2024

Data Center & Infrastructure Report

PRESENTED BY SERVICE EXPRESS
Introduction

As a global data center and infrastructure solutions provider, Service Express is interested in how organizations worldwide manage their data centers and infrastructure effectively. We launched our first annual survey and report in 2018 to discover more about IT decision-making, actions and plans.

The primary objective of these reports is to provide context and insights into data center and infrastructure management with feedback from various IT roles.

This year, we’ve compiled responses from over 1,000 IT professionals on infrastructure priorities, workload deployment methods, sustainability practices and more to share how IT teams prepare and adapt for the future.

Meet our experts

Jake Blough
Director of Infrastructure Solutions
Jake drives innovation, sets the company’s technology direction, and leads research and development for new products, services and data science.

Nick Ockwell
Chief Information Officer
Nick develops global IT strategies, transforming processes and leveraging technology to guide the road map, vision and plans for company growth.

Chad Peters
Director of Infrastructure Solutions
Chad identifies how customers can best meet performance, security and cost control demands by evaluating infrastructure trends, IT practices, reliability data and emerging OEM technologies.
As IT leaders draw on more firsthand hybrid experience, they’re reevaluating where to house workloads, where to achieve the best performance and how to implement the most cost-efficient environment. Find the right balance in your hybrid deployment strategy. Despite ongoing budgetary constraints, IT leaders are expected to deliver more services every year. This expectation poses major challenges as complexity increases for staffing demands, infrastructure investments and cloud costs. Master your budget management expertise. The impact of data center and infrastructure sustainability is directing more IT decisions toward alignment with business needs, corporate responsibility and environmental goals. Act on the growing commitment to sustainability.
Priorities and challenges

Top priorities

The top priorities — strengthening security, improving internal processes, developing IT team members and reducing IT costs — have stayed consistent since 2019. With many IT departments facing workforce reductions, leaders must commit to investing in employee well-being, training and growth. Implementing automation can streamline processes to free up limited staff resources and IT budgets; the savings can help fund security efforts and employee initiatives.

Participants ranked their top three priorities for the next 12 months

- Strengthening security: 45%
- Improving internal processes: 35%
- Developing IT team members: 34%
- Reducing IT costs: 34%
- Upgrading network infrastructure: 25%
- Implementing emerging technologies: 22%
- Upgrading server infrastructure: 20%
- Implementing a hybrid cloud solution: 18%
- Reducing technical debt: 15%
- Strengthening data center privacy & compliance: 14%
- Optimizing hybrid cloud infrastructure: 13%
- Upgrading storage infrastructure: 12%
- Sustainability: 7%

Top challenges

Participants ranked their top three challenges for the next 12 months

- Security: 54%
- Talent and workforce: 41%
- New technology adoption: 37%
- Data privacy & compliance: 28%
- Implementing a hybrid cloud solution: 20%
- Asset management: 19%
- Understanding and optimizing cloud costs: 16%
- Optimizing OpEx vs. CapEx: 12%
- Sustainability: 12%
- Vendor relationship management (VRM): 10%

Security

Protecting data and operations requires a singular focus to invest in reinforcing and upgrading security measures. The rise in security incidents and the significant business impact on organizations demonstrate how challenging and necessary it is to defend against threats and attacks.

Talent and workforce

Companies operating with limited IT budgets must find creative, cost-effective ways — such as flexible hours, career development opportunities and greater employee autonomy — to provide an engaging work environment that can attract and retain talent.

New technology adoption

IT teams must continue to adapt and adopt new technologies. Artificial intelligence (AI) offers multiple use cases and must be leveraged to gain competitive advantages, improve productivity and reduce costs. Companies must be diligent in their approach and selection of technology partners, specifically focusing on what rights the partner has to data usage and ownership.

MORE BUDGET FINDINGS AND INSIGHTS ON THE FOLLOWING PAGES
Budget outlook

IT budget changes

Nearly half of respondents forecasted IT budget increases in 2024. Rising labor and software contract costs will drive up spending as suppliers look to maintain margins in an inflationary world. IT management must scrutinize expenses and look for alternative ways to optimize budgets to maintain and grow the bottom line. Budget increases will only be sustainable if goals are met and additional spending improves company profitability.

Budget outlook

How do you see your IT budget changing in 2024?

