Vertiv™ SmartAisle™

Complete Vertiv™ Edge Data Center Infrastructure Solution

Vertiv™ SmartAisle™

The Vertiv™ SmartAisle™ is a Pre-Engineered Edge Data Center complete with power, cooling, and all the critical pieces required to assist data center availability.

80%
Faster Deployment*

30%
Lower Deployment Cost*

20%
Lower Carbon Emissions*

Complete Containment

Fully contained hot and cold aisles enable more efficient cooling. EIA310 19-inch IT racks included for IT equipment.

Centralized Management & Monitoring

Equipped with revolutionary integrated communications module and touch screen control panel to provide unmatched access to the entire system including remote monitoring & control.

Precision Cooling

In-row cooling units are included with N+1 Redundancy. They work in tandem with temperature sensors at the rack and supply air to optimize cooling capacity and increase energy efficiency.

Power Management & Distribution

Pre-integrated power distribution across the entire system to the IT racks including N+1 redundancy.

Power Protection

Online Double-Conversion UPS with Unity power factor provides clean power feeding to critical IT equipment.

Smart Security & Safety

Front and rear smart rack handles increase security and mitigates risks of unauthorized access. Four IP cameras record operations inside the aisle and in proximity of the sliding doors.

Environmental Sensors

Reporting critical environmental information and alarm notifications means IT equipment is always kept at the desired conditions.

**For illustration purposes only. Figures are estimations based upon Vertiv's internal engineering studies and analysis. Actual deployment times, costs, and savings may vary depending upon scope, specifications, geographic locations, etc.*

Top Benefits of the Vertiv™ SmartAisle™

Accelerate Vertiv™ Edge Computing Deployments

- Vertiv™ SmartAisle™ is a deployment-ready solution engineered by global leaders in Data Center Infrastructure. This reduces most of the time spent on planning, design, and site preparation.
- 24 unique configurations enable unique selections of system capacity, cooling capacity, rack quantity, etc.

Reduce Carbon Footprint and Save Energy

- The aisle containment system in combination with precision in row cooling unit help IT managers save 20% energy compared to the average Power Usage Effectiveness (PUE).
- Cooling units include capacity modulation to reduce compressor cycles and component wear and tear.
- PUE is monitored with detailed and precise reporting available.

N+1 Redundancy Capability Helps Prevent Downtime

- Redundant power and cooling can optionally be built into each system to add another layer of protection from downtime.
- Options to place redundant UPS outside the aisle.

**As published by UPTIME Institute in 2024.*

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Maximize Existing Space With a Room Neutral Design

- In-Row power and cooling systems enable more compute capacity in a smaller footprint.
- System can be placed virtually anywhere – no raised floor is required.

Lower Deployment Costs

- The solution, engineered by Vertiv to eliminate much of the planning and design typically required for a new Vertiv™ Edge Data Center deployment, also offers an expected CAPEX savings of up to 30%.

Centralized IT Including Infrastructure Monitoring System With Optional IT Management Capabilities

- System visualization with 3D models for easy system monitoring.
- Allows serial console management via serial connection.
- Local (control panel) and remote system health check via IP-based webpage.
- Alarm notifications via email or SMS with downloadable activity logs and alarm history.

Intelligent Physical Security

- Systems include intelligent locks, IP cameras, and network video recorder.
- Enable remote door access via IP-based webpage, local access with proximity card.

