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CIO

2024
STATE OF THE
DATA CENTER

From Cost Center to Value Driver:
The Transformative Power of Colocation

Introduction

C-suite confidence in the economy remains high, but many business leaders continue to emphasize cost control, predictability, flexibility and risk management.[1] IT is not immune to this VUCA (volatile, uncertain, complex, ambiguous) mindset, with IT leaders closely watching their budgets despite the pressure to accelerate digital transformation initiatives. It's a delicate balance, given the urgency to accommodate more resource-intensive artificial intelligence (AI) and other high-density workloads while ensuring the connectivity to the cloud and interoperability of their digital ecosystems — including data as well as applications.

Seeking the sweet spot of investment, cost control and risk management, more IT leaders are embracing hybrid IT models. They're combining colocation, public cloud, private cloud and on-premises environments to host IT infrastructure, buttressed by the valuable experience many have gained from a decade or more of cloud computing investments.

Forward-thinking leaders understand the benefits of supporting different types of data and workloads across a hybrid IT environment. They are connecting into interconnected digital ecosystems — including colocation and cloud services — that align with business objectives to deliver value, performance and flexibility. Increasingly, according to the 2024 State of the Data Center research, they are turning to colocation data centers to carry a heavier, more strategic load and to support their interconnection requirements.

About the research

Now in its fifth year, the 2024 State of the Data Center research, conducted by Foundry, surveyed 300 CIOs, CTOs and other IT decision-makers representing a variety of industry sectors.

In addition to the survey, Foundry conducted in-depth interviews with seven senior technology executives from enterprise organizations in the financial services, healthcare, retail and software-as-a-service (SaaS) sectors. Quotes from those interviews are included throughout the report, with the understanding that subjects would not be identified by name or company, so they could speak freely about their data center strategies.

It's a hybrid world, with all the benefits and challenges that go with it

To remain competitive in today's business environment, organizations are digitally transforming to become more agile, innovative and efficient. Over the past decade, organizations have relied heavily on the public cloud to fuel these modernization efforts. IT and business leaders view the cloud as an essential platform to replace legacy technology or to quickly add new capabilities that improve agility and flexibility.
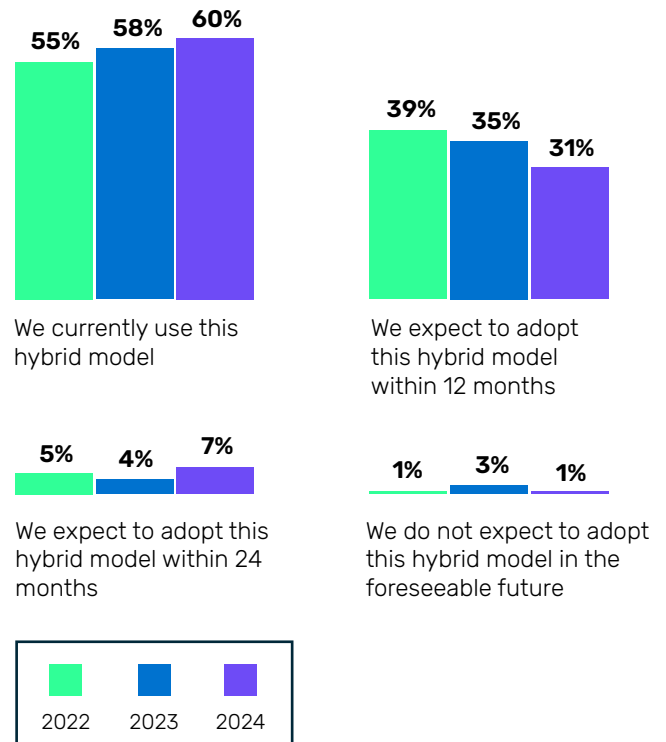
However, they also realize the cloud is not the nirvana that many pundits predicted. Concerns over cost predictability, performance and compliance requirements have led many IT leaders to reconsider "all-in" cloud approaches. Instead, they're evolving toward a hybrid, "cloud-smart" infrastructure that combines public and private cloud, on-premises and colocation services and which provides "native," direct interconnections among them for seamless connectivity (See "What is a native connection?" box).

In the 2024 State of the Data Center study, 98% of the participating organizations said they have currently adopted or plan to adopt a hybrid model using colocation, private cloud and public cloud to manage their workloads. Over the past three years, hybrid cloud adoption has steadily trended upward, with 60% of the organizations surveyed already using this model in 2024, compared to 58% in 2023 and 55% in 2022 (See Figure 1).