<table>
<thead>
<tr>
<th>Increase by 26% or more</th>
<th>Decrease by 10% or less</th>
<th>Increase between 11-25%</th>
<th>Decrease between 11-25%</th>
<th>Increase by 10% or less</th>
<th>Decrease by 26% or more</th>
<th>No change</th>
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<td>4%</td>
<td>16%</td>
<td>17%</td>
<td>5%</td>
<td>28%</td>
<td>22%</td>
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Cost-saving measures

As a result of persistent supply chain issues, companies delayed hardware refreshes and controlled costs by using equipment far longer than initially planned. IT leaders can further reduce capital budgets and operating expenses using third-party maintenance (TPM) solutions to extend the equipment life cycle.

IT teams are also consolidating workloads and exploring hybrid, public and private cloud solutions to reduce spending in 2024. Companies should approach this evaluation from a capital budget, operating expense, IT skills and resource perspective. Moving workloads from on-prem to alternative hosting strategies with specialist providers can allow companies to focus their IT resources on value-added initiatives rather than managing infrastructure and data centers.

Participants ranked their top three cost-saving measures for the next 12 months

<table>
<thead>
<tr>
<th>Extending equipment life</th>
<th>Data center consolidation</th>
<th>Moving from on-prem to cloud</th>
<th>Workload consolidation</th>
<th>IT business process automation</th>
<th>Vendor management</th>
<th>Not planning to reduce data center costs</th>
<th>Other</th>
<th>Staff outsourcing</th>
<th>Moving from cloud to on-prem</th>
</tr>
</thead>
<tbody>
<tr>
<td>48%</td>
<td>43%</td>
<td>40%</td>
<td>40%</td>
<td>36%</td>
<td>25%</td>
<td>25%</td>
<td>18%</td>
<td>15%</td>
<td>10%</td>
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</table>
Workload deployment

Workload environment

On-premises data centers are still the predominant hosting option at 47%. Companies are taking a methodical approach to their hosting strategies that includes evaluating capital and operating budgets and finding a hybrid solution for their IT resources. Other workloads are distributed fairly evenly among colocation, public and private cloud providers. Over the last four years of reporting, we’ve seen a small shift from on-prem to these three other strategies; in absolute terms, workloads are still growing in all four areas.

What percentage of your current environment is in the following?

- **On-prem data center**: 47%
- **Hosted private cloud**: 18%
- **Public cloud**: 18%
- **Colocation**: 17%

Off-premises drivers

Companies are migrating off-prem to improve disaster recovery and business continuity measures and to offset the significant capital and operating spend needed to run on-prem data centers.

Maintaining a secure on-prem data center requires an array of resources. The security investments, processes and dedicated skills of specialized third-party hosting partners provide additional benefits to moving off-prem.

Participants ranked the top three drivers impacting their company’s decision to move workloads off-prem over the next 12 months:

- **Disaster recovery / Business continuity**: 61%
- **Lower capital costs**: 46%
- **Improved security**: 44%
- **Application**: 35%
- **Consolidation**: 33%
- **Limited staffing capabilities**: 28%
- **Rapid capacity expansion**: 28%

From the expert

“While third-party IT providers can enhance security, the key lies in due diligence and collaboration. Trust but verify continues to be the security mantra, ensuring that your company’s security standards are in line and supported by your IT providers.”

Nick Ockwell
CIO
Workload deployment

Public cloud challenges

While public cloud offers flexible environments, recruiting and retaining qualified cloud engineers and unpredictable costs are problematic. In addition, many applications and environments aren’t optimized to leverage the full benefit of cloud technologies and deliver the desired return. Reengineering workloads for specific applications typically requires more investment, time and resources.

A hybrid mindset considers on-prem, private and public cloud options to best serve the company’s business model and needs. For example, public cloud provides significant flexibility for compute capacity; private cloud and on-prem solutions provide more predictable, steady volume increases.

Participants ranked the top three challenges they’ve experienced with their public cloud solution

From the expert

“Ultimately, choosing a hybrid hosting sourcing strategy depends on your organization’s specific needs, existing infrastructure and long-term goals. Rather than focusing on a quick win, you need to consider the ongoing costs of each solution. Pay careful attention to flexibility, cost optimization, security, regulatory compliance, scalability, disaster recovery and risk mitigation.”

