Product brochure

Vertiv™ OneCore

The future of data centers

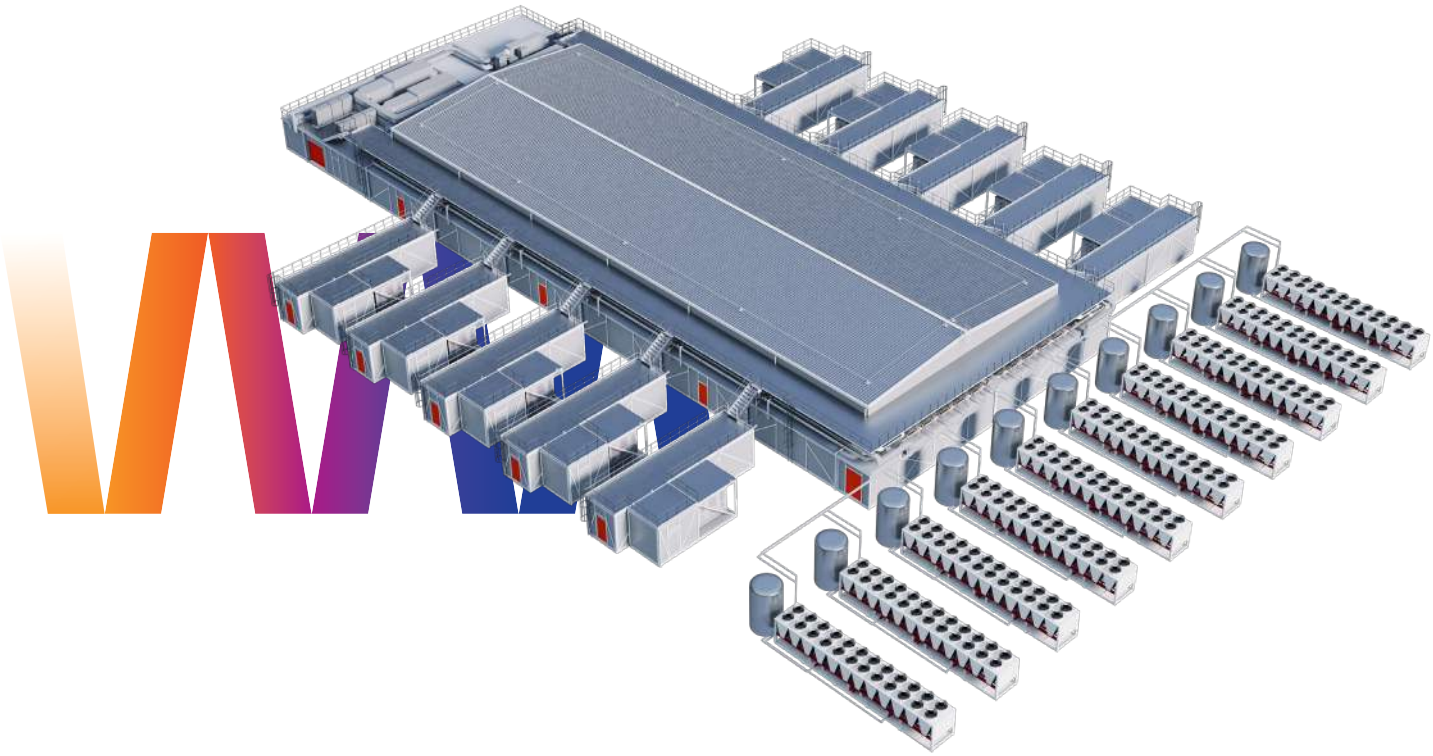

Table of Contents

About Vertiv 3

Vertiv™ Infrastructure Solutions at-a-glance 3

Vertiv™ OneCore 4

Inside Vertiv™ OneCore: the essential building blocks 6

Vertiv™ OneCore design specifications 12

Vertiv™ OneCore reference design 13

Vertiv™ OneCore: seamless end-to-end deployment from design to ready-for-service 14

Rely on Vertiv™ Services for superior critical infrastructure performance 16

About Vertiv

Vertiv (NYSE: VRT) brings together hardware, software, analytics and ongoing services to enable its customers' vital applications to run continuously, perform optimally and grow with their business needs. Vertiv solves the most important challenges facing today's data centers, communication networks and commercial and industrial facilities with a portfolio of power, cooling and IT infrastructure solutions and services that extends from the cloud to the edge of the network.

Headquartered in Columbus, Ohio, USA, Vertiv does business in more than 130 countries. For more information, and for the latest news and content from Vertiv, visit Vertiv.com.

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Vertiv™ Infrastructure Solutions at-a-glance

Vertiv™ Infrastructure Solutions offers you comprehensive support for designing data centers, utilizing the entire Vertiv™ product lineup to deliver seamlessly integrated solutions. By combining our extensive portfolio and expertise, we create prefabricated and modular solutions tailored both for AI and traditional data centers. With a platform-based approach, we tackle the challenges of selecting individual products and managing on-site integration, enabling you to build an efficient, resilient, and future-ready data center infrastructure.

Global presence with localized volume manufacturing facilities

Simplified and Scalable assembly for straightforward on-site installation

Full owners of the process from design to onsite installation

High quality Factory Integration with schedule and cost certainty

Energy Efficient Design allows for lower site PUE and reduced environmental impact while controlling costs

Vertiv™ Infrastructure Solutions bring over two decades of experience in deploying prefabricated and modular solutions across the world to different industries and customer profiles.