What is a native connection?

A direct cloud interconnect, or "native onramp" as it's sometimes called, is a private connection between dedicated infrastructure and a cloud provider, enabled by a cross connect within a data center. It is a native onramp because it is an on-net, physical connection.

Figure 1: Use of Hybrid Cloud Models On the Rise

We currently use this hybrid model
- 55% (2022)
- 58% (2023)
- 60% (2024)

We expect to adopt this hybrid model within 12 months
- 39% (2022)
- 35% (2023)
- 31% (2024)

We expect to adopt this hybrid model within 24 months
- 5% (2022)
- 4% (2023)
- 7% (2024)

We do not expect to adopt this hybrid model in the foreseeable future
- 1% (2022)
- 3% (2023)
- 1% (2024)

Legend: 2022, 2023, 2024

Source: 2024 State of the Data Center Report, Foundry

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3

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"Our approach is to use a hybrid model," says a senior IT director from the banking industry. "We see colocation as a vital part of this mix, especially for regulatory compliance and data sovereignty." The director estimates that 45% of the organization's IT infrastructure is delivered by a colocation partner.

Hybrid IT challenges

One downside to a hybrid IT strategy is the growing complexity of IT environments. Large organizations have cited IT infrastructure complexity as the No. 1 barrier to successful digital business initiatives.[2]

Technology sprawl can increase inefficiencies and make it difficult to effectively manage the expenses of cloud-related infrastructure, services and applications.

An ongoing IT skills gap adds to the challenge, leaving many businesses to navigate the technology labyrinth without qualified and experienced human resources. IT leaders see diminishing returns from dedicating scarce internal resources toward the day-to-day administration of on-prem data centers; they would much rather redirect their team's efforts toward high-value tasks in support of the business. "We're not in the business of running a data center," says the senior IT director in the banking industry.

Complex IT environments also make it difficult to manage the interoperability of services across clouds and between on-prem and cloud systems and services. Analyst firm IDC says hybrid and multicloud interoperability is becoming a de facto requirement for many cloud buyers, who are pressuring vendors to focus on API portability and open standards.[3]

"We're not in the business of running a data center."
— survey respondent, **senior IT director in the banking industry**

Colocation's growing importance

Being cloud smart is not the only trend contributing to the rise of colocation as a value-add component in hybrid IT environments. Security and compliance, scalability and simplicity/efficiency have made sizable gains as reasons to migrate many workloads to colocation, compared with the 2023 survey (See Figure 2).

The 2024 research and interviews overwhelmingly point to the value of colocation, including factors such as: direct access to cloud providers; interconnection across cloud services; predictable operating costs; and more robust data management, security and compliance capabilities.

"Owning and operating your own data centers is very capital-intensive," says Juan Font, president and CEO of CoreSite and SVP of American Tower. "The public cloud has been great for reducing CapEx and getting access to services quickly. But as those services and workloads mature, the cloud can become very expensive. So, we're seeing more enterprises move to a hybrid model where a subset of workloads is colocated on-prem or in a third-party data center. We'll continue to see the ratio shift."

Figure 2: Top 3 Reasons for Moving Workloads to Colocation Data Centers

From on-premises environments:

1. **Security**

2. **Reliability**

3. **Performance/speed**

From public cloud environments:

1. **Security and compliance**

2. **Scalability**

3. **Simplicity**

Interconnection and direct cloud connection

Cloud interconnection was the No. 1 reason for using colocation for nearly half of the 22 workloads included in the survey (See Figure 3). However, only 31% of the respondents said their current colocation provider offers interconnection to a variety of cloud providers. That's likely because there are only a few providers that offer true native, direct connection capabilities, CoreSite being one of them.

Colocation providers that offer interconnection solutions can help companies establish a unified digital ecosystem that not only enhances companies' customer experiences but also simplifies data resource management for IT leaders.

"Colo is great if I need an edge connection close to where the data is, or if I need a fast connection into cloud, a direct connect, or interconnects between different locations for transferring large-scale amounts of data," says the director of IT for a company in the retail industry, which hosts about 30% of its total IT infrastructure with a colocation partner.

