Cloud Computing Study 2023

The balancing act of cloud expansion

Cloud adoption is continuing at pace, yet there are signs that the frenzied activity that characterized the pandemic period is easing somewhat.

Slowing adoption rates come at a time when a significant portion of the IT estate targeted for the cloud has already been migrated or is in the process of moving over. At the same time, cost management and security issues have become rising challenges for many companies as their cloud footprint expands, potentially dampening the speed of migration.

The 2023 Cloud Computing Survey from Foundry canvassed 893 IT decision-makers involved in the purchase process for cloud computing and who have or plan to have at least one application or portion of their infrastructure in the cloud. The survey is designed to measure cloud computing trends and shine a spotlight on usage and practices while exploring cloud's impact on business strategy and plans.

According to this year's survey, 57% of responding organizations have stepped up migration to the cloud over the past 12 months—a significantly smaller percentage than the 69% reported in 2022. Companies in the high-tech and financial services sectors are more likely to be accelerating cloud migration in line with last year's pace, at 61% and 64%, respectively, as are larger enterprises with over 1,000 employees (65%).

65%

of IT decision-makers agree that their organization is defaulting to cloud-based services when upgrading or purchasing new technical capabilities

Sixty-five percent of companies confirmed their organization is defaulting to cloud-based services when upgrading or purchasing new technical capabilities, down from the 72% reporting in Foundry's 2022 Cloud Computing Survey. Respondents in the education (70%) and healthcare (68%) sectors showed a higher propensity for defaulting to cloud-based services when upgrading or purchasing new technical capabilities, although their rate of adoption still trails last year.

Overall, cloud capabilities were credited for achieving increased and sustainable revenue over the last year, a benefit cited by half of this year's respondent pool (50%). Even so, that figure is 10 percentage points lower than those attributing similar benefits to cloud in the prior-year survey. Those in the high-tech sector (60%) are faring better than other industries in leveraging cloud capabilities to increase or sustain revenue as are the largest enterprises with over 5,000 employees (61%). Government and non-profit entities (35%) and companies with under 500 employees (43%) are having more trouble translating cloud's advantages into specific revenue goals.

Mapping cloud's footprint

Given the still steady pace of cloud adoption, it makes sense that the portion of the IT estate now ensconced in the cloud is higher than what was reported last year. Respondents to the 2023 Cloud Computing Survey said more than half (52.1%) of their total IT environment, including infrastructure, applications, and data analytics has been shifted to the cloud, up from 41% last year. The ratio of the cloud-based IT environment is expected to grow to 63% over the next 18 months, consistent with the benchmark established in the 2022 survey and fairly consistent across industries with the exception of the services and retail sectors, at 66%.

Taking a regional lens, companies in the United Kingdom currently maintain far more of their IT environment in the cloud (67%) while South Korean firms remain committed to a traditional on-premises model (60%). Eighteen months from now, U.K. companies expect three quarters of their IT environment

Majority of IT environments in the cloud

Today		In 18 months	
52%	**48%**	**63%**	**37%**
in cloud	on premise	in cloud	on premise
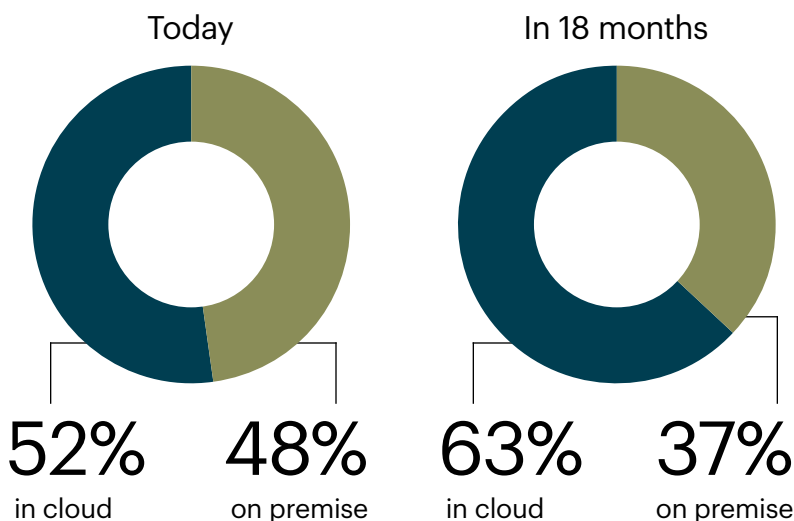
to have migrated to the cloud—far more than any other global region.