Accelerating Deployment Cycles	• Repeatable factory-integration to reduce deployment **up to 50% and 50% less on-site work (including commissioning)** • Global supply-chain and service delivery footprint
Maximizing Building Blocks & Space Optimization	• Modular and hybrid solutions in multi-MW sizes • Module design-practice **unlocks up to 30% space**
Reduce Field Work and Improve Build Quality	• Productizing non-repeatable field work in the factory, improving build-quality and **customer's total cost of ownership up to 25%**

Scan QR code and visit **Vertiv™ Infrastructure Solution** page.

Vertiv™ OneCore

In today's rapidly evolving digital landscape, deploying data center infrastructure that can keep pace with AI applications and emerging technologies requires unprecedented speed and flexibility. To meet this demand, we are introducing Vertiv™ OneCore - a revolutionary turn-key solution designed specifically for 5+ MW data centers that transforms the traditional data center deployment approach.

Vertiv™ OneCore offers a comprehensive end-to-end data center solution that simplifies the entire journey from construction to operation. As your single point of contact, Vertiv eliminates the complexity of managing multiple vendors and coordinates all aspects of your data center deployment. Our innovative approach combines a flexible building design with proven prefabricated components integrated within a Vertiv-provided steel building shell.

What sets Vertiv™ OneCore apart is its unique ability to deliver speed without compromising on scalability or future-readiness. The solution's prefabricated design enables simplified transportation and installation while significantly reducing on-site labor requirements and associated risks. Backed by Vertiv's global service network and rigorous quality control standards, Vertiv™ OneCore provides the reliability, cost efficiency, and schedule certainty that modern enterprises demand.

Vertiv™ OneCore: one solution, complete integration

Unlike traditional data center construction or fully modular solutions, Vertiv™ OneCore revolutionizes the building process with its innovative prefabricated hybrid-built based approach to deployment. The agile on-site assembly process features precision-engineered components, including easy-sliding equipment skids and outdoor-ready modular installations, all backed by rigorous quality control in Vertiv factories as well as at every stage of deployment.

Vertiv™ OneCore consists of several key components:

1. Data hall

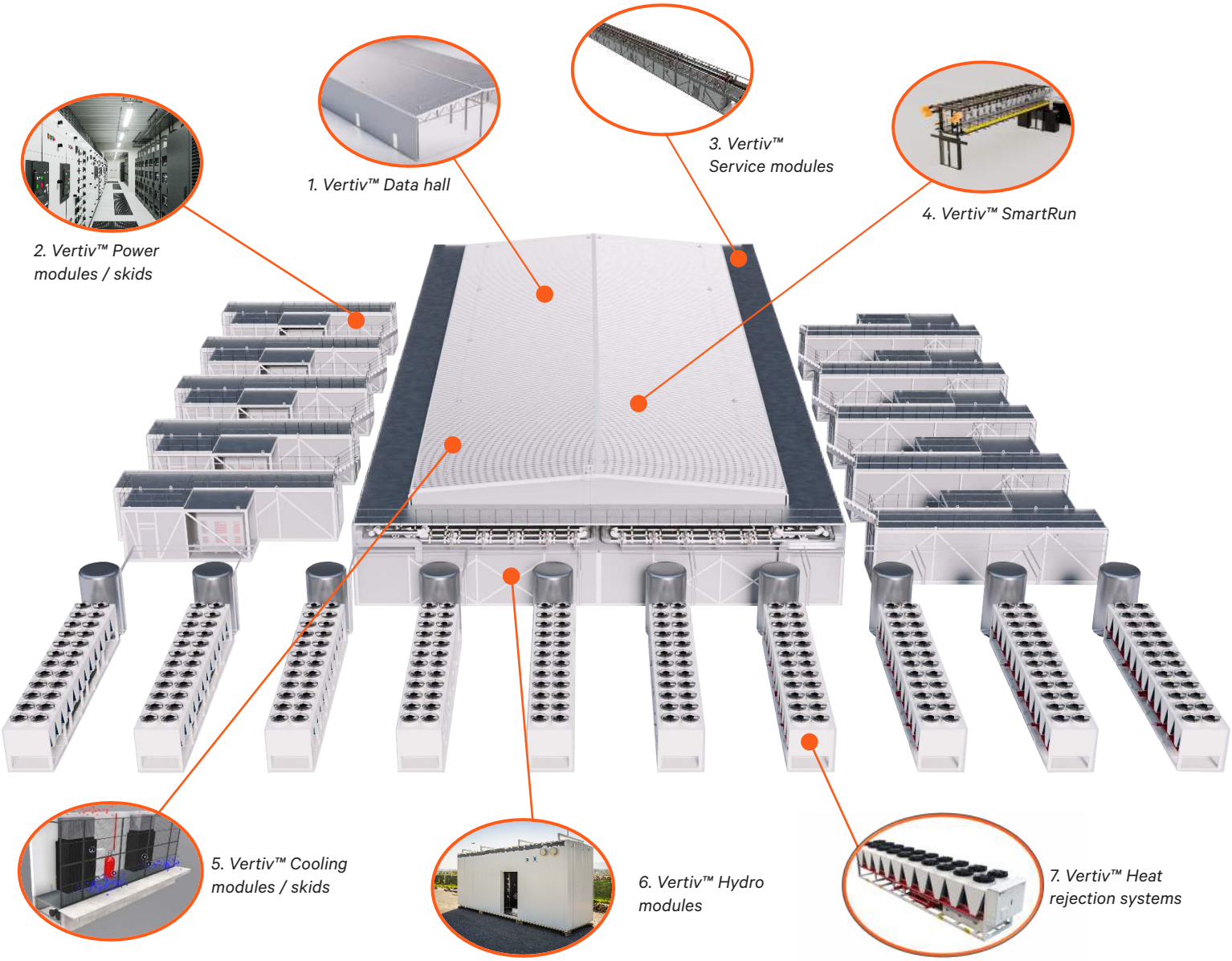
- A Vertiv-provided prefabricated steel data hall is a building shell that serves as the main data center structure. Its flexible building design can accommodate any data center without predefined physical or IT load size limitations. Recyclable steel structure is easier to decommission compared to traditional build, making it a choice for the future.