Nick Ockwell
CIO
Infrastructure hardware

Servers, storage and network

Servers

Dell EMC maintains the largest market share ahead of HPE and Cisco. The Dell PowerEdge server is widely recognized for its value, ease of use and open access to updates, making it a popular option for large organizations.

Which servers does your company currently use?

- Dell EMC: 60%
- HPE: 37%
- Cisco: 33%
- IBM: 20%
- Oracle: 13%
- Lenovo: 10%
- Other: 6%

Storage

Dell EMC’s dominance in the storage market will likely persist due to its broad portfolio that serves a variety of use cases. A growing number of companies are adopting Pure Storage as a less costly alternative to other options.

Which storage equipment does your company currently use?

- Dell EMC: 53%
- HPE: 24%
- NetApp: 23%
- IBM: 18%
- Pure Storage: 15%
- Hitachi: 6%
- Other: 14%

Network

Since its inception, Cisco continues to be a leader in the network ecosystem space. However, IT teams are beginning to adopt a broader network strategy, including other manufacturers specializing in firewalls, WAN and edge use cases.

Which network devices does your company currently use?

- Cisco: 76%
- HPE / Aruba: 19%
- Fortinet: 17%
- Dell EMC: 15%
- Juniper: 14%
- Other: 10%
- Extreme: 6%

Hardware refresh cycles

What is your current refresh cycle for your data center equipment?

- Servers:
  - 8+ years: 13%
  - 1-3 years: 7%
  - 6-7 years: 31%
  - 4-5 years: 49%

- Storage:
  - 8+ years: 15%
  - 1-3 years: 6%
  - 6-7 years: 34%
  - 4-5 years: 45%

- Network:
  - 8+ years: 23%
  - 1-3 years: 5%
  - 6-7 years: 33%
  - 4-5 years: 30%

Hardware investment

The global supply chain crisis, tightening budgets and economic uncertainty pushed many companies to delay refreshes and extend their equipment life. The shift to longer refresh cycles continues growing for multiple reasons, including a better understanding of long-term hardware reliability and equipment performance, the pressure to reduce spending and a greater commitment to sustainability. When existing infrastructure meets demands, a CapEx-intensive refresh should be reevaluated.

From the expert

“Large cloud hyperscalers have made news by moving from a three-year to a four-to-five-year refresh cycle. As we meet with customers, we review reliability and longevity data to show that the useful life of equipment extends beyond seven to ten years for most products.”

Jake Blough
CTO

SERVICEEXPRESS.COM
Data center maintenance

Maintenance decision drivers

In considering the many factors influencing their maintenance decisions, IT professionals rank price, quality service and resolution time as the most important. Equipment failures and downtime impact business efficiency and results. Increasingly, companies are looking for infrastructure management and support automation to reduce spending while improving support and customer experience.

Participants ranked the top three drivers that influence the decision-making process regarding their organization’s server, storage or networking maintenance support.

- **Price**: 59%
- **Engineer knowledge & skill**: 46%
- **Customer experience**: 38%
- **Response time to issue**: 38%
- **Ease of placing a service call**: 27%
- **System monitoring & alerting**: 20%
- **Data center infrastructure management (DCIM)**: 14%
- **Flexible service agreement**: 14%
- **Managed services**: 13%
- **IT service management (ITSM)**: 11%
- **Reviews / references: Gartner, peer, industry reputation**: 9%
- **Multivendor support**: 8%

Data center maintenance

Maintenance challenges

Maintenance issues have changed little in the past five years of our reporting. High costs, engineer concerns, parts availability and administrative difficulties persist. Despite continually raising prices, the manufacturers have reduced investment in service delivery and limited warranty coverage options. Success for the manufacturer relies on selling new equipment, not servicing it post-sale.

Participants ranked the top three challenges they experience when working with their current maintenance provider.

- **High cost of service**: 51%
- **Parts delays or quality issues**: 34%
- **No other issues currently**: 33%
- **Lack of service engineer skill / knowledge**: 33%
- **Slow response to service needs**: 30%
- **Administrative difficulties: red tape, complex terms & conditions, penalties**: 28%
- **System monitoring quality**: 23%
- **Difficulties placing service calls / tickets**: 22%
- **Limited portal functionality**: 17%
- **Pressure to buy new hardware**: 15%
Companies are increasingly recognizing the many advantages of third-party maintenance, including streamlined service, broad engineer knowledge and lower costs. IT teams seeking alternatives to manufacturer support must find improved service and value with TPM providers to meet their IT infrastructure and budget needs.

