

Executive summary

Uptime Intelligence report: July 2026

Uptime Institute Global Data Center Survey 2026

Now in its 16th year, this survey reveals an industry that continues to expand, invest and adapt — but under intensifying constraints and in the face of growing complexity and scrutiny. Demand remains strong, driven increasingly by the need to support high-density and AI-related workloads, but operators must navigate challenges such as limited power availability, falling grid reliability, rising costs, supply chain limits and staffing shortages. Maintaining resiliency while modernizing infrastructure will be critical in the years ahead.

Uptime Intelligence: actionable insight for the digital infrastructure ecosystem.

To access the entire *Uptime Institute Global Data Center Survey 2026* report and Uptime Intelligence on an evaluation basis, please visit intelligence.uptimeinstitute.com/request-evaluation

Members of Uptime Network can download the full report on the Network website: network.uptimeinstitute.com

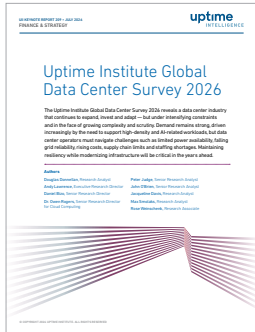
Uptime Intelligence is a research subscription service offered by Uptime Institute. It delivers in-depth, clear analysis and practical guidance focused on the present and future of data center and digital infrastructure strategies, technologies and operations. It serves enterprises that are operating their own digital infrastructure or contracting with third parties; providers of colocation, cloud and other infrastructure-as-a-service offerings; and suppliers of technology and services to all operators of digital infrastructure.

Uptime Institute serves all stakeholders that are responsible for IT service availability through industry-leading standards, education, membership, consulting and award programs delivered to enterprise organizations and third-party operators, manufacturers and providers.

This executive summary summarizes the key findings of the *Uptime Institute Global Data Center Survey 2026* report, and includes sample pages from the full 32-page report, which is available to Uptime Network members and Uptime Intelligence customers.

Key findings

- High costs remain the greatest concern for digital infrastructure management teams in 2026, but concerns around capacity forecasting, power availability and supply chain disruptions are growing.
- Average PUE levels continue to improve in 2026, but the gains remain gradual. Newer, more efficient data centers are being built, but legacy infrastructure and cooling constraints are slowing progress.
- Average modal rack densities continue to rise slowly, and more operators are now reporting peak rack densities of 30 kW or above.
- The share of operators who say their organization collects sustainability metrics returned to its gradual upward trend in 2026, and more than half now say they track water use.
- Expectations for AI's operational benefits declined slightly in 2026. Trust remains highest for lower-risk applications, such as sensor data analytics and predictive maintenance.
- Fewer operators report experiencing an impactful outage in the past three years, continuing a long-standing trend. However, one in ten outages is still classified as serious or severe, and the costs of outages continue to rise.
- For the first time, third-party data center facilities and services account for a larger share of IT workloads than enterprise-owned data centers (by facility, not total capacity). However, corporate data centers remain central to hybrid IT strategies.
- Staffing and skills shortages may be intensifying. More than half of respondents now report difficulty finding qualified candidates for open jobs in 2026, and staff turnover remains a persistent challenge.



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Introduction

The 16th annual Uptime Institute Global Data Center Survey is the most comprehensive and longest-running study of its kind. The survey reveals the state of the industry in terms of resiliency, sustainability, efficiency, staffing, cloud and AI.

The survey was conducted online from April to May 2026 and collected responses from more than 800 data center owners and operators, and over 800 vendors and consultants. This report focuses on owners and operators of digital infrastructure — an analysis of the experiences and views of vendors and consultants will be published separately. For more details, including demographics, see the **Appendix**.