Figure 3: Why Organizations Run Workloads in Colocation Data Centers

Workload	Reasons to Run Workloads in a Colocation Data Center		
Development/test	1. Cloud interconnection	2. Performance/speed	3. Access to managed services
GenAI/machine learning (ML)	1. Cloud interconnection	2. Security	3. Expertise in enabling AI applications
Business intelligence	1. Cloud interconnection	2. Performance/speed	3. Compliance
Internet of Things connectivity	1. Cloud interconnection	2. Performance/speed	3. Security
Storage/backup	1. Cloud interconnection	1. Cost (tie)	3. Reliability
Core business apps	1. Cloud interconnection	2. Cost	2. Reliability (tie)
Customer relationship management	1. Cloud interconnection	2. Cost	3. Reliability
Human resources management systems	1. Cloud interconnection	2. Cost	2. High-density power and cooling (tie)
Natural language processing apps	1. Cloud interconnection	2. Compliance	3. Access to managed services
Website/web apps	1. Cloud interconnection	2. Reliability	3. High-density power and cooling

Source: 2024 State of the Data Center Report, Foundry

Cloud interconnection was the No. 1 reason for using colocation for nearly half of the 22 workloads included in the survey. However, only 31% of the respondents said their current colocation provider offers interconnection to a variety of cloud providers.

Additionally, the ability to provide cost-efficient, secure, direct cloud connections is a significant advantage of colocation. Direct cloud onramps are critical for organizations that use a multitude of digital services to connect with customers and suppliers. Enterprises must be able to interconnect systems and locations to transfer large-scale amounts of data, while keeping latency, cost, security and quality in mind.

Most of the survey respondents (95%) said the ability of colocation providers to offer native, direct connections to the major cloud providers is important, with 69% citing the capability as very important. These percentages are consistent with the 2023 and 2022 surveys.

Availability of native or direct connections to cloud providers has been a top-three factor in decisions to move a variety of workloads from the public cloud to colocation, including Internet of Things (IoT), security/cybersecurity, core business apps, business intelligence (BI) and storage/backup workloads (See Figure 4).

Figure 4: Native/Direct Data Connectivity Is a Critical Colocation Capability

Workload	Top 3 Drivers		
IoT connectivity	1. Simplicity	2. Performance	3. Native/direct data connection
Security/cybersecurity	1. Performance	2. Native/direct data connection	3. Security/compliance
Core business apps	1. Ownership	2. Native/direct data connection	3. Downtime/outages
BI	1. Scalability	2. Native/direct data connection	3. Security/compliance
Storage/backup	1. Cost	2. Native/direct data connection	3. Scalability

Source: 2024 State of the Data Center Report, Foundry

Most of the survey respondents (95%) said the ability of colocation providers to offer native, direct connections to the major cloud providers is important, with 69% citing the capability as very important.

Cost predictability

As IT leaders custom-configure resources based on their needs and options, colocation provides not only savings, but also cost predictability. "[Colocation] is a fairly predictable cost structure," says the VP and chief information security officer of a company in the software industry with about 17,000 employees. "The fees are associated with the number of racks that we have, for instance, which is very predictable."

Survey respondents indicated that cost is increasingly a factor when determining where to place computing resources. Cost emerged as the top reason for running five distinct enterprise workloads and applications in colocation data centers: storage, enterprise resource planning (ERP), robotics/automation, recommender systems and mobile apps (See Figure 5). Also, it ranked No. 2 for three other workload types: core business apps, customer relationship management and human resource management systems.

"If you're going to have your own systems … they should all be in a colocation facility because you can do a better job of predicting cost, they're scalable and they tend to be more reliable," says the banking sector IT director.

Colocation is also a more efficient way to right-size operations without the capital expenditure of building data centers and the personnel costs to ensure 24/7 operations. Businesses can focus on their core competencies rather than on running a data center.

"A key driver to using colo is to avoid the constant expense of maintaining our own data centers," adds the banking sector IT director. "In the colos, we have a lot more flexibility."

Figure 5: Organizations Cite Cost Benefits as the Top Driver for Colocation

Workload	Top 3 Reasons to Run Workloads in Colocation		
ERP	1. Cost	2. High-density power and cooling	3. Cloud interconnection
Robotics and automation	1. Cost	2. Cloud interconnection	2. Security (tie)
Recommender systems	1. Cost	2. Security	3. Compliance
Mobile apps	1. Cost	2. Reliability	3. High-density power and cooling
Storage/backup	1. Cloud interconnection	1. Cost (tie)	3. Reliability

Source: 2024 State of the Data Center Report, Foundry

Improved data management, protection and compliance

Physically protecting data and ensuring the smooth, uninterrupted flow of high-velocity workloads are existential business requirements, which colocation is well-suited to meet.