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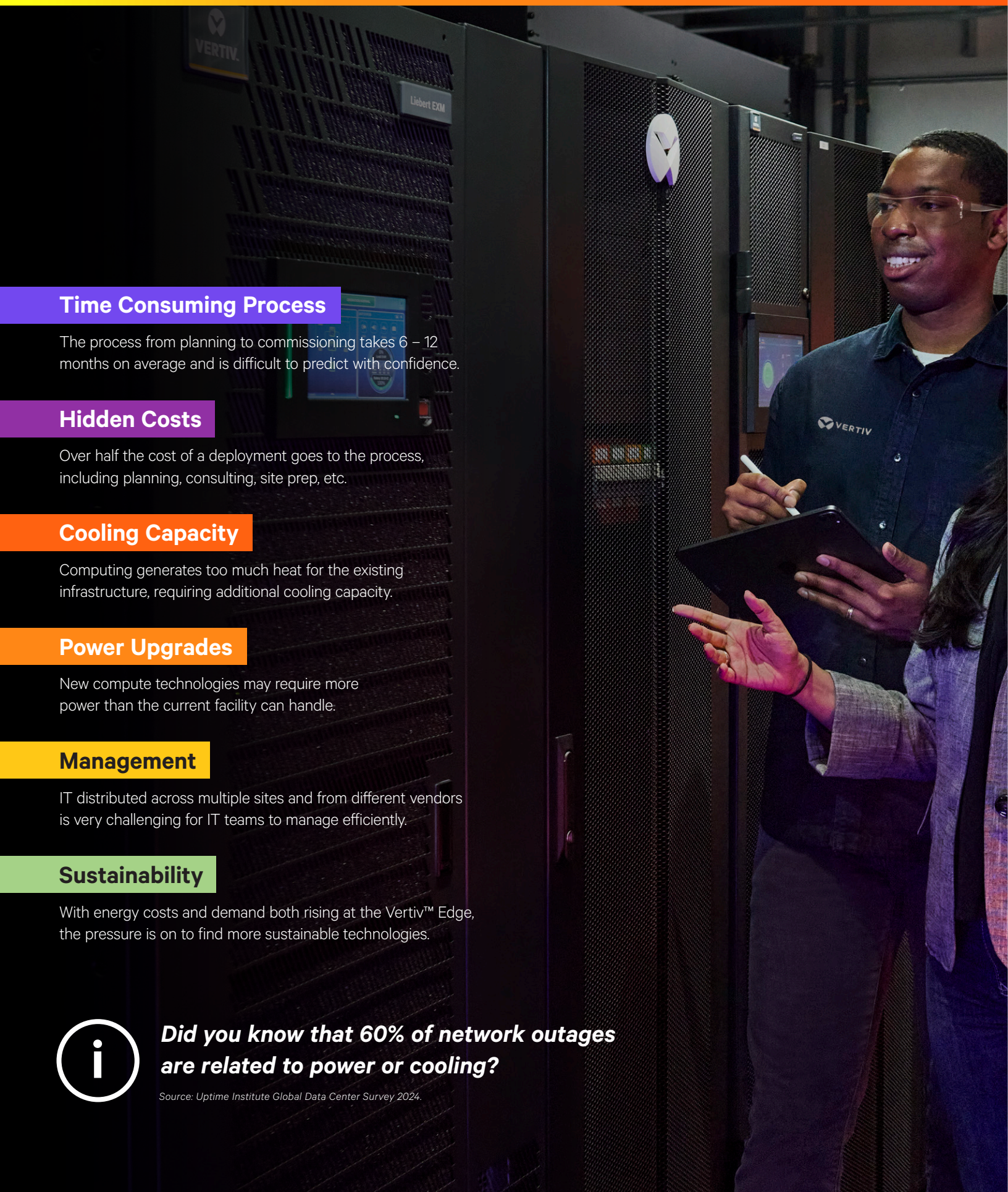


Time Consuming Process

The process from planning to commissioning takes 6 – 12 months on average and is difficult to predict with confidence.

Hidden Costs

Over half the cost of a deployment goes to the process, including planning, consulting, site prep, etc.

Cooling Capacity

Computing generates too much heat for the existing infrastructure, requiring additional cooling capacity.

Power Upgrades

New compute technologies may require more power than the current facility can handle.

