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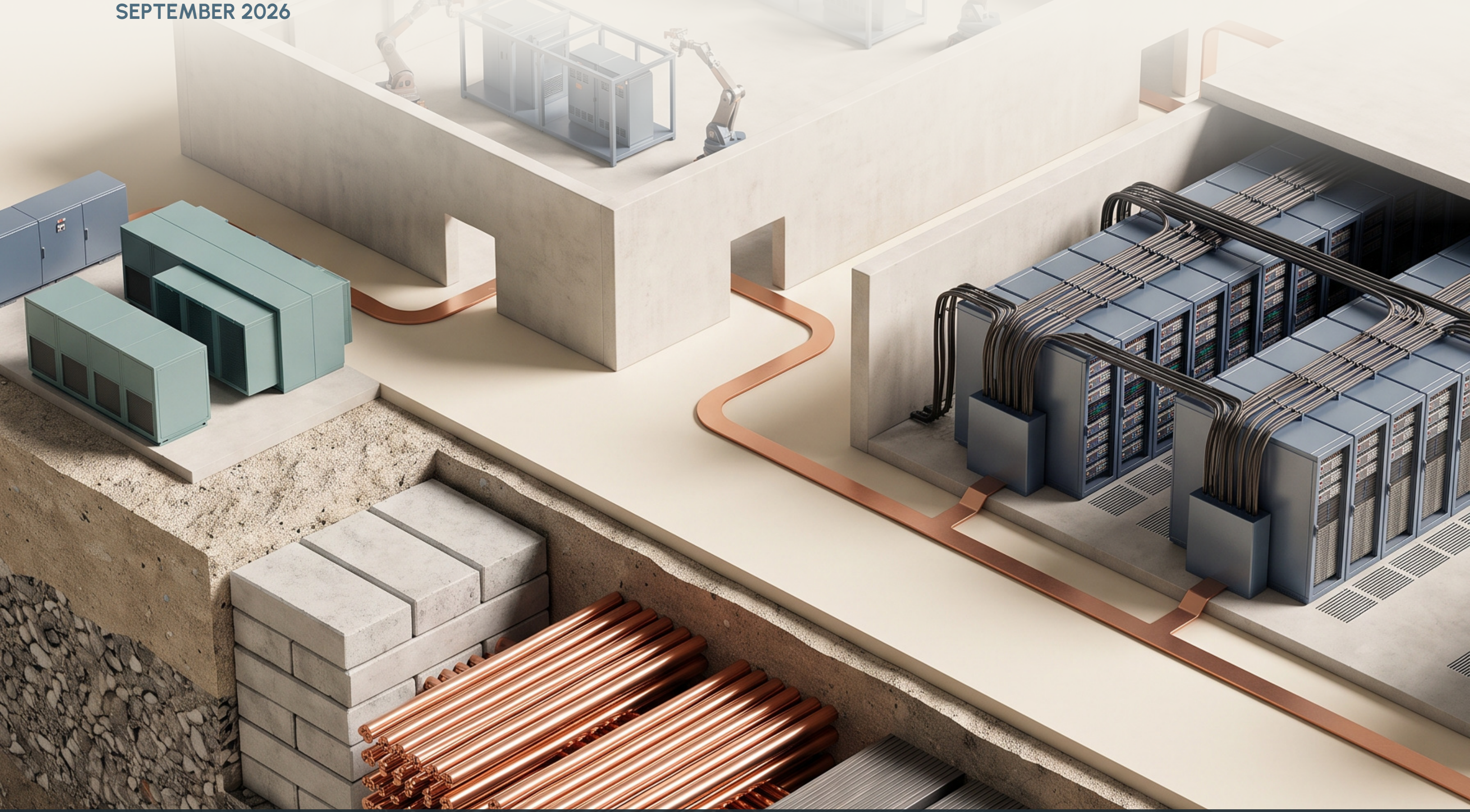
A TECHSTRONG SPECIAL REPORT

THE DATA CENTER SUPPLY CHAIN (DSC)

Inside the Race to Turn Capital, Concrete and Copper Into AI

By Alan Shimel

SEPTEMBER 2026



**Forget the software supply chain.
The data center supply chain is where the action is.**

SEPTEMBER 2026

THE PHYSICAL STACK BEHIND AI

A reader's guide to the industrial system that turns capital into productive compute.

Techstrong a Futurum company

By Alan Shimel
CEO, Techstrong Group

Visuals: AI-generated industrial illustrations and original vector diagrams.

EXECUTIVE SUMMARY

AI HAS ENDED THE ILLUSION.

Forget the software supply chain. The data center supply chain is where the action is.

For most of the cloud era, the physical plant was treated as the background. Software defined the experience. Compute, storage and networking were abstracted behind an API. A developer could provision infrastructure in minutes and remain blissfully unaware of the substation, chiller, switchgear, concrete, fiber and construction crews that made the request possible.

AI has ended that illusion.

The limiting factor in artificial intelligence is increasingly not the availability of a model or an algorithm. It is the ability to assemble an immense collection of physical inputs at the same place, at the same time, in the right sequence. Land must be entitled. Power must be generated, transmitted, transformed and distributed. Buildings must be engineered for unprecedented rack densities. Cooling must reach the silicon. Fiber must connect thousands of accelerators. Capital must cover an asset whose technology can change faster than its concrete shell.

Techstrong defines the Data Center Supply Chain, or DSC, as the interconnected system of materials, energy, equipment, construction, networking, compute, financing and operational services required to convert land and capital into functioning AI capacity.

The scale of the buildout makes DSC a technology market in its own right. JLL expects nearly 100 gigawatts of new data center capacity between 2026 and 2030, roughly doubling global capacity. The International Energy Agency projects data center electricity consumption to reach about 945 terawatt-hours in 2030, just under 3 percent of worldwide electricity use. The equipment, labor and power required to serve that growth are not waiting neatly on a shelf.[1, 2]

Providers are responding by changing the unit of production. Contractors are moving work from construction sites into factories. Electrical suppliers are selling integrated skids and modular power rooms. Cooling companies are shipping rack-ready systems. Materials companies are using AI to formulate faster-curing, lower-carbon concrete. Robotics companies are automating layout and drilling. Semiconductor companies that once shipped chips now specify servers, racks, clusters and the digital twin of the entire facility.

~100 GW

New data center capacity expected, 2026–2030. JLL projection.[1]

945 TWh

Data center electricity use in 2030. IEA 2025 base-case projection.[2]

SOURCES 1 JLL · 2 IEA

THE THESIS

FIVE CONCLUSIONS.

This report advances five conclusions:

01 **Construction is becoming manufacturing.** The central technique for compressing schedules is to replace sequential, site-built work with standardized, factory-built modules that can be produced in parallel.

02 **Power is a supply chain inside the supply chain.** Grid interconnections, transformers, switchgear and generation now shape where and when compute can come online.

03 **Materials innovation is schedule innovation.** Concrete chemistry, coatings, fiber connections and liquid-cooling materials affect time to revenue as directly as the headline compute platform.

04 **The rack is becoming the computer.** NVIDIA, AMD and their partners are co-designing silicon, networking, power and cooling at rack and cluster scale. The boundary between semiconductor provider and infrastructure architect is dissolving.

05 **DSC as a Service is emerging.** No company yet delivers a universally integrated, one-contract data center from land through live tokens. The pieces are converging, however, toward a managed capacity model in which customers buy an outcome rather than coordinate every layer.

The companies that win will not necessarily own every component. They will control interfaces, reserve scarce capacity, manage dependencies and shorten the time between committed capital and productive compute. In AI infrastructure, the most valuable product may be certainty.

FIGURE 01

THE DSC MAP

From capital and demand to the equipment that makes AI possible.

Demand to capital

01
Capital & demand
Commit investment; translate demand into a capacity program.

02
Land & permission
Secure the site, approvals and development rights.

03
Energy
Align utility access, generation and the path to delivered power.

04
Materials
Specify concrete, steel, coatings and the physical inputs.

05
Equipment
Order power, cooling, compute and network systems.

ACROSS EVERY STAGE

These three functions support the entire chain, from capital to operations.

Security

Software coordination

Logistics

DSC converts land and capital into functioning AI capacity. Techstrong conceptual framework; stages are interdependent, not a fixed construction schedule.

FIGURE 01 · CONTINUED

FROM COMPONENTS TO CAPACITY

The second half of the chain assembles, connects and validates the whole system.

Operations to design

06 **Factory fabrication**
Build modules and assemblies in controlled production settings.

07 **Site construction**
Prepare the site and integrate civil, structural and facility systems.

08 **Racks & networks**
Connect compute, interconnects, power and cooling at rack scale.

09 **Commissioning**
Verify integrated performance before accepting the installation.

10 **Productive AI capacity**
Operate usable compute capacity; feed performance back into design.

ACROSS EVERY STAGE

These three functions support the entire chain, from capital to operations.

Security | **Software coordination** | **Logistics**

Operations feed the next design; demand reshapes the next capital commitment. Security, software coordination and logistics span every stage.

CHAPTER 01 · THE FACTORY BEHIND THE AI FACTORY

BEFORE THE FIRST TOKEN

“Before an AI factory can produce intelligence, another factory must produce the AI factory.”

The phrase “AI factory” has become popular because it captures an important change. A conventional data center runs a mixed portfolio of applications. An AI facility takes electricity and data as inputs and produces training runs, inference and tokens as outputs. Its economics are measured in utilization, performance per watt and the revenue generated by costly accelerators.

That framing is useful, but it starts too late. Before an AI factory can produce intelligence, another factory must produce the AI factory.

This upstream system begins with mines, mills and chemical plants. It includes copper conductors, electrical steel, cement, rebar, optical fiber, pumps, heat exchangers, batteries, generators and transformers. It passes through design software, permitting offices, equipment factories, logistics networks and skilled trades. It ends only after compute, network, cooling and controls operate as one commissioned system.

The cloud encouraged the industry to think in logical layers. DSC demands that we think in physical dependencies. A delayed breaker can strand a completed data hall. A late utility interconnection can make millions of dollars of installed compute economically inert. A cooling design based on yesterday’s rack density can force a redesign after equipment has been ordered. A connector that saves minutes during installation can save days when repeated tens of thousands of times.

The result is a different performance metric: time to compute, or more vividly, time to first token. It measures the interval from the commitment of capital to the production of useful AI work. Every participant in DSC is now competing to remove time from that interval.