"We look at colo for security because the data is very sensitive and we want control over who has access to that data," says the senior principal architect for a financial services company with approximately 50,000 employees, which uses colocation for the majority of its 33 data centers.

Physical security of data centers is a key consideration for most survey respondents. Implementing the necessary strategies to protect on-premises data centers can be costly, with measures that include perimeter security, building entry screening, man traps, corridor security and computer room and cage-level authentication.

"[Colos] are going to do a much better job [running a data center] than we do," says the banking sector IT director. "Their physical security tends to be better. Anything that we're hosting should be in a colocation."

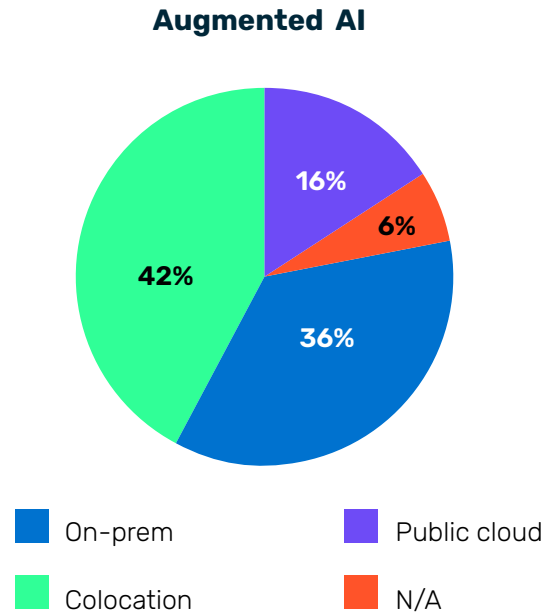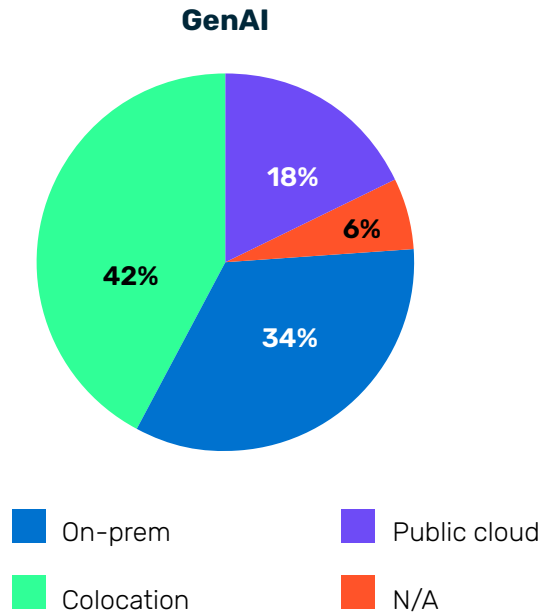# AI as an accelerant to colocation adoption

As organizations become more dependent on AI, leaders must adjust their IT topologies to support the increase in data and compute resources that complex AI models demand. Heightened expectations around AI, especially generative AI (GenAI), are causing IT leaders to reevaluate their options for hosting these and other high-density workloads to meet physical infrastructure (power and cooling) and data management requirements within budget constraints.

"If you want to run any of these newer technologies like ChatGPT in any real capacity, you need to have more resources," says the retail industry IT director. "And most organizations, including my own, just don't have those resources internally."
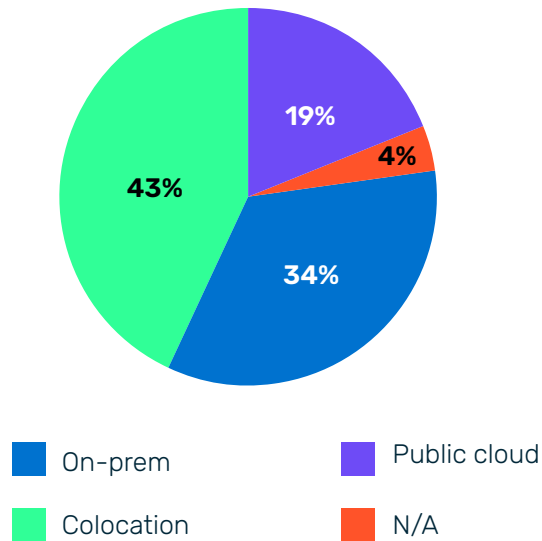
A 2023 IDC study found that colocation providers are the preferred model among IT and business leaders for deploying enterprise AI and ML models and workloads.[4] The past three years of State of the Data Center research underscores this trend, showing the gravitational pull of resource-intensive AI workloads away from on-prem systems toward colocation and, to a lesser extent, public cloud.