2. Prefabricated building blocks:

- Vertiv™ power modules and skids
- Cooling modules and skids
- Vertiv™ SmartRun IT superstructure
- Vertiv™ hydro modules
- Vertiv™ heat rejection
- Other prefabricated building blocks - auxiliary modules, like service corridors, piping skids, meet-me rooms, NOC rooms, shipping, storage area, etc.

The facility's structural framework integrates precision-manufactured components - load-bearing columns, reinforced floor and wall assemblies, and thermal-optimized roof systems - creating a high-performance infrastructure housing. The engineered deployment system supports precise positioning of IT superstructure and cooling skids, whether via rail-guided installation, lifting with a fork lifter, or other adaptable methods, while enabling accessibility for future equipment replacement or upgrades. External power and mechanical infrastructure are strategically positioned to support future capacity expansion through modular scaling. Prefab approach also means less overall site traffic and waste, further minimizing the environmental impact of Vertiv™ OneCore.

The entire solution is delivered as a comprehensive package with Vertiv acting as a single point of contact for both the data center building and infrastructure components.



Vertiv™ OneCore: key features that make the difference

- Seamless data center solutions from Vertiv – a single-point-of-contact for turnkey efficiency
- Scalable & modular infrastructure – flexible building sizes and customizable data center building blocks
- Accelerated Deployment – speed-driven solutions
- Streamlined logistics – simplified transportation and hassle-free installation
- Optimized workforce needs – minimized on-site labor for greater efficiency
- Effortless outdoor installation – easy prefab deployment in diverse environments
- Designed for smooth integration – equipment skids built for effortless installation
- Predictable costs, maximum efficiency – cost certainty without compromising performance

Scan the QR code to learn more about Vertiv™ OneCore

Inside Vertiv™ OneCore: the essential building blocks

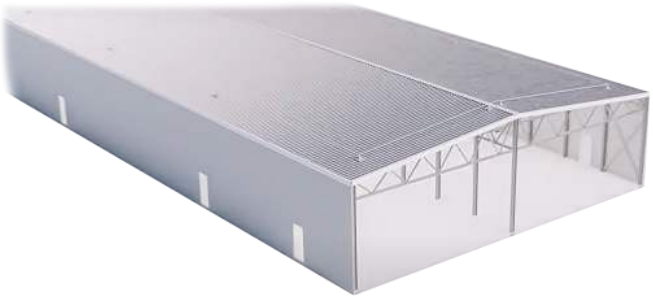
1. Data hall

The Vertiv™ data hall represents the next generation in purpose-built data center building shell construction, offering a flexible steel solution for your computing infrastructure needs.

This type of data hall provides custom-designed spaces for computing, storage, and networking racks engineered by Vertiv's expert R&D team for on-site assembly to achieve maximum efficiency.

Benefits that matter:

- Unlimited size possibilities with flexible design options
- Quick deployment capabilities
- Cost-effective with reduced transportation expenses
- Enhanced internal height for optimal whitespace utilization
- Superior airflow management throughout aisles
- Promotes environmental responsibility with recyclable materials



Vertiv™ Data hall

The Vertiv™ data hall combines innovative design with practical functionality, allowing parallel manufacturing of components to accelerate your data center deployment while maintaining the highest standards of quality and efficiency.

Perfect for organizations seeking a scalable and rapidly deployable data center solution that meets today's demanding IT infrastructure requirements.

2. Vertiv™ prefabricated power infrastructure

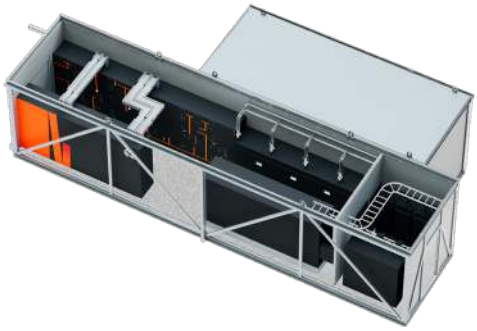
Within its cutting-edge Vertiv™ OneCore solution, Vertiv offers a wide array of prefabricated power infrastructure solution options, designed to cater to the different and unique needs of individual data centers.

Vertiv™ Power Module

Prefabricated enclosure that contains all the critical power infrastructure:

- Vertiv™ UPS and Batteries
- LV Switchboard
- Cooling
- Fire detection and suppression system
- Access Control
- Integration of MV and Transformer as option

Compact, all-in-one modules free up valuable space within the main building structure.



Vertiv™ Power Module

Vertiv™ Power Skid

Placed on single skid frame, critical power infrastructure includes:

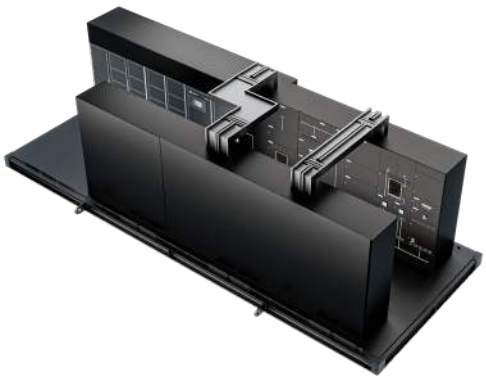
- Vertiv™ UPS and Batteries
- LV Switchboard

Perfect for installation within a dedicated single-space power room.