The majority of applications making their way to the cloud were previously deployed in an on-premises environment, 54% compared to 46% of applications that were purpose-built for the cloud, according to this year's survey. Companies in the retail (61%) and government/non-profit sectors (63%) were more apt to be migrating applications from an on-premises environment to the cloud while companies in manufacturing (50%) and the services (49%) sectors are opting to build cloud-native applications as opposed to migrating existing systems.

Multicloud appears to be the dominant architecture, with 36% of respondents evaluating/ researching and nearly a quarter (24%) in the process of deploying this approach. The largest companies (over 5,000 employees) were more likely to have already fully deployed a multicloud architecture (18%). Slightly more than a quarter (27%) of cross-industry respondents have no plans to leverage multicloud architectures, much higher among respondents in the services sector (40%).

Business continuity and legacy updates remain the key drivers behind cloud investments, cited by 40% of respondents as the top business objective for migration and similar to last year. Lowering the

total cost of ownership (TCO) was the second most-cited business objective for cloud investments, at 34%, and higher among education (45%) and retail (44%) respondents. Improving employee productivity and greater flexibility to react to market conditions were other prominent business objectives cited by 32% of respondents.

What business objectives are driving cloud investments?

1. Enabling disaster recovery and business continuity
2. Replacing on-premise legacy technology
3. Lower total cost of ownership (TCO)
4. Improving employee productivity
5. Greater flexibility to react to changing market conditions

Faster return on investment (12%), revenue expansion opportunities (14%), and the need for real-time information and gaining a competitive advantage (19%) were far less likely to be driving cloud investments, according to this year's respondent pool.

Cost control, security remain challenges to adoption

Despite the still robust pace of adoption, there are obstacles hindering or slowing

cloud migration. As with last year, cost control remains a major factor for companies across all industries, cited by more than a third (35%) of respondents and in line with the 36% cited last year. The expenses associated with moving data into and between clouds, cited by 21%, is another contributor to cost control challenges. Respondents in the high tech (40%) and services (41%) sectors are having a tougher time reining in costs, perhaps because they are accelerating cloud migration faster than other sectors. On a global scale, Australia (43%), South Korea (41%), and the entire APAC region (40%) point to the struggle to control costs as a major inhibitor to cloud adoption.

83%

of organizations have practices in place to manage cloud services costs

Nevertheless, companies are taking a number of steps to manage the cost of cloud services. Forty-five percent are setting spending budgets and alerts, a more popular tactic in the education (53%) and financial services (50%) sectors. Implementing cost optimization strategies (for example, shutting off unused resources) is another popular tactic, employed by 42% of respondents and higher among high-tech and healthcare companies (both at 49%).

Automation and FinOps practices are also gaining ground as a way to curb cloud costs. Thirty-seven percent of respondents are using automation to monitor and allocate resources based on demand, higher among larger enterprises (45%) compared to 29% of companies with less than 1,000 employees. More than a quarter (28%) of respondents are starting to leverage cost management/FinOps tools—a practice significantly higher among high-tech firms (38%) and larger enterprise (with over 5,000 employees), at 37%. Canadian companies were a lot further along executing FinOps practices to help with cloud cost control, at 46%.