The economic pressure is enormous. Accelerators depreciate quickly, customer demand moves quickly and a data center’s revenue clock does not start when the foundation is poured. It starts when capacity is energized, commissioned and occupied. A month saved at the end of a large project may be worth more than a year of small procurement savings at the beginning.

This changes purchasing behavior. Buyers reserve factory slots before designs are final. They sign multiyear capacity agreements instead of issuing isolated purchase orders. They qualify multiple suppliers, standardize repeatable designs and bring manufacturers into planning earlier. Procurement is becoming capacity reservation, and construction planning is becoming supply chain orchestration.

CHAPTER 02 · THE GREAT PARALLELIZATION

CONSTRUCTION BECOMES MANUFACTURING.

AI-GENERATED EDITORIAL ILLUSTRATION · NOT A SPECIFIC FACILITY

Traditional construction is largely sequential. Civil work precedes structural work. Structure precedes much of the mechanical and electrical installation. Systems are assembled in place, inspected in place and tested late in the schedule. Each handoff creates an opportunity for delay and rework.

The fastest data center programs are attacking that sequence. Site preparation continues while a factory builds electrical rooms, power skids, cooling modules and other assemblies. Components arrive pre-engineered, prewired and, where possible, pretested. The site becomes a place for connection and commissioning rather than fabrication.

This is construction adopting the logic of manufacturing.

The Wall Street Journal documented the shift in its examination of new building techniques. Turner Construction's xPL Offsite operation fabricates modular mechanical and electrical systems away from the job site. Other techniques move labor earlier or remove it entirely: PPG fire-protection coatings can be applied to steel before erection; DeWalt and August Robotics automate repetitive overhead or floor drilling; 3M's expanded-beam optical connectors simplify fiber installation.[3]

The individual techniques matter. The system matters more. Factory work offers a controlled environment, consistent tooling, repeatable quality checks and a workforce that does not need to travel with every project. It also permits parallel execution. A site can advance while the power train is being assembled hundreds of miles away.

Electrical infrastructure suppliers are turning this approach into a product category. Siemens and Compass Datacenters signed a five-year agreement covering as many as 1,500 custom modular medium-voltage skid units. The skids combine equipment such as switchgear and transformers into a repeatable kit of parts. Siemens and Delta say their prefabricated power systems can reduce time to market by as much as 50 percent, capital cost by up to 20 percent and embodied carbon by 27 percent. Those are supplier claims, not independent benchmarks, but they show how the market is being sold: speed, predictability and repeatability in one package.[4, 5]

SOURCES 3 The Wall Street Journal · 4 Siemens / Compass · 5 Siemens

CHAPTER 02 · CONTINUED

REMOVING DEPENDENCIES

Vertiv says integrated power modules can accelerate power deployment by up to 50 percent, while its SmartRun system, which combines busway, liquid piping, networking and containment, can reduce onsite installation time by as much as 85 percent. Schneider Electric describes modular AI power infrastructure with schedule improvements above 30 percent and cost reductions above 15 percent. SLB, applying its industrial modularization experience to data centers, says its approach can compress deployment schedules by 40 percent and reduce onsite labor by half.[6, 7, 8]

The precise percentages will vary by site, design maturity and what a vendor counts as the baseline. The directional shift is unmistakable. Suppliers are no longer marketing boxes. They are marketing removed dependencies.

This approach does not eliminate complexity. It relocates complexity into design, configuration management and logistics. Modules only accelerate a project if interfaces are frozen early, tolerances are controlled and deliveries arrive in the right sequence. Standardization can conflict with local codes, site conditions or a customer's desire for customization. A factory-built mistake can also be repeated at factory speed.

The strongest programs therefore use a product-platform model. They standardize the majority of the design, define stable mechanical and electrical interfaces, and preserve a smaller configurable layer for local conditions. Software becomes important here, not because it replaces the physical supply chain, but because it coordinates it. Building information models, digital twins, schedule systems and machine-readable bills of materials allow teams to identify conflicts before steel and pipe reach the site.

JE Dunn's work with Trimble illustrates the payoff. The companies report that integrated modeling and automated layout helped one hyperscale program improve turnover speed fourfold. On another program, automated layout cut excavation by 50 percent and employee hours by 75 percent, while concrete rework fell from $2.1 million in 2022 to $500,000 in 2024 and to zero in the reported 2025 year-to-date period. These are case-study figures, but they show that precision technology can affect schedule, labor and material waste simultaneously.[9]

The great parallelization is not simply prefabrication. It is the conversion of a project into coordinated production streams. Civil work, module fabrication, equipment manufacturing, software configuration, workforce preparation and commissioning plans advance together. The company with the best dependency graph may beat the company with the cheapest components.

KEY TAKEAWAY

> **"Suppliers are no longer marketing boxes. They are marketing removed dependencies."**

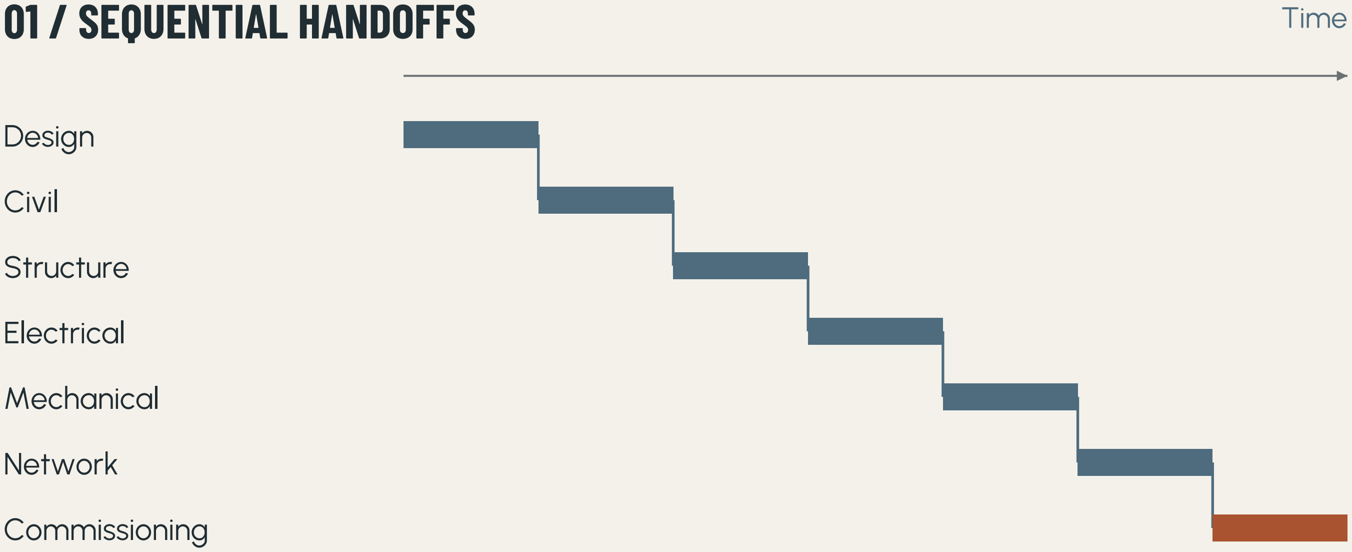
SOURCES 6 Vertiv · 7 Schneider Electric · 8 SLB · 9 Trimble

FIGURE 03

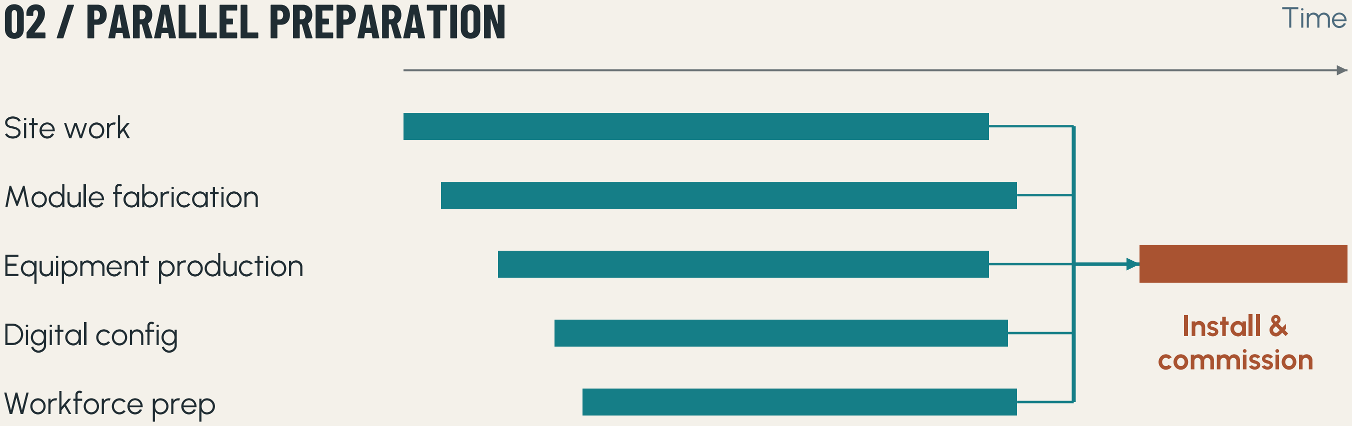
THE GREAT PARALLELIZATION

The change is structural: more work advances at once, then converges at installation.

01 / SEQUENTIAL HANDOFFS



02 / PARALLEL PREPARATION



Not to scale · no calendar units

Schematic, not to scale. No universal project-savings percentage is implied. Vendor percentages refer to different systems, scopes and baselines.

SOURCES 4 Siemens / Compass · 5 Siemens · 6 Vertiv · 7 Schneider Electric · 8 SLB

CHAPTER 03 · POWER: THE SUPPLY CHAIN INSIDE THE SUPPLY CHAIN

POWER IS THE UNFORGIVING PART.

AI-GENERATED EDITORIAL ILLUSTRATION · NOT A SPECIFIC FACILITY

If compute is the glamorous part of AI infrastructure, power is the unforgiving part.

The IEA expects global data center electricity demand to more than double by 2030. In the United States, data centers are projected to account for roughly half of electricity-demand growth through the end of the decade. Uptime Institute's 2026 survey identifies limited power availability, grid reliability, cost and supply constraints among the industry's leading concerns.[2, 10]

Power is not one input. It is a chain. Generation must exist. Transmission must reach the region. A utility must study and approve the interconnection. Substations, transformers, switchgear, busway, backup generation, uninterruptible power supplies and controls must be specified, manufactured, delivered, installed and tested. A failure anywhere can hold the entire facility offline.

