



Cloud Computing Study 2024

Artificial intelligence fuels next wave of cloud expansion

After a brief slowdown last year, companies are once again dialing up cloud deployment, driven by demands for more rigorous security and the need for a scalable foundation to support the expected groundswell of AI innovation.

The pandemic-era march to the cloud—accelerated to cater to an increasingly remote and dispersed workforce—retreated slightly last year as companies absorbed existing investments and grappled with lingering cost management and security issues. Now with AI, and more recently Generative AI (GenAI), pilot projects poised for enterprise scale, companies are back in expansion mode, migrating existing applications and creating new cloud-native solutions built around data and advanced analytics.

Those are the topline takeaways from the 2024 Cloud Computing Survey from Foundry, which canvassed 821 IT decision-makers involved in the purchasing process for cloud computing and whose organizations have, or plan to have, at least one application or a portion of their infrastructure in the cloud. The survey is designed to measure cloud

computing trends, chronicling usage patterns, investments, and business drivers as respondents continue to push infrastructure and applications to the cloud.

According to this year's survey, 63% of respondents have accelerated cloud migration over the last 12 months, up 6% from last year and back to the pace of migration in 2022. Nearly three quarters (70%) of respondents confirm their

63% have accelerated cloud migration in the last 12 months. 57% in 2023 / 63% in 2022

70% say their org is defaulting to cloud-based services when upgrading or purchasing new technical capabilities. 65% in 2023 / 57% in 2022

organizations are defaulting to cloud-based services when upgrading or purchasing new technology capabilities, more so than last year (65%) and significantly higher than the 57% in the 2022 survey.

Companies in the financial services and healthcare sectors are embracing the shift more readily, both at 72%, as are firms with over 1,000 employees (70%). APAC companies joined the camp of those fast-tracking cloud migration (66%) compared to only 60% of North American respondents.

Companies are ratcheting up cloud investments to serve a variety of business objectives. With momentum building around AI, moving to the cloud is viewed as a way to improve security and governance (34%), bolster scalability (33%), and accelerate adoption of those critical technologies, especially AI and machine learning (29%). Government and non-profit entities were more likely to see cloud migration as a conduit to better security and governance (53%) while companies in the healthcare space associate the cloud with a scalability advantage (46%).

Which cloud-based services are organizations investing in over the next year?

AI/machine learning (PaaS) **64%**
Business applications (SaaS) **63%**

What's driving cloud computing initiatives?

- Improving security and/or governance
- Improving scalability
- Accelerating adoption of new technology (AI/ML, etc.)
- Replacing on-premises legacy technology
- Improving employee productivity

Business continuity/disaster recovery and replacement of on-premises legacy technology—both cited as the primary drivers of cloud investments last year for 40% of respondents—fell much further down the priority list. Twenty-nine percent of respondents to this year's survey tied cloud migration to legacy updates while enabling disaster recovery and business continuity was a leading factor for only 26% of respondents. The one exception was government and non-profit entities where 46% cited legacy updates as a lever for cloud migration and 33% for reasons related to resiliency and business continuity.

Over the next 12 months, 64% of respondents plan to channel resources to fund AI and machine learning (PaaS) with SaaS-based business applications at 63% and analytics and BI (PaaS) at 46%. Companies in the high-tech space were more likely to earmark dollars for AI and

How are organizations using AI in the cloud?

- Data and analytics **(53%)**
- Generative AI **(52%)**
- Machine learning **(44%)**
- Predictive analytics **(41%)**
- Natural language processing **(28%)**

machine learning PaaS investments (71%) while healthcare companies stood apart from other industries with their heightened investment in SaaS business applications, at 80%, and analytics and BI PaaS (59%). Respondents in EMEA and APAC were more apt to tie cloud investments to AI/ML, at 70% and 69% respectively. North American players funneled more investment dollars to SaaS-based business applications (68%).

Survey respondents appear to be satisfied with the outcome of increased cloud investments and migration: Sixty percent credited cloud capabilities with helping them achieve increased and sustained revenue over the last year and is higher among those in the healthcare (76%) and retail (74%) segments as well as those in the APAC region (64%).