Beyond costs, data privacy in the cloud remains a significant obstacle for companies, cited by nearly a third (31%) and significantly higher among healthcare companies (41%). The on-going IT skills shortage, particularly the lack of talent adept in cloud security skills and practices, was an issue for nearly a quarter (24%) of respondents and particularly acute for companies in the healthcare (37%) and manufacturing (31%) sectors.

Security concerns and budgetary/cost control issues were the most likely reason responding companies cited for why they decided to repatriate cloud applications or services. More than a third (37%) of respondents cited security concerns as the impetus for moving systems and services out of the cloud while 33% pointed to cost control issues and 29% flagged performance and reliability struggles.

Almost one third (30%) of companies responding to this year's survey said they have not repatriated any cloud applications or services—a scenario much higher among government and non-profit entities (47%). Companies in Australia (37%), the United States (36%), and Germany (36%) were more likely to have avoided any repatriation of cloud-based applications and services.

Cloud budgets remain strong

IT budgets remain flush, and spending on cloud resources continue to maintain a healthy proportion of overall technology spend. According to the 2023 Cloud Computing Survey, the average total IT budget over the next 12 months is $162 million, higher among larger enterprises (with over 1,000 employees) at $293 million, and less for those under 1,000 employees, on average, $42 million. Companies in the financial services sector maintained higher than average IT budgets, at $256.8 million, and surprisingly, so did companies in the manufacturing space, at $204 million.

31%

of the total IT budget will be allocated to cloud computing over the next 12 months

Of that bounty, about a third (31%) of the spend will be directed at cloud computing purchases over the next 12 months, higher among respondents in

> ## Why have 70% of organizations brought certain cloud apps or services back to on-premises?
> 1. Security concerns
> 2. Budget/cost control
> 3. Performance/reliability issues

the United States (34.8%) and EMEA and Australia (33.5%). Looking forward, 66% of respondents across segments anticipate cloud spending to increase over the next year, with 28% keeping cloud spend stationary, and 6% reporting plans to cut back on cloud spending. The expectation of how cloud spending is projected to change over the next year remained pretty consistent across global regions.

Overwhelmingly, IT dominates decision-making over cloud expenditures. 2023 Cloud Computing Survey respondents report that IT controls close to three quarters (72%) of the spending decisions compared to line of business users, which have the last word on 28% of cloud spend. Line of business users in EMEA were more likely to have a hand in cloud spending decisions (36.5%), the survey found.

Organizations are adding positions to support their growing cloud footprint, a reality cited by more than three quarters (78%) of respondents, and significantly higher among larger enterprises (90%). Among the new roles and functions being

New roles added as a result of cloud investments:

1. Cloud architect
2. Cloud systems administrator
3. DevOps engineer
4. Cloud systems engineer
5. Cloud software engineer

put into the mix are cloud architect (30%), cloud systems administrator (27%), and DevOps engineer (21%). FinOps specialists were far less common, cited by only 10% of respondents, and 22% said they had not yet added any new positions to accommodate more widespread use of cloud.

What's on tap for cloud migration

Website and web apps are the most likely applications or workloads to currently be deployed in the cloud, cited by 44% of respondents, and followed by collaboration and communication solutions (43%) and storage/archive and backup/file servers (34%). Companies were also in the midst of migrating or deploying enterprise business apps (CRM/ERP/HRM), at 33%, to cloud followed by database (SQL, NoSQL) at 32% and disaster recovery/high availability, at 31%.

Across the board, financial services respondents were more likely to have already migrated applications and workloads. Government and non-profit organizations consistently were more likely to have migrated applications and workloads to cloud, yet planning to switch to a different cloud model. The financial services and education sectors featured more prominently among respondents saying they had plans to move already migrated applications out of the cloud.