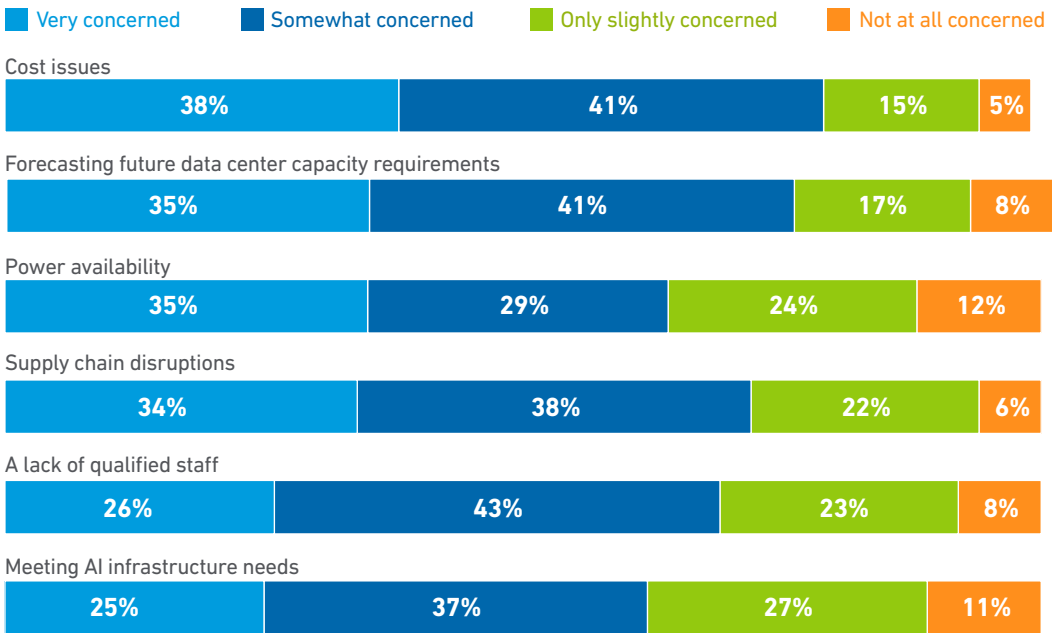
For the fourth consecutive year, Uptime’s survey asked data center operators to identify their management team’s top concerns related to digital infrastructure. Cost issues remain the highest-ranked concern, with 79% of respondents saying management is at least somewhat concerned (see **Figure 1**). While the share saying management is “very concerned” about costs is below the 44% reported in 2024, the high prices of power, staff and equipment — particularly for AI-related infrastructure and IT — persist.

The lower priority given to costs compared with previous years does not necessarily mean those concerns have eased. Rather, costs are being weighed alongside other issues that affect operators’ ability to expand, modernize and maintain resiliency.

Figure 1

Cost issues lead, but management concerns are widening

Looking at the next 12 months, how concerned is your digital infrastructure management regarding each of the following issues? (n=537)



(Only the top six response categories are shown. All figures rounded.)