All eyes on AI

Given the meteoric rise of GenAI and the mainstream spotlight on AI/ML capabilities

this year, it's not surprising that cloud-based AI/ML capabilities were flagged as the top growth area, cited by nearly a third (30%) of respondents. That marker was slightly higher for companies with over 1,000 employees (34%) and even more so for companies in the high-tech space (40%). Closely-related technologies such as analytics and/or BI, Software-as-a-Service, and big data/analytics were also tagged as critical growth areas, cited by 18% of respondents, respectively.

Those organizations currently using or planning to use AI in the cloud are targeting an array of use cases, including data analytics (53%), GenAI (52%), and ML (44%). Predictive analytics (41%) and Natural Language Processing (NLP) (28%) were other top mentioned use cases for cloud-based AI. Government and non-profit respondents are gravitating to data analytics in the cloud (68%) while high-tech respondents leaned more heavily into GenAI (56%) and machine learning (52%).

Cloud deployment models for current and planned AI workloads run the gamut. Thirty percent of respondents primarily run AI workloads in the public cloud while 27% opt for hybrid cloud and nearly a quarter (24%) are partial to private clouds set up in data centers. Enterprises in the healthcare sector are significantly more likely to run AI workloads in a private cloud, likely due to rigorous data security and regulatory

requirements. Public cloud is the preferred deployment model for AI workloads for EMEA companies (37%) while APAC players seek out private cloud environments (30%).

By far, the greatest appeal of the cloud for AI workloads is accessibility to AI tools and services, cited by more than half (51%) of respondents. In keeping with that spirit, half of respondents confirmed their firms use hosted public AI models such as OpenAI or Google AI for business data analysis or other use cases, higher among high-tech players (62%) and those in the APAC region (58%). Overall, 60% of survey respondents said they were clear on their cloud provider's roadmap for integrating AI tools into their platforms, which increases to 67% among companies with over 1,000 employees and decreases to 51% among SMBs (<1,000 employees).

60%

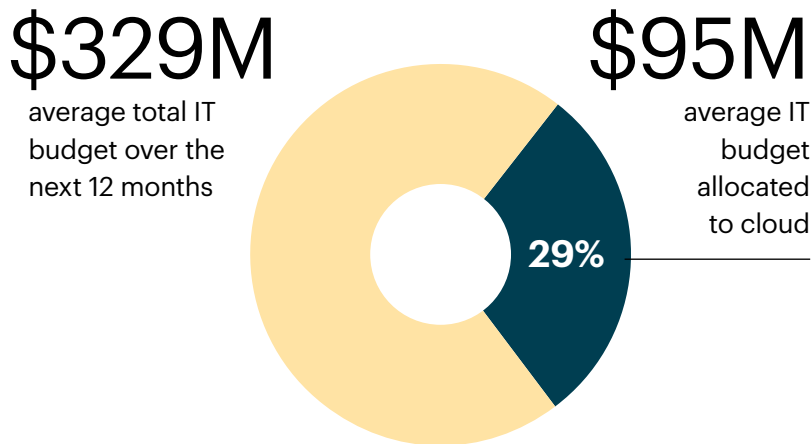
agree that they understand their cloud provider's roadmap for integrating AI tools in their platforms.

Flexibility for experimentation and innovation (45%) and scalability for large datasets (43%) were the other primary benefits of pushing AI workloads to the cloud. Scalability of data sets was by far the most important advantage cited by healthcare respondents (62%).

Cloud budgets remain strong

Enterprises continue to allocate significant dollars to cloud investments as part of overall IT budgets. This year, the average total IT budget was \$329 million, larger for companies with over 1,000 employees at \$458 million and less, \$168 million, for smaller organizations with under 1,000 employees. Respondents in the healthcare sector had the biggest IT budgets by far, at \$619 million. On average, 29% of IT investment will be allocated to cloud computing in the next year, and the allocation varies little with company size. The average investment in cloud computing resources adds up to approximately \$95 million.

Total IT investment and cloud allocation



81%

of organizations have added new roles and functions as a result of their cloud investments.

90% 1,000+ company size

70% <1,000 company size

Looking ahead over the next 12 months, companies remain optimistic about cloud spending. Sixty-five percent of respondents are expecting increased budgets with 31% anticipating funding to remain the same with results pretty consistent across geographic regions. Healthcare respondents were even more bullish on cloud spending, with 84% expecting a bump in budget allocation as were government and non-profit entities and companies in the financial services sector, both at 70%. The median increase in budgets is expected to be 15%, the survey found.

