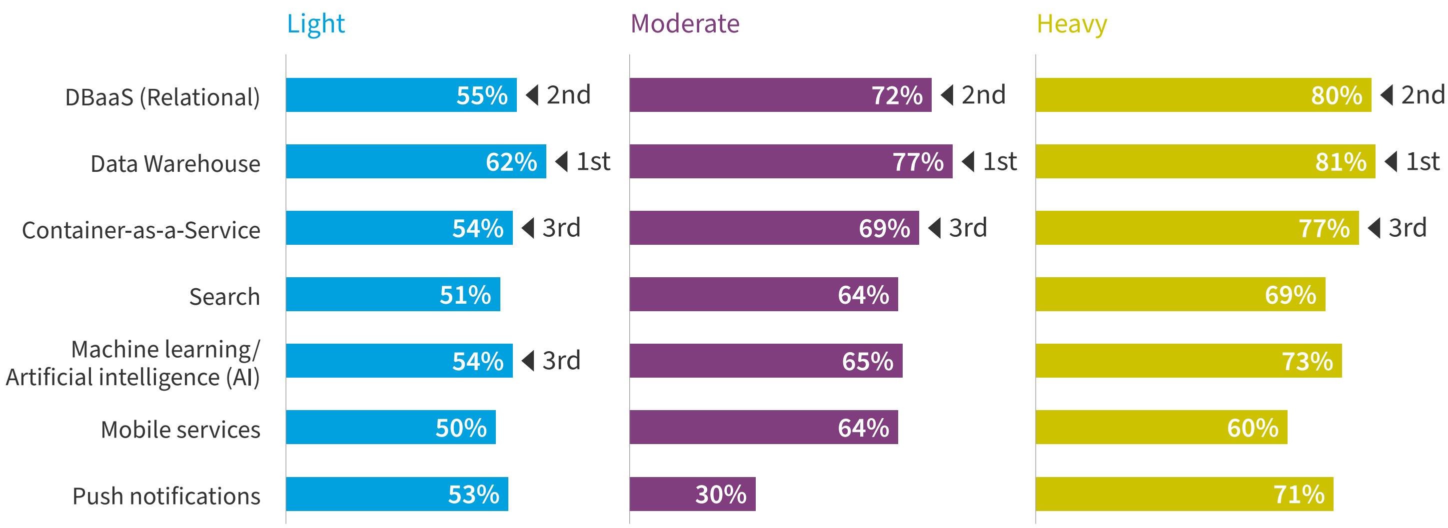
Public cloud services used by enterprises



N=627
Source: Flexera 2023 State of the Cloud Report

Organizations continue to increase their use of PaaS services as overall cloud usage rises. *Data warehouse, DBaaS (relational)* and *container-as-a-service* lead the pack with heavy users.

PaaS services used based on cloud usage levels

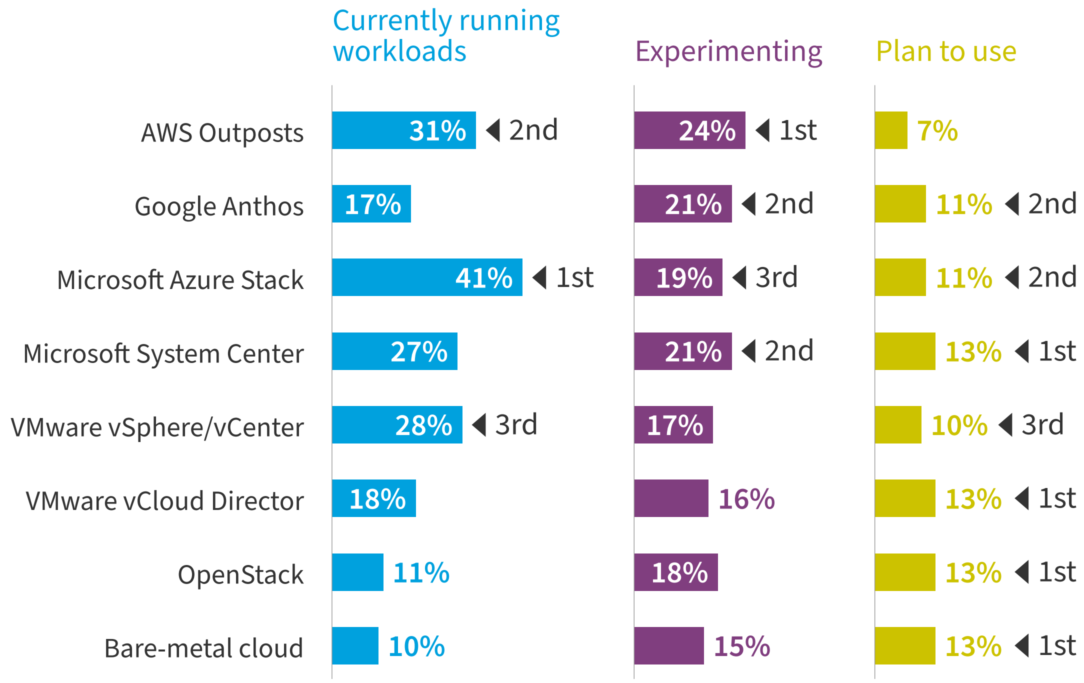


N=750
Source: Flexera 2023 State of the Cloud Report

Private cloud plays an important role

Most organizations are taking a multi-cloud, hybrid approach in which private cloud plays an essential role. *Microsoft Azure Stack* ranked first, with 41% currently running workloads, up from 37% last year. *AWS Outposts* switched places with *VMware vSphere/vCenter* for second place. Others remain relatively unchanged, with the exception of *OpenStack*, which continued its downward slide the past few years, dropping to 11% this year from 15% last year.