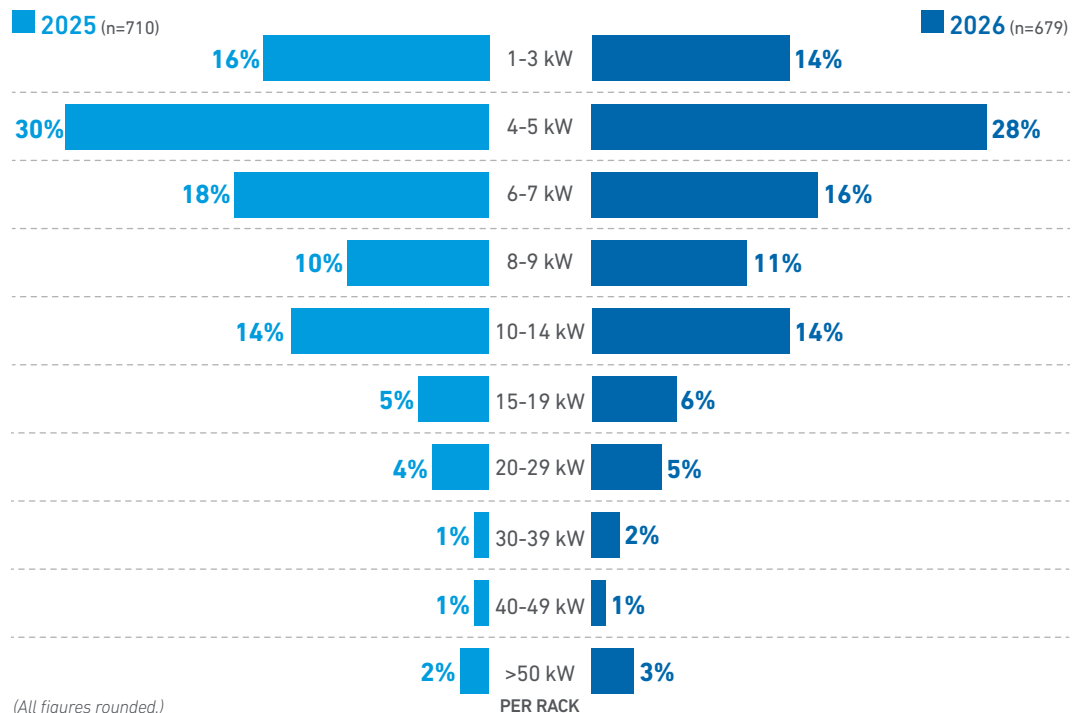
High-density racks exert force

The long-term trend of densification in data centers (defined by IT rack power draw) continues unabated, according to our 2026 survey. For the first time, the average of modal (most typical) rack densities surpassed 11 kW in our sample, as the gradual shift toward higher-powered hardware was compounded by a small number of new high-density facilities with typical racks above 30 kW. These factors produced a visible increase from last year's figure of 9 kW. Without these high-density facilities, the average modal density sits at 7.8 kW, up from 7.5 kW in 2025. **Figure 3** shows respondents' reported average densities.

Figure 3

Average density rises, with and without super-dense leaders

What is the most common (modal average) server rack density deployed in your data center?



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We expect this trend of rising rack densities to continue as IT organizations gradually upgrade their server fleets with new systems and seek operational efficiencies. Recent and next-generation servers boost both workload capacity and energy performance, but maximizing these benefits means a corresponding rise in system power. As legacy systems are retired, typical rack densities will edge higher too. Some operators are now pursuing more aggressive technology refresh timelines of less than 4 years (see section: **Sustainability and metrics**).

Where are densities headed? It is not yet clear whether a new dominant standard will emerge to displace the 4-5 kW average rack design density. Data centers have centered on this range for more than a decade, and it remains the most common rack density in deployment. Future trends will largely depend on the operational discipline of driving IT utilization higher. The incentives for this are becoming stronger: IT hardware costs are high, and the pressure to make the most of the facility power capacity (or the contracted power in colocation sites) is escalating.

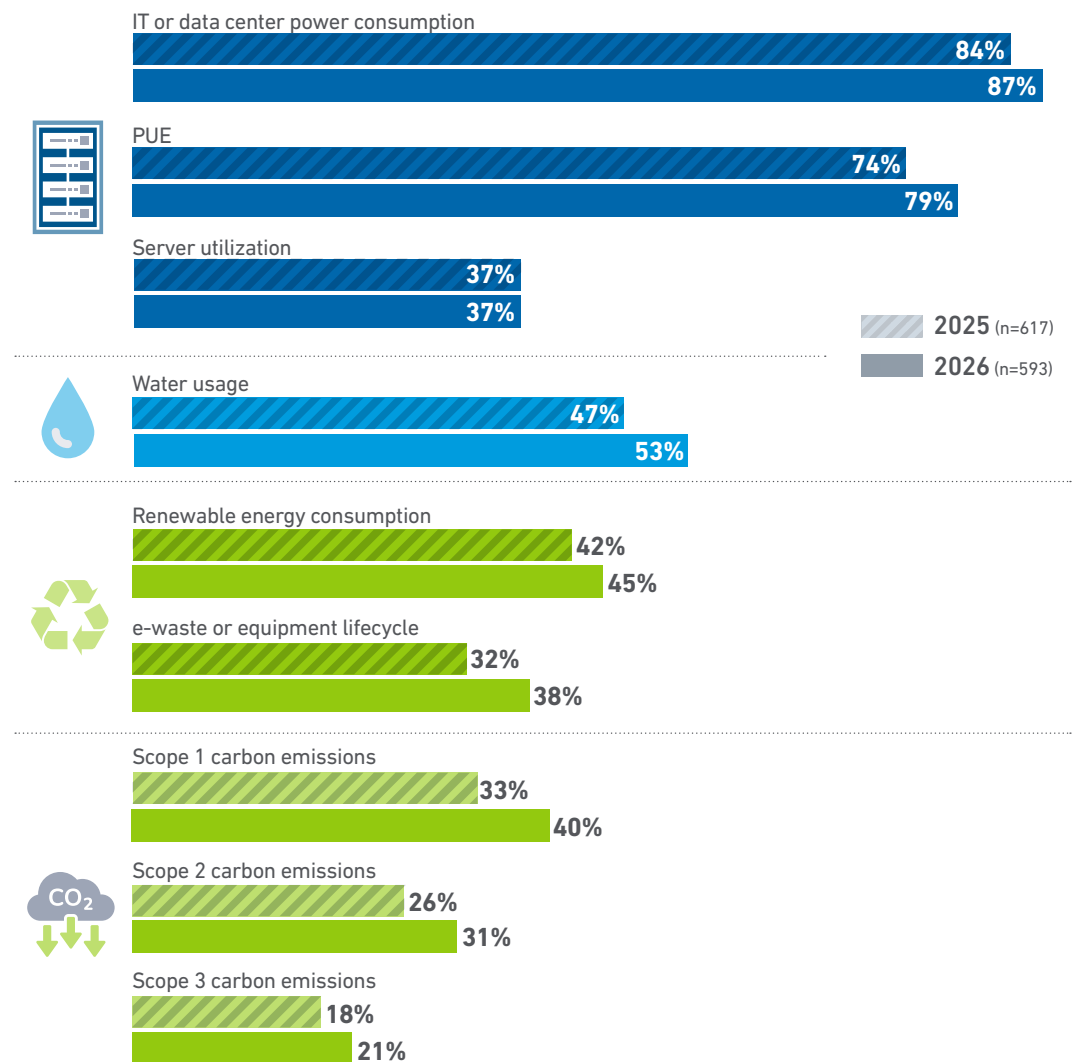
In 2026, the most significant increases in data collection were in water usage, e-waste and carbon emissions reporting, particularly Scope 1 (direct emissions). Server utilization is the only metric that stagnated, remaining on par with 2025. The increase in water consumption data collection is likely due to growing public pressure and new legislation, while stalled server utilization may stem from the complexities and volatility from deploying new GPU and CPU processors and AI workloads.