With investment holding strong, companies are looking to add new roles and functions to bolster their cloud portfolios—81% of total respondents and higher (91%) at companies with over 1,000 employees. Cloud architect is the frontrunner among new positions added, cited by 28% of respondents. Cloud systems engineers and cloud systems administrators were also on the hiring list, both at 21%. Less than a fifth (19%) of respondents said they had no plans to add any new cloud-related positions this year.

Cloud deployment strategies take shape

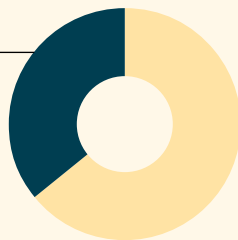
As opposed to lift and shift migration strategies, companies are now stepping up plans to create purpose-built applications for the cloud. Currently, 36% of respondents are building portfolios of applications that are cloud-native, higher among high-tech players (44%) and healthcare companies (41%), but fairly

The state of purpose-built cloud applications

Now

36%

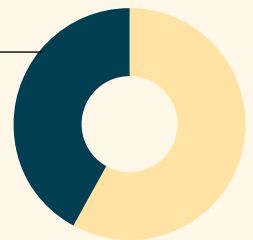
of organizations' cloud-based applications were purpose-built for the cloud versus migration.



In 12 months

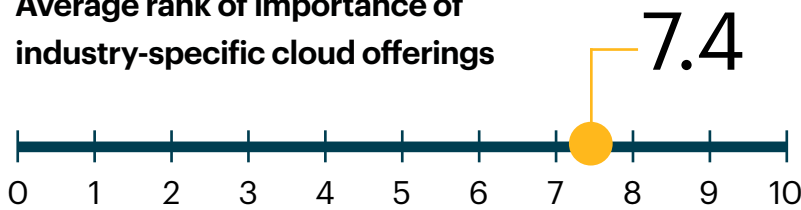
42%

of organizations' new cloud-based applications will be purpose-built for the cloud over the next 12 months.



consistent across global regions. New applications being released over the next year are on track to be cloud-native, a trend cited by 42% of respondents and also higher among high-tech companies (48%) and healthcare enterprises (46%).

Average rank of importance of industry-specific cloud offerings



Tapping technology and expertise from multiple cloud providers has also become a foundational deployment strategy. Thirty-six percent of respondents are primarily a multicloud environment, resulting in an IT architecture that unites private clouds (data centers) with resources from two or more public cloud providers. Another 36% are building hybrid clouds that bridge their private data centers with a single public cloud resource. Only 11% limit usage to a private cloud environment.

Looking at cloud deployment through an industry and geographic lens shines a spotlight on key differences. Healthcare respondents (46%) and financial services companies (44%) are partial to multicloud environments encompassing at least two or more public cloud providers. Retail companies were more likely to deploy a

predominantly public cloud infrastructure (24%), but there was little contrast between industries when it comes to private cloud deployment. Larger companies with over 1,000 employees were more likely to lean into a multicloud environment with multiple cloud providers (42%) while the hybrid approach combining private clouds with a single public cloud provider was dominant among North American respondents (40%).

Infrastructure-as-a-Service (IaaS) and Platform-as-a-Service (PaaS) are powering current use cases for nearly three quarters (72%) of respondents. EMEA respondents were more invested in IaaS and PaaS services from public cloud providers (77%) compared to only 69% of North American respondents. Respondents aligned with an array of IaaS and PaaS public cloud providers, but AWS (61%), Microsoft Azure (59%), and Google (41%) remain the most prevalent players.

Industry-specific applications and services are an important criteria when selecting cloud providers and platforms, according to this year's survey respondents, which rated their importance as 7.4 on a scale of 1-10. Improved security and governance were the most appealing aspects of industry-specific cloud solutions and services, cited by 38%, while improved application performance and scalability ranked high for 34% and improved

processes and workflows were a factor for 32%. Interestingly, integration with customers, partners, and suppliers, as well as industry-specific applications—features that might be associated as advantages of industry-specific platforms—were not as critical to respondents, cited by 28% and 23% respectively.