What do you value most about a third-party maintenance provider?

- Knowledgeable engineers: 49%
- Better service experience: 44%
- Value for the price: 38%
- Extended equipment life cycle: 36%
- Legacy equipment support: 35%
- Multivendor support: 23%
- More flexible coverage options: 22%
- Less administrative complexity: 20%
- Helps meet sustainability measures: 15%
- Speedier parts delivery: 13%

**From the expert**

"Our TPM solutions extend beyond cost-savings, technical expertise and quick resolutions. We empower our customers to optimize their CapEx and OpEx budgets by sharing valuable insights using a variety of resources, including our longevity and reliability studies."

**Chad Peters**
Director of Infrastructure Solutions

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Managed services

Cloud computing, security, and backup and recovery are the most common service areas organizations look to outsource to specialized companies for needed skills and resources.

Potential security vulnerabilities and disasters threaten financial and reputational integrity. For many small to medium-sized enterprises, the cost of recruiting and retaining specialists while providing qualified IT security resources is prohibitive. Due to economies of scale and targeted expertise, a managed service provider can offer a reliable, cost-effective alternative. Third-party solutions enable IT leaders to lower costs and allocate scarce resources to other business-facing initiatives.

Which managed services are you using or planning to use in the next 12 months?

- Cloud computing: 41%
- Backup and recovery: 37%
- Security: 33%
- Disaster recovery: 28%
- Infrastructure support: 26%
- Help desk: 20%
- Network administration: 17%
- Mobile device management: 15%
- Storage administration: 15%
- System administration: 13%
Environmental responsibility

For years, sustainability was a minor concern for most companies; it’s now becoming a mainstay for corporate governance. Organizations are switching from nice-to-have to must-have practices to reflect the shift in business priorities. In anticipation of future environmental regulations, leaders are preparing for new and stronger sustainability demands. IT teams continue taking steps to limit carbon emissions by extending equipment life cycles, reducing e-waste and optimizing energy usage.

What sustainability measures are part of your IT operations or strategy?

- Extending equipment life: 57%
- Partnering with vendors with sustainability best practices: 22%
- Using renewable energy sources: 15%
- Reducing energy consumption: 35%
- Upgrading infrastructure: 37%
- Not currently taking any sustainability measures: 9%

From the expert

“Although reducing power consumption is an obvious target for sustainability, consider the overall impact. The bulk of carbon emissions comes from the manufacture and transport of the product. A company can show more progress in carbon avoidance or total carbon emission by extending equipment life across the board instead of upgrading to a newer energy-efficient model.”

Human capital

Talent trends

How can IT leaders address the employee experience? Ideas include establishing a hybrid balance of remote and in-office work by bringing teams in on specific days to advance engagement, collaboration and team building while mitigating the need to return to the office full time. Build and retain talent with training and development programs to support the pursuit of new technology skills and specialty certifications. Support individual growth with opportunities to work on new initiatives and technologies for job satisfaction and career enhancement.

In your IT role, are you experiencing any of the following?

- Increased remote work: 53%
- Increased salaries to retain or attract talent: 30%
- New challenges in attracting or retaining talent: 28%
- Higher burnout: 27%
- Lower staffing levels: 26%
- Improved employee engagement: 24%
- More geographically diverse talent base due to remote work: 23%
- Higher voluntary turnover: 20%
- Increased benefits outside of salary to retain or attract talent: 19%
Automation technology has made substantial progress in the past several years. Companies should and are taking advantage of three main tools of automation:

- Robotic Process Automation (RPA)
- Machine Learning (ML)
- Artificial Intelligence (AI)

Strategic implementation of these tools greatly enhances your productivity and employee engagement by removing mundane tasks from overworked teams. RPA is a great fit for repetitive tasks within a user interface (UI), such as closing help desk tickets or making changes to a ticket based on email or chat. Data science combines experience with ML techniques to make predictions and automate tasks and report generation. AI with Large Language Models (LLM) is still in its infancy but is rapidly transforming work tasks. It quickly and easily generates answers from existing knowledge bases or applications without needing to access or scan reports or require immediate staff support. Be ever vigilant with AI security. A thorough corporate AI usage policy is necessary to ensure the confidentiality of your customer and company data.

