Vertiv™ SmartCabinet™

Intelligent, Integrated Containment
for IT Infrastructure

About Vertiv

Vertiv brings together hardware, software, analytics and ongoing services to ensure its customers' vital applications run continuously, perform optimally and grow with their business needs. Vertiv solves the most important challenges faced by 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 employs around 20,000 people and does business in more than 130 countries. For more information, and for the latest news and content from Vertiv, visit Vertiv.com*.*

Vertiv.com

OUR PURPOSE

We believe there is a better way to meet the world's accelerating demand for data - one driven by passion and innovation.

GLOBAL PRESENCE
Manufacturing Locations: **23**
Service Centers: **290+**
Service Field Engineers: **3,300+**
Technical Support Personel: **250+**
Customer Experience Centers: **14**

AMERICAS
Manufacturing Locations: **10**
Service Centers: **170+**
Service Field Engineers: **1,500+**
Technical Support Personel: **105+**
Customer Experience Centers: **5**

EUROPE, MIDDLE EAST AND AFRICA
Manufacturing Locations: **9**
Service Centers: **65+**
Service Field Engineers: **620+**
Technical Support Personel: **75+**
Customer Experience Centers: **5**

ASIA PACIFIC AND INDIA
Manufacturing Locations: **4**
Service Centers: **55+**
Service Field Engineers: **1,190+**
Technical Support Personel: **70+**
Customer Experience Centers: **4**

THE DIGITAL WORLD IS CHANGING. HOW WE LIVE AND DO BUSINESS AND VICE VERSA

1 Traditional
- Cloud / Data Center

2 Local
- Aggregation Sites
- Metro Data centers
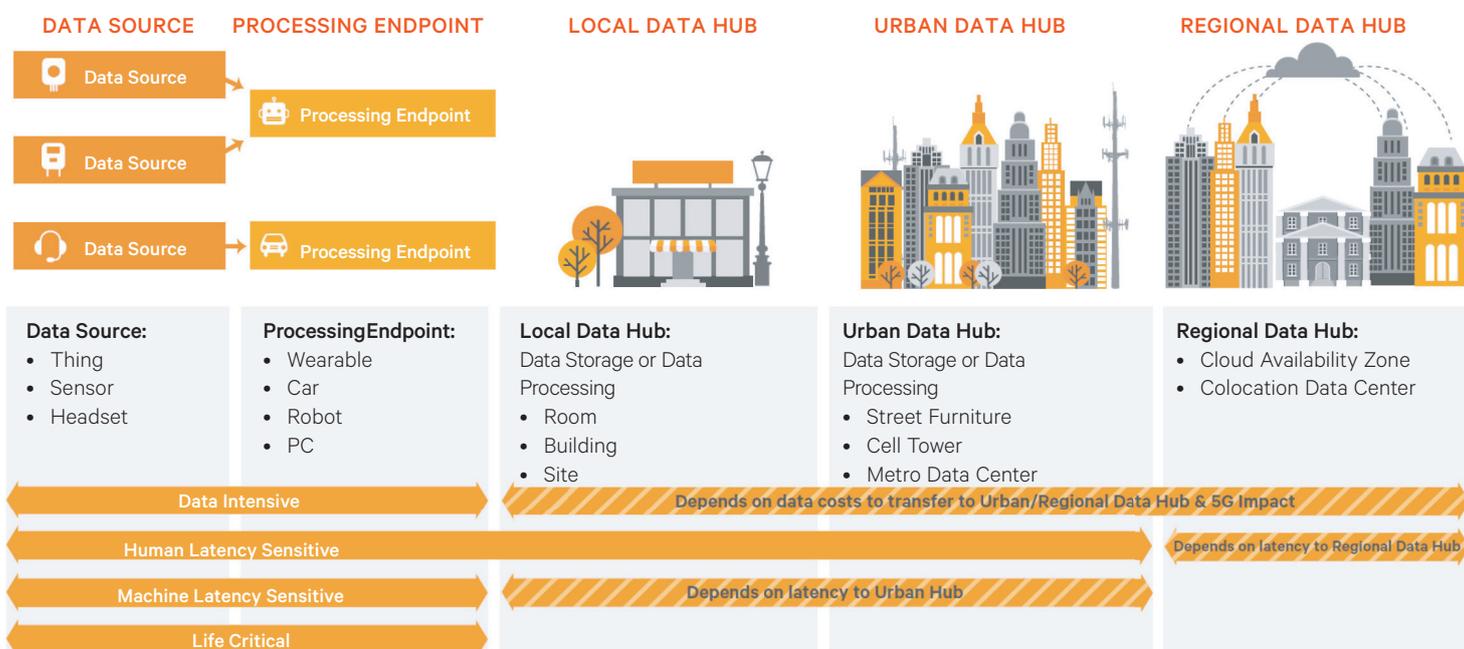
3 Edge
- Rooms / Building
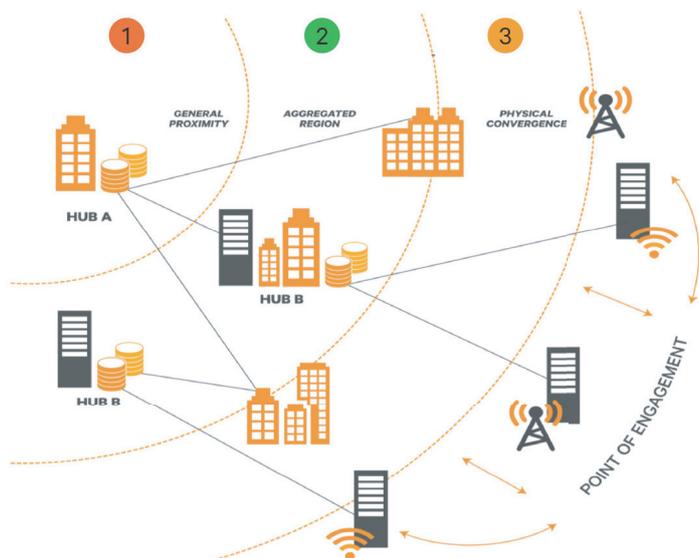
Traditionally, data was generated at the Core and consumed at the Edge.