Cost remains biggest hurdle to cloud adoption

While cloud adoption is on the rise, momentum challenges remain. In fact, 90% of IT decision makers said there was at least some obstacle in the way of cloud adoption as they executed roadmaps this year. Even though budgets remain stable, cost remains

90% of ITDMs have experienced some obstacles with their cloud adoption over the past 12 months, such as:

- Budget/cost
- Security and/or compliance concerns
- Integration/migration challenges
- Skills gaps
- Performance and reliability
- Internal resistance

the No. 1 factor impeding cloud adoption. Nearly half (48%) of respondents cited budgets and cost as a deterrent to cloud deployment this year, significantly higher among education (59%) and healthcare respondents (55%). EMEA respondents were far less likely to find budgets/costs a deterrent to cloud adoption, at 39%.

The biggest issue related to costs is controlling them, a challenge cited by about half (51%) of respondents, along with concerns about the long-term costs of cloud, called out by 49%. Costs associated with lack of visibility into cloud costs or managing multicloud environments were slightly less concerning, cited by 36% and 35% respectively.

Security and compliance remain ongoing challenges, cited by 35% of respondents. Securing/protecting data in the cloud is the top obstacle slowing cloud adoption, cited by 65% and higher among high-tech companies (73%) and healthcare players (71%). Ensuring initiatives adhere to government and industry regulation was a barrier for 57% of overall respondents, higher among financial services firms (76%). Securing and protecting cloud resources loomed large for 54% of respondents, again higher in healthcare and retail (both at 69%).

Integration and migration issues present another set of barriers called out by

34% of survey respondents. Specifically, the complexity of legacy system modernization (63%), integrating cloud resources with on-premises systems (57%), and data portability challenges during migration (46%) were the top challenges on this front. Those in the education sector were grappling more with legacy system modernization (74%) while integration with on-premise systems proved to be a barrier for healthcare respondents (66%). Those in the EMEA region were more likely to struggle with legacy system modernization, at 70%.

Cloud adoption often stalls due to performance and reliability-related obstacles—a barrier cited by a quarter of respondents. Here, the most common concerns include ensuring high availability and fault tolerance (61%), network latency that takes a toll on application performance (57%), and managing cloud usage and resources (55%).

As with any enterprise technology initiative, people and cultural-related issues often present the biggest roadblocks. Nearly a third (30%) of respondents said the lack of talent and skills remain a key barrier to cloud adoption, up moderately from last year when 24% pinpointed the lack of talent—in particular, cloud security expertise—as a factor gating cloud deployment. This year, cloud management expertise (57%), cloud security acumen

(54%), and cloud development skills (53%) were the most significant gaps.

From a cultural standpoint, resistance to change, particularly for altering traditional IT roles and processes, remains a barrier for more than half of this year's respondents, at 57%. Other internal resistance factors include perceived loss of control over IT infrastructure, cited by 55%, and persistence cultural resistance to cloud adoption, at 52%.

Wresting control of cloud costs

With cloud costs, and more importantly cloud cost control, in the spotlight, organizations are pursuing a variety of strategies to better manage and optimize investments as the IT estate shifts towards cloud. The unpredictability of costs remains the largest impediment, cited by 34% of this year's respondents and in keeping with prior years' findings. Complex pricing models (31%) and the cost of data transfer, between clouds and on premise systems, is taxing for a quarter of this year's respondents, fairly consistent across industries, company sizes, and even geographic locations.

Most current cost mitigation strategies remain manual processes. Half of this year's respondents implement cost optimization strategies, including shutting off unused resources, while 47% set

spending budgets and alerts. Only 38% are leveraging automation to monitor and allocate resources based on demand, and a third are employing cost management tools and practices like FinOps. Companies in the financial services and healthcare space are ahead of their industry counterparts in harnessing such tools and practices. Forty-five percent of financial services and healthcare respondents are using automation while 44% and 41%, respectively, are turning to cost management practices like FinOps. APAC respondents were more heavily invested in automation for cost management (46%)

while those in EMEA were further along with FinOps and like-minded tools and practices (39%).

About half (51%) of respondents were confident that their FinOps programs

were working to control costs, especially those associated with running GenAI in the cloud. Beyond cost management practices, 59% of respondents have already or plan to create roles dedicated to managing cloud costs over the next 12 months—a strong indicator of overall commitment to overcoming cost barriers.