Private cloud technologies used for all organizations

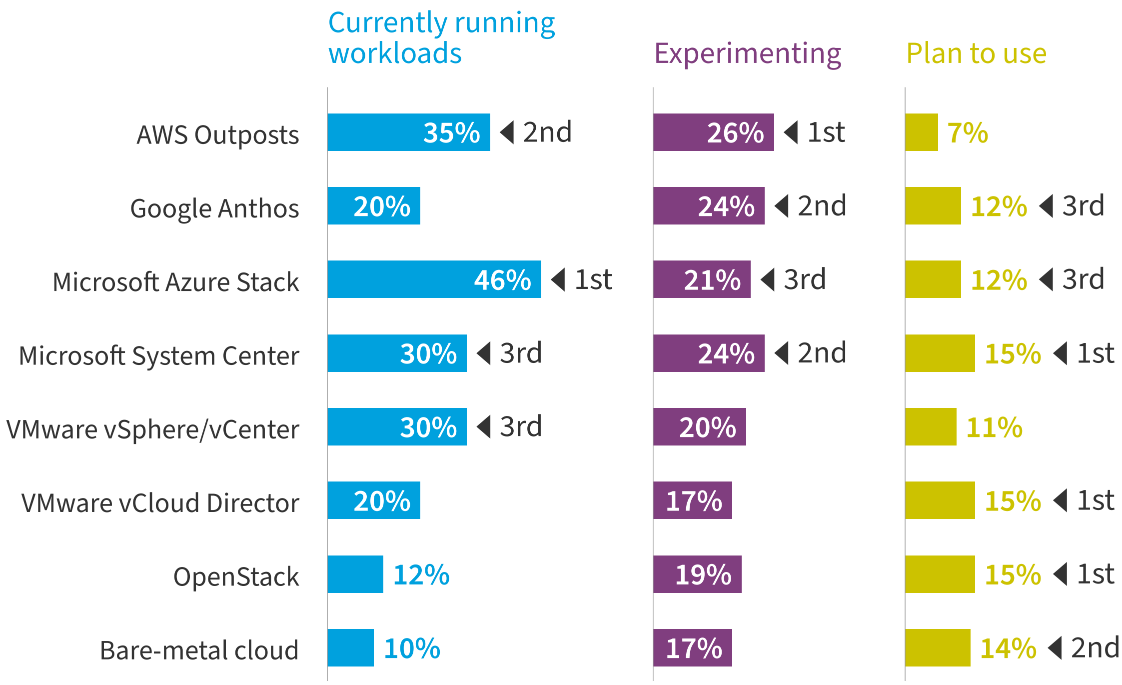


N=750
Source: Flexera 2023 State of the Cloud Report

flexera

Microsoft Azure Stack continues to lead the way among enterprises, increasing from 38% to 46% in current use year over year. *AWS Outposts* ranks second, followed closely by *VMware vSphere/vCenter* and *VMware System Center*, which maintain results similar to last year.

Enterprise private cloud technologies

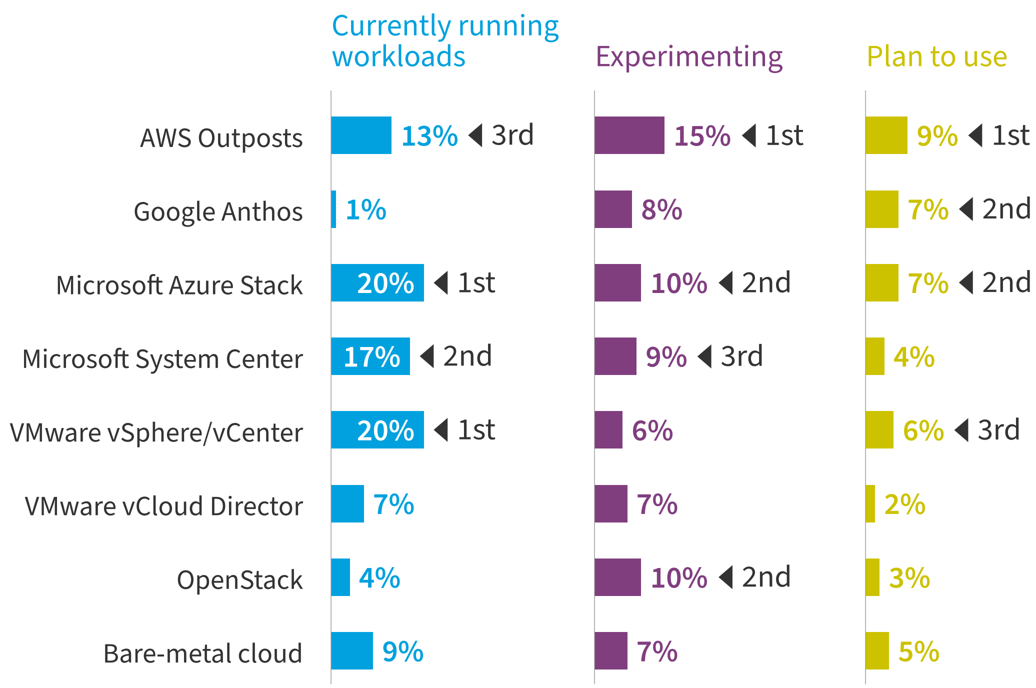


N=627
Source: Flexera 2023 State of the Cloud Report

flexera

Microsoft System Center and *Microsoft Azure Stack* remain in or near the lead for SMBs. Still, *VMware vSphere/vCenter* made slight gains this year to move into a tie for first. *OpenStack* and *Google Anthos* saw significant decreases this year.