Energy consumption and PUE remain the most tracked efficiency and sustainability metrics, at 87% and 79%, respectively. They are often required by regulators or customers, are easy to collect, and can help reduce operational costs.

Figure 6

Tracking sustainability metrics resumes an upward trend

Which of the following IT or data center metrics does your organization collect for corporate sustainability purposes whether or not you report it externally? Choose all that apply.



Into the racks

Uptime has long argued that the drive to improve efficiency should expand its scope beyond the mechanical and electrical systems to the IT estate, where energy and hardware use can be significantly optimized.

Server utilization is an obvious first step. Underutilized servers waste energy while idling, whereas fully utilized servers perform more work per kilowatt-hour. Servers are instrumented so that their utilization can be readily measured, and many tools (such as power management) can help improve both utilization and energy efficiency. For cloud service providers, higher server utilization helps generate revenue, but operators need to balance this against availability and responsiveness.

Although server utilization is monitored and managed by IT teams, it is not widely regarded as a key sustainability metric. Excluding colocation operators, which do not have access to this data, around 42% of operators collect it. This is lower than for all other metrics except e-waste and the more complex, emerging measures, such as GHG Protocol Scope 2 and 3.

Regional variations in server utilization reveal a surprise: it is more widely tracked in North America. It is the only metric collected at a significantly higher rate in North America (44%) than in Europe (35.5%). Meanwhile, Latin America (35.8%) is on par with Europe.

Server utilization is reported to third parties less often (21%) than it is recorded, reflecting the fact that regulators and customers are not yet requesting this metric.

Server refresh: an increasingly watched metric

IT sustainability specialists have long paid attention to server refresh rates (how long organizations keep servers before replacing them) — because IT equipment contains valuable materials and contributes to embodied carbon and e-waste. Keeping servers in service for longer can reduce e-waste and spread the embodied carbon of the equipment over a longer useful life. However, there is a trade-off: older servers may consume more energy for a given level of work, which can offset some of the sustainability benefits of delaying replacement.

Refresh rates are watched for other reasons too. During periods of rapid innovation, they can shorten as newer and more efficient equipment is brought in; and accountants — and insurers — can be caught out by sudden swings in the cost of replacement equipment. When refresh rates are shorter, older equipment is likely to lose value more quickly.