Of the applications and services that have already transitioned to cloud, only a small number are slated to be moved out of the environment with representation across the board. Websites/web apps, identity and access management, disaster recovery/high availability, mobile apps, BI/data warehouse/analytics, and API management are among those applications and services earmarked to move out of the cloud, yet that strategy was only cited by 8% of respondents. AI and machine learning applications and workloads are the most likely to be shifted to a different cloud platform after their original

Top plans for migrating applications to the cloud

AI/machine learning applications	**35%**
Data integration	**34%**
Disaster recovery/ high availability	**33%**

migration (9%) to cloud, and AI/ML (9%) and development and test (7%) are the most likely to be built from scratch for cloud. By far, respondents said they had no plans to deploy Internet of Things (IoT) applications in the cloud, cited by 37%.

Which cloud capabilities are organizations most likely to adopt?

AI/machine learning	**53%**
Cloud-based security	**46%**
Disaster recovery	**46%**
Software-as-a-Service	**40%**
Big data/analytics	**38%**

Industry-specific instances of SaaS applications like Salesforce.com or cloud apps and services built specifically to accommodate a particular industry remain popular. Nearly half (48%) of respondents are currently using such platforms while 22% confirmed plans for adoption. Companies in North America (54%), EMEA (52%), and Australia (59%) were already using industry-specific cloud apps while companies in APAC were far less inclined (38%).

Looking forward, development and test workloads (16%) topped the list of workloads slated to move to cloud over the next 12 months while AI (20%) and

enterprise line of business applications like CRM/ERP/HRMS (20%) are on the docket for migration over the next one to three years.

Respondents' plans for using or adopting cloud capabilities over the next year are most likely to be in the areas of AI/ML (53%), cloud-based security (46%), and Software-as-a-Service (40%). Data center infrastructure-as-a-Service (23%) and Security-as-a-Service (23%) were less likely to be part of organizations' cloud roadmap over the next year. In terms of growth, AI/ML was overwhelmingly the top pick, at 48%, with big data/analytics (27%) and cloud-based security (25%) following suit. Companies in the services (60%) and high-tech (56%) sectors were likely to cite AI/ML as a top growth area for cloud as were responding companies in APAC (51%) and North America (49%).

Public cloud providers have a role to play in advancing organizations' cloud deployments, although respondents were split on the criticality of their engagement. Thirty-eight percent of respondents considered public cloud providers to be strategic partners even if they were deployed in multiple public clouds, while 37% did not see them as a strategic resource. Respondents in Australia (53%) and the United States (44%) were more likely to view public cloud providers as a strategic partner.

Respondents are looking to cloud providers to help successfully advance their cloud strategies and deployments. Respondents were primarily seeking assistance with cost management capabilities, at 37%. Security expertise (34%), better cloud management capabilities (28%), and strategic guidance on overall cloud strategy are next up on the wish list. Respondents in the high-tech (44%) and services (43%) sectors are more likely to be looking to their cloud providers for help with cost management while government entities and non-profits are looking for aid with cloud management, cited by 35%.

35%

of IT decision-makers say that AI is accelerating their cloud deployment

32%

of IT decision-makers say that AI is increasing their cloud budgets

AI's impact on cloud

While AI/ML applications top the list of applications and workloads targeted for cloud migration over the next few years, use cases are not necessarily accelerating cloud strategies for the preponderance of respondents. Slightly more than a third (35%) said AI will speed up cloud deployment while a greater number, 44%, said it will have no impact. Smaller enterprises with fewer than 1,000 employees were more likely to say AI/ML would have no impact on cloud deployment—51% compared to 36% of larger enterprises. On a global scale, EMEA respondents were more likely to credit AI/ML workloads for accelerating cloud deployment, at 42%.

It's a similar story with budgets: Only 32% of respondents to the 2023 Cloud Computing Survey said proposed AI use cases will increase cloud budgets with 45% saying the technology would have no impact. Companies in high-tech (42%) and manufacturing (40%) were more likely to say AI/ML workloads would influence cloud budgets as were larger enterprises (39%) and companies in the EMEA and APAC regions (37%).