SMB private cloud technologies



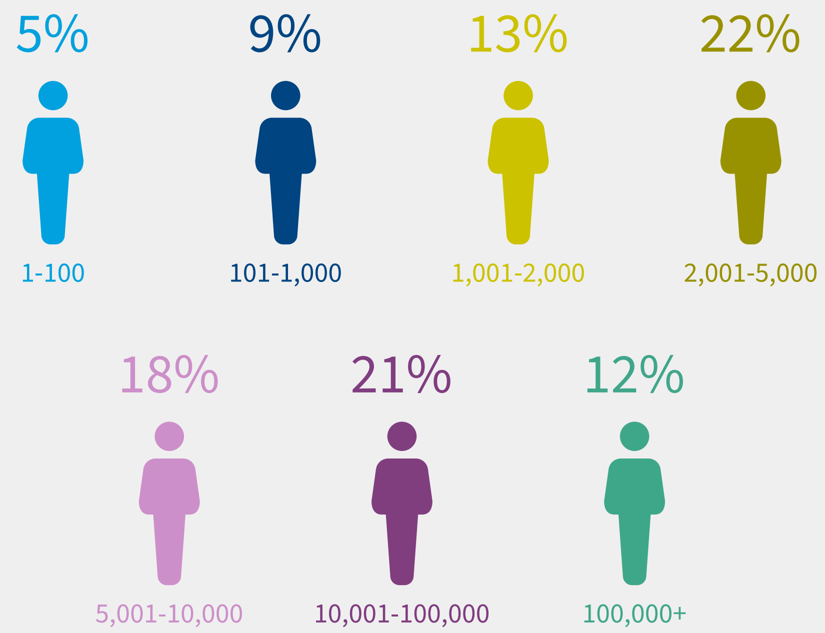
N=123
Source: Flexera 2023 State of the Cloud Report

OpenStack and Google Anthos saw
significant decreases among SMBs

State of the Cloud Report: European spotlight

European distribution is very similar to that of the global respondent pool, with 33% coming from organizations of 10,000+ (compared to 32% globally).

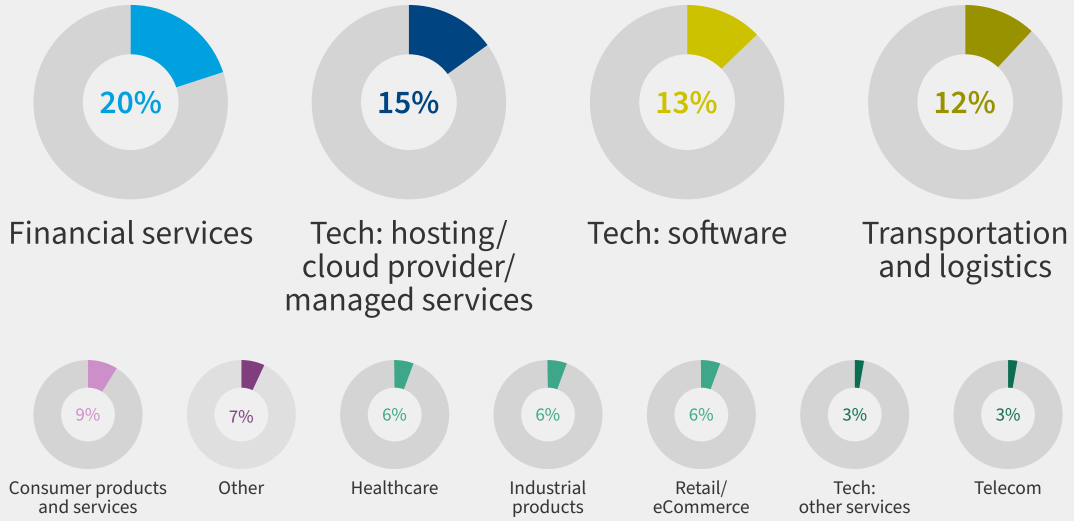
European respondents by organization size



N=143
Source: Flexera 2023 State of the Cloud Report

The industry breakdown for European respondents is similar to that of the global survey: heavily weighted toward *financial services* and *technology*. There were fewer respondents from *healthcare organizations* (6% compared to 11% globally) and more *transportation organizations* (12% compared to 5% globally).

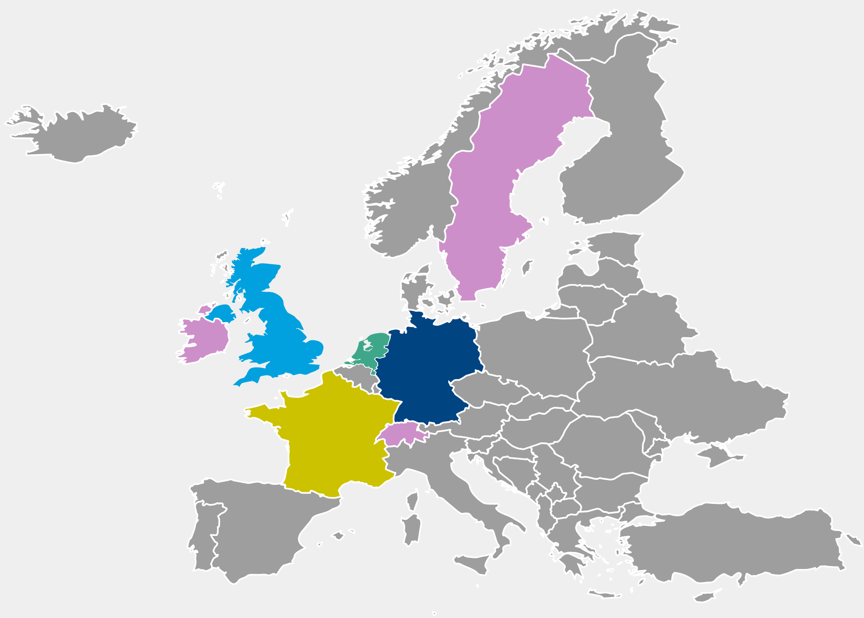
European respondents by industry



N=143
Source: Flexera 2023 State of the Cloud Report

As in years past, European respondents' organizations are mostly headquartered in the United Kingdom (62% this year compared to 41% last year). *Other Europe* includes any country with less than 1% of respondents.