This model is now changing, with the large and growing number of smart devices and sensors generating a massive amount of information at the Edge.

Just a fraction of the content created at the Edge will be sent to the Core. Most of it will be processed and filtered at Edge sites.

What will enable this major shift?

Data Source:	Processing Endpoint:	Local Data Hub: Data Storage or Data Processing	Urban Data Hub: Data Storage or Data Processing	Regional Data Hub:
• Thing	• Wearable	• Room	• Street Furniture	• Cloud Availability Zone
• Sensor	• Car	• Building	• Cell Tower	• Colocation Data Center
• Headset	• Robot	• Site	• Metro Data Center	
	• PC			

Data Intensive → Depends on data costs to transfer to Urban/Regional Data Hub & 5G Impact

Human Latency Sensitive → Depends on latency to Regional Data Hub

Machine Latency Sensitive → Depends on latency to Urban Hub

Life Critical

Vertiv researched and analyzed the technology drivers and requirements of Edge use-cases across a wide range of business segments and verticals. The use-cases were each assigned to one of four archetypes that best characterize its intent and challenges:

- Data Intensive
- Human Latency
- M2M Latency
- Life Critical

KEY CONSIDERATION FOR PREPARING EDGE SPACES

High-efficiency, flexible micro data centers

To support edge deployments, traditional infrastructure approaches need to be revisited. From brick-and-mortar designs, infrastructure deployments will shift to micro data centers which are fully integrated and easily deployable that can be virtually deployed anywhere. These micro data centers provide compute, storage and access to reduce latency and support 5G and IoT applications.

Provision for speed and scalability for future growth

Owing to the expected spike in data brought by 5G applications, the challenge is finding out the scale needed to support these applications. Hence, infrastructure at the edge must be designed for flexibility and scalability. Rack to row-based micro data centers can be scaled up easily depending on the demands and with little floor space required.

Location, location, location

One of the challenges faced by telecom operators is identifying where to setup these edge locations. Because of the capital investment it entails, setting up a new data center may not look attractive for some. But for others, a novel approach would be to set up micro data centers at the base of their cell towers to save on cost and also to optimize on infrastructure investment.

Some would also opt to set up micro data centers in high traffic areas as these are closer to users and would address any latency issues.

Increased intelligence for remote management across multiple sites

As new edge locations are expected to rapidly materialize with 5G, the ability to remotely monitor and manage these locations will become critical because the sheer quantity of locations will be difficult to manage through regular human visits. Data center infrastructure management (DCIM) will be critical to the success of 5G networks at the edge.

Enter SmartCabinet™, a pre-configured, self-contained solution that offers the efficiency, economy, interoperability, and control to implement an exceptional infrastructure strategy.

- **Economical -** Reduces implementation costs compared to conventional solutions
- **Simplified -** Maximize use of existing infrastructure and gets up-and-running in a matter of weeks
- **Controllable -** Enforce add/change policies, speeds IT administration request response times significantly

SmartCabinet™ 2-M   SmartCabinet™ Split 600/800mm   SmartCabinet™ Premium   SmartCabinet™ 2-E

SmartCabinet™ 2-M

With the technological emergence in today's dynamic era, the Edge infrastructure plays prime importance for the future growth. All the concerns in the equipment rooms need a streamlined solution in a well planned ecosystem for easy upkeep with a low carbon and compact footprint. Thus, the intelligent deployment solution helps in reducing the space with a faster turnaround time eliminating human error and equipment failures.

Therefore, it becomes extremely important for IT infrastructure solution to live up to the dynamic needs of today's business goals. Hence, the need to deploy a compact edge solution is required, which limits the in-house technical expertise and eliminates the space constraints.

Vertiv introduces the next generation powerful Edge solution in low carbon footprint

Vertiv SmartCabinet 2-M

Vertiv SmartCabinet 2-M is best suited for today's dynamic change in modern IT rooms. The advanced framework enables the customers to deploy, upgrade and manage their dynamic IT business requirements. It eliminates downtime and considerably reduces the deployment time with improved efficiency.