Management

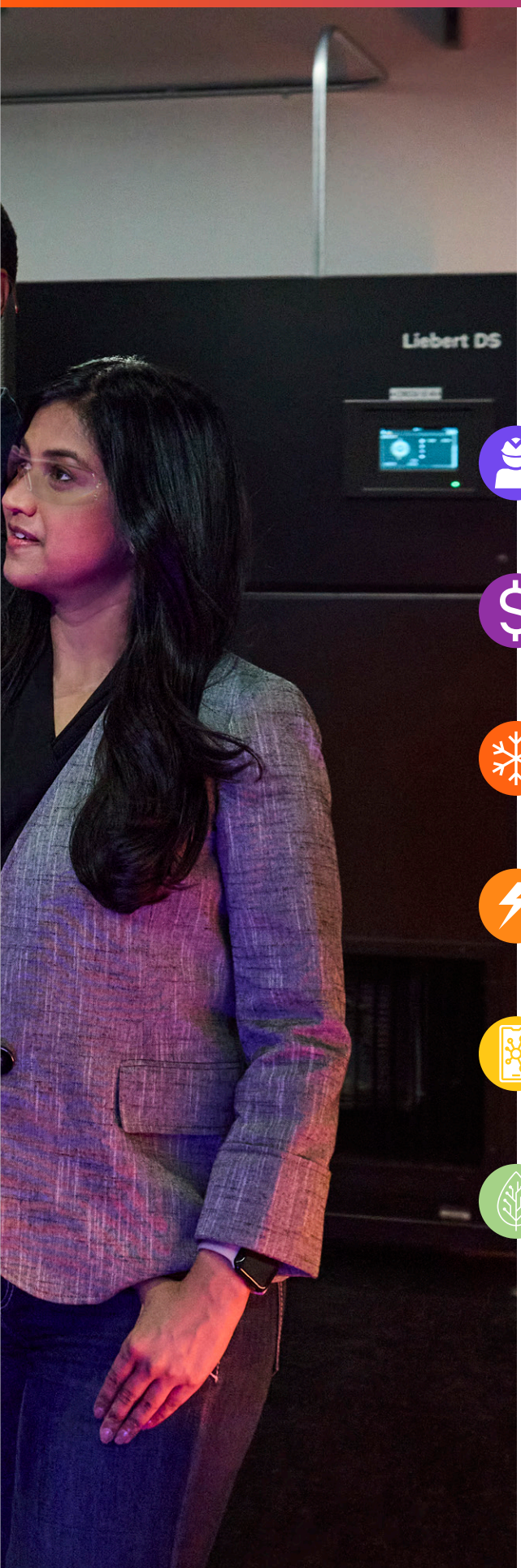
IT distributed across multiple sites and from different vendors is very challenging for IT teams to manage efficiently.

Sustainability

With energy costs and demand both rising at the Vertiv™ Edge, the pressure is on to find more sustainable technologies.

Did you know that 60% of network outages are related to power or cooling?

Source: Uptime Institute Global Data Center Survey 2024.



How Vertiv™ SmartAisle™ Simplifies Deployment

Pre-engineered systems simplify edge deployments with a repeatable and scalable solution, enabling business agility for future growth.

Accelerate Deployments

Accelerate the deployment process by reducing planning, build, and overall deployment time.

Reduce Costs

Reduce costs associated with planning, construction and renovation and make the budget for the project more predictable.

Integrated Cooling

Many solutions offer integrated cooling and containment to maximize cooling capacity and energy efficiency in the space.

Pre-Integrated Power Distribution

Solutions can include Busway, UPS battery backup, surge protection, and pre-integrated power distribution to IT rack enclosures to simplify installation and commissioning.

Remote Management

Standardized, single-vendor solutions include remote management options to simplify environments.

Contained In-Row Cooling

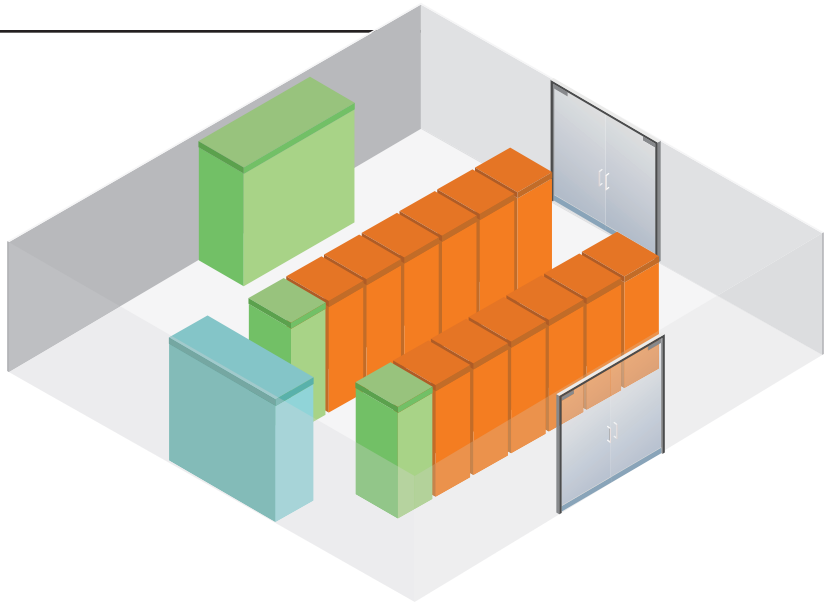
Contained systems with dedicated cooling are proven to reduce cooling energy use and carbon emissions by as much as 30%.