European respondents by country

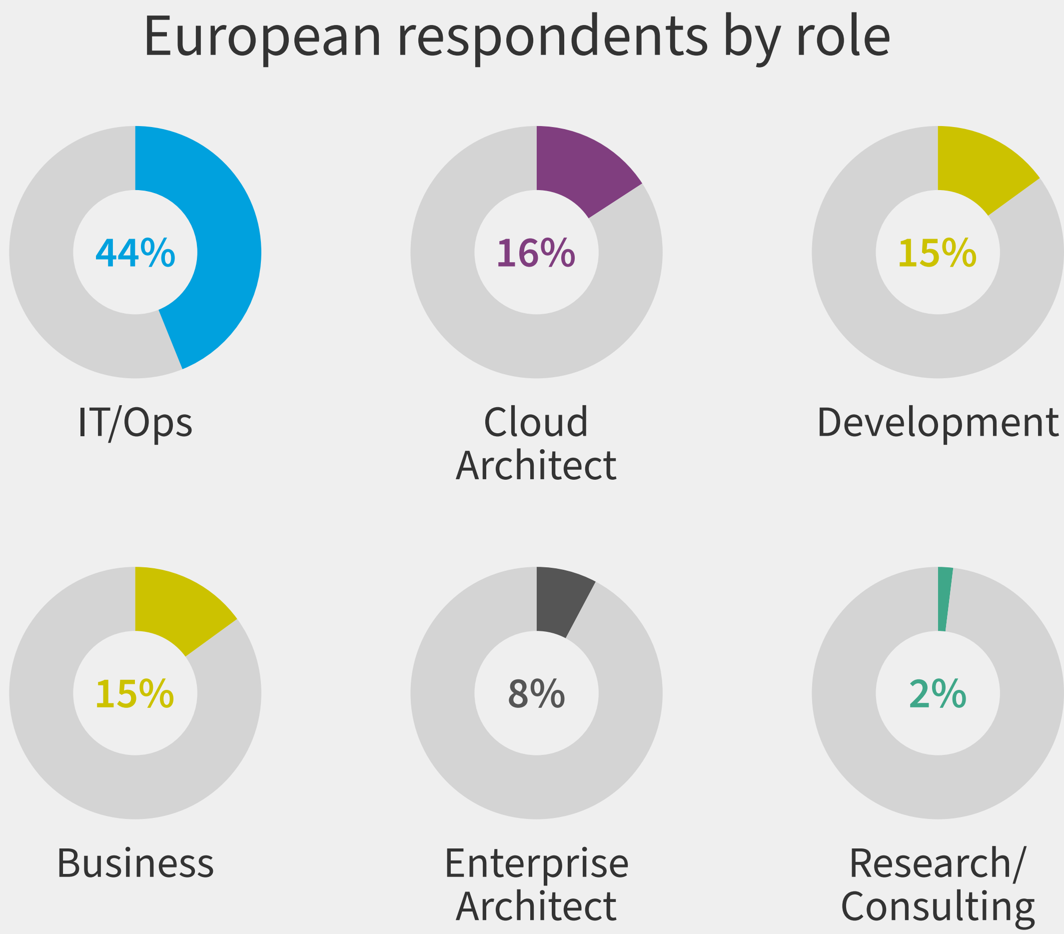


United Kingdom	62%
Other Europe	15%
Germany	11%
France	7%
Netherlands	2%
Ireland	1%
Sweden	1%
Switzerland	1%

N=143
Source: Flexera 2023 State of the Cloud Report

flexera

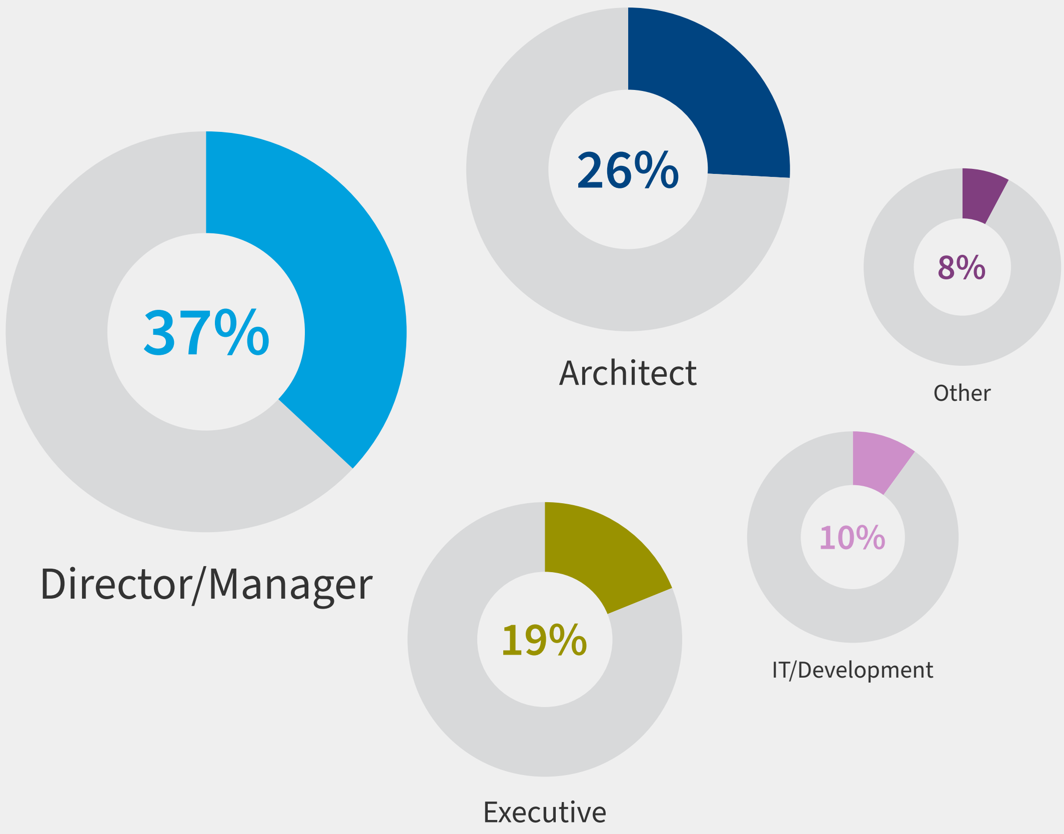
Global and European data is consistent across respondent pools.