Large power transformers make the problem visible. The U.S. Department of Energy describes their supply chain as complex, expensive and difficult to transport. Units are often highly customized, and lead time includes engineering, manufacturing, testing, delivery and installation. Lead times vary with specifications and market conditions, making any single lead-time number unreliable.[11]

Suppliers are adding capacity because customers will pay for schedule certainty. Eaton announced more than $242 million for a one-million-square-foot Arkansas facility that will double its U.S. capacity for modular electrical enclosures. It is also building a 370,000-square-foot Nebraska switchgear facility. Hitachi Energy committed an additional $250 million through 2027 for transformer components as part of a broader multibillion-dollar expansion. Schneider Electric plans more than $700 million in U.S. investment through 2027. Vertiv is expanding manufacturing for integrated power modules, cabinets and cooling systems.[6, 12, 13, 14]

These investments reveal a key DSC dynamic: the bottleneck migrates. When accelerator availability improves, power distribution may become the constraint. When transformer production catches up, utility interconnection or cooling may become the constraint. Optimizing one tier does not optimize the system.

SOURCES 2 IEA · 6 Vertiv · 10 Uptime Institute · 11 U.S. DOE · 12 Eaton · 13 Hitachi Energy · 14 Schneider Electric

CHAPTER 03 · CONTINUED

RESERVE. STANDARDIZE. BRING YOUR OWN.

Developers are responding with three strategies.

First, they are reserving equipment and manufacturing capacity earlier. The Siemens and Compass agreement is a template. A multiyear commitment gives the developer a repeatable component and the supplier a demand signal strong enough to justify factory capacity. It also reduces the friction of one-off engineering.

Second, they are standardizing power blocks. Integrated skids and modular substations package components around defined capacities and interfaces. Rather than redesigning the electrical train for every building, a developer repeats a tested block and scales by adding units.

Third, they are bringing their own power. Behind-the-meter generation, microgrids, fuel cells and phased energy systems can energize early capacity before the full utility connection arrives. Siemens Energy and Eaton are offering modular onsite generation designed to proceed in parallel with data center construction. Bloom Energy's 2026 industry survey found that 61 percent of responding developers planned to use bring-your-own-power approaches when grid supply was unavailable. Cummins is supplying modular natural-gas generation for a West Texas project, while Crusoe is coupling energy development with AI infrastructure and promoting phased, GPU-ready facilities.[15, 16, 17]

Again, supplier deployment claims require context. A generator delivered in months does not erase fuel availability, air permits, emissions controls, community opposition or long-term economics. Bringing power behind the meter also shifts responsibility from the utility to the operator. Reliability engineering, fuel procurement and environmental compliance become part of the data center business.

That is precisely the point. DSC expands the competitive boundary. A data center developer that once bought utility service may now behave like an energy developer. An electrical manufacturer may become a systems integrator. A fuel-cell company may sell time to revenue. Power is no longer a line item. It is a strategic capability.

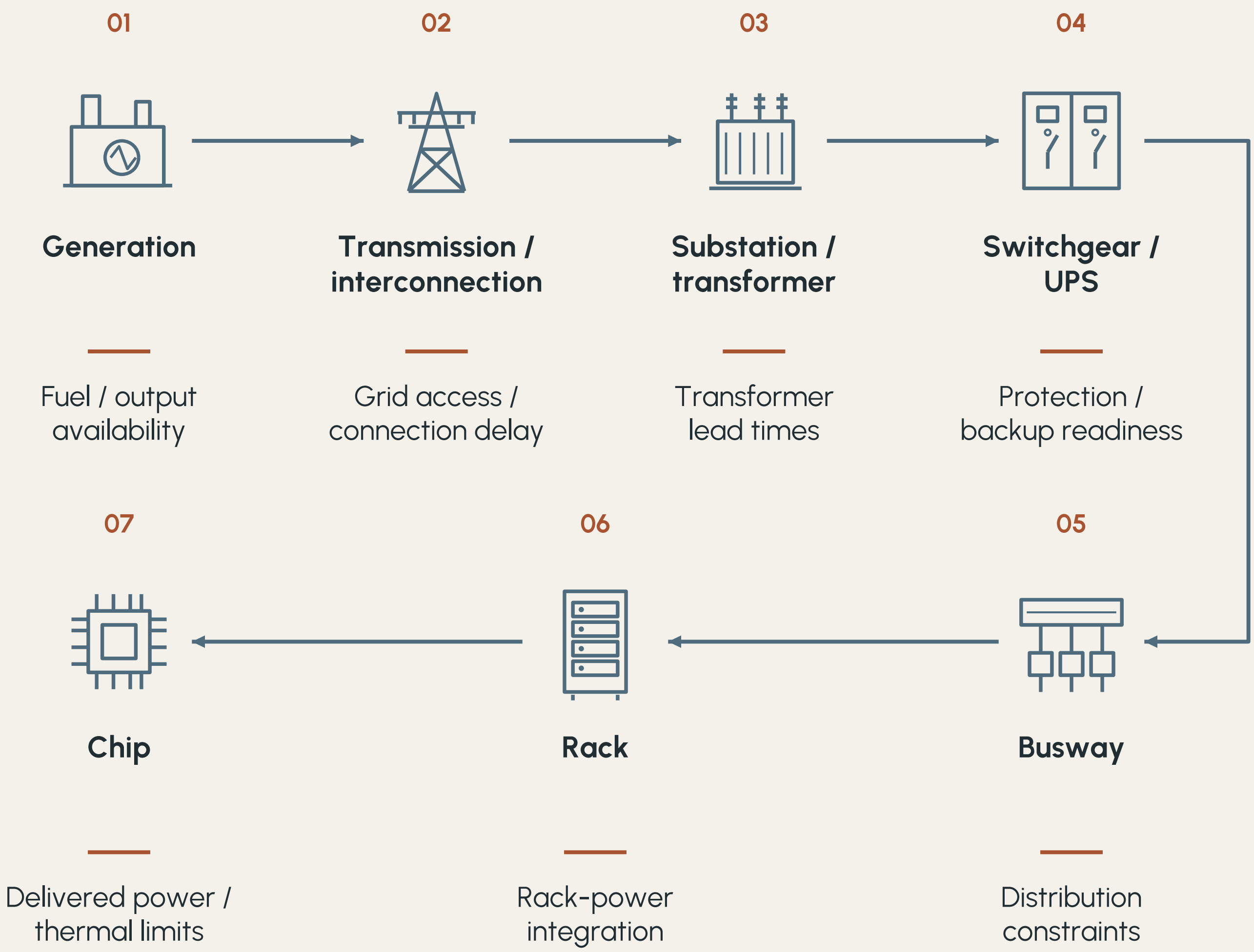
> KEY TAKEAWAY
>
> **Power is no longer a line item.
> It is a strategic capability.**

SOURCES 15 Siemens Energy · 16 Bloom Energy · 17 Cummins / Crusoe

FIGURE 04

POWER IS A SUPPLY CHAIN

Generation is only the beginning. Each handoff can hold the entire facility offline.



Conceptual flow and failure modes. Rack power requirements must be validated against the facility, not treated as a separate specification.

945 TWh

Global data center electricity use in 2030. IEA 2025 base-case projection.[2]

SOURCES 2 IEA · 11 U.S. DOE

CHAPTER 04 · MATERIALS BECOME TECHNOLOGY

CHEMISTRY JOINS THE COMPUTE RACE.

AI-GENERATED EDITORIAL ILLUSTRATION · NOT A SPECIFIC FACILITY

Materials innovation is easy to overlook because it does not arrive with a keynote demonstration. Yet the physical properties of concrete, steel, coatings, copper, fiber and cooling fluids determine how quickly a facility can be built, how much load it can support and how efficiently it can operate.

Concrete is the clearest example. Data centers use immense quantities of it, and concrete can represent up to 80 percent of embodied carbon in some designs, according to Gensler. Faster early strength can allow crews to strip forms, load slabs and move to the next stage sooner. Lower-carbon mixes can reduce emissions without waiting for a wholesale change in structural systems.[18]

Meta, Amrize and the University of Illinois used AI to evaluate more than 100 candidate concrete mixes for a Minnesota data center. Amrize reports that the selected mix achieved 43 percent faster early strength and 35 percent lower carbon than the conventional comparison at a similar cost. Meta has also expanded mixes that replace portions of cement with fly ash and slag, while AWS reports using lower-carbon concrete and steel across dozens of facilities.[19, 20, 21]

The lesson is broader than green construction. Materials can remove schedule constraints. Concrete that reaches required strength sooner shortens a critical path. A coating applied in a factory reduces elevated work and weather exposure onsite. A preterminated fiber system reduces cleaning and connection time. A smaller or more conductive cable changes routing and space requirements. A coolant that supports higher temperatures may affect both facility design and water use.

3M's expanded-beam optical connector is a useful DSC case study. The company says it can reduce a typical connection task from about three minutes to roughly 30 seconds. That claim should be validated in each deployment. Still, the multiplication is compelling. At AI scale, small reductions in connection time are repeated across thousands of links. The connector becomes a schedule technology.[22]

SOURCES 18 Gensler · 19 Amrize · 20 Meta · 21 Amazon · 22 3M

CHAPTER 04 · CONTINUED

THE RACK CHANGES THE MATERIALS.

Cooling materials and architectures are undergoing an equally important transition. AI rack densities are pushing facilities beyond conventional air cooling. Direct-to-chip liquid cooling adds cold plates, manifolds, coolant distribution units, pumps, heat exchangers, controls and new commissioning procedures. Immersion cooling introduces another set of fluids and operational practices. Neither is merely a mechanical upgrade. Each reshapes the rack, the white space, the power design, service procedures and the supplier base.

Modine's $100 million North American expansion for data center cooling and new manufacturing in India reflect the demand signal. Vertiv, Schneider and other infrastructure providers are integrating liquid distribution with power and rack systems. The winning design is less likely to be the best standalone chiller than the system that arrives validated against the compute platform and can be installed without a late redesign.[6, 23]

Copper deserves special attention. More power density means more conductors, busway and transformer windings. It also creates pressure to shorten electrical paths, raise distribution voltage and use alternative conductors where appropriate. The industry's movement toward 800-volt direct-current architectures is partly an attempt to reduce conversion stages and deliver megawatt-scale rack power more efficiently. The Open Compute Project is becoming a venue where hyperscalers and suppliers align on such interfaces.[24]

Materials innovation, then, is not a sidebar about sustainability. It is a contest over strength, conductivity, heat transfer, weight, installation time, availability and carbon. In DSC, chemistry and metallurgy compete on the same scorecard as silicon.