Vertiv™ Power Skid

Vertiv™ PowerNexus

- Close-coupled 1.5 – 2.5 MW Vertiv™ Trinergy™ UPS and Switchgear
- Available in back-to-back or front-to-front configuration and suitable for integration either in a Module or on a Skid
- Up to 50% reduction in installation time compared to traditional builds
- Minimized interconnections reduce fault risks and simplify maintenance
- Integrated design reduces footprint

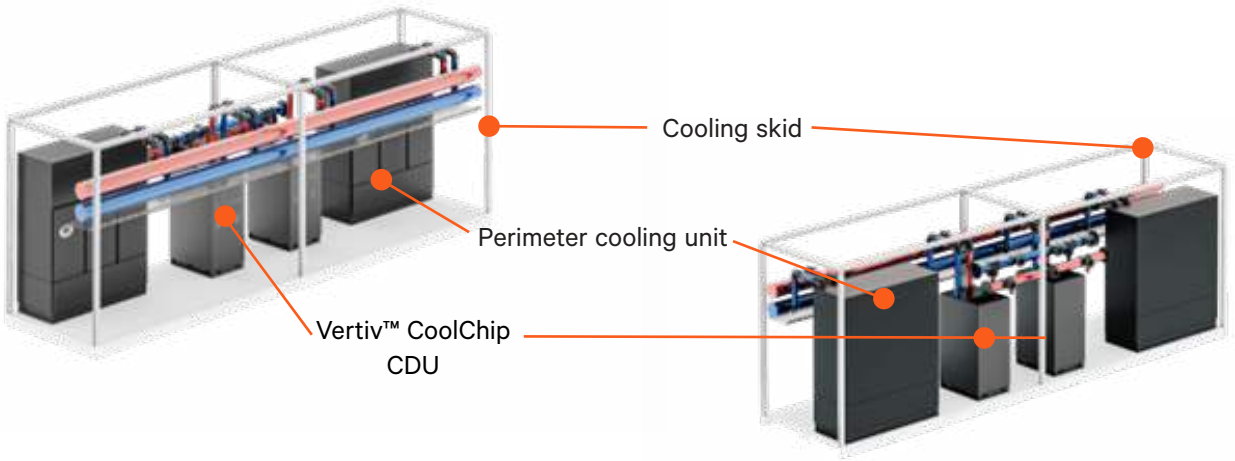


Vertiv™ PowerNexus

3. Vertiv™ cooling modules and skids

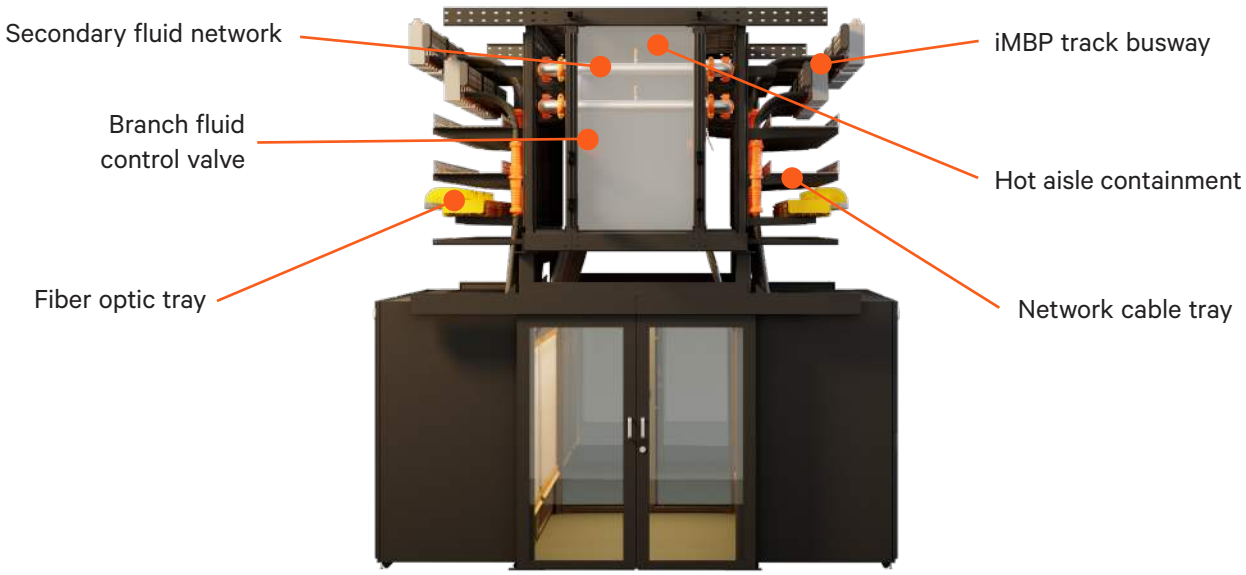
Vertiv™ Cooling modules or skids are prefabricated structures incorporating a range of Vertiv cooling units that enables ideal operational climate conditions within the data center IT hall, and also serves as a standalone mechanical corridor block, enabling full serviceability. These solutions typically include perimeter cooling units and, for AI applications, the Vertiv™ CoolChip coolant distribution unit, as well as necessary piping, both for primary and secondary fluid network. External primary fluid network piping can be featured in a separate piping skid, offering turn-key piping system delivered with verified cleanliness.