N=143
Source: Flexera 2023 State of the Cloud Report

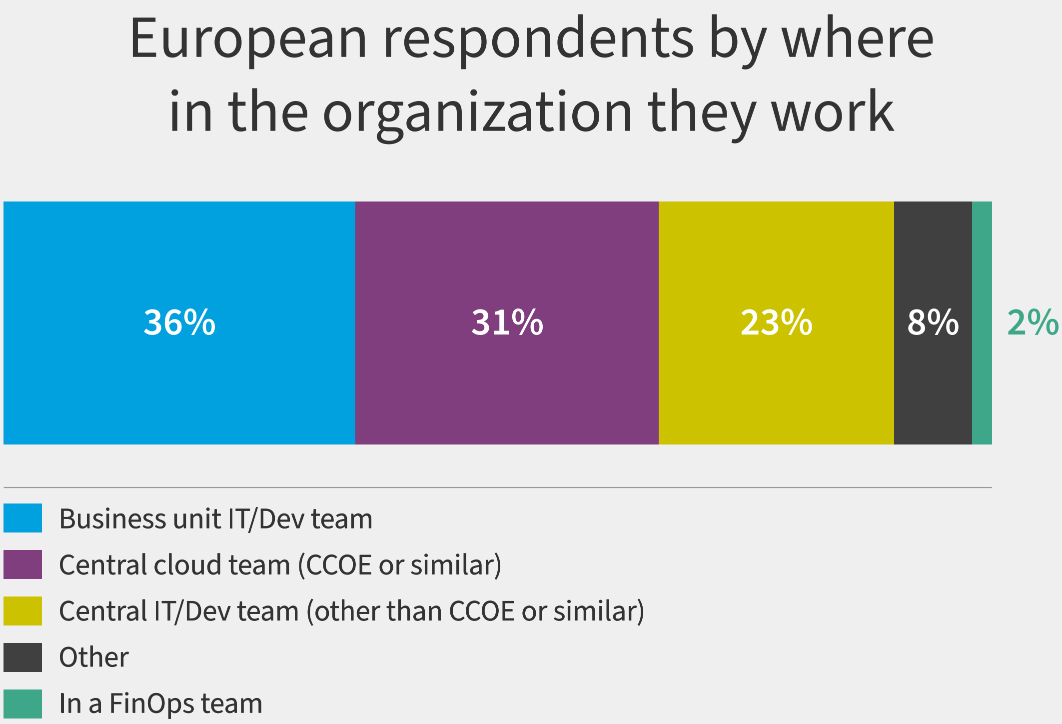
European respondents have slightly fewer architects than the global pool (26% to 29%, respectively) and more director/managers (37% to 31%, respectively).

European respondents by level



N=143
Source: Flexera 2023 State of the Cloud Report

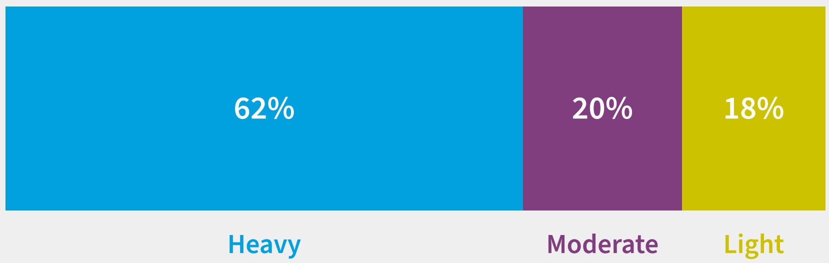
European respondents have similar numbers working in a CCOE, but very few working in FinOps teams (2% vs. 9% globally).



N=143
Source: Flexera 2023 State of the Cloud Report

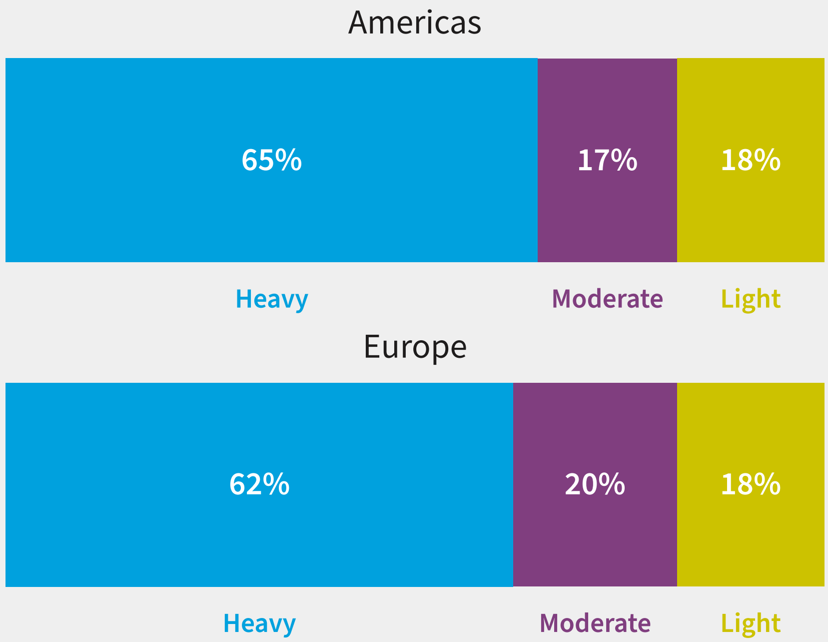
Sixty-two percent of European respondents are heavy users this year, compared to 65% globally and 58% of European heavy users last year.