THE MATERIALS SCORECARD

**Strength. Conductivity. Heat transfer.
Weight. Installation time.
Availability. Carbon.**

SOURCES 6 Vertiv · 23 Modine · 24 NVIDIA / OCP

FIGURE 05

MATERIALS AS SCHEDULE TECHNOLOGY

Physical properties change the critical path, not only the sustainability score.

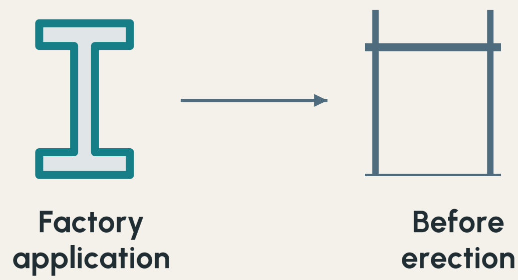
01 / CONCRETE

43%
faster early strength

35%
lower carbon

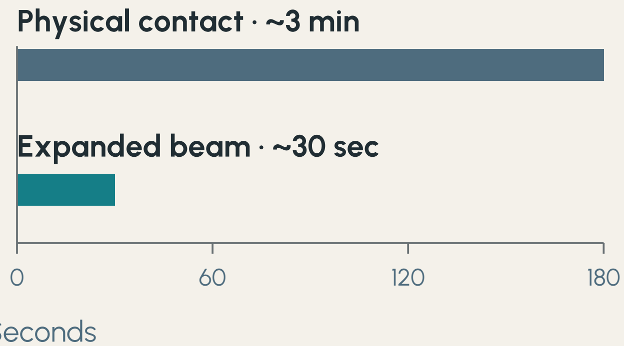
Company-reported Amrize / Meta

02 / COATINGS



Protective layers applied before steel reaches the site.

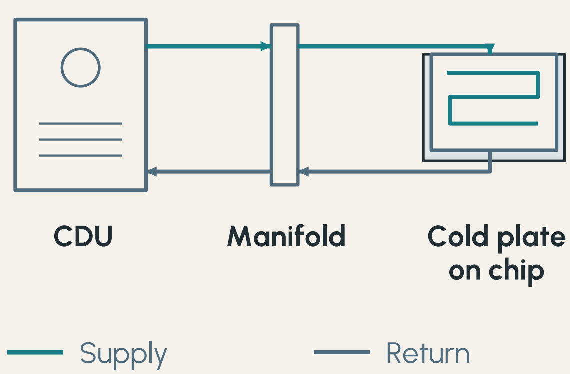
03 / FIBER



Company-reported · 3M

04 / COOLING

Direct-to-chip loop



Meta/Amrize and 3M figures are company-reported. Performance is specific to the cited comparison and deployment context; it is not a universal project benchmark.

SOURCES 3 The Wall Street Journal · 19 Amrize · 22 3M · 23 Modine

CHAPTER 05 · FROM CHIP VENDOR TO RACK ARCHITECT

THE RACK IS THE SYSTEM.

AI-GENERATED EDITORIAL ILLUSTRATION · NOT A SPECIFIC FACILITY

The semiconductor industry used to present a clean boundary. A chip company designed processors. Server manufacturers put those processors on boards. Systems companies assembled servers. Data center operators installed racks. Contractors built the facility.

AI has blurred every line in that sequence.

The reason is technical. Large AI models do not run on an isolated processor. They run across tightly coupled systems whose performance depends on memory, scale-up interconnects, scale-out networking, storage, software, power and cooling. A brilliant accelerator can be underutilized by a weak network or stranded by insufficient power. System performance has become an exercise in co-design.

NVIDIA's evolution traces the new stack. It moved from graphics processors to accelerator boards, DGX systems, HGX platforms, NVL72 rack-scale systems and SuperPOD clusters. Its Vera Rubin DSX reference architecture reaches beyond compute into networking, storage, power, cooling, controls and a digital twin of the AI factory. The partner ecosystem includes Cadence, Dassault Systèmes, Eaton, Hitachi Energy, Jacobs, Schneider Electric, Siemens, Siemens Energy, Trane Technologies, Vertiv and others.[25]

NVIDIA says it is the only company that builds the full AI factory. That is a statement about architectural scope, not literal vertical integration. NVIDIA does not manufacture every transformer or chiller, pour the slab, obtain the local permit or operate every facility using its systems. DGX-ready colocation capacity is delivered through partners. DSX reference designs coordinate a market; they do not replace it.[26]

Still, architectural control is powerful. The company that defines the rack power envelope influences switchgear and cooling. The company that defines network topology influences fiber, cabling and building layout. The company that supplies the digital twin and management software gains visibility into the entire operating system. The company that certifies partners can turn an ecosystem into a delivery channel.

NVIDIA may never employ the crews pouring concrete or manufacture every transformer and chiller. It can still become the data center's general contractor without owning any cranes.

SOURCES 25 NVIDIA · 26 NVIDIA

CHAPTER 05 · CONTINUED

ARCHITECTURE IS MARKET POWER.

The analogy is not perfect. A conventional general contractor accepts broad responsibility for execution, schedule and site risk. NVIDIA currently supplies architecture, technology, validation and ecosystem coordination, while developers, engineering firms, equipment makers and contractors retain much of the delivery risk. The more precise description is asset-light prime architect or control-plane provider for AI infrastructure.

NVIDIA is also extending its reach into capital. In 2026 it announced partnerships with Apollo, BlackRock, Blackstone, Brookfield, Goldman Sachs and KKR intended to mobilize more than $500 billion of third-party capital for AI compute infrastructure. Financing does not make NVIDIA the owner of every asset. It strengthens its ability to shape which architectures receive funding and how rapidly ecosystems scale.[27]

Competition is following the same direction. AMD's Helios is its first rack-scale AI reference design, combining 72 Instinct MI455X GPUs with EPYC CPUs, Pensando networking and an open, double-wide rack based on Meta's Open Rack Wide standard. Schneider Electric and AMD have published a data center reference design supporting Helios deployments. AMD's message is revealing: the rack is no longer where the system is installed; the rack is the system.[28, 29]

Cloud providers add another competitive layer. Google, AWS and Microsoft design their own accelerators, networks and facilities. Open Compute Project standards create alternatives to closed interfaces. Server builders, networking companies and power-and-cooling firms all want to own a larger part of the validated solution.

The move from chips to racks is therefore not simply NVIDIA swallowing the supply chain. It is a struggle over the integration point. Whoever owns that point can set specifications upstream and capture services downstream.

KEY TAKEAWAY

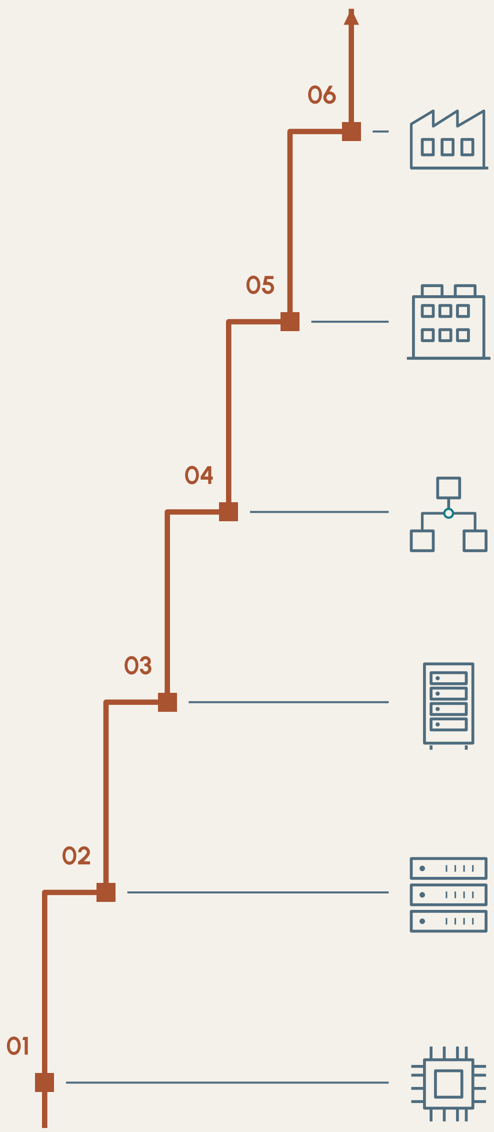
The contest is over the integration point.

SOURCES 27 NVIDIA · 28 AMD · 29 Schneider Electric

FIGURE 02

THE UNIT OF PRODUCTION MOVES UP THE STACK

Each integration layer absorbs a broader set of responsibilities.



	RESPONSIBILITY
AI factory	Capital & operations
Data center	Facility systems
Cluster	Network topology
Rack	Power & cooling
Server	Boards & system integration
Chip	Processor design