In the 2024 survey, the AI/ML category was split into several subcategories to better capture the broadening scope of AI-related activities. This year's results show a greater shift of AI-specific workloads away from on-prem environments, primarily to colocation data centers (See Figure 6, page 10).
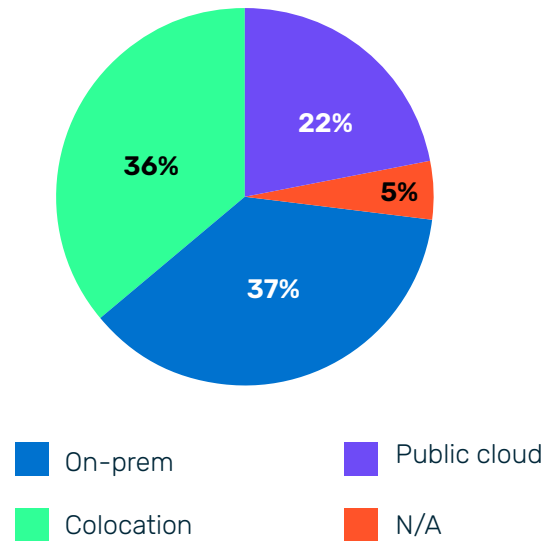
Figure 6: Where AI-Based Workloads Are Primarily Deployed

GenAI

- On-prem 34%
- Public cloud 18%
- Colocation 42%
- N/A 6%

Augmented AI

- On-prem 36%
- Public cloud 16%
- Colocation 42%
- N/A 6%

Chatbots and Virtual Assistants

- On-prem 34%
- Public cloud 19%
- Colocation 43%
- N/A 4%

Natural Language Processing Apps

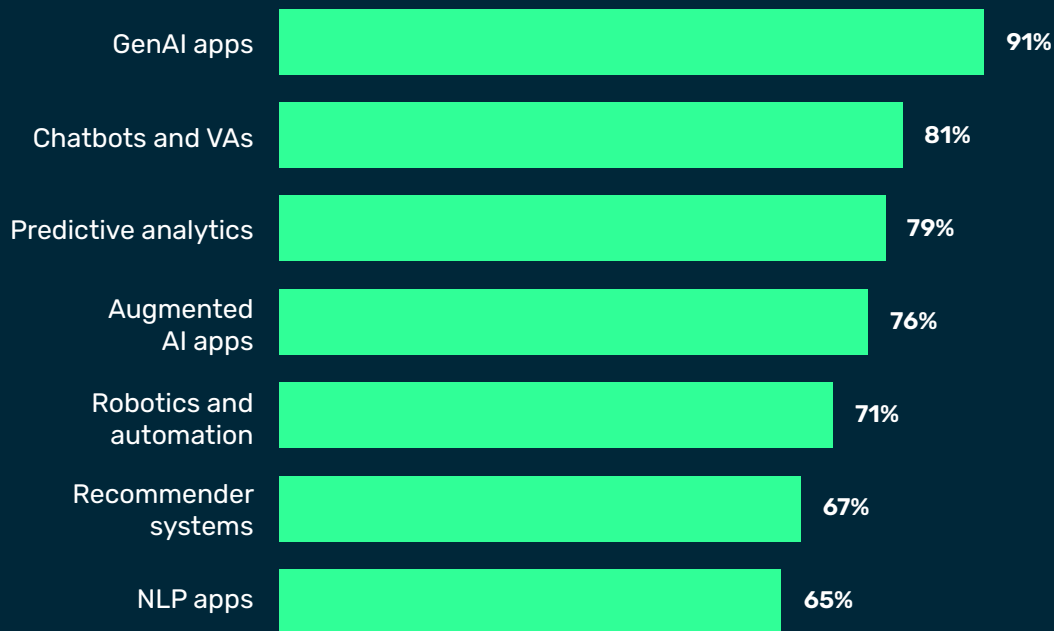- On-prem 37%
- Public cloud 22%
- Colocation 36%
- N/A 5%

Source: 2024 State of the Data Center Report, Foundry

In addition, at least three-quarters of the respondents in this year's survey said they are considering moving AI-related workloads from the public cloud to a colocation data center, including GenAI applications, chatbots, predictive analytics and augmented AI applications (See Figure 7, page 11).