Prefabricated cooling skids are engineered for seamless integration within Vertiv™ OneCore, allowing them to be effortlessly installed into the completed building structural framework.



4. Vertiv™ SmartRun - IT superstructure

Vertiv™ SmartRun ,as Vertiv™ OneCore key feature, delivers prefabricated data center data hall overhead infrastructure solutions including busway, piping, network cabling, and aisle containment, expertly engineered to streamline deployment and maximize efficiency. By reducing installation times by up to seven times compared to traditional methods, and leveraging prefabricated assemblies from Vertiv's global manufacturing facilities, Vertiv™ SmartRun enables scalable projects with minimal on-site labor for overhead infrastructure.



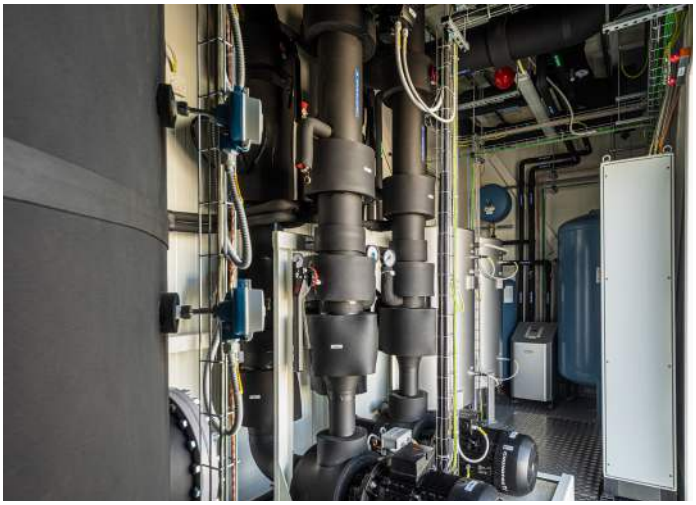
Features & benefits

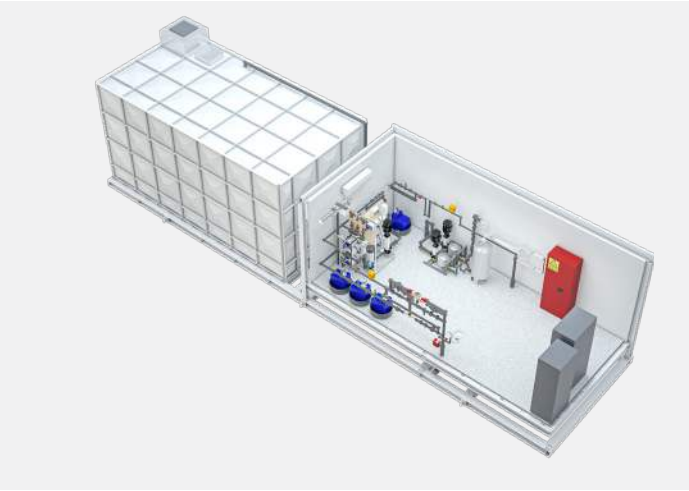
- Committed delivery timelines
- Optimized labor on-site
- Accelerated assembly inside Vertiv facilities
- One-stop-shop for equipment, deployment, install, and services
- Modularity in design enables accessibility for every application
- Design and deploy globally with scale

5. Vertiv™ hydro module

Vertiv™ hydro module prefabricated solutions offer a convenient and cost-effective solution for supporting data center cooling systems. These modular units are expertly designed, constructed, and rigorously tested off-site, enabling seamless delivery and hassle-free on-site installation with minimal operational disturbance.

Features & benefits





- Support for primary cooling systems
- Improved cooling efficiency
- Extended equipment lifespan
- Reduced downtime
- Modular & scalable
- Meets industry water quality standards
- Support for adiabatic and evaporative cooling systems
- Optimized water usage and chemical consumption
- Scalable depending on water site quality