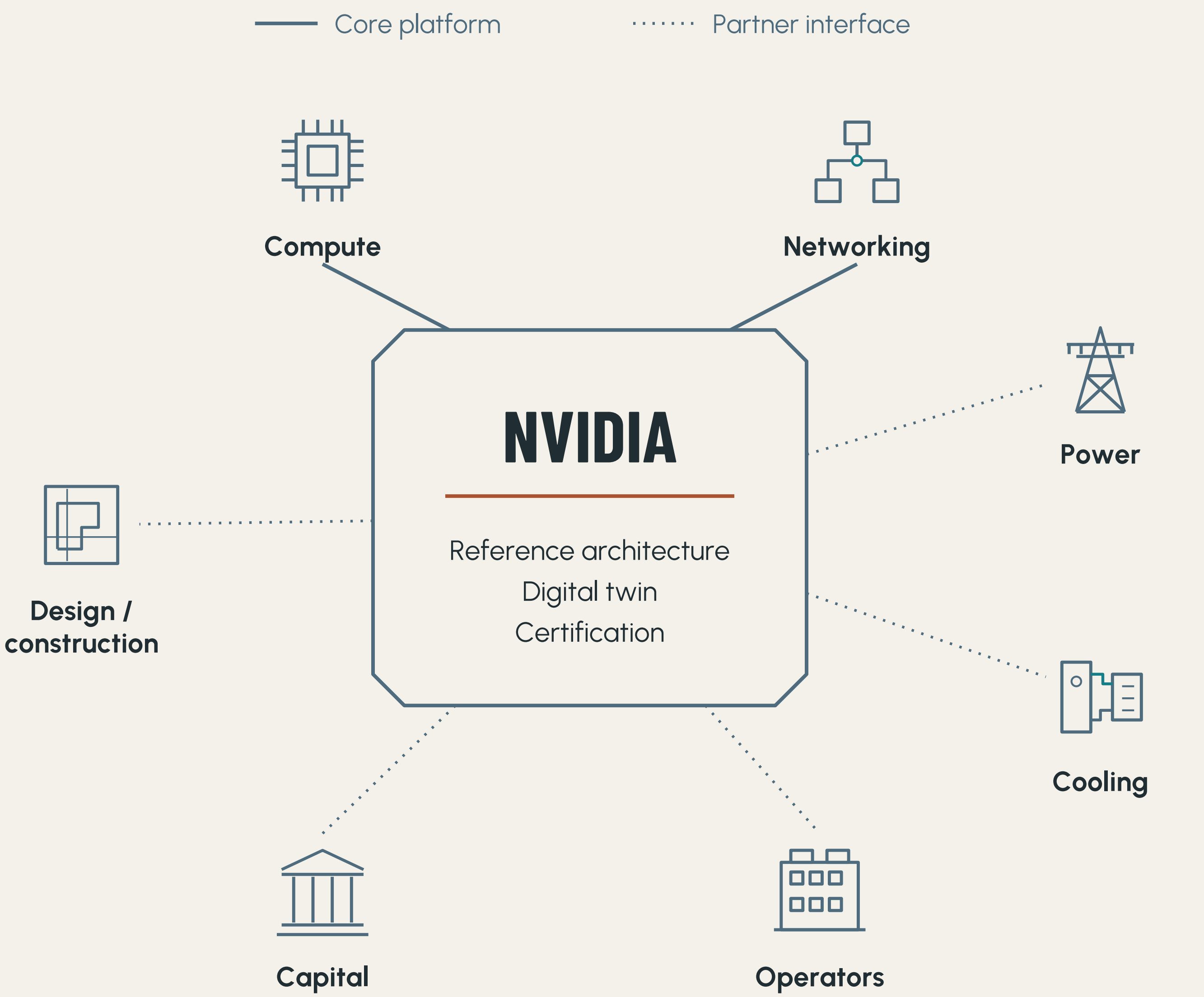
NVIDIA is the primary case; AMD Helios and hyperscaler custom systems provide competitive evidence. Architectural scope is not ownership of every physical component.

SOURCES 25 NVIDIA · 26 NVIDIA · 28 AMD · 29 Schneider Electric

FIGURE 06

NVIDIA'S ASSET-LIGHT CONTROL PLANE

Architectural influence can reach across a partner-delivered facility.



DSX is a reference architecture and partner system, not a turnkey NVIDIA construction service. NVIDIA can shape the facility without owning every crane, transformer or data center.

SOURCES 25 NVIDIA · 26 NVIDIA · 27 NVIDIA

CHAPTER 06 · IS A COMPLETE NVIDIA DATA CENTER NEXT?

WHAT DOES “COMPLETE” MEAN?

The provocative answer is yes. The careful answer is that “complete” has several meanings.

If complete means a branded architecture spanning compute, networking, storage, power, cooling, control software, simulation and a certified partner ecosystem, NVIDIA is already close. DSX describes the facility as a coordinated machine. Omniverse DSX provides a digital twin blueprint. Max-Q and MaxLPS tools address performance and power constraints. Its partners cover design, energy, construction software and physical equipment.[25]

If complete means one commercial outcome, such as a guaranteed quantity of operational AI capacity by a specified date, the market is moving in that direction. Cloud providers, GPU clouds, colocation companies, modular infrastructure vendors and energy developers already combine different portions of the stack. A customer increasingly can buy reserved capacity instead of assembling it.

If complete means NVIDIA owns the land, secures permits, finances the project, builds the structure, operates the power plant and sells the tokens, that is neither necessary nor the most likely model. It would load the company with local execution risk, regulated energy exposure, long-lived assets and channel conflict with many of its most valuable customers.

The more plausible future is federated. NVIDIA defines a reference architecture and qualification regime. Capital partners finance projects. Developers and operators provide sites and operations. Contractors and equipment vendors deliver standardized modules. A software control plane models performance, tracks components and coordinates commissioning. The customer purchases an availability date, capacity profile or token output under a service agreement.

That is the beginning of DSC as a Service.

The term should not be mistaken for a mature product category. Today's market is fragmented. Contract boundaries are complex, warranties do not always align, and accountability can dissolve when one system underperforms. Yet the customer need is plain: fewer handoffs, less integration risk and a credible date for productive compute.

> KEY TAKEAWAY
>
> **A complete architecture is not the same thing as a complete construction service.**

SOURCES 25 NVIDIA

CHAPTER 06 · CONTINUED

SELLING THE OUTCOME

A true DSC-as-a-Service offer would have five characteristics:

1. **One capacity outcome.** The contract specifies energized megawatts, rack density, accelerator configuration, availability and performance.
2. **One dependency model.** Land, power, materials, equipment, labor, logistics and commissioning live in a shared plan.
3. **Reserved supply.** The provider holds manufacturing slots, qualified alternatives and logistics capacity across key components.
4. **Digital and physical validation.** The rack, power train, cooling system and facility are modeled together and tested against repeatable criteria.
5. **Lifecycle accountability.** The offer continues through upgrades, maintenance, energy optimization and technology refreshes.

No single company must own every asset to provide this service. In fact, the strongest provider may own the orchestration layer and little else. Amazon did not have to manufacture every product to reshape retail logistics. A DSC orchestrator can create value by making a fragmented industrial network behave like one reliable system.

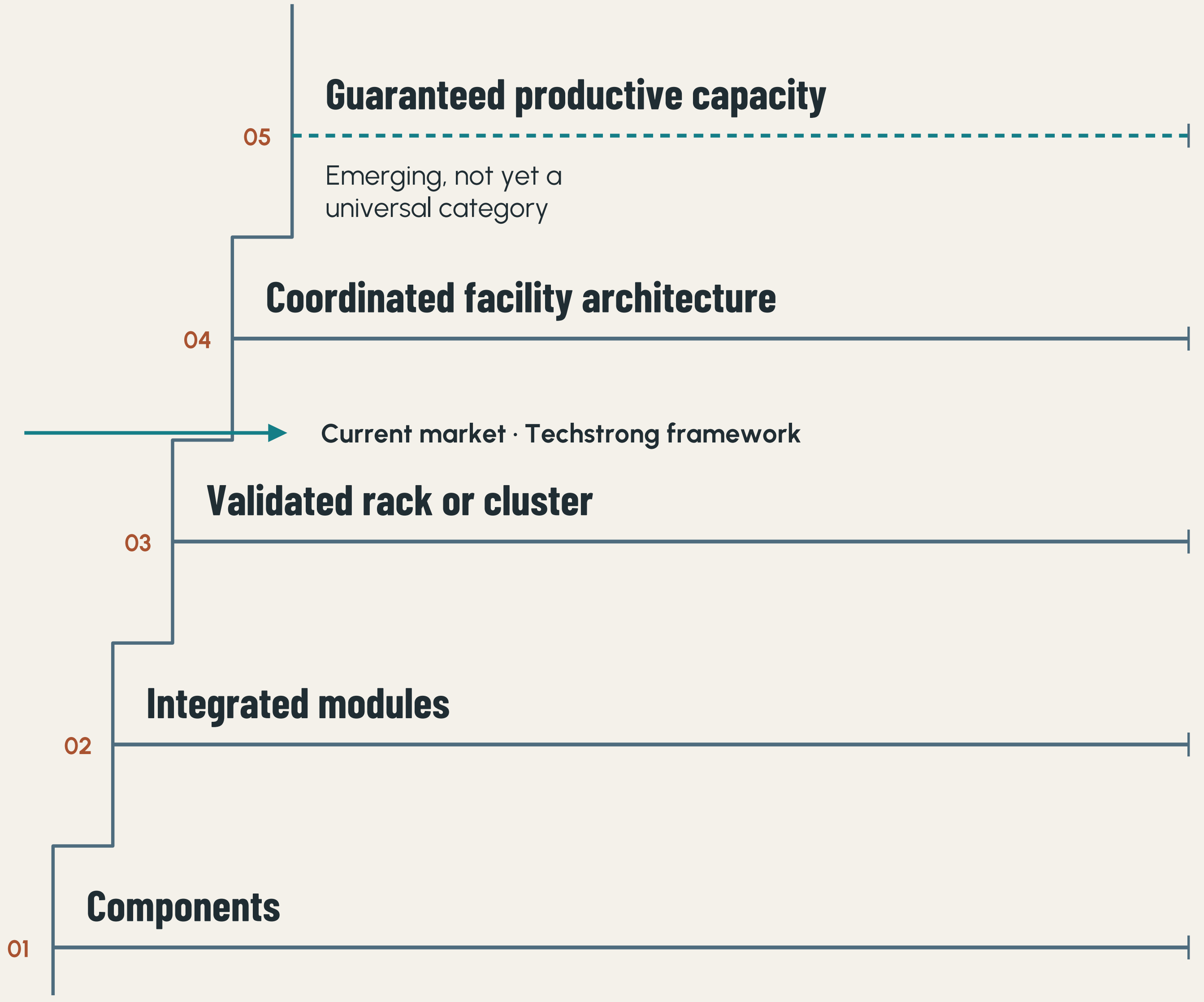
Potential orchestrators include several classes of company. Hyperscalers have demand, operating experience and custom silicon. NVIDIA has architectural influence and an expanding capital network. Data center developers control land, utility relationships and construction programs. Infrastructure firms such as Schneider, Vertiv, Siemens and Eaton bridge power, cooling and modules. Energy developers can unlock sites that the grid cannot serve on schedule. Large engineering and construction firms understand physical execution.

The race will turn on who accepts responsibility when the plan meets reality.

FIGURE 08

DSC-AS-A-SERVICE MATURITY MODEL

Techstrong's framework for a converging delivery model, not an established market taxonomy.



The current market sits largely between validated rack/cluster solutions and coordinated facility architectures, with some providers reaching toward guaranteed productive capacity.

CHAPTER 07 · AI BUILDS THE FACTORIES THAT BUILD AI

A LEARNING SYSTEM, NOT A COLLECTION OF SITES.

