AI has Upended Data Center Purchasing and Delivery.

White Paper

The Data Center Supply Chain Shock: Throw Out the Old Rules or Fall Behind

Artificial intelligence (AI) is fundamentally altering data center purchasing and delivery. Organizations must adapt quickly or risk falling behind in this AI-driven revolution. Unlike past trends, AI is a transformative force reshaping the technological landscape and is here to stay.

Global tech firms are rapidly adopting AI, showcasing its significant impact. As a leading data center developer, CyrusOne has deep insights into the infrastructure needs of organizations, especially those focused on AI. From our observations in budgeting, business plans, and urgency, AI's impact on the business world is far more than a trend. It is set to be as transformative as the widespread outsourcing of IT infrastructure and services. As AI evolves, its influence on the economy and society will become even more profound.

AI will become the Fabric of Technology: Early adopters are integrating AI to enhance data access, improve software efficiency, and boost hardware performance, optimizing workflows and user experiences. Currently, AI functions primarily as a tool through cloud or service providers.

However, tech leaders anticipate AI's integration beyond its current role, embedding it into the fabric of future technology—hardware, software, communications, and more. AI will touch nearly every aspect of technology, becoming foundational rather than merely an enhancement.

This integration requires significantly different data center requirements, advanced designs, higher densities, energy delivery, and the associated budgets.

AI Upending the Data Center World: The future plans and significant investments by the largest cloud service providers and technology leaders indicate that AI's disruption of the IT infrastructure world will be dramatic and ongoing. AI is causing significant upheaval as organizations rapidly adopt it. This "once in a lifetime" technology shift is driving transformational change in data center development and intensifying competition for data center capacity.

Evolution of Data Center Requirements: AI data centers require significantly greater scale and power densities than even today's hyperscale data centers. This necessitates a new approach for those who plan, design, maintain, build, operate, and utilize data centers.

The hyperscalers have been preparing for this shift and are leading early AI deployments, capturing the full attention of the data center supply chain. But what if your organization doesn't have the same scale? How can enterprises manage normal data center capacities or implement AI deployments without the vast resources of the largest cloud providers?

Next Section: Critical Questions to Prepare Your Organization for the Future of AI

6 Critical Questions As You Move Towards Adopting AI

QUESTION ONE:

What is the most critical action for data center buyers right now?

The first step in navigating the current marketplace is ensuring your entire organization recognizes that AI demand and its impact on the supply chain are the new normal. AI data center requirements are staggering, and it is a battle among hyperscalers and large enterprises to win the race for data center capacity, which is imperative for generating production revenue and developing AI solutions.

Finance, IT, Operations, and every other area of your organization need to realize that you are in a battle for the attention of your supply chain due to the opportunities being introduced almost daily to every supplier, OEM, and service provider in the sector.

Make it clear throughout your organization that data center development has escalated in an unimaginable way:

- 20 years ago, a 5 megawatt (MW) data center was a major project.
- 10 years ago, CyrusOne was one of the first operators building and filling 25 MW data centers.
- Now across the industry, hyperscalers and tech giants have dozens of projected 100 MW data center projects budgeted, many already in development.
- Your entire supply chain is being approached to participate in fully funded future projects from the most successful technology companies in history, firms desiring 300-400 MW campuses with a dozen individual data centers or more. Design and procurement for these projects are underway right now, with full budget approval.

The organizations driving this scale have a history of achievement, making this the new reality of the IT infrastructure supply chain. The stress on every part of the data center ecosystem—procuring land, energy, equipment, contracting, labor, and more—is unparalleled. Everyone in your organization, from the C-suite outward, needs to understand that obtaining new data center capacity is now a significant challenge, whether for generating production revenue or AI developmental projects. Overcoming these challenges requires all hands on deck and full buy-in. Ensuring this understanding throughout your organization is the first step.

QUESTION TWO:

Land is going for 5 times what it was just a few years ago in key markets. How can we be financially sensible and rein in costs, yet still engage in land banking to pursue our data center strategy?

There are two options: pay for the "new normal" in energy-adjacent land or get creative in pursuing data center properties.

> *"Just a couple of years ago we would pursue land for data centers based on where our customers wanted to be. Now we have taken the lead and our market strategy team is advising customers on site selection based on power-adjacent land and purchase availability."*
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> **— Michael Nudelman, SVP, Location & Power Strategy**

Post-COVID consumer behavior has driven land prices up in key markets. The demand for data centers and logistics centers, driven by online retail, has increased

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competition for energized properties near population bases. With utility power constrained in some markets, land with readily available energy has become more attractive. Both distribution facilities and low-latency data centers prefer proximity to major population centers, driving up prices.

If you need to be in a key market with escalated land prices, consider that land costs are a small part of the overall data center infrastructure expense. Most are accepting higher land prices rather than changing their strategy.

However, evaluate how critical low latency is to your business. If a slight latency increase is acceptable, you can choose a less competitive, lower-cost market.

For AI data centers, latency is typically less important. Site selection should prioritize affordable, plentiful energy, with low-cost land being a bonus.

QUESTION THREE:

What is the forecast for energy availability in major data center markets? Are the restrictions we're seeing in Northern Virginia going to repeat in other key data center locales?

Energy access is even more critical for AI data centers than for traditional ones, requiring significantly greater scale and power densities. This demands a new approach in planning, designing, maintaining, building, operating, and utilizing data centers.