6. Vertiv™ heat rejection systems

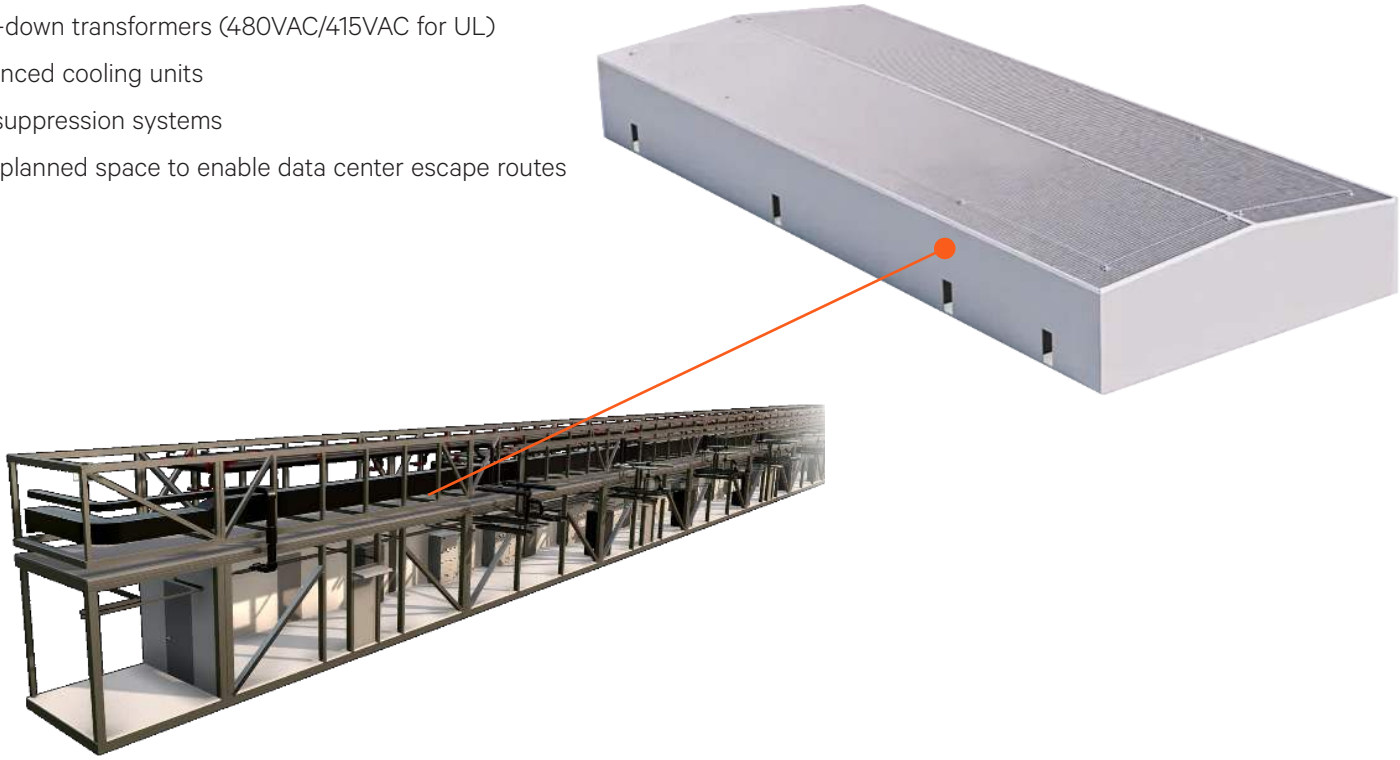
Vertiv™ OneCore offers an extensive selection of dependable and high-performance heat rejection systems from its portfolio , including air-cooled, water-cooled, air-cooled free cooling, adiabatic, and evaporative chiller options. It also features the innovative Vertiv™ CoolLoop trim cooler, an environmentally conscious, AI-ready, and densification-focused free cooling solution designed to support data centers in meeting the demands of increasing densification driven by AI advancements. Additionally, water tanks can be integrated to provide thermal backup, enabling a tailored solution for every data center's unique needs.

Vertiv™ CoolLoop trim cooler

7. Service modules

Vertiv™ OneCore can incorporate essential spaces that enables core data center functionality in the form of the Vertiv™ service module. These modules can include all of any of the following:

- Busway connections
- Remote power panels (RPP)
- Step-down transformers (480VAC/415VAC for UL)
- Advanced cooling units
- Fire suppression systems
- Well-planned space to enable data center escape routes



Having the service module as a separate unit enables rapid modular deployment of the Vertiv™ OneCore data center and simplified scalability as power requirements grow.

8. Auxilary modules

Vertiv™ OneCore auxiliary modules offer additional and optional prefabricated spaces that enhance the data center's capabilities, featuring amenities such as meet-me rooms, network operational center (NOC) room, staging areas, elevators, storage spaces, offices, hallways, and restroom facilities. Together, these modules create a complete and flexible Vertiv™ OneCore data center solution.

9. Vertiv™ Unify

Vertiv™ OneCore solutions offers Vertiv™ Unify onboard intelligence solution that delivers advanced monitoring, control, and automation. Vertiv™ Unify is an integrated platform that simplifies data center operations by consolidating power, thermal, and building management systems into a single, unified interface.

Designed to reduce complexity and risk, Vertiv™ Unify enhances visibility and control across the entire critical infrastructure chain. It offers plug-and-play deployment, seamless integration with third-party systems through open industrial protocols, and real-time data insights to optimize uptime and performance. Whether on-site, hybrid, or cloud-based, Vertiv™ Unify scales effortlessly to support hyperscale and colocation data centers, delivering smarter, more reliable operations with confidence and control at every level.