There is a satisfying circularity in using AI to accelerate AI infrastructure, but the practical applications are less mystical than the slogan.

AI can evaluate site portfolios against power, fiber, water, permitting and community constraints. It can generate or compare equipment configurations, identify schedule conflicts and detect risk in bills of materials. Computer vision can measure progress and spot deviations. Robotics can perform repetitive layout and drilling. Digital twins can simulate thermal behavior, power allocation and failure conditions before equipment is energized.

The Meta-Amrize concrete work shows AI applied to materials formulation. The JE Dunn-Trimble examples show digital models connected to field execution. DeWalt's robotics work moves repetitive physical tasks from scarce skilled labor to automation. Palantir's Chain Reaction initiative, with partners including NVIDIA and CenterPoint Energy, is explicitly aimed at coordinating American AI infrastructure.[9, 19, 30]

These tools matter because DSC is a dependency problem with too many variables for weekly status meetings and disconnected spreadsheets. A transformer delay can affect energization, equipment delivery, labor sequencing and financing. A compute-platform change can alter rack weight, heat rejection, pipe sizing and commissioning. The schedule must be a live model rather than a static document.

AI will not eliminate the need for experienced engineers, superintendents or trades. It can make scarce expertise more productive. It can also expose inconsistencies earlier, when they are cheaper to fix. The construction workforce remains constrained, with electricians, HVAC technicians, equipment operators and construction managers in high demand. Factory assembly and automation are partly a response to that scarcity.[10, 31]

The next step is closed-loop delivery. Design data creates the bill of materials. Supplier status updates the schedule. Field sensors verify installation. Commissioning results update the digital twin. Operational telemetry informs the next design. Each project becomes training data for the product platform that builds the next project.

When that loop works, DSC stops behaving like a collection of projects and starts behaving like a learning system.

THE CLOSED LOOP

DESIGN → SUPPLY → FIELD VERIFICATION → COMMISSIONING → OPERATIONS

Operational learning feeds the next design.

SOURCES 9 Trimble · 10 Uptime Institute · 19 Amrize · 30 Palantir · 31 Lightcast

CHAPTER 08 · THE BOTTLENECK MOVES

OPTIMIZE THE FLOW. NOT THE COMPONENT.

Every infrastructure boom produces a favorite shortage. In AI it began with advanced accelerators. Then attention shifted to high-bandwidth memory and networking. Now the industry talks about power, transformers, switchgear, cooling and construction labor.

All of those can be true at different times.

The important insight is that bottlenecks migrate through the chain. Capacity added in one tier exposes the next constraint. A developer that secures GPUs may discover it cannot energize them. A utility that approves service may still wait for substation equipment. A facility that solves power may not have a validated cooling design. A completed building may lack technicians for commissioning.

This makes local optimization dangerous. Buying the cheapest transformer is not a victory if its delivery delays revenue. Maximizing rack density is not a victory if it requires an unproven cooling configuration. A bespoke design is not a victory if every component becomes a custom order.

DSC leaders will measure the entire flow. Useful metrics include:

MEASURE THE WHOLE CHAIN

· time from capital commitment to first productive token;

· percentage of long-lead capacity reserved before final design;

· share of onsite labor shifted into controlled factory environments;

· design reuse across sites;

· days lost to interface changes and rework;

· commissioned megawatts delivered per quarter;

· compute utilization after energization;

· energy, water and embodied carbon per unit of useful AI work;

· concentration risk by supplier, region and technology.

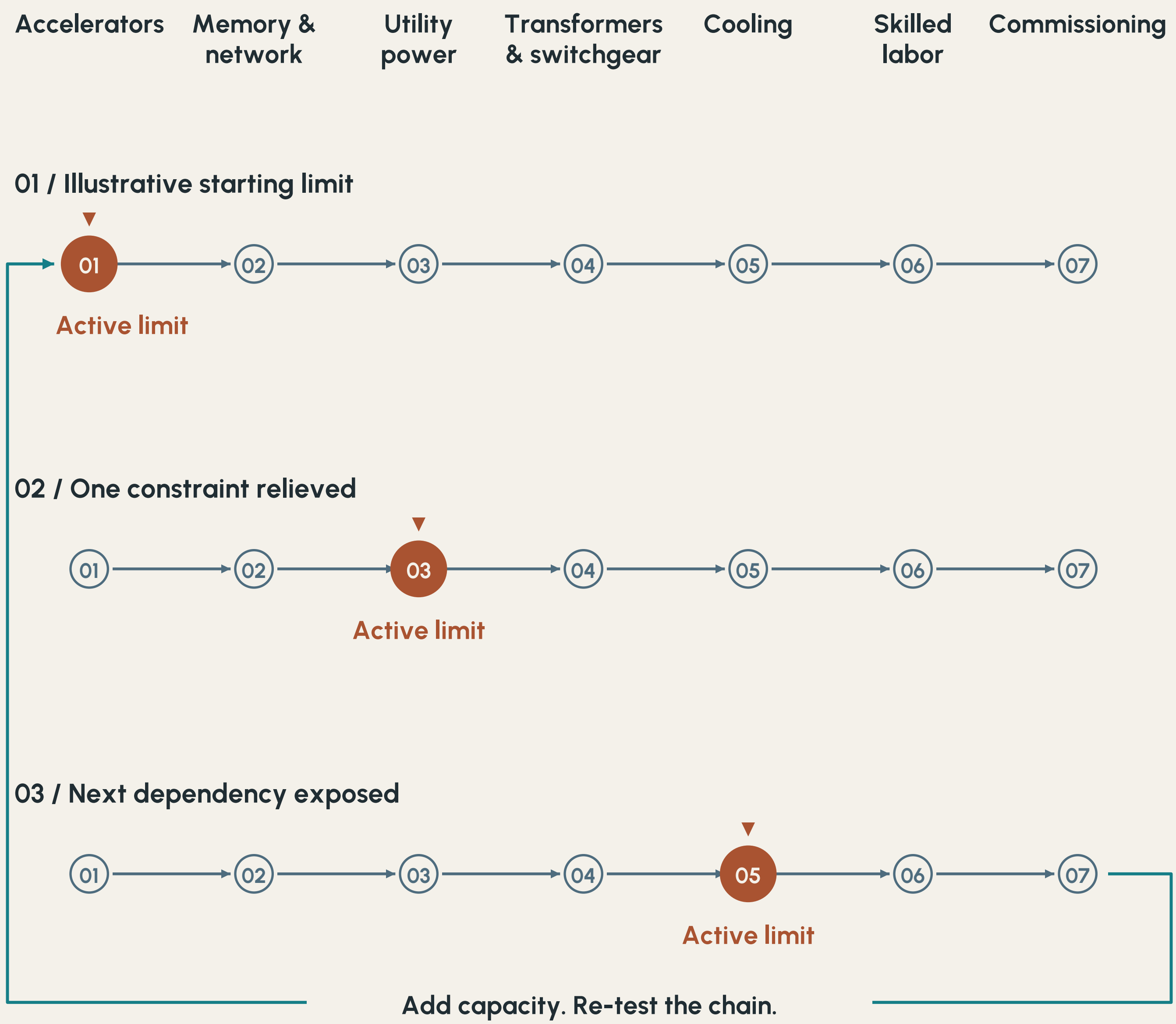
The last measure matters. Standardization creates speed, but it can create dependence. A proprietary rack architecture may bind a customer to one accelerator, networking fabric, cooling design and software stack. A multiyear equipment agreement can secure capacity while reducing negotiating leverage. Behind-the-meter power can accelerate energization while increasing fuel and regulatory exposure.

The DSC strategy must therefore balance two opposing needs: deeper integration and credible substitution. Open interfaces, qualified second sources and modular boundaries preserve options without returning the project to complete fragmentation.

FIGURE 07

THE BOTTLENECK MIGRATES

Adding capacity at one tier exposes the next constraint.



Marker position is illustrative, not a scarcity ranking.

Conceptual sequence, not a measured chronology or scarcity ranking. Every dependency must be ready for the system to become productive.

Takeaway: The slowest dependency sets the pace.

CHAPTER 09 · RISKS, FRICTION AND THE INDISPENSABILITY TRAP

SPEED HAS A PRICE.

The data center boom is often described as if it were only a race against engineering. It is also a negotiation with finance, regulation and communities.

Power costs can shift to other ratepayers if tariffs are poorly designed. Water use can collide with local scarcity. Diesel or natural-gas generation can conflict with emissions goals. Transmission and generation require long planning horizons. Communities may question land use, tax incentives, noise, jobs and whether enormous facilities provide local benefit proportional to their footprint.

These issues are not outside DSC. They are inputs to it. A site without community permission is not a ready site. A megawatt that cannot be permitted is not available power. A faster construction technique that overwhelms local inspection capacity has only moved the queue.

Financing adds another layer of dependency. J.P. Morgan estimates capital spending by the five largest U.S. hyperscalers could reach $697 billion in 2026. Data centers are increasingly financed through combinations of corporate balance sheets, construction debt, infrastructure funds, private credit, asset-backed structures, leases and GPU financing. Each layer evaluates different risks: tenant credit, power certainty, technology obsolescence, residual value and completion.[32, 33]

Fast technology refresh cycles create an awkward mismatch with long-lived infrastructure. Concrete and substations may serve for decades, while accelerator generations turn over in a few years. A resilient DSC design separates the durable layer from the replaceable layer. It standardizes utility and cooling interfaces while allowing compute, networking and controls to evolve.

Then there is the Indispensability Trap. A supplier that becomes essential to design, financing, validation and operations can use that position to capture more value. Customers gain speed and lose leverage. The closer a platform comes to a complete AI factory, the harder it may be to change accelerators, network fabrics, management software or service providers.

This is not an argument against integration. Fragmentation has real costs. It is an argument for deliberate architecture. Customers should know which interfaces are open, which performance guarantees require proprietary components, who owns the operational data and what happens when a component must be substituted.

DSC security also deserves attention. The attack surface spans operational technology, building controls, firmware, construction software, remote maintenance, logistics and component provenance. A compromised chiller controller or counterfeit breaker can be as operationally serious as a vulnerable server. Software bills of materials are not enough. Critical facilities need traceability and security across both digital and physical components.

Finally, supplier claims must be handled with discipline. "Up to 50 percent faster" may describe a favorable module installation, not the complete project. "Operational in nine months" may begin after land, power and permitting are secured. A reference design reduces engineering risk but does not guarantee local approval or equipment availability. DSC needs common definitions and comparable baselines if speed is to become a serious performance category.