Repatriating phase wanes

While there is still movement shifting applications and services away from cloud

51%

agree that they trust their organizations' FinOps program to control costs associated with running generative AI in the cloud.

back to on-premise data centers, it's less prevalent this year. Fifty-seven percent of respondents said they had not moved any applications or workloads from cloud to an on-premise location compared to only 30% last year. Healthcare respondents were more likely to have repatriated applications this year, at 54%, as were enterprises in the APAC region, at 43%.

The applications or workloads most likely to shift from cloud back to on-premises locations were databases (SQL, NoSQL) at 36%; storage, archive, backup, and file server at 35%; and websites and web apps, at 33%. Financial services companies were more prone to move database workloads back to on premises (47%) while education respondents made the shift for reasons related to storage/archive/backup.

The reasons for repatriation vary, but for half (51%), the issues lie with security. Lingering budget and cost control and performance and reliability issues were the impetus for 47% of respondents to swing back to on-premises deployment.

Security concerns are cited as the no. 1 reason for cloud repatriation this year.

For those in the APAC region, security and performance were greater issues prompting repatriation compared to their global counterparts, at 58% and 53%, respectively.

Conclusion

With the potential and promise of AI looming large, enterprises are expanding their cloud budgets and footprints in earnest, looking to tap into the model's wealth of scalability, security, and rich tool ecosystem advantages. While challenges remain, especially on the cost management and skills front, cloud computing is shaping up to play a central role in the next chapter of AI-enabled digital innovation.

About the survey

The 2024 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 April-May of 2024 and is based off of the responses of 821 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.

Key global differences

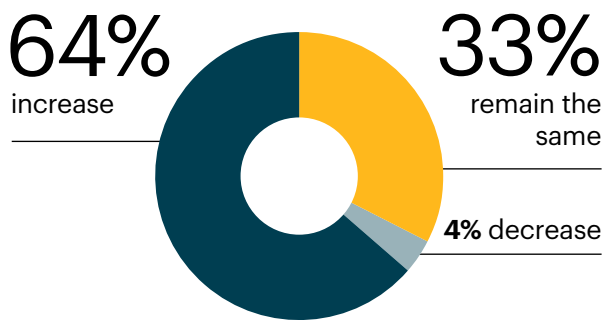
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Contact us to dive deeper into the regional results.

North America

Cloud budget expectations in North America

\$278M overall IT budget —
30% of that allocated to cloud

Budget change over next 12 months



Business objectives driving cloud investments at North American organizations

- Improving scalability **(36%)**
- Improving security and/or governance **(35%)**
- Replacing on-premises legacy technology **(33%)**
- Enabling disaster recovery & business continuity **(30%)**
- Improving employee productivity **(28%)**

New roles added to NA organizations as a result of cloud investments

1. Cloud architect
2. Security architect
3. Data architect
4. Cloud systems administrator
5. Cloud systems engineer

Challenges slowing cloud adoption in NA

- Budget/cost **(50%)**
- Integration/migration challenges **(33%)**
- Skills gaps **(31%)**
- Security and/or compliance concerns **(31%)**

Cloud repatriation

33% of NA ITDMs say their organization has moved applications or workloads from the cloud to an on-premises location. Why?

- Budget/cost control **(49%)**
- Security concerns **(46%)**
- Performance/reliability issues **(39%)**
- Compliance concerns **(39%)**

How are NA organizations running or planning to run AI workloads?

- Public cloud **(27%)**
- Hybrid cloud **(28%)**
- Private cloud **(21%)**

They plan to use AI in the cloud for:

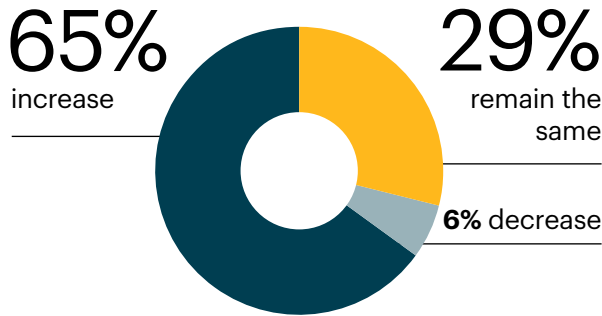
- Data analytics **(54%)**
- Generative AI **(50%)**
- Predictive analytics **(43%)**
- Machine learning **(42%)**