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10

Figure 7: Plans for AI-Related Workloads to Move From Public Cloud to Colocation

Category	Percentage
GenAI apps	91%
Chatbots and VAs	81%
Predictive analytics	79%
Augmented AI apps	76%
Robotics and automation	71%
Recommender systems	67%
NLP apps	65%

Source: 2024 State of the Data Center Report, Foundry

The drivers of this trend are clear: AI and ML workloads require more compute resources and access to high volumes of data. As organizations increase their investments in AI, they are reconsidering which environments give them the right cost/performance benefits.

"There's so much investment required for AI and ML," says the senior principal architect from the financial services company. "The technology has its own set of demands, including power and cooling." The architect estimates that 60% of the company's IT infrastructure is currently delivered through a colocation partner.

Another driver is the location and protection of the vast amounts and diverse types of data used to fuel ML algorithms.

"For AI and machine learning apps, it's all about where the data is," the architect says. "The whole foundation of AI is based on the data type, and [those] data sources tend to be in our colo."

The ecosystem of partners available through colocation services may also help organizations fill much-needed gaps for AI and ML skills. Expertise in enabling AI applications is a top-three reason for running GenAI, predictive analytics and recommender systems in a colocation data center. Colocation data centers often offer access to specific managed services providers with skills and tools that enterprises may not have within their own four walls — and a select few offer the interconnection capabilities to create efficient interoperability. Those managed service provider resources are available on demand, on a pay-per-use basis.

Striking the right balance for IT work environments

With hybrid IT environments evolving and maturing, many CIOs are tinkering with their infrastructure mix of colocation, multicloud and on-prem to reevaluate where to deploy specific workloads to maximize the benefits of each paradigm.

"Hybrid models provide not only more options for where workloads are hosted, but they also add flexibility to move workloads back and forth, depending on your needs," says CoreSite's Font.
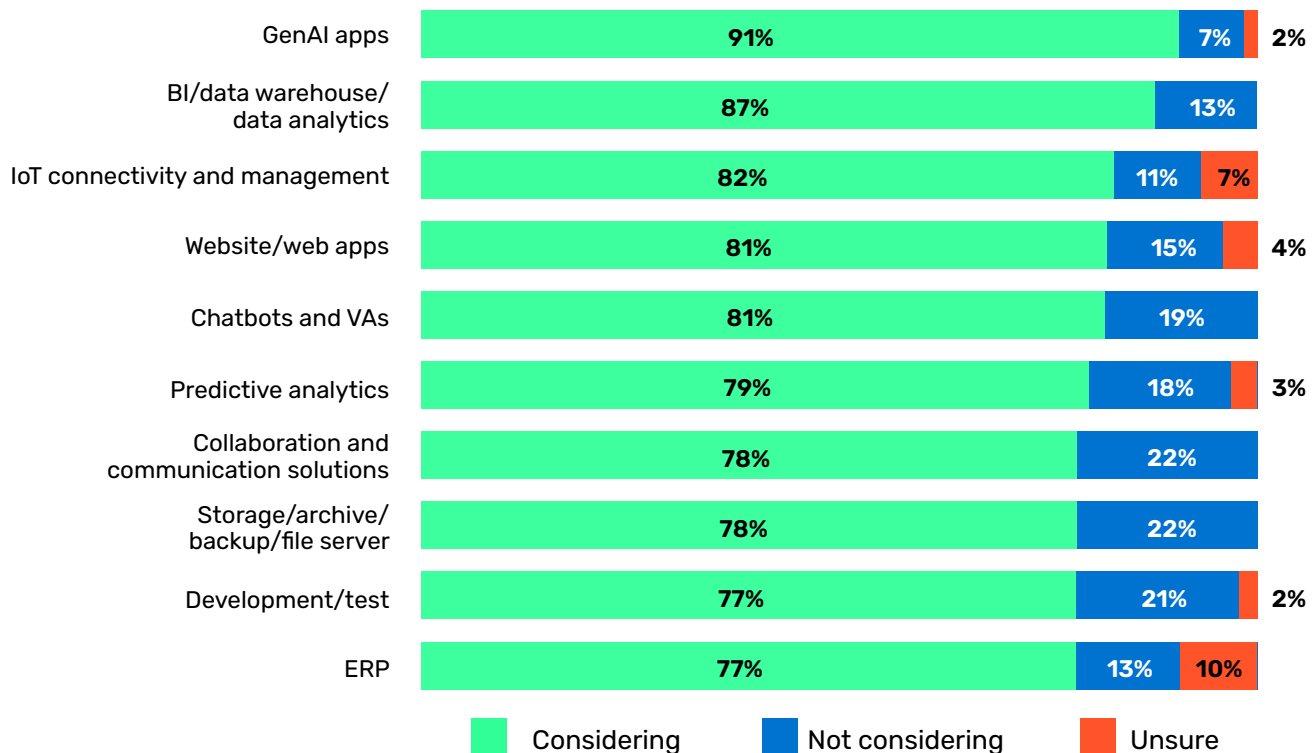
According to 2024 State of the Data Center findings, much of this reshuffling involves moving workloads from public cloud environments to colocation data centers. Most of the participants in the data center