SOURCES 32 J.P. Morgan · 33 Columbia Business School

CHAPTER 10 · WHO WINS THE DSC ERA?

COORDINATION. CERTAINTY. ACCOUNTABILITY.

The obvious winners are the companies selling scarce products: accelerators, transformers, switchgear, generators, cooling equipment, fiber and copper. The more durable winners will sell coordination and certainty.

Four attributes stand out.

Control of a critical interface. NVIDIA's rack architecture is one example. A standardized power block, cooling manifold or open rack specification can also become an interface that organizes an ecosystem.

Repeatable capacity. A provider with factory slots, trained labor and qualified suppliers can offer a date rather than an aspiration. Manufacturing scale becomes a product feature.

A learning loop. Companies that connect design, supply, construction, commissioning and operations can improve each deployment. Their data advantage compounds.

Accountability across boundaries. Customers will pay a premium to reduce finger-pointing among silicon, network, power, cooling and construction providers. The integrator that guarantees the outcome can capture value from every layer it coordinates.

There will be room for specialists. Materials science, robotics, thermal management, grid equipment and commissioning all require deep expertise. DSC does not mean every provider becomes a conglomerate. It means specialists must plug into a more standardized delivery system and prove their effect on time to compute.

The market may ultimately divide into three layers. Component innovators will improve silicon, materials and equipment. Platform architects will define validated rack, cluster and facility designs. Capacity operators will finance, build and run the assets. DSC-as-a-Service providers will bind those layers into a commercial outcome.

That model will not look identical everywhere. The United States emphasizes private capital and, increasingly, private power. Europe faces tighter energy and sustainability constraints. The Middle East can pair large energy resources with state-backed capital. Asia combines hyperscale demand with manufacturing depth and national digital strategies. Sovereignty rules will shape where data, compute and equipment can move.

The common requirement is orchestration. The fastest project is not the one with the fastest chip. It is the one whose slowest dependency arrives on time.

CONCLUSION · THE NEW FULL STACK

WHERE AI BECOMES REAL.

The software industry taught us to see stacks everywhere. Application, platform, infrastructure. Front end, back end, database. Source code, build system, deployment pipeline.

AI is forcing the industry to recognize a larger stack: capital, land, permission, energy, materials, equipment, labor, construction, network, compute and operations. That is the Data Center Supply Chain.

The name matters because it gives the market a unit of analysis. Concrete innovation belongs in the same conversation as rack architecture. Transformer capacity belongs in the same conversation as accelerator roadmaps. Financing belongs in the same conversation as cooling. They all determine when AI becomes real.

The shift from chip to server to rack to cluster to AI factory is already underway. The next step is not necessarily a semiconductor company owning every data center. It is a small number of platforms learning to coordinate the whole system so effectively that customers experience it as a service.

That future carries risks. Integration can become lock-in. Private power can become public controversy. Factory methods can repeat design errors. Capital can outrun demand. Standards can become battlegrounds.

But the direction is clear. The AI race will not be decided only in model labs or chip fabs. It will be decided in transformer factories, concrete plants, modular assembly halls, utility queues, construction sites and control rooms.

KEY TAKEAWAY

Forget the software supply chain. The data center supply chain is where the action is.

EVIDENCE OF SUPPLIER ADAPTATION

A MARKET REORGANIZING AROUND DELIVERY

Different evidence types, not a league table. Announced spending, capacity agreements and vendor performance claims are not directly comparable.

PROVIDER	ADAPTATION	DISCLOSED SCALE	SCHEDULE EFFECT	EVIDENCE TYPE
Siemens / Compass[4]	Custom modular medium-voltage skids	Up to 1,500 units; five-year agreement	Repeatable electrical blocks and reserved supply	Capacity agreement
Eaton[12]	Modular enclosures and switchgear factories	>$242m Arkansas; 1m sq ft; 370k sq ft Nebraska	Expand electrical production capacity	Announced investment
Hitachi Energy[13]	Transformer component expansion	Additional $250m through 2027	Address upstream component constraints	Announced investment
Schneider Electric[7, 14]	Modular AI power systems and U.S. manufacturing	>$700m U.S. investment through 2027	Company-reported >30% schedule and >15% cost reductions	Investment + vendor claims
Vertiv[6]	Integrated power modules; SmartRun	Company-reported up to 50% faster power deployment	SmartRun: up to 85% less onsite installation time	Vendor performance claims

Company-reported percentages retain the cited supplier's scope and baseline. See the source notes for dates, context and limitations.

SOURCES 4 Siemens / Compass · 6 Vertiv · 7 Schneider Electric · 12 Eaton · 13 Hitachi Energy · 14 Schneider Electric

EVIDENCE OF SUPPLIER ADAPTATION · CONTINUED

A MARKET REORGANIZING AROUND DELIVERY

Different evidence types, not a league table. Announced spending, capacity agreements and vendor performance claims are not directly comparable.

PROVIDER	ADAPTATION	DISCLOSED SCALE	SCHEDULE EFFECT	EVIDENCE TYPE
Modine[23]	Cooling manufacturing expansion	$100m North America; new India manufacturing	Increase availability of cooling systems	Announced investment
SLB[8]	Industrial modularization	Company-reported 40% schedule compression	Company-reported 50% reduction in onsite labor	Vendor performance claims
Meta / Amrize[19]	AI-developed concrete mix	>100 candidate mixes evaluated	Company-reported 43% faster early strength; 35% lower carbon	Project case study
3M[22]	Expanded-beam optical connections	Company-reported ~3 min to ~30 sec per task	Reduce cumulative installation and network bring-up time	Vendor performance claims
JE Dunn / Trimble[9]	Integrated models and automated layout	Company-reported 4× turnover speed in one program	Other program: excavation –50%; employee hours –75%	Project case studies

Company-reported percentages retain the cited supplier's scope and baseline. See the source notes for dates, context and limitations.

SOURCES 8 SLB · 9 Trimble · 19 Amrize · 22 3M · 23 Modine

RESEARCH NOTES

SOURCES & EVIDENCE

Original manuscript source numbering is retained. Hyperlinks open the corresponding publication. Supplier claims are not independent benchmarks.

01 JLL · 2026 Global Data Center Market Outlook · 2026-01-05
https://www.jll.com/en-us/insights/market-outlook/data-center-outlook

02 IEA · Energy demand from AI - Energy and AI - Analysis · Undated page
https://www.iea.org/reports/energy-and-ai/energy-demand-from-ai
https://www.iea.org/reports/electricity-2026/demand

03 The Wall Street Journal · See the New Building Techniques Turbocharging the Data-Center Boom · 2026-09-01
https://www.wsj.com/tech/ai/see-the-new-building-techniques-turbocharging-the-data-center-boom-5020b8f6
https://www.turnerconstruction.com/insights/turner-construction-company-announces-the-launch-of-xpl-offsite
https://www.xploffsite.com/
https://augustrobotics.com/news/dewalt-r-unveils-the-worlds-first-downward-drilling-fleet-capable-robot-to-accelerate-data-center-construction
https://www.ppg.com/en-US/pmc/how-data-centers-rewrite-the-playbook-for-building-protection
https://hypertec.com/construction
Additional primary sources document xPL Offsite, coatings and construction robotics.

04 Siemens / Compass · Siemens & Compass Datacenters Sign Multi-Year Capacity Deal · Undated page
https://www.compassdatacenters.com/news/siemens-and-compass-sign-multi-year-custom-electrical-solution-agreement/

05 Siemens · Siemens and Delta power solutions cut data center deployment time, costs, and carbon emissions · 2025-11-19
https://press.siemens.com/global/en/pressrelease/siemens-and-delta-power-solutions-cut-data-center-deployment-time-costs-and-carbon

06 Vertiv · Vertiv announces expansion of manufacturing capacity spanning infrastructure solutions, power, and rack systems, to meet rising demand · 2026-03-24
https://www.vertiv.com/en-asia/about/news-and-events/news-releases/2026/vertiv-announces-expansion-of-manufacturing-capacity-spanning-infrastructure-solutions-power-and-rack-systems-to-meet-rising-demand/

07 Schneider Electric · The hidden power infrastructure behind AI · 2026-07-16
https://blog.se.com/datacenter/2026/07/16/ai-power-infrastructure/

08 SLB · Data Center Modular Infrastructure · Undated page
https://www.slb.com/products-and-services/scaling-new-energy-systems/data-center-modular-infrastructure

09 Trimble · Doing it the JE Dunn way: transforming how technology is used to build better, faster and smarter · 2025-12-11
https://www.trimble.com/en/blog/trimble/article/je-dunn-transforming-technology-to-build-better

RESEARCH NOTES · CONTINUED

SOURCES 10–17

10 Uptime Institute · Uptime Institute Global Data Center Survey Results 2026 · 2026-05-01 (per Uptime Intelligence results/crosstabs record; 16th edition)
https://uptimeinstitute.com/resources/research-and-reports/uptime-institute-global-data-center-survey-results-2026

11 U.S. DOE · Large Power Transformer Resilience · 2024-07
https://www.energy.gov/sites/default/files/2024-10/EXEC-2022-001242%20-%20Large%20Power%20Transformer%20Resilience%20Report%207-10-24.pdf

12 Eaton · Eaton expands manufacturing for modular electrical enclosures with $242+ million investment in new Arkansas facility to support the next generation of critical infrastructure development · 2026-09-02 (Arkansas); 2026-04-08 (Nebraska)
https://www.eaton.com/us/en-us/company/news-insights/news-releases/2026/eaton-expands-manufacturing-for-modular-electrical-enclosures.html
https://www.eaton.com/us/en-us/company/news-insights/news-releases/2026/eaton-expands-operations-in-nebraska-with-new-manufacturing-facility.html

13 Hitachi Energy · Hitachi Energy invests additional $250 million USD to address global transformer shortage · 2025-03-10
https://www.hitachienergy.com/news-and-events/press-releases/2025/03/hitachi-energy-invests-additional-250-million-usd-to-address-global-transformer-shortage

14 Schneider Electric · Schneider Electric Plans to Invest Over $700 million in the U.S., Supporting Energy & AI Sectors and Job Growth · 2025-03-25
https://www.se.com/us/en/about-us/newsroom/news/press-releases/schneider-electric-plans-to-invest-over-700-million-in-the-u-s-supporting-energy-ai-sectors-and-job-growth-67bdeb3ee4475a595501lb6a/