European respondents by cloud usage level



N=143
Source: Flexera 2023 State of the Cloud Report

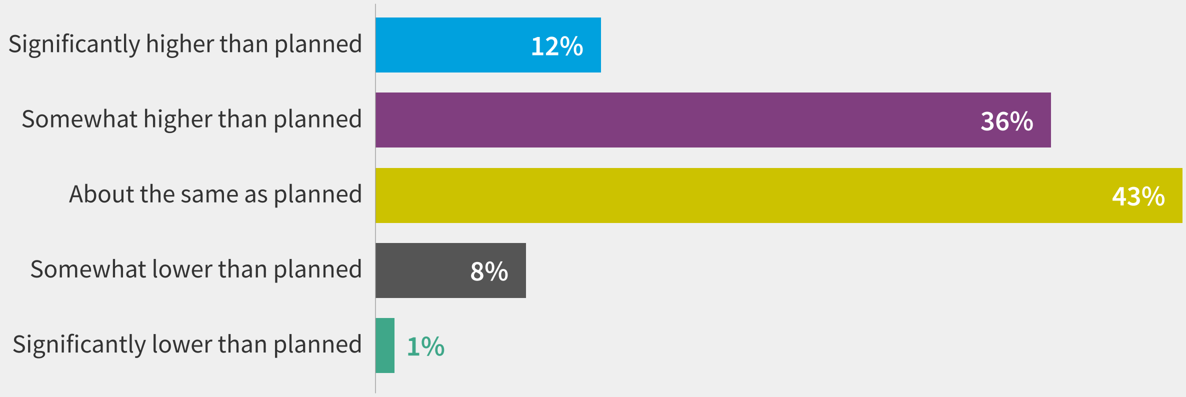
Comparison of cloud usage level between the Americas and Europe



Americas: N=512, Europe: N=143
Source: Flexera 2023 State of the Cloud Report

Despite economic uncertainty, 91% of European respondents kept cloud spending at the same level or increased it.

European response to how economic uncertainty is changing expected cloud usage and spend



N=143
Source: Flexera 2023 State of the Cloud Report

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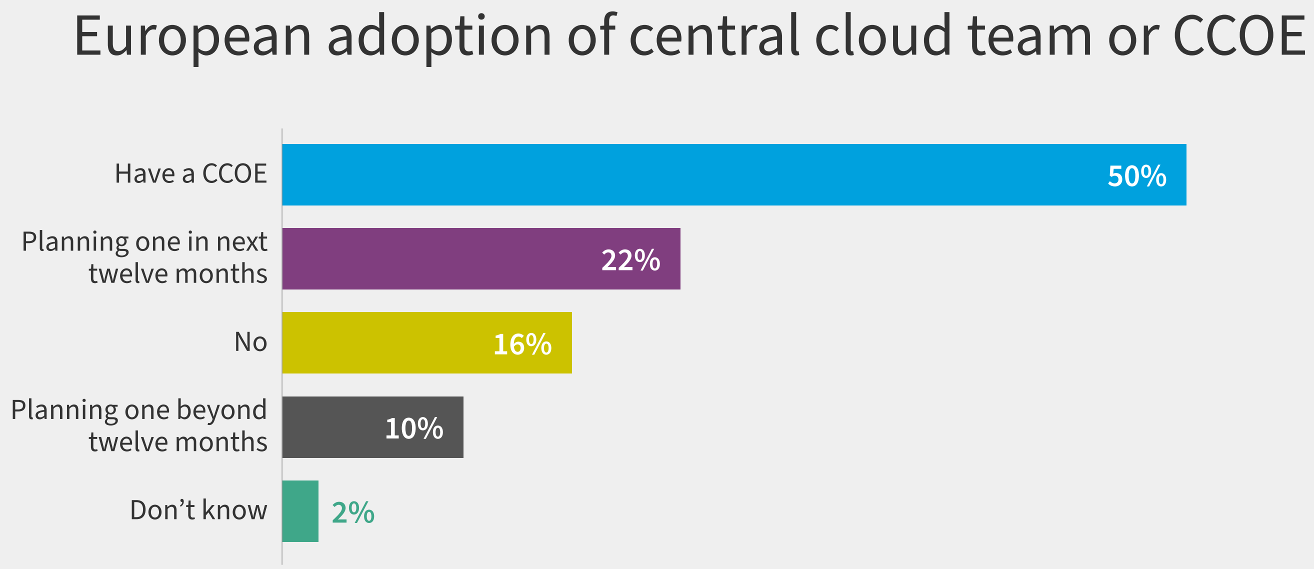
Similar to global sentiments, **economic uncertainty doesn't seem to have a significant impact** on cloud usage and spend for European respondents

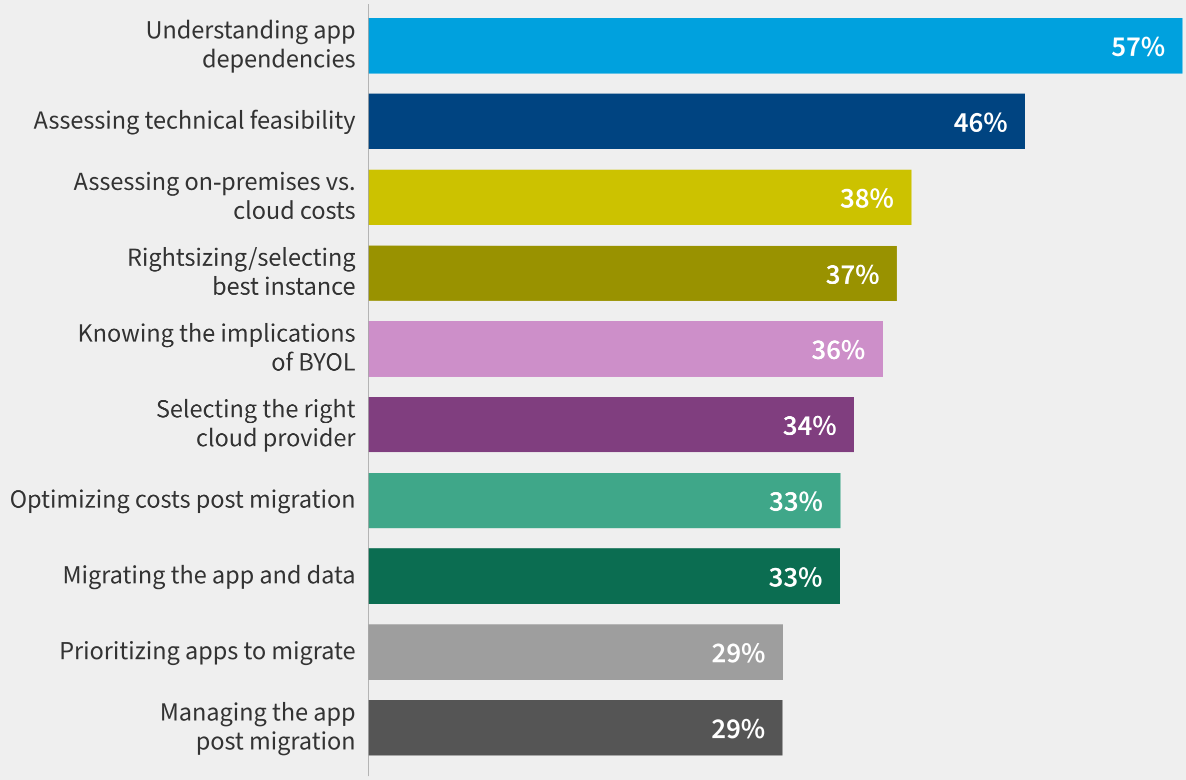
The majority of European organizations have a CCOE (50%) or plan to within the next year (22%).