	Monitoring	Control	Redundancy
Essential	✓		
Advanced	✓	✓	
Premium	✓	✓	✓

Vertiv™ OneCore design specifications

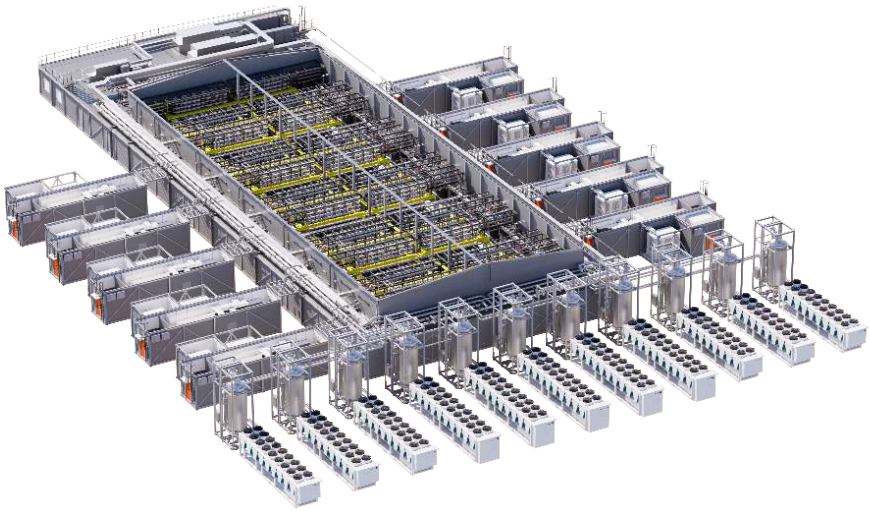
Design Specifications	Unit	Vertiv™ OneCore	Reference Design 1	Reference Design 2
General				
Nominal IT load	MW	5 to 50 single block	12.5	50
Power Supply		400V, 415V, 480V/ 3ph / 50, 60 Hz		
Medium voltage (MV)	KV	11, 13.8, 15, 20, 22, 24, 33, 35	24	24
Number of racks [1]		96 - 944	236	944
Cooling technology		Chilled Water - CW	Chilled Water - CW	Chilled Water - CW
Separate circuits for Liquid cooling		Optional	Yes	Yes
Heat rejection		FIZ chiller for Air portion and TRIM cooler for Liquid portion		
White space cooling type		Perimeter CW	Perimeter CW	Perimeter CW
Coolant Distribution Unit (CDU)		XDU600, XDU1350, XDU2300	XDU1350	XDU1350
Secondary fluid network		Stainless steel, Copper, Plastic	Stainless steel	Stainless steel
Secondar Secondary fluid network coolant			PG 25	
Redundancy				
Electrical redundancy		Concurrently maintainable distributed redundancy	Concurrently maintainable distributed redundancy	Concurrently maintainable distributed redundancy
Compute rack feed		4 to make 3 2N	4 to make 3	4 to make 3
Networking and storage rack feed		2N	2N	2N
Thermal redundancy				
Primary Fluid Network (PFN)		N+1, 2N, Concurrently maintainable	Concurrently maintainable	Concurrently maintainable
Secondary Fluid Network (SFN)		N+1	N+1	N+1
Back-up				
Thermal	min	2 - 5	3	3
Electrical	min	1 - 10	5	5
Power Smoothing [2]	%	0 - 100	0	0
Site				
Site area[3]	m^2/ sq ft		6,600 / 71,100	26,100 / 281,000
Data hall (IT Hall) footprint	m^2/ sq ft		1,500 / 16,000	4 halls of 1,500 / 16,000 (6,000/ 64,000)
Deployment in phases			No	Yes
Outdoor Temperature Range	°C / °F		-20 to 55 / -4 to 131	

(1) 600mm wide rack
(2) Active reduction of complex AI load profile
(3) Site area does not include space occupied by Diesel generators (Gensets)

Vertiv™ OneCore: reference designs

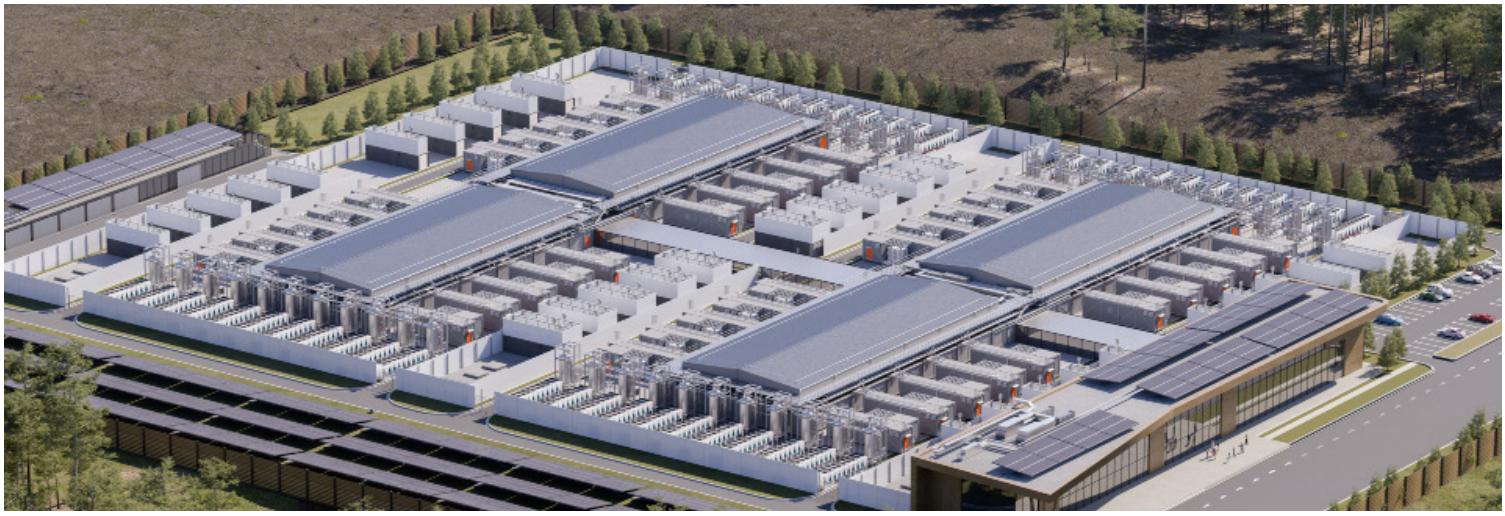
Vertiv™ OneCore - Reference design 1

- 12.5MW AI data center
- Single Data Hall of 1,500 m2 / 16,000 sq ft
- 236 racks
- Separate Primary Fluid Network (PFN) for Direct Liquid Cooling (DLC)
- Air cooling / Liquid cooling ratio: 20% / 80%
- Electrical redundancy: Concurrently maintainable distributed redundancy
- Thermal redundancy:
  - SFN – N+1
  - PFN – Concurrently maintainable



Vertiv™ OneCore - Reference design 2

- 50MW AI data center
- Single Data Hall of 1,500 m2 / 16,000 sq ft
- 944 racks
- Separate Primary Fluid Network (PFN) for Direct Liquid Cooling (DLC)
- Air cooling / Liquid cooling ratio: 20% / 80%
- Electrical redundancy: Concurrently maintainable distributed redundancy
- Thermal redundancy:
  - SFN – N+1
  - PFN – Concurrently maintainable



Vertiv™ OneCore: seamless end-to-end deployment from design to ready-for-service

Vertiv™ OneCore offers flexible deployment engagement options to meet your specific needs. The deployment journey spans from pre-sales consulting and design integration to factory assembly and on-site data center construction.