15 Siemens Energy · Eaton and Siemens Energy join forces to provide power and technology to accelerate the delivery of new data center capacity · Undated page
https://www.siemens-energy.com/global/en/home/press-releases/eaton-and-siemens-energy-join-forces-to-provide-power-and-techno.html
https://www.siemens-energy.com/global/en/home/products-services/product/modular-onsite-power-generation-data-center.html

16 Bloom Energy · AI Data Center Growth Hinges on Solving Both Power Constraints and Community Concerns, Bloom Energy Report Finds · 2026-06-15
https://www.bloomenergy.com/news/ai-data-center-growth-hinges-on-solving-both-power-constraints-and-community-concerns-bloom-energy-report-finds/

17 Cummins / Crusoe · Cummins Natural Gas Generators to Power Large Scale Data Centers in West Texas · 2026-06-16 (Cummins); 2026-03-12 (Crusoe)
https://investor.cummins.com/news/detail/697/cummins-natural-gas-generators-to-power-large-scale-data
https://www.crusoe.ai/resources/newsroom/crusoe-announces-new-manufacturing-facility-to-produce-modular-ai-factories

RESEARCH NOTES · CONTINUED

SOURCES 18–25

18 Gensler · Designing for Lower Carbon Concrete in Data Center Constructions · Undated page
https://www.gensler.com/gri/lower-carbon-concrete-in-data-center-construction

19 Amrize · Meta Data Center · Undated page
https://www.amrize.com/us/en/our-solutions/projects/meta-data-center.html
https://www.amrize.com/us/en/media/stories-insights/concrete--now-with-ai--see-how-at-the-new-meta-data-center.html

20 Meta · Advancing Low Carbon Concrete in our Data Centers · 2024-12-19
https://sustainability.atmeta.com/blog/2024/12/19/advancing-low-carbon-concrete-in-our-data-centers/

21 Amazon · How AWS is using more lower-carbon materials to build data centers · Undated page
https://www.aboutamazon.com/news/sustainability/aws-decarbonizing-construction-data-centers

22 3M · 3M Expanded Beam Optical Solutions (interconnect brochure) · Issued 3/25 (March 2025)
https://multimedia.3m.com/mws/media/1657910O/3m-expanded-beam-optical-interconnect-brochure.pdf

23 Modine · Modine Announces New $100 Million Investment to Expand Capacity for North American Data Centers Business · 2025-07-29 (US); 2025-09-08 (India)
https://investors.modine.com/news/news-details/2025/Modine-Announces-New-100-Million-Investment-to-Expand-Capacity-for-North-American-Data-Centers-Business/default.aspx
https://www.modine.com/news/modine-opens-india-facility-to-manufacture-data-center-cooling-equipment-for-apac-region/

24 NVIDIA / OCP · Why Scaling AI Compute Performance Requires a New Power Architecture · Undated page
https://blogs.nvidia.com/blog/800-vdc-power-architecture-ai-factory/

25 NVIDIA · NVIDIA Releases Vera Rubin DSX AI Factory Reference Design and Omniverse DSX Digital Twin Blueprint With Broad Industry Support · 2026-03-16 (reference design); 2026-05-31 (MaxLPS)
https://investor.nvidia.com/news/press-release-details/2026/NVIDIA-Releases-Vera-Rubin-DSX-AI-Factory-Reference-Design-and-Omniverse-DSX-Digital-Twin-Blueprint-With-Broad-Industry-Support/default.aspx
https://nvidianews.nvidia.com/news/dsx-infrastructure-ai-factory
https://www.hitachienergy.com/news-and-events/press-releases/2025/10/nvidia-800-vdc-collaboration

RESEARCH NOTES · CONTINUED

SOURCES 26–33

26 NVIDIA · NVIDIA DSX Gives Infrastructure Builders the Playbook for AI Factories; DGX-Ready Colocation Data Centers · 2026-05-31 (claim); DGX-Ready page n.a. on page (indexed 2026-06-22)
https://nvidianews.nvidia.com/news/dsx-infrastructure-ai-factory
https://www.nvidia.com/en-us/data-center/colocation-partners/

27 NVIDIA · NVIDIA Partners With Apollo, BlackRock, Blackstone, Brookfield, Goldman Sachs and KKR to Establish AI Compute Infrastructure Financing Platforms to Mobilize Over $500 Billion of Third-Party Capital · 2026-08-10
https://nvidianews.nvidia.com/news/nvidia-partners-with-apollo-blackrock-blackstone-brookfield-goldman-sachs-and-kkr-to-establish-ai-compute-infrastructure-financing-platforms-to-mobilize-over-500-billion-of-third-party-capital

28 AMD · AMD Helios · Undated page
https://www.amd.com/en/products/rackscale-solutions/helios.html
https://www.amd.com/en/blogs/2025/amd-helios-ai-rack-built-on-metas-2025-ocp-design.html

29 Schneider Electric · Schneider Electric and AMD release first Helios platform reference design to accelerate AI Factory deployment · 2026-07-23
https://www.se.com/ww/en/about-us/newsroom/news/press-releases/Schneider-Electric-and-AMD-release-first-Helios-platform-reference-design-to-accelerate-AI-Factory-deployment-6a60b540d574233932028c53/

30 Palantir · Palantir Launches Chain Reaction to Build American AI Infrastructure; Founding Partners Include CenterPoint Energy and NVIDIA · 2025-12-04
https://investors.palantir.com/news-details/2025/Palantir-Launches-Chain-Reaction-to-Build-American-AI-Infrastructure-Founding-Partners-Include-CenterPoint-Energy-and-NVIDIA/

31 Lightcast · New Lightcast Report Finds Workforce Shortages Could Limit Data Center Growth · 2026-06-02
https://lightcast.io/resources/blog/new-lightcast-report-finds-workforce-shortages-could-limit-data-center-growth

32 J.P. Morgan · Financing AI infrastructure and U.S. data centers · Undated page
https://www.jpmorgan.com/insights/banking/capital-markets/financing-ai-infrastructure-data-centers

33 Columbia Business School · Financing the AI Buildout · Draft: March 19, 2026
https://business.columbia.edu/sites/default/files-efs/imce-uploads/svannieuwerburgh/papers/FinancingAIBuildout_03192026.pdf

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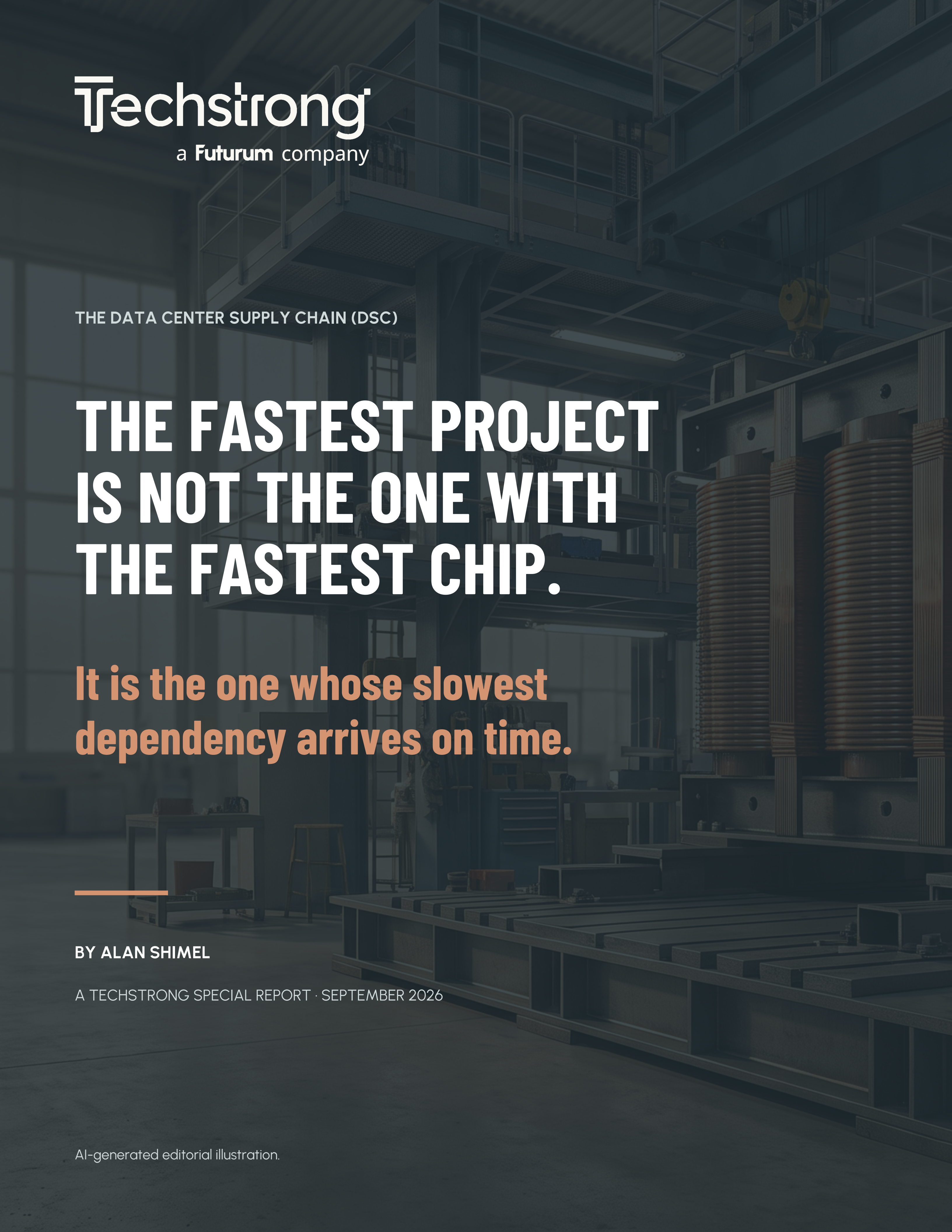
Research convention: Percentages attributed to suppliers, developers or project partners are presented as company-reported claims unless an independent source is explicitly identified. Readers should compare scope, baseline and site conditions before treating them as generally achievable results.



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a Futurum company

THE DATA CENTER SUPPLY CHAIN (DSC)

THE FASTEST PROJECT IS NOT THE ONE WITH THE FASTEST CHIP.

It is the one whose slowest dependency arrives on time.

BY ALAN SHIMEL

A TECHSTRONG SPECIAL REPORT · SEPTEMBER 2026

AI-generated editorial illustration.