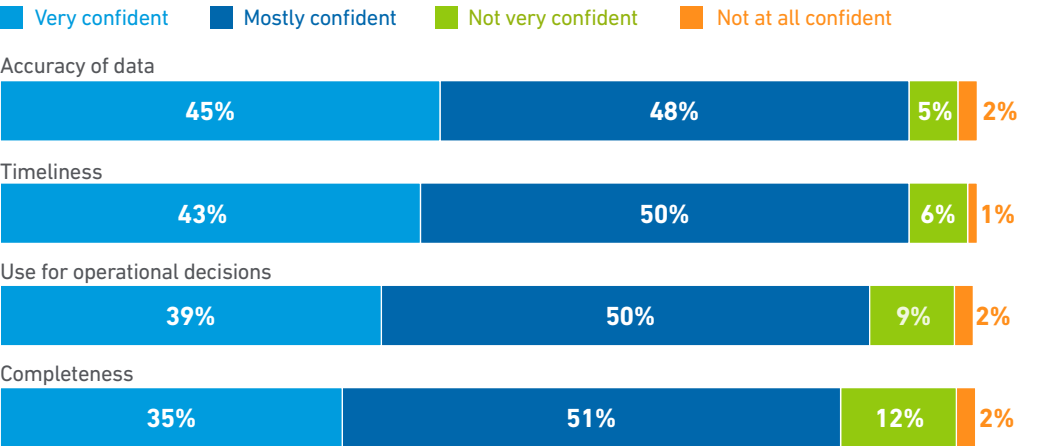
Between 2015 and 2023, operators reported increasing server life cycles, from around 36 to 44 months. Since 2023, this trend has reversed: operators say they are retiring servers sooner, and the reported server lifetime has decreased to around 41 months, slightly above the 2020 level (see **Figure 7**).

Live telemetry data, for example, is now sought across multiple systems and distributed environments to identify spare capacity and to inform and adapt operations for AI infrastructures. Any problems with data quality could have severe consequences. This high level of confidence is valuable only when it is supported by effective data governance, validation and maintenance processes.

Figure 8

Operators are mostly confident in their operational data

How confident are you in the quality of your data center’s operational data collected from sensors, software, and/or equipment? (n=610)



(All figures rounded.)

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Expectations for AI continue to shift

In 2026, many data center operators moved from theoretical discussions of generative AI in data center management to early real-world experimentation. Vendors, too, are now turning broad claims about automation, predictive maintenance and optimization into practical tools for operators.

The first wave of AI-based products and services for data center operations was driven primarily by niche players, specialist private companies and startups. Some of these pre-date large language models (LLMs), using more deterministic neural network-based tools.

The next phase is now being shaped by the industry’s market leaders. Some of the largest DCIM developers are adding LLM-based functionality to their software suites; major cooling equipment suppliers are building machine learning models into their management tools; and startups that initially focused on individual facility systems are expanding their products to cover more of the data center.

Despite this technical progress, operators’ expectations of the benefits of AI in data center operations declined in 2026 (see **Figure 9**). This caution should not be seen as an outright rejection of AI in the data center. Rather, it is likely a reaction to repeated reports of errors made by AI-based systems in enterprise environments.

Tracking outage data is inherently difficult (see *Annual outage analysis 2026*), and the increasingly distributed nature of the infrastructure, the applications, and the impact of outages adds complexity and uncertainty. Many outages are partial, ill-defined and widely distributed; some involve multiple parties.

Despite these data collection challenges, findings from the 2026 annual survey remain broadly consistent with previous years: fewer respondents say they suffered at least one significant outage in the past three years, the proportion of outages that are serious or severe is largely stable, the leading causes of impactful incidents are unchanged, and the cost and complexity of outages continue to rise.

However, the past does not predict the future: the growing number of external threats and the increasing pace of technical change within data centers may slow or halt this recent progress, at least temporarily.