EMEA

Cloud budget expectations in EMEA

\$285M overall IT budget —
29% of that allocated to cloud

Budget change over next 12 months



Business objectives in EMEA driving cloud investments

- Improving security and/or governance **(38%)**
- Improving scalability **(35%)**
- Improving employee productivity **(34%)**
- Speed of development **(31%)**
- Greater flexibility to react to changing market conditions **(31%)**
- Accelerating adoption of new technology (AI, ML, etc.) **(30%)**

New roles added to EMEA organizations as a result of cloud investments :

1. Cloud architect
2. Cloud software engineer
3. DevOps engineer
4. Security architect
5. Security engineer / FinOps (tied)

Challenges slowing cloud adoption in EMEA:

- Budget/cost **(39%)**
- Skills gaps **(36%)**
- Integration/migration challenges **(34%)**

EMEA organizations are managing costs of cloud services by:

- Implementing cost optimization strategies **(41%)**
- Setting spending budgets and alerts **(41%)**
- Using cost management tools and practices like FinOps **(39%)**

Cloud repatriation

32% of EMEA ITDMs say their organization has moved applications or workloads from the cloud to an on-premises location. Why?

- Security concerns **(44%)**
- Performance/reliability issues **(44%)**
- Budget/cost control **(39%)**

How are EMEA organizations running or planning to run AI workloads?

- Public cloud **(37%)**
- Hybrid cloud **(24%)**
- Private cloud **(19%)**

They plan to use AI in the cloud for:

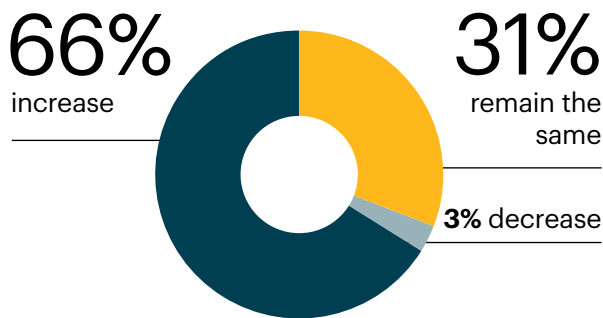
- Generative AI **(58%)**
- Data analytics **(53%)**
- Machine learning **(42%)**
- Predictive analytics **(41%)**

APAC

Cloud budget expectations in APAC

\$403M overall IT budget —
29% of that allocated to cloud

Budget change over next 12 months



Business objectives in APAC driving cloud investments

- Improving security and/or governance **(32%)**
- Accelerating adoption of new technology (AI, ML, etc.) **(31%)**
- Improving scalability **(28%)**
- Replacing on premises legacy technology **(26%)**
- Greater flexibility to react to changing market conditions **(26%)**

New roles added to APAC organizations as a result of cloud investments:

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

Challenges slowing cloud adoption in APAC:

- Budget/cost **(49%)**
- Security and/or compliance concerns **(40%)**
- Integration/migration challenges **(36%)**

APAC organizations are managing costs of cloud services by:

- Implementing cost optimization strategies **(54%)**
- Setting spending budgets and alerts **(47%)**
- Leveraging automation to monitor and allocate resources based on demand **(46%)**

Cloud repatriation

43% of APAC ITDMs say their organization has moved applications or workloads from the cloud to an on-premises location. Why?

- Security concerns **(58%)**
- Performance/reliability issues **(53%)**
- Budget/cost control **(47%)**

How are APAC organizations running or planning to run AI workloads?

- 30% public cloud
- 27% Hybrid cloud
- 30% Private cloud

They plan to use AI in the cloud for:

- Generative AI **(52%)**
- Data analytics **(52%)**
- Machine learning **(46%)**

Examining the marketplace

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To see what research is available, visit foundryco.com/tools-for-marketers.

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Buying process studies

- Customer Engagement
- Role and Influence of the Technology Decision-Maker

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Role and priority studies

- CIO Tech Poll: Tech Priorities
- State of the CIO

Technology-specific studies

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- Cloud Computing
- Security Priorities
- Partner Marketing

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