Vertiv is a Global Leader in Data Center Power and Cooling Solutions

Vertiv™ SmartAisle™

It is Time to Rethink the Traditional Process

Traditional Room Build



Racks Power Cooling

Complex Process

Months of planning, design, procurement, legal permitting, and consulting go into creating custom designs for a room build or upgrade. It takes months for each deployment, and each room is typically repeated all over again for every location.

Planning and labor consume

50%

of the deployment cost*

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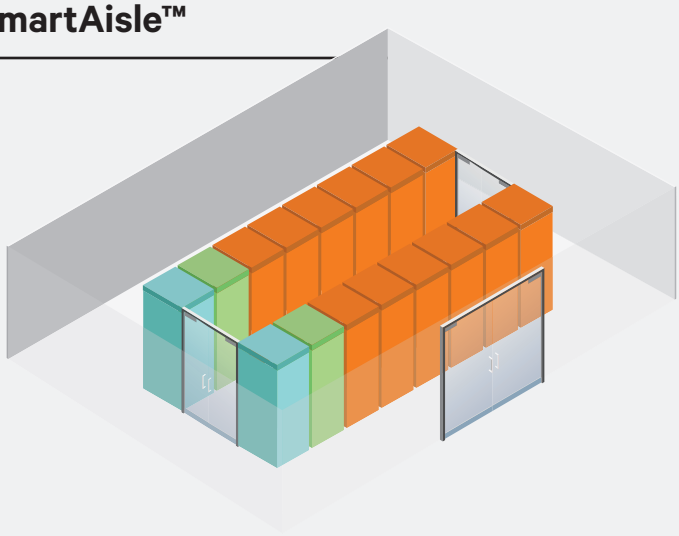