N=143
Source: Flexera 2023 State of the Cloud Report

Understanding app dependencies is the top challenge in Europe (57% vs. 49% globally). *Rightsizing/selecting best instance* is slightly less of an obstacle (37% vs. 42% globally). Other categories remain relatively consistent regardless of geography.

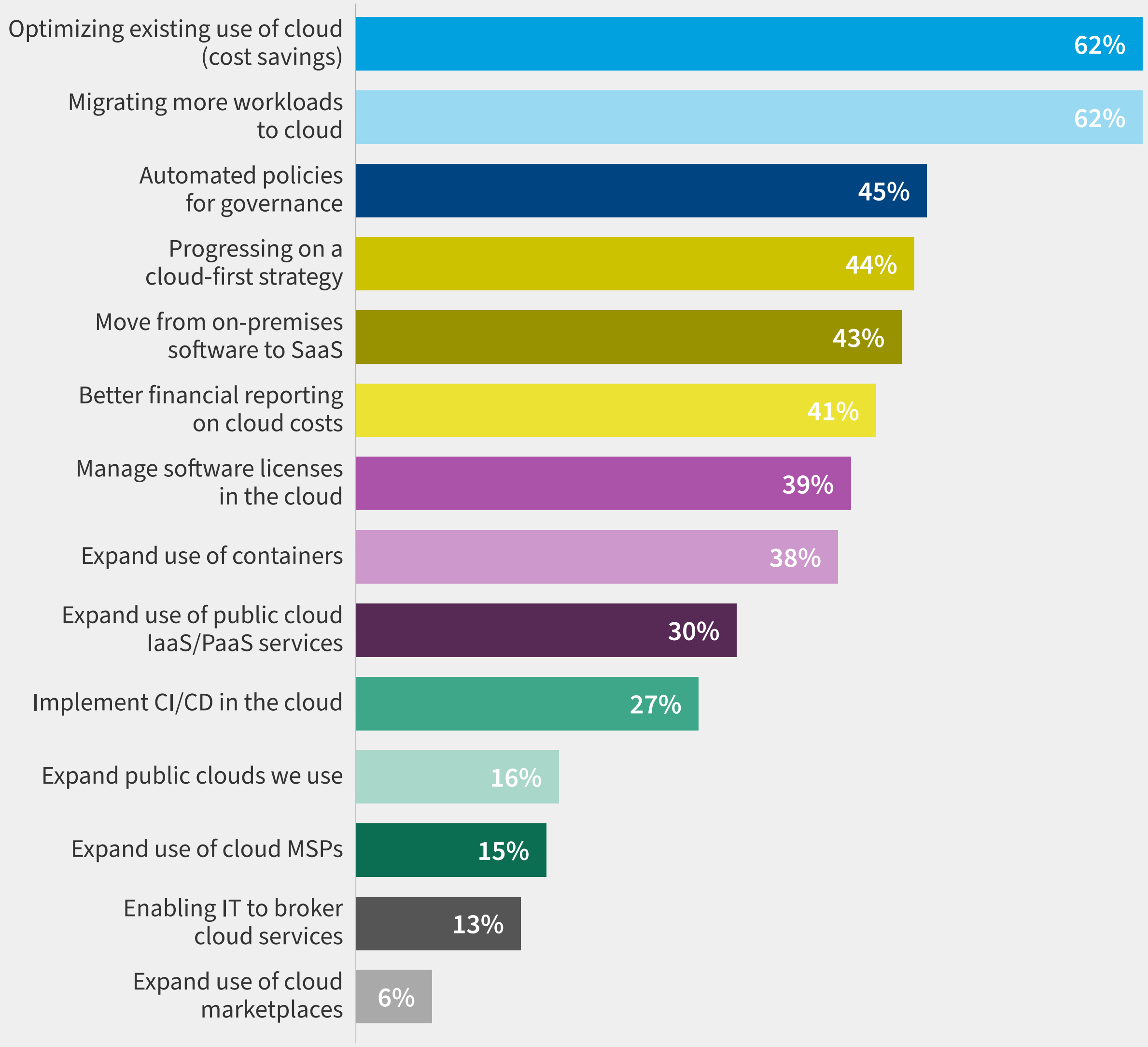
Cloud migration challenges for European organizations



N=143
Source: Flexera 2023 State of the Cloud Report

The top initiative in Europe is *optimizing existing use of cloud (cost savings)*. *Migrating more workloads to cloud* was more of a challenge for European respondents (62% vs. 44% globally), while *progressing on a cloud-first strategy* ranked lower than the global figure (44% vs. 55%, respectively).