Currently, production AI/ML workloads are running in private clouds (20%) with 16% running in hybrid and public clouds, respectively. AI/ML pilot projects favor public clouds (20%) followed by hybrid cloud (15%) and private cloud (13%) implementations. For future AI/ML workloads, all cloud models are under consideration, including public (30%), hybrid (29%), and private (28%).

Given the significance of AI/ML strategies, it's important companies have the right partnerships and tools in place. Forty-four percent of respondents to the 2023 Cloud Computing Survey said they understand their cloud provider's roadmap for integrating AI tools into their platforms—a plus for future migrations.

Many also reported progress on tools for controlling costs as AI/ML workloads scale: Forty percent of respondents said they trust their FinOps programs to keep the lid on costs, particularly when running generative AI applications in the cloud.

Conclusion

Companies continue to expand their cloud budgets and footprint, yet there are real challenges associated with cost management, security, and cloud skills that threaten to hinder the pace of adoption. New business strategies built around AI/ML workloads are set to spark interest and

Build strong partnerships

Only **44%** of IT decision-makers understand their cloud provider's roadmap for integrating AI tools in their platforms.

drive growth. Yet in order to scale efficiently and cost effectively, organizations will need to get a better grasp of core business objectives. They must also make a serious effort to leverage cloud provider partnerships and new tools in areas like FinOps to optimize cloud economics and foster more sustainable migration.

About the survey

The 2023 Cloud Computing Survey was conducted to measure cloud computing trends among technology decision-makers including: usage and plans across various cloud service and deployment models, investments, business drivers and impact on business strategy and plans. The study was fielded throughout August 2023 and is based off of the responses of 893 global IT decision-makers that are involved in the purchase process for cloud computing and their organization has, or plans to have, at least one application, or a portion of their infrastructure, in the cloud.

Regional key takeaways

Is your marketing scope region-specific? Explore the key research findings from North America, Europe, and Asia-Pacific. Contact us to dive deeper into the regional results.

North America

Cloud budget expectations in North America

64% Increase

30% Remain the same

6% Decrease
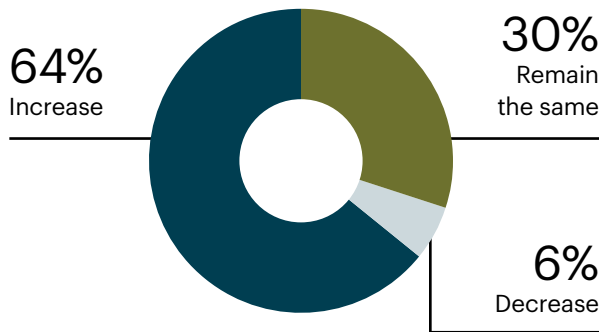
68% of IT decision-makers in North America say that their organization is defaulting to cloud-based services when upgrading or purchasing new technical capabilities.

57% say their organization has accelerated its migration to the cloud over the past 12 months.

34% of total IT budget in North America will be allocated to cloud computing over the next 12 months

Business objectives driving cloud investments:
- Replacing on-premise legacy technology **50%**
- Enabling disaster recovery and business continuity **46%**
- Lower total cost of ownership (TCO) **37%**
- Improving employee productivity **32%**
- Enabling innovation **31%**

Challenges stalling cloud adoption in North America:
- Controlling cloud costs
- Data privacy and security challenges
- Lack of cloud security skills/expertise
- Integrating cloud resources with on-premises systems
- Governance/compliance

Mulitcloud architecture intentions:
- Evaluating/researching **34%**
- In the process of deploying **23%**
- Fully deployed **13%**
- No plans **29%**

49% of ITDMs in North America say that they are most likely to use or adopt AI/machine learning cloud capabilities over the next 12 months

What do NA ITDMs need from cloud providers?
1. Cost management capabilities
2. Security expertise
3. Training/support services
4. New licensing/bulk discount offerings
5. Strategic guidance on overall cloud strategy/roadmap