At least three-quarters of the respondents in this year's survey said they are considering moving AI-related workloads from the public cloud to a colocation data center, including GenAI applications, chatbots, predictive analytics and augmented AI applications.

survey said they have considered a move from public cloud to colocation across many of 22 different workloads, led by GenAI applications, BI/analytics, and IoT connectivity and management (See Figure 8).

Compared with the 2023 study, the use of public cloud is trending down across all workloads. Figure 9 on page 13 maps how workloads have shifted location over the past 12 months.

Figure 8: Big Plans to Move Workloads to Colocation

Workload	Considering	Not considering	Unsure
GenAI apps	91%	7%	2%
BI/data warehouse/data analytics	87%	13%	
IoT connectivity and management	82%	11%	7%
Website/web apps	81%	15%	4%
Chatbots and VAs	81%	19%	
Predictive analytics	79%	18%	3%
Collaboration and communication solutions	78%	22%	
Storage/archive/backup/file server	78%	22%	
Development/test	77%	21%	2%
ERP	77%	13%	10%

Legend: ■ Considering   ■ Not considering   ■ Unsure

Source: 2024 State of the Data Center Report, Foundry

Figure 9: Deployment Changes for Workloads From 2023 to 2024

	On-premises	Colocation	Public cloud
GenAI and AI/ML apps	-12.0pp	9.0pp	-2.3pp
Development/test	2.0pp	6.0pp	-13.0pp
Core business apps	-4.3pp	5.3pp	-4.0pp
ERP	2.7pp	3.0pp	-11.7pp
Collaboration and communication solutions	5.0pp	2.7pp	-15.3pp
Storage/archive/backup/file server	4.7pp	2.0pp	-12.0pp
Security/cybersecurity	0.7pp	1.7pp	-6.3pp
Content delivery/media processing	8.3pp	-0.3pp	-14.0pp
CRM	4.7pp	-0.3pp	-11.3pp
IoT connectivity and management	8.3pp	-0.7pp	-11.3pp
BI/data warehouse/data analytics	3.0pp	-1.3pp	-8.0pp
Website/web apps	7.3pp	-2.3pp	-12.0pp
Disaster recovery/high availability	10.3pp	-3.7pp	-13.0pp
Human resources management systems	6.0pp	-4.0pp	-8.3pp
Other LoB apps	1.0pp	-8.3pp	-4.7pp
Mobile apps	12.3pp	-10.0pp	-7.3pp

Notes: pp = percentage points; weighted to prevalence of each workload across the sample. **A negative number in orange indicates a net move away from that location, a positive number in green indicates a net move to that location, and minimal/neutral movement is indicated in purple.** For example, a small change in a common workload in public cloud could result in a large change in on-prem if it is less commonly hosted there.

Source: 2024 State of the Data Center Report, Foundry

"Many of our BI systems are in colocation facilities driven by proximity to core business systems, primarily our ERP systems," says the director of infrastructure and operations for a healthcare organization. "We have a higher confidence level that we can run those particular systems successfully in colocation facilities." The organization places resources in colocation facilities across multiple global geographic regions for closer proximity to users.

When determining where to host workloads, the goal is to balance key business and technical drivers while maintaining a closer eye on costs. Increasingly, business and IT objectives are aligning around capturing value from AI and more value from the tech stack in general.
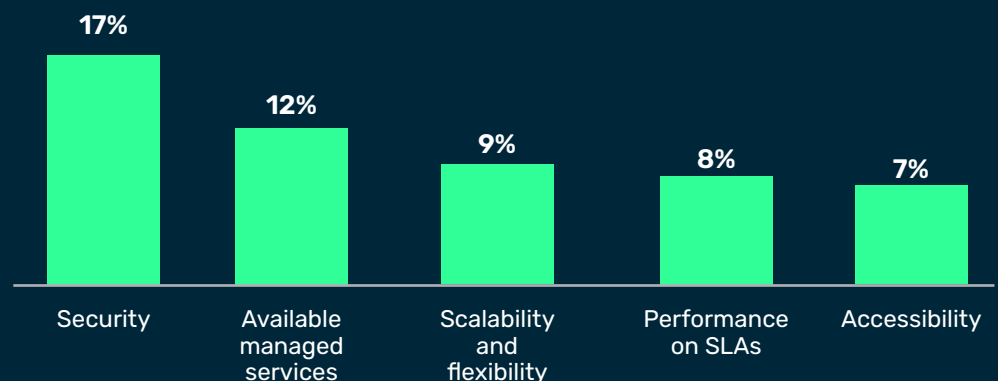
Making the switch