Outages decline, but challenges persist

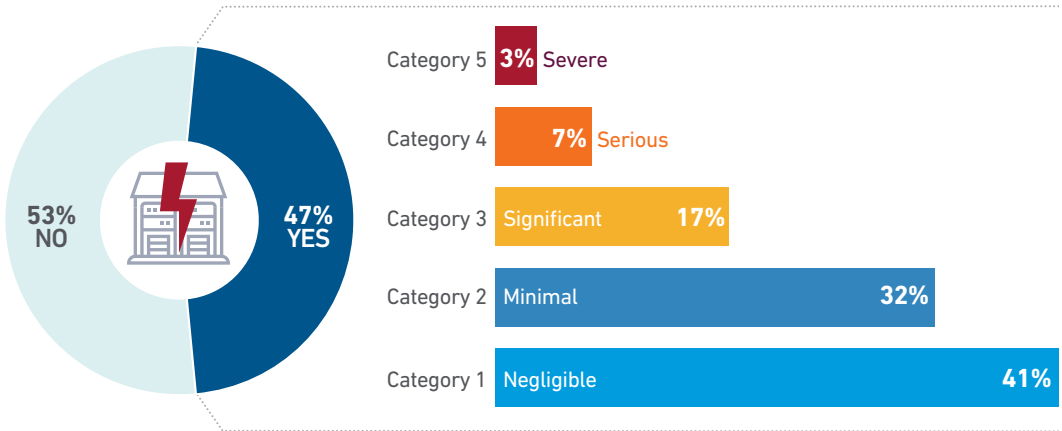
For the sixth year in a row, Uptime’s annual survey results show improvement in reported outage frequency. The share of respondents who experienced an outage in the past three years fell by three percentage points from 2025, continuing the steady reduction seen since 2020 (see **Figure 11**). However, this pace of improvement has slowed since 2023, and nearly half of respondents still experienced at least one outage over the three-year period (see **Figure 12**).

Among respondents who experienced an outage, the share reporting a serious or severe incident (those that caused the most significant damage) also remained unchanged at 10%. However, as organizations become more dependent on digital infrastructure, these outages may carry greater operational, financial and reputational impact than in the past. In other words, perceptions of what constitutes a “serious” or “severe” outage may change over time, and an event considered serious in 2015 may appear relatively immaterial by today’s standards.

Figure 11

Fewer than half report an outage in the past three years

Has your organization had an impactful outage in the past three years? If so, how would you classify the most impactful outage on a scale of 1 (negligible) to 5 (severe)? (n=715)



(Responses for "Don't know" not included.)

Workload placement

Every year, Uptime asks its enterprise respondents to roughly estimate what percentage of their IT workloads are run in-house versus in third-party venues. The data helps to show, at a high level, where these important workloads are carried out, and the relative use of different venue types. It does not, however, show the overall work handled by data centers, as many services, such as software and consumer applications, are likely not captured. Nor does it measure the scale of this work (such as by megawatts).

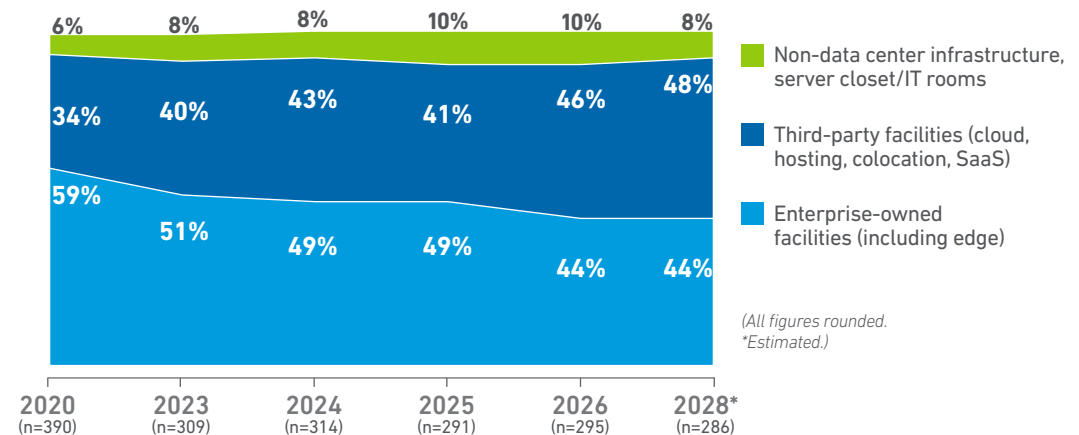
Most corporate IT is off premises

Third-party data center facilities and services account for 46% of IT workloads in 2026, compared with 44% in enterprise-owned corporate data centers. This is the first time in Uptime's annual survey history that third-party data center venues have held the larger share (see **Figure 15**).

Figure 15

Workload placement by data center ownership model

Approximately what percentage of your organization's total IT would you describe as running in the following IT environments today?



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In this analysis, third-party facilities include colocation, the public cloud, software as a service (SaaS) and hosting services. Edge and micro data centers are treated as enterprise-operated, as the survey does not specify their ownership or operating model. If they were instead classified as third-party-operated, the share of workloads hosted in third-party infrastructure would be even higher.