Racks Power Cooling

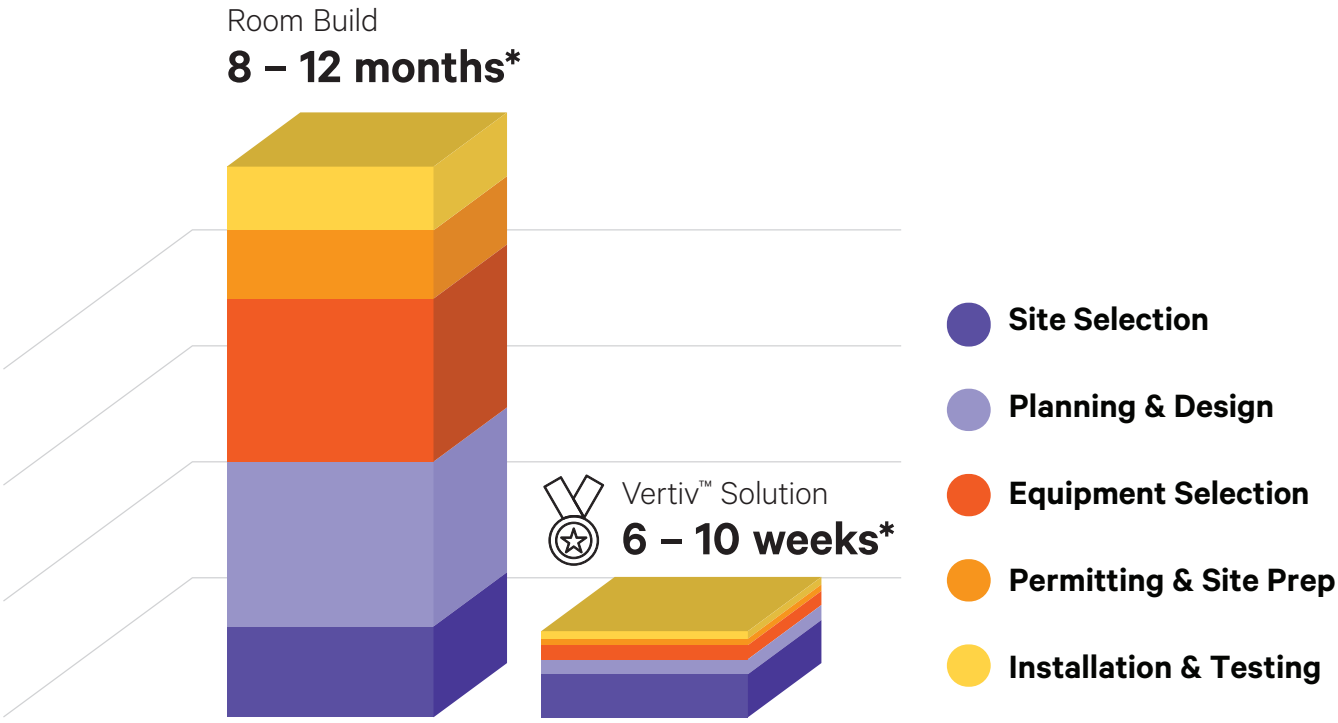
What's Included

- Sealed Racks
- In-Row Cooling
- Power Distribution & UPS
- Fire Suppression
- Physical Security

Pre-Engineered systems eliminate most of the design and planning that goes into Vertiv™ Edge deployments.

Vertiv™ SmartAisle™ vs Room Build

The SmartAisle™ offers a simplified approach to deploying an Vertiv™ Edge Data Center when compared to designing and building or retrofitting a room.



80% Faster time to deployment*

30% Initial cost savings per deployment*

20% Reduction in carbon emissions*

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High Efficiency Thermal Management

Each system includes sealed racks with contained in-row cooling and airflow management to maximize cooling efficiency and reduce energy costs.

Intelligent Monitoring

System includes temperature sensors in each enclosure to assist precise control over temperature and humidity.

Capacity Modulation

Cooling units work as a team allowing the system to modulate capacity to increase efficiency, minimize wear and tear on the compressor, and extend the useful life of each cooling unit.

Emergency Ventilation

The roof includes emergency ventilation to pull heat away from the IT and enable a safe system shutdown.

Reduce Cooling Costs & CO2 Emissions by 20%

In a traditional room build, precision cooling units cool an entire room. The Vertiv™ SmartAisle™ is a fully contained system that includes hot aisle and cold aisle containment. This is an industry best practice proven to significantly increase cooling efficiency, which reduces the energy required to cool the system and reduces total carbon emissions by an estimated up to 20%.*

Aisle Containment for airflow separation and enhanced energy efficiency.