The new requirements are staggering, and multiple markets are years away from meeting them. The primary issues are utility capacity and a lack of enthusiasm in some jurisdictions to host data centers. New AI chip sets require power densities 10 times greater than traditional ones, necessitating much more energy, which may not be readily available.

> *"The processing on a GPU vs. a CPU results in dramatic FLOPS performance increases, which has accelerated Moore's law for compute capacity. There is now significantly more compute power per MW which has made AI data centers realistic and greatly enhanced end-user demand for size and scale. Given that demand buyers need to be flexible and opportunistic to ensure the data center deployments they desire."*
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> **— John Hatem, EVP, Chief Operating Officer**

Some utilities are more accommodating and have more capacity. For AI deployments and applications without strict latency requirements, consider expanding your search beyond Tier 1 and even Tier 2 markets for more options.

Given the current challenges, embracing workable solutions for energy needs is more realistic than adhering to strict guidelines.

QUESTION FOUR:

We're seeing two-year wait times for key equipment that used to be available in 4–6 months. Will supply chain timelines return to normal any time soon?

The just-in-time delivery model now requires committing to equipment 24 months in advance. Hyperscalers building 200, 300, and even 400 MW data centers are planning 2-5 years out. At CyrusOne, we are working with customers on site selections for the 2030s.

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These timelines may be difficult to comprehend for enterprises used to six-month timelines, but it's the new reality. Adjust by enhancing communication with OEMs, developers, and colocation partners.

The new reality is a two-year wait from order to delivery of major power and cooling infrastructure purchases like generators, chillers, switchgear, and transformers. CyrusOne's Owner Furnished-Contractor Installed (OFCI) program ensures we have the necessary equipment to support future data center needs despite supply chain stress.

> *"Achieving just-in-time data center delivery has become a significant challenge. Our OFCI program has us procuring equipment, accelerating the speed-to-market for our customers who would be unable to obtain it on their own."*
>
> **— Andy Isaacs, SVP, Procurement**

A significant amount of data and analysis goes into purchasing large volumes against a developing pipeline, with accuracy crucial due to the large capital outlay. This aggressive program has quickly consumed capacity, helping our customers pivot to long-term planning for their growing data center needs in the AI era.

As a major purchaser in the data center ecosystem for over twenty years, CyrusOne has always had a robust supply chain management program. We've more than doubled our staff in that area since 2022 and instituted new initiatives like receiving a serial number upon equipment commitment to ensure actual infrastructure.

We've also conducted unannounced manufacturer inspections to ensure timely delivery.

Utilizing best practices, increasing staffing, and employing new strategies, along with our financial strength, has helped us obtain equipment. Leveraging your organization's history and strengths similarly can help navigate the competitive supply chain.

QUESTION FIVE:

Does your current team have the expertise required to deliver the value of AI to your organization or do you need to consider being more tightly aligned with leading technology companies who are at the forefront of AI?

AI is new to everyone, from hyperscalers to enterprises. The limited talent pool for expert practitioners is understandable. There isn't much experience in the marketplace for working with power densities 10x higher than traditional data centers. Architecting solutions with such power and density is rare, as few have managed deployments at 50kw per rack or more and still must plan for even greater future densities.

You likely need experienced partners to support and cool these densities for optimal performance, hardware protection, team safety, and environmental efficiency. Align your hardware and data center vendors on goals, strategies, and execution, ensuring collaboration before hardware is purchased for ready Day One deployment at the required scale.

Involving your team in AI implementation is valuable. Emphasize safety, education, and best practices, as

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these power densities can be dangerous to both people and multimillion-dollar AI infrastructure.

QUESTION SIX:

We're concerned internally that being left behind in the current supply chain squeeze will lead to permanent opportunity costs. Are we overreacting?

Our conversations with customers fall into two categories. One group is pivoting impressively to the AI age, staffing up, adopting new strategies, and aligning with vendors and suppliers. Other organizations are concerned they haven't committed enough, risking permanent opportunity costs and falling behind in securing necessary data center inventory.

The difference lies in their reactions to supply chain evolution. A couple of years ago, committing to 10 MW of data center inventory with a six-month timeline was feasible. Now, companies are pre-leasing capacity 2, 5, or even 7 years out.

Proactive customers are reworking their technology acquisition, pre-leasing capacity before even selecting hardware solutions. They understand waiting for hardware readiness means falling behind and have adopted new business approaches.

Every organization in the data center ecosystem needs to enhance conversations with all stakeholders, evolving from simple supplier/purchaser dynamics to true partnerships with integrated communication and proactive procurement strategies.

Given the dramatic changes in the world, it's crucial to keep partners, vendors, and customers close. Don't navigate this landscape alone. Continuously engage your ecosystem of OEMs, service providers, contractors, consultants, and vendors. Unprecedented opportunities mean being out of sight is being out of mind.

The key lesson from the early AI era is that communication is essential. Securing the data center inventory for your AI requirements and expanding your data center footprint depends on early communication and thorough planning. Proactively engaging with partners and suppliers ensures you have the necessary resources to meet your goals.

About CyrusOne

CyrusOne is a leading global data center developer and operator, delivering sophisticated digital infrastructure solutions worldwide. Headquartered in Dallas, Texas, the company operates over 55 data centers across the United States and Europe. Specializing in comprehensive solutions for hyperscale and Fortune 1000 companies, CyrusOne enables customers to align with their unique business and sustainability goals, catering to the complex needs of AI-driven applications and services workloads.

For more information, visit cyrusone.com/about-us or send a request to info@cyrusone.com.