IT leaders understand the value of hybrid IT as a continuum — from fully on-prem to colocation data centers to completely public cloud environments — offering the flexibility to place specific workloads wherever they make the most sense in order to accelerate AI adoption, maintain competitive advantage, achieve cost predictability and ensure physical security and compliance.

"Companies should look at their data center infrastructure with an eye toward future-proofing and preparedness," says CoreSite's Font. "Enterprise leaders must ensure that their data and cloud infrastructure transform with the times."

Survey respondents cited several factors they consider in determining where to host workloads for optimum results:

Time to market: What's the best environment for enabling our team to quickly develop, test and deploy a new application or service?

Consumption models: Which consumption model best gives us the ability to deliver rapidly, at scale, within budget? What's the cost of hosting specific workloads in each environment?

Customer needs: How do customers interact with specific workloads? What are the acceptable response times and resources that are required to deliver increasingly personalized experiences?

Location: Do AI workloads need to run close to the data being used to fuel them? Will direct interconnects between different locations help us deliver high performance at scale?

Security: How tightly can we control who has access to data and how well it is protected from unauthorized access?

Network performance: How robust are the network connections that maintain high performance for data- and resource-intensive workloads?

Skills: Do we have the resources in-house to develop, launch and support a new application, workload or capability? Which service providers have the expertise to help us fill those skills gaps?

Application integration: If a new workload must interact with existing or established workloads in other applications, should we run them in close proximity to ensure a low-latency connection and short response time?

Data sensitivity: What is the relevant risk — as well as compliance requirements — of storing and managing proprietary code or sensitive customer or financial information in different environments?

Recoverability: How quickly can we resume business as usual following an unexpected disruption that results in loss of data or damage to software and hardware systems?

**Figure 10:
Top 5 Attributes
for Selecting a
Colocation Partner**

Security	Available managed services	Scalability and flexibility	Performance on SLAs	Accessibility
17%	12%	9%	8%	7%

Source: 2024 State of the Data Center Report, Foundry

Summary

In a world of economic and societal uncertainty, making smart IT investments is vital to an enterprise's ability to innovate and grow. Increasingly, IT leaders see the value of a "cloud-smart" approach, combining public and private cloud, on-premises and colocation services and supported by native, direct interconnections. As the 2024 State of the Data Center Report shows, colocation has established itself as a key element of hybrid IT strategies because of its ability to help IT teams improve cost control without inhibiting flexibility and innovation.

Keep in mind, however, that not every colocation facility is created equal: As noted earlier, although the vast majority of the survey respondents said a colocation provider's ability to offer native, direct connections to major cloud providers is important, less than one-third (31%) said their current colocation provider offers those interconnections. When choosing a colocation provider, make sure it offers robust interconnection capabilities.

Finally, by reducing an organization's IT infrastructure footprint, colocation also allows leaders to focus their internal resources and talent on growth and innovation. The IT leaders with whom Foundry spoke made it clear that they don't want to be in the data center business — their goal is to offload the day-to-day administration of data center operations and redirect their internal talent toward business-critical activities. They see the benefits of deploying their diverse workloads in a highly interconnected digital ecosystem that delivers value, performance and flexibility for their business — and the vital role colocation data centers play in supporting their evolving interconnection requirements.

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1. **Conference Board**, Q1 2024 Measure of CEO Confidence™, CEO Confidence Improved in Q1 2024
2. **Foundry**, 2023 Digital Business study, Digital Business Research 2023 • Foundry (foundryco.com)
3. **IDC**, "Improving Business Outcomes with Hybrid Cloud and Multicloud Infrastructure and Automation in the AI Everywhere Era," Document # US51286423
4. **IDC**, "Differentiation Strategies for Datacenter Networking Vendors in Generative AI Opportunities," Document #US51257523

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