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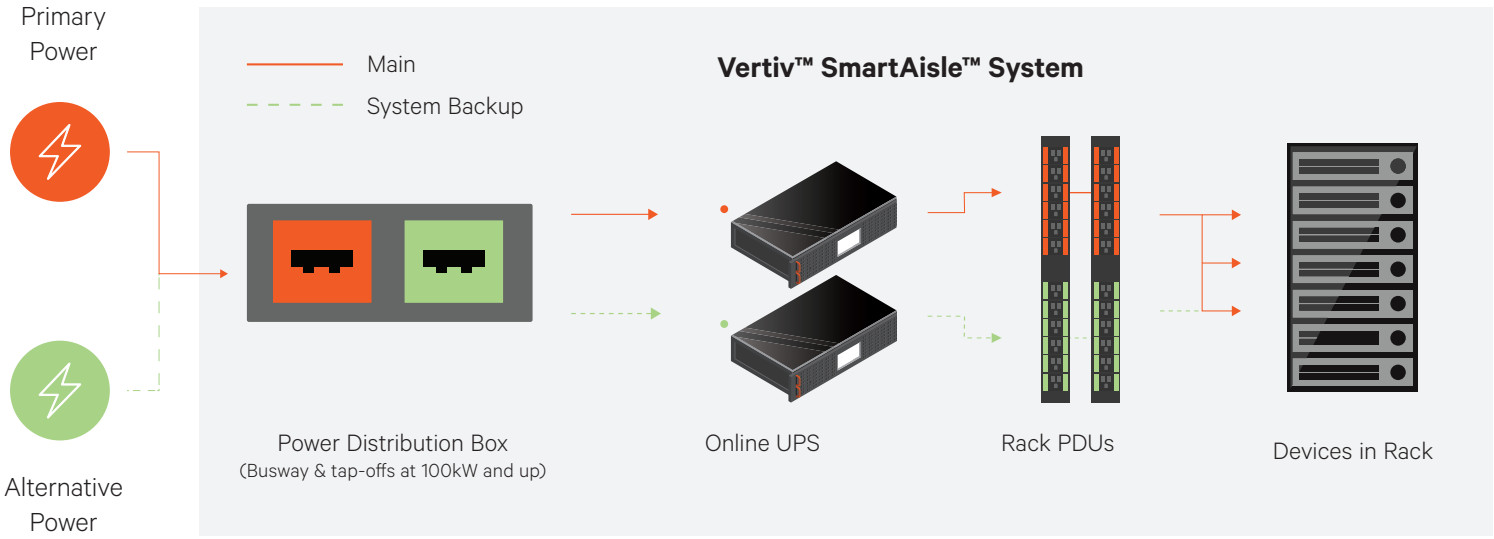
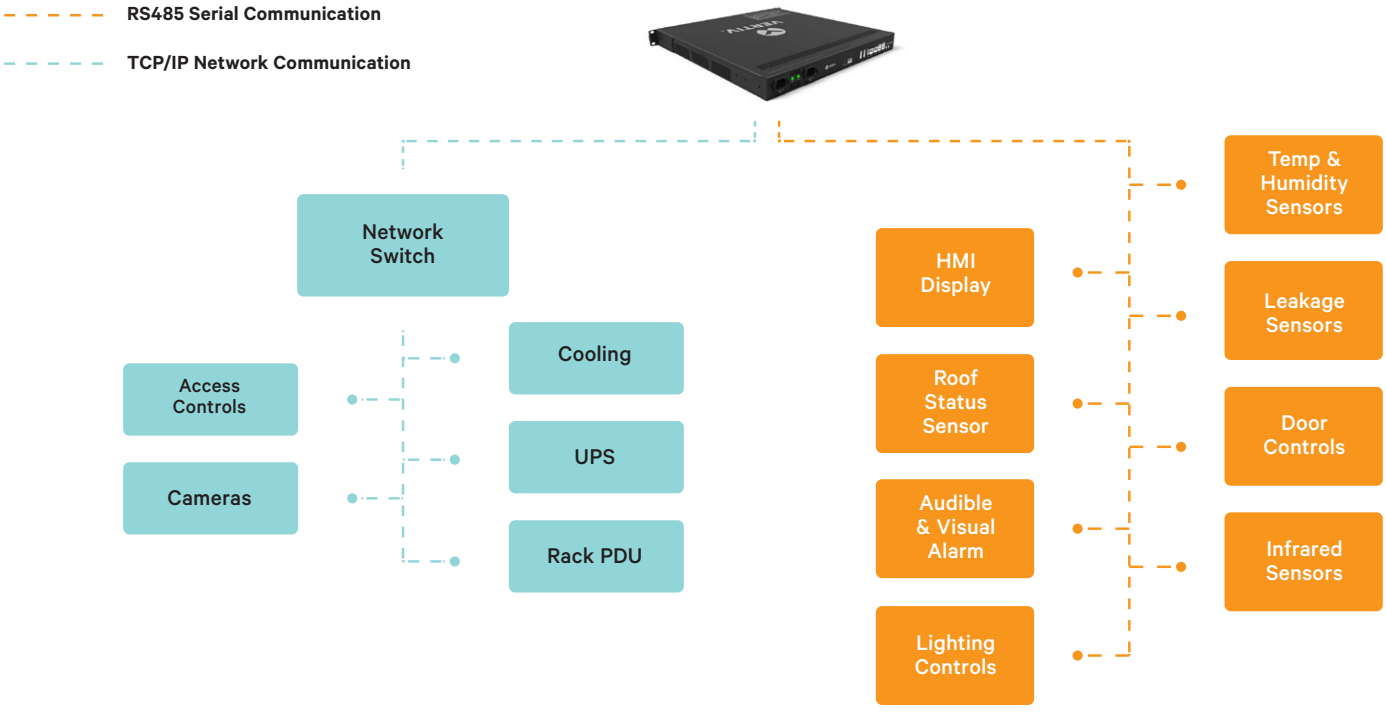
Fully Redundant Power Management