EMEA

Cloud budget expectations in EMEA

62% Increase

31% Remain the same

7% Decrease
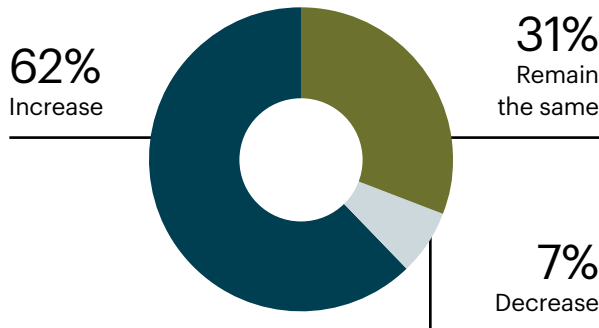
71% of IT decision-makers in EMEA say that their organization is defaulting to cloud-based services when upgrading or purchasing new technical capabilities.

60% say their organization has accelerated its migration to the cloud over the past 12 months.

34% of total IT budget in EMEA will be allocated to cloud computing over the next 12 months

Business objectives driving cloud investments:
- Improving employee productivity **42%**
- Enabling innovation **34%**
- Development of new products or services **34%**
- Replacing on-premise legacy technology **34%**
- Lower total cost of ownership (TCO) **33%**

Challenges stalling cloud adoption in EMEA:
- Data privacy and security challenges
- Controlling cloud costs
- Governance/compliance
- Lack of cloud security skills/expertise
- Mismatch between cloud service offerings and business requirements

Mulitcloud architecture intentions:
- Evaluating/researching **28%**
- In the process of deploying **31%**
- Fully deployed **19%**
- No plans **22%**

54% of ITDMs in EMEA say that they are most likely to use or adopt AI/ machine learning cloud capabilities over the next 12 months

What do EMEA ITDMs need from cloud providers?
1. Security expertise
2. Cost management capabilities
3. Stronger governance tools
4. Training/support services

APAC

Cloud budget expectations in APAC

69% Increase

25% Remain the same

6% Decrease
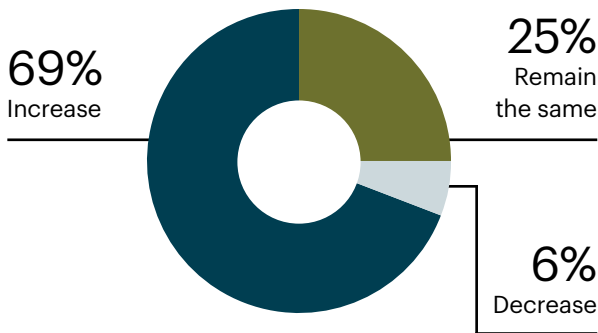
59% of IT decision-makers in APAC say that their organization is defaulting to cloud-based services when upgrading or purchasing new technical capabilities.

55% say their organization has accelerated its migration to the cloud over the past 12 months.

26% of total IT budget in APAC will be allocated to cloud computing over the next 12 months

Business objectives driving cloud investments:
- Enabling disaster recovery and business continuity **37%**
- Greater flexibility to react to changing market conditions **36%**
- Lower total cost of ownership (TCO) **31%**
- Replacing on-premise legacy technology **31%**
- Improving employee productivity **29%**

Challenges stalling cloud adoption in APAC:
- Controlling cloud costs
- Data privacy and security challenges
- Lack of cloud management skills/expertise
- Integrating cloud resources with on-premises systems
- Lack of cloud security skills/expertise
- Migrating data or applications to the cloud
- Cost of moving data into and between clouds

Mulitcloud architecture intentions:
- Evaluating/researching **40%**
- In the process of deploying **23%**
- Fully deployed **10%**
- No plans **28%**

56% of ITDMs in APAC say that they are most likely to use or adopt AI/machine learning cloud capabilities over the next 12 months

What do APAC ITDMs need from cloud providers?
1. Cost management capabilities
2. Better cloud management capabilities
3. Security expertise
4. Strategic guidance on overall cloud strategy/roadmap

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- State of the CIO

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