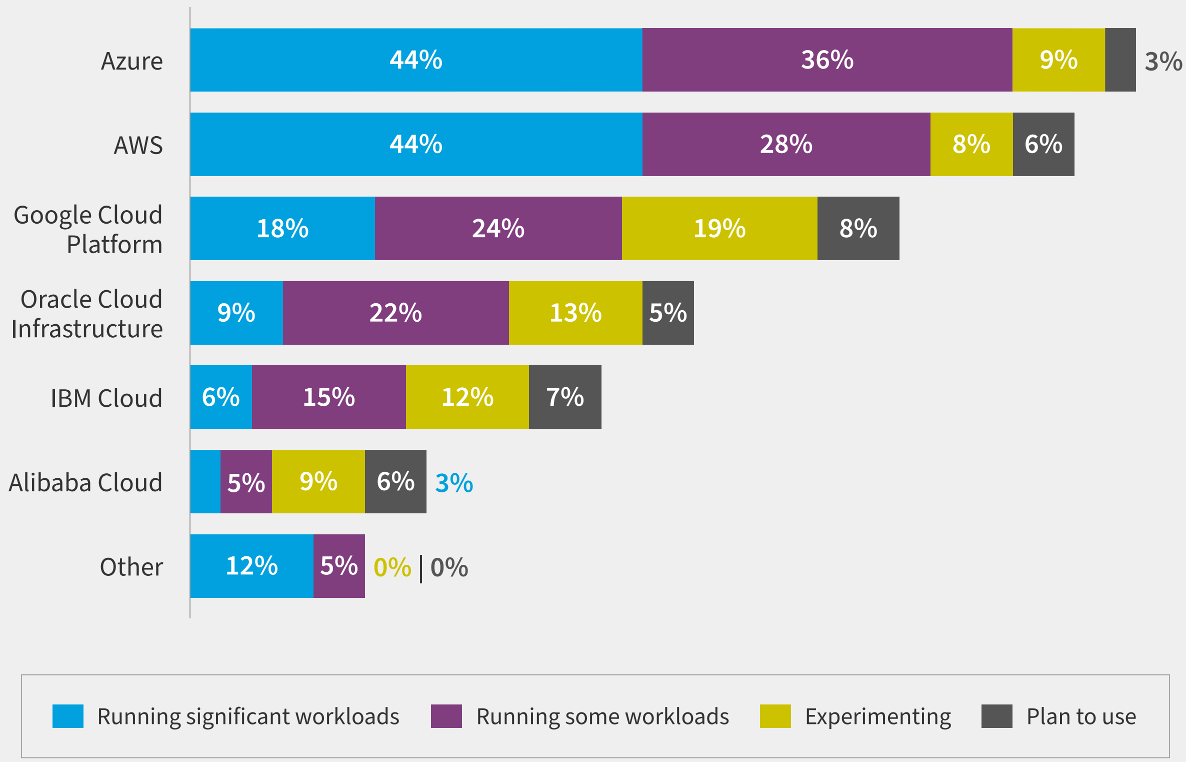
Cloud initiatives for European organizations



N=143
Source: Flexera 2023 State of the Cloud Report

European cloud usage is also similar to the global survey. One regional difference is in *experimenting* and *plan to use*. Globally, *Oracle Cloud Infrastructure* ranks highest, while in Europe, *Google Cloud Platform* is the highest.

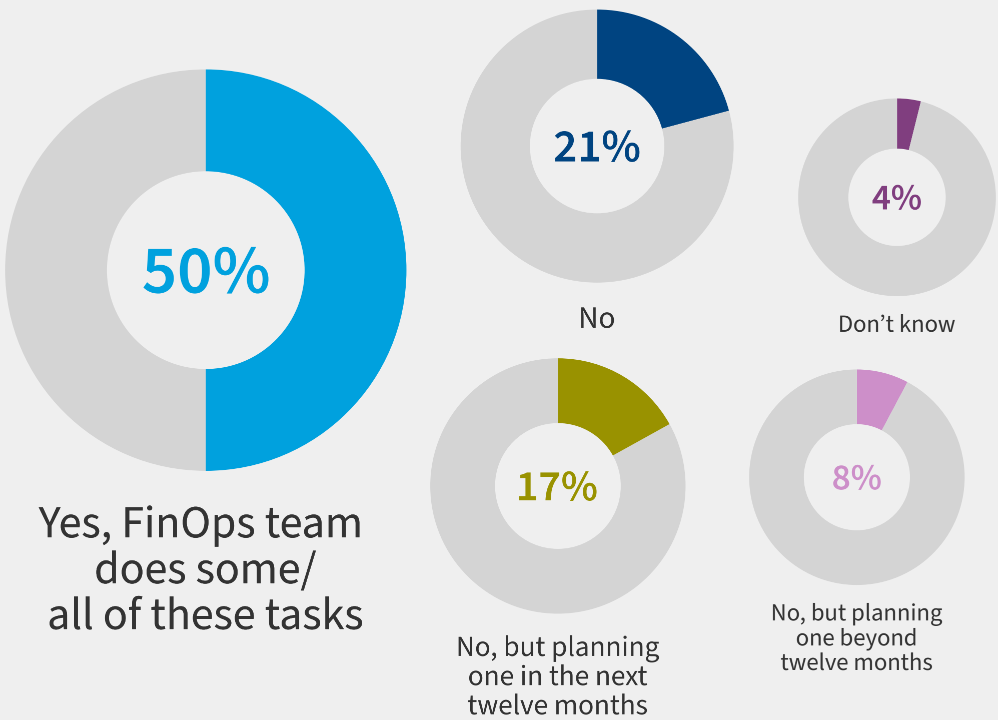
Public cloud provider adoption rates for European organizations



N=143
Source: Flexera 2023 State of the Cloud Report

Half of European organizations are likely to have a FinOps team, compared to 56% globally.

Does your European company have a FinOps team to advise, manage or execute cloud cost optimization strategies?



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Source: Flexera 2023 State of the Cloud Report

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The cloud: an engine of innovation

The world has experienced extraordinary disruption in the past few years, fueled by the global pandemic, the Great Resignation and economic uncertainty. And while organizations of all sizes are prioritizing every dollar of spend, the cloud and technology will weather economic storms. Those enterprises that remain focused on digital transformation, seizing new opportunities and evolving strategic initiatives through a cost-conscious lens will be better positioned for success than their competitors.

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