**From the expert**

“While companies may view training and career development as non-essential business expenses, losing the expertise and productivity of a single individual requires considerable effort and budget to recruit, hire and onboard a new team member.”

Nick Ockwell, CIO

Leadership skills are essential for all IT managers. Ensure that your management teams are engaged with their team members, creating aligned goals and expectations, learning how to support individuals and providing timely and constructive feedback. Never underestimate the impact of good and bad leaders.

**Staffing**

Staffing is typically one of the largest costs in any organization. Recruiting and retaining top talent is critical to the health of your workforce. The considerable cost and disruption of losing top performers reduce your company’s ability to achieve its goals. Focus on career development opportunities, training, work-life balance and providing purpose to promote and maintain talent engagement.

**Training**

Always invest in your workforce and, subsequently, your company’s success. Organizations that provide high-quality training programs empower employees to keep pace with changes, build quality products and deliver excellent service. In addition, training programs expand the talent pool to include those candidates who can power your company culture and succeed as they learn instead of relying only on specific technical abilities. People can learn new skills with the right resources and support, but changing a mindset or attitude is often much more challenging.

We concluded the survey by asking participants this open-ended question:

**Aside from an extra four hours a day, an unlimited budget or a genie in a bottle, what would make your job easier?**

Within the many clever, creative and thoughtful responses, we’ve identified and addressed three central themes.
CIO outlook for 2024

Prioritize the essentials

Below are the 2024 priorities I’ve shortlisted for Chief Information Officers (CIOs) with the understanding that the specifics will vary based on your organization’s industry and goals. You should focus on these key areas to effectively lead your organization’s IT strategy and achieve greater business value:

#1 Cybersecurity

With the increasing frequency and sophistication of cyber threats, CIOs must prioritize cybersecurity measures to protect sensitive data, maintain the trust of customers and stakeholders, and minimize the impact to the organization when, not if, a security attack occurs.

#2 AI implementation

Invest in AI and automation technologies to keep pace with business expectations, improve operational efficiency and enhance customer experiences. As you make these changes with AI, pay particular attention to regulatory and contractual risks, specifically in terms of data use and ownership.

#3 Hybrid hosting strategy

Develop a robust hybrid hosting strategy that aligns with your organization’s goals, whether on-prem, public, private or hybrid cloud adoption.

#4 Employee engagement and talent development

Foster a culture of continuous learning and career development. Invest in your workforce to retain staff and avoid the cost and disruption of employee turnover.

#5 Strategic partnerships

Collaborate with technology partners and specialist third-party providers to introduce innovation. Using partner expertise, create competitive advantages, resolve business and IT issues, and address organizational gaps, such as disaster recovery.

#6 Customer-centric approach

Keep the customer at the center of all your IT decisions. Focus on enhancing their experience and meeting their evolving needs to provide continual value and support.
Survey background

Service Express surveyed 1,006 IT professionals throughout the US and Europe from April–July 2023 to create this report.

Survey demographics

Responsibility

- System Administrator / Server, storage or network engineer: 32%
- Server, Storage, Network or Data Center Manager: 19%
- VP or Director: Infrastructure, Technology or Systems: 29%
- C-level: CIO, CSO, CTO: 11%
- Other: 9%

Revenue

- $250,000 to $50M: 29%
- $50M to $1B: 13%
- $1B+: 23%
- Other: 3%

Employee count

- 1 to 500: 26%
- 501 to 1,000: 14%
- 1,001 to 5,000: 30%
- 5,001 to 10,000: 12%
- 10,001+: 17%

Industry

- Educational services: 21%
- Professional, scientific & technical services: 18%
- Manufacturing: 15%
- Finance & insurance: 10%
- Healthcare: 10%
- Retail or wholesale trade: 7%
- Government: 3%
- Transportation & warehousing: 3%
- Energy & utilities: 2%
- Media: 2%

Industry categories that measured at less than 1% are not listed.
About Service Express

Service Express is an industry-leading data center solutions provider specializing in global multivendor maintenance and managed infrastructure services. Companies around the globe trust Service Express to deliver reliable end-to-end support. Service Express’ flagship technology, ExpressConnect®, simplifies maintenance for IT teams with support automation, hardware monitoring, account management and more.

Let’s connect

For more information, visit serviceexpress.com.

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