IT rooms and server cabinets are not considered data centers because they lack the key features of dedicated facilities. Even so, it is surprising that their use has not declined more sharply given the growing use of online workloads.

Staffing

For more than a decade, the data center industry has consistently faced shortages of skilled labor, and many operators have also struggled to retain staff. This is not surprising: the industry has been expanding so rapidly that recruiters have inevitably struggled to keep pace, especially given the specialist nature of many of these roles.

In recent years, however, the severity of the talent shortage has somewhat stabilized, neither worsening nor improving. This year's data suggests that the industry's recruitment challenges are beginning to intensify again.

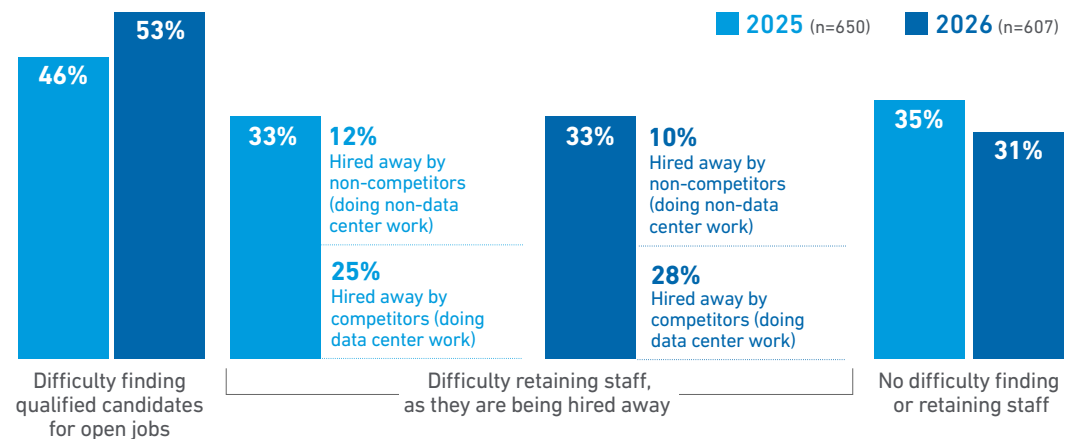
Recruitment challenges rise again

As operators contend with surging demand for data center capacity, they face an unprecedented need for skilled labor. Large, specialized AI facilities compound this challenge because they require more staff for major new projects and evolving skill sets to support higher thermal densities. This year, more than half (53%) of operators report difficulties finding qualified candidates for vacant roles — a statistically significant increase from 46% in 2025 (see **Figure 17**).

Figure 17

Staffing difficulties persist in retention, intensify in hiring

Which of the following staffing conditions apply to your organization? Choose all that apply.



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The ongoing talent shortage arises from both growing demand for skilled workers and the retirement of experienced senior operations staff. At the same time, the industry's pipeline of new talent remains insufficient, leaving data center operators and their expansion plans under increasing pressure.

The parallel challenge of employee turnover continues on a broadly flat trend this year. More than a quarter (28%) of respondents say they have had staff hired away by competitors, while one in ten report employees leaving the data center business altogether. Overall, one in three (33%) cite one or both of these retention issues, highlighting the potentially significant costs faced by a large minority of operators. For years, many operators have responded by increasing salary spending, both to retain existing employees and to recruit trained candidates from competitors.