Each system includes pre-integrated power management complete with online double-conversion UPS, N+1 power redundancy, and pre-integrated distribution to rack PDUs in each rack enclosure.



Centralized Management and Monitoring

Infrastructure Management Gateway Appliance



Our Most Advanced Infrastructure Control Available

The integrated controller in the SmartAisle™ provides unmatched reporting and analysis of the operation and status of the system.

Main Screen

Displays the current status of the unit, operational efficiency, aisle temperature and number of alarms based on priority.

PUE Screen

Displays precise PUE with detailed breakdown of power usage by tracking demand fluctuations.

Thermograph Profile

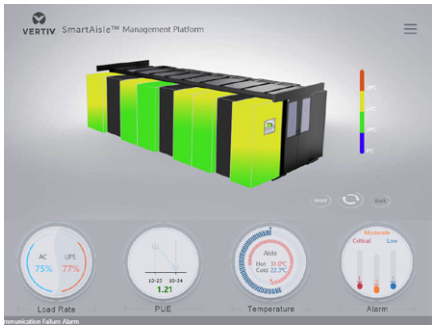
Displays the entire temperature field of each rack in the unit providing micro-level data for temperature variation.

System Alarms

Displays all the current alarms with the precise fault location and the level urgency in the Vertiv™ SmartAisle™.

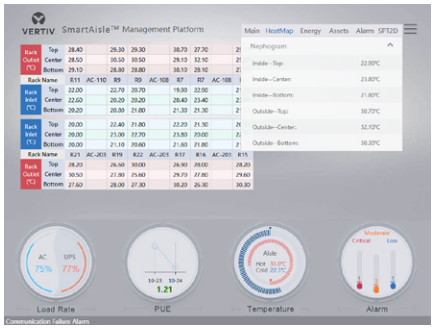
IT Load Profile

Displays the capacity utilization for the load rate and the power supply to factor the instant demand profile variation.



Nephogram

Displays real-time temperature reading for each rack on both sides of the hot aisle and the cold aisle.



Technical Specifications

Model	SA_RD#1	RD#2	RD#3	RD#4
General Description				
Designed IT Load (kVA)	60	90	120	150
Number of IT racks	8		11	
Average IT load per rack (240V)	7.4	11.04	10.7	13.5
Nominal Input Voltage	380/400/415 V (3P/N/PE)			
Nominal input frequency	50/60 Hz			
Redundancy Level	N+1	N+1	N+1	N+1
Dimension (WxHxD), mm	5400x2150x3600	6000x2150x3600	5900x2150x3600 (aisle) 2200x2000x1000 (ups)	6900x2150x3000 (aisle) 3000x2000x1000 (ups)
Dimension (WxHxD), mm (including service passages)	7800x2150x5200	8400x2150x5200	8300x2150x5200 (aisle) 2800x2000x2000 (ups)	9300x2150x5200 (aisle) 3000x2000x2000 (ups)
Finish/Colour	Visible surface of covers RAL 7021 dark-grey			
Weight (Kg)	4,858.22	5,447.22	7,262.18	9,472.91
UPS System				
UPS Model	Vertiv™ Liebert® APM2 30-120 kW		Vertiv™ Liebert® APM2 60-300 kW	
Module Capacity	30 kVA		60 kVA	
Number of modules	3	4	3	4
Deployed Capacity	90 kVA	120 kVA	180 kVA	240 kVA
Dimension (WxHxD), mm	600x1600x800 mm		600x2000x900 mm	
Weight (Kg)	455	480	399	437
Battery Cabinet				
Battery Runtime (EOL)	15 min	11 min	15 min	15 min
Weight	106 kg			
Battery Type	VRLA	VRLA	VRLA	VRLA
Battery Configuration	1x40x82Ah	1x40x82Ah	2x40x82Ah	3x40x82Ah
Number of cabinets	1	1	2	3
Dimension (WxHxD), mm	800x2000x900 mm		800x2000x900 mm	
Weight (Kg)	1285		2570	3855
Server Racks				
Rack type	Vertiv™ Knurr DCM			
Dimension (WxHxD), mm	800x2000x1200 mm			
Number of racks	8		11	
Available U-slots	42U			
Protection rating	IP 20, according to IEC 60529			
Static load rating	800x2000x900 mm		800x2000x900 mm	
rPDU model	Vertiv™ Geist™ VP4G20A6			Vertiv™ Geist™ VP4G30AF
rPDU type	monitored			
rPDU capacity (A)	16			32
rPDU phases	3			
Access control	e-handles on front and rear door			
How supplied	Pre-assembled			
Weight (Kg)	146.52			149.24