Our comprehensive approach includes thorough pre-construction planning, detailed method statements, risk assessments, and commissioning programs. During the construction phase, we provide expert site management, health & safety coordination, quality control, on-site commissioning, and training services. This approach enables a seamless transition from factory to site deployment, supported by our skilled deployment team throughout the entire project lifecycle.

1. Pre-sales phase:

- Consulting with presales team during bidding stage
- Deployment cost estimation and supervision planning
- Identifying and contacting local partners across the world

2. Design phase:

- Consultation during schematic design (SD), detailed design (DD) and construction documentation (CD) phases
- Integration of on-site experience into existing and new design solutions

3. Factory assembly phase:

- Consulting with factory team
- Monitoring assembly process in collaboration with quality control
- Level 1 attendance for external suppliers
- Factory acceptance test (FAT) attendance and involvement
- Participation in module disassembly / transportation preparation process

4. Pre-construction activities:

- Preparing method statements and risk assessments documentation
- Developing detailed scope of work documentation
- Creating commissioning programs, scripts, and schedules
- Supporting program managers during tendering phase

5. Construction phase:

- Managing or supervising the assembly
- Site management
- Health & safety coordination
- On-site quality control
- On-site commissioning
- Conducting training sessions

The process follows the prefabricated approach with activities split between factory and site locations, enabling comprehensive project delivery from initial consultation through to final commissioning.

Effective Vertiv deployment of Vertiv™ OneCore enables:

1. **Project Complexity Management:** Flexible engagement options help customers manage complex data center projects according to their capabilities and needs.
2. **Risk Mitigation:** Through comprehensive pre-construction planning, detailed method statements, and risk assessments, we help customers minimize deployment risks.
3. **Quality Assurance:** Our dual-layer quality control process (both at factory and on-site) enables high standards throughout the deployment process.
4. **Resource Optimization:** By providing experienced site management, H&S coordination, and training services, customers don't need to source and manage multiple contractors or develop internal expertise.
5. **Project Timeline Management:** Our prefabricated approach with clear phase progression from pre-sales through to commissioning helps efficient project delivery and reduces potential delays.
6. **Technical Integration:** By involving deployment experts during the design phase, we help prevent potential on-site issues before they occur, integrating practical experience into the design solutions.
7. **Seamless Transition:** Our comprehensive approach enables smooth transitions between factory assembly and on-site deployment phases, reducing coordination challenges for customers.

Efficient engineering, production and site construction

Design & engineering BOD, SD, DD

Office and factory activities

- Construction design, procurement
- Vertiv™ SmartRun production
  Auxiliary modules production
- Power modules production
  Hydro modules production
  Piping skids production
- As build documentation

Site activities

- Studies, permitting
- Site preparation, road, foundation
- Shell construction, smartrun installation
- Vertiv™ SmartRun installation, internal cooling installation
- Installation of auxiliary modules, piping skids, chillers, hydro modules, power modules, controls and monitoring implementation

Controls and monitoring implementation

Rely on Vertiv™ Services for superior critical infrastructure performance

Global presence & local resources

With the broadest, most comprehensive service presence in the industry and more than 3,500 engineers dedicated to servicing the entire world, Vertiv products enable that your business is always protected, and that service is available whenever needed 24 hours a day.

Project services

From project planning and design, through to equipment procurement, installation, and commissioning, our project team offers comprehensive capabilities, enabling speed of deployment and execution according to pre-defined and repeatable procedures.

Expertise & training

All service engineers are regularly certified according to country-specific regulations as well as wider international regulations and standards.

Vertiv service engineers are trained, experienced professionals who undergo an average of one week of intensive training each quarter, totaling one month of full-time training per year.

Training includes both technology and safety, to enable competent and safe field operations, reinforced by established procedures to follow and central technical support in case of need.

Premium response

With Vertiv you can count on an extensive supply of critical parts plus crash-kits ready for deployment, and on service engineers that can respond to requests in record time.

To do so, they rely on a solid knowledge-base, and established escalation procedures valid across the regions. In addition, they also benefit from advanced incident management, and widespread presence of Service Centers all enabling them to deliver premium restoration capabilities.

Supporting your business around the globe

Regular service of critical equipment supports maximum uptime and reduces total cost of ownership. A service program enables timely and proactive maintenance for avoiding unexpected, costly equipment downtime and enables optimal equipment operation. Vertiv service programs cover all technologies and can be tailored to suit individual business needs.

Vertiv deep infrastructure expertise is amplified by field data and analytics, enabling data-based services such as Advanced Incident Management and Condition Based Maintenance.

These services complement our portfolio providing additional insight into operating trends allowing informed decision and minimizing operational.

Vertiv.com | **Vertiv Headquarters,** 505 N Cleveland Ave, Westerville, OH 43082, USA

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