Appendix

Survey methodology and demographics

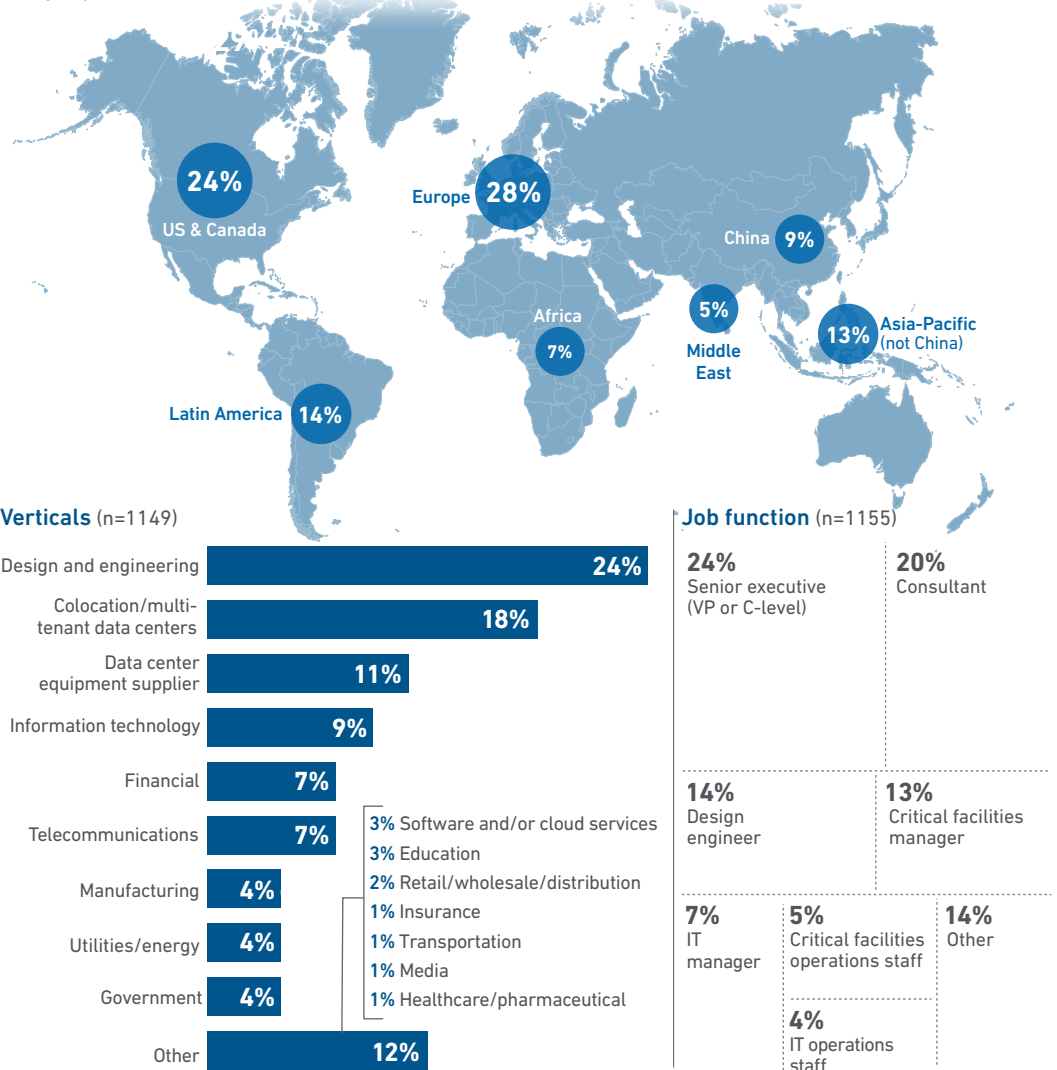
Uptime Institute’s Global Data Center Survey, now in its 16th year, is conducted annually online and by email. The 2026 survey was conducted in the first half of the year.

This report focuses on responses from the owners and operators of data centers, including those responsible for managing infrastructure at the world’s largest IT organizations. Job titles include senior executive, IT manager, IT operations staff, critical facilities manager, critical facilities operations staff, design engineer and consultant.

Figure 19

Respondents by location, industry vertical and job function

Company location (data center owner/operators only, n=801)



Find out more

We hope you found this executive summary of our *Uptime Institute Global Data Center Survey 2026* report valuable.

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About Uptime Institute

Uptime Institute is the Global Digital Infrastructure Authority. For over 30 years, the company has established industry-leading benchmarks for data center performance, resilience, sustainability, and efficiency. These benchmarks assure customers that their digital infrastructure will perform consistently with their business needs under any operating conditions. With more than 4,300 awards issued globally and over 1,100 active projects in 120+ countries, Uptime has helped tens of thousands of companies optimize critical IT assets while managing costs, resources, and efficiency. The organization's Tier Standard is the IT industry's most trusted and adopted global standard for data center design, construction, and operations. Core offerings include Tier Certifications, Management & Operations reviews, AI Infrastructure Advisory, Data Center Risk Assessments, Energy & Sustainability Assessments, Cybersecurity Assessments & Ratings, and IT Advisory Services.

Uptime Education programs have been completed by more than 100,000 data center professionals, establishing Uptime as the Learning & Development partner of choice worldwide. Uptime Institute is headquartered in New York, NY, with offices in London, Sao Paulo, Dubai, Riyadh, Singapore, and Madrid, and full-time Uptime professionals based in over thirty-four countries around the world.

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