Model	SA_RD#1	RD#2	RD#3	RD#4
Power Management Rack				
Rack type	Vertiv™ Knurr DCM			
Dimension (WxHxD), mm	800x2000x1200 mm			
Management Station	RDU 501			
Power Consumption (W)	250			
HMI	15" touchscreen display, positioned on the left side panel for easy access from outside the SmartAisle™			
Power Consumption (W)	70			
Video Surveillance	Network Video Recorder complemented with 4x IP cameras supplied loose			
Network switches	2x network switches 24 ports POE			
Power Consumption (W)	120			
Environmental monitoring	6x Temperature and 2 Humidity sensors mounted on the front and rear door			
Access control	2x e-handles on front and rear door			
Power Consumption (W)	55.08	55.08	73.44	73.44
Power Distribution Box	4 (supplied loose)		6 (supplied loose)	
How supplied	Pre-assembled			
rPDU model	Vertiv™ Geist™ VP4G30A0			
rPDU type	monitored			
rPDU capacity (A)	32			
rPDU phases	1			
Weight (Kg)	139.26			
Power Distribution				
From customer' switchgear	Power Cords			
Number of cords	2 (UPS) + 4 (PDB)		2 (UPS) + 6 (PDB)	
From UPS to IT load	LV modular switchboard with hot-plug breakers		LV modular busbar system with hot-plug tap-off boxes	
Weight (Kg), w/o cords *	166.8	166.8	112.2	124.01
Indoor Cooling Units				
Indoor Unit Model	Vertiv™ Liebert® CRD25	Vertiv™ Liebert® CRD35	Vertiv™ Liebert® CRD25	Vertiv™ Liebert® CRD35
Number of indoor units	4		6	
Net Sensible Cooling Capacity* (kW)	25 kW	36 kW	25 kW	36 kW
Capacity Modulation Range	20-100%			
Refrigerant/Coolant	410A			
Max piping length, m	120			
Dimensions (WxHxD), mm	300x2000x1132	600x2000x1132	300x2000x1132	600x2000x1132
Weight (Kg)	272	358	272	358

* *busbar weight doesn't include the distance between the UPS and the SmartAisle™*

Model	SA_RD#1	RD#2	RD#3	RD#4
Outdoor Cooling Units				
Outdoor Unit Model	Vertiv™ Liebert® CCD25	Vertiv™ Liebert® CCD35	Vertiv™ Liebert® CCD25	Vertiv™ Liebert® CCD35
Number of outdoor units	4		6	
Operating Temperatures **	-35 to 48 °C			
Dimensions (WxHxD), mm	1562x1272x830	2362x1272x830	1562x1272x830	2362x1272x830
Weight (Kg)	120	175	120	175

* *Test conditions: 37°C, 24% Return Air, 35°C outdoor*
** *with low ambient kit*

Aisle Containment System				
Containment Model	Vertiv™ SmartAisle™ Containment			
Door elements	Sliding doors with no locking system			
Roof elements	Roof panels for aisle containment in Polycarbonate, UL 94-VO/DIN 4102 B2			
Weight (Kg)	72	72	78	78

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