The SmartCabinet 2-M contains all the supporting infrastructure needed to successfully deploy your distributed IT equipment. All the components are pre-integrated into the cabinet so all you have to do is mount your IT equipment. By using the SmartCabinet 2-M solution, you can quickly establish a standardized rack system that simplifies deployment, integrates essential infrastructure, maximizes uptime and protects assets.

Key Benefits

- **Improve Productivity and Agility:** The SmartCabinet 2-M solution enables IT managers to standardize processes and centrally manage all services

- **Increase Security:** The SmartCabinet 2-M decreases the security risks with on-site intrusion prevention, detection and optional video surveillance system.

- **Rapid Deployment:** The standardization, factory integration and industry leading deployment services enable SmartCabinet 2-M to be quickly installed.

- **Reduced Cost:** The SmartCabinet 2-M solution significantly reduces your total cost of ownership compared with establishing unique solutions.

Applications

- Banking
- Healthcare
- Manufacturing
- Retail

SmartCabinet™ - Split
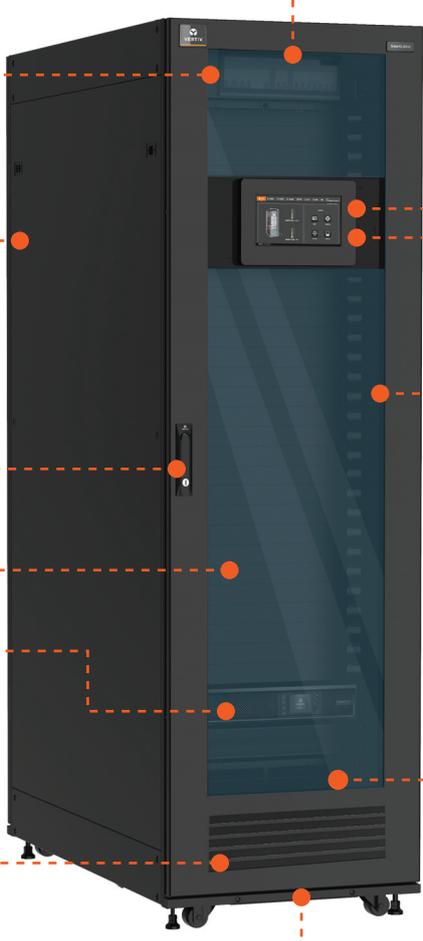
LED Lighting

Power Management Unit (PMU)
Built-in PMU provides power management and distribution to UPS, cooling unit and rack PDU. Comes with surge protection device.

Rack Power Distribution Unit (rPDU)
Features branch level metering and remote on/off control of individual receptacles.

Smart Lock
Provides secure door access via ID card, web interface and key.

Blanking Panel

UPS & Internal Battery
On-line double conversion UPS with internal battery module ensures clean power feeding to critical IT equipment. Power Factor: 1.0.

Emergency Fan
Activates automatically in the event of overheating or cooling unit failure.
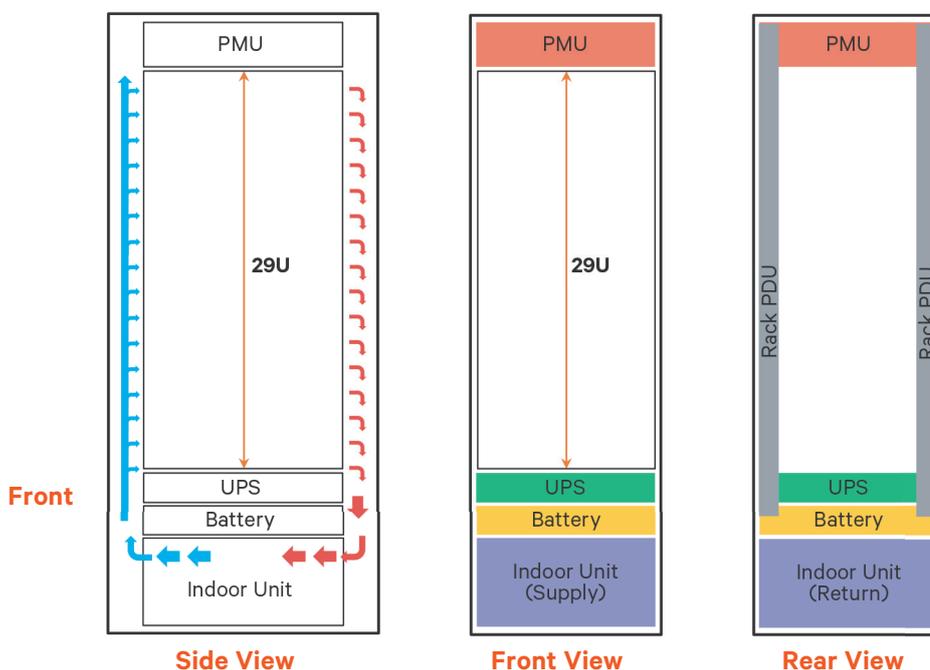
LCD Touchscreen Panel
User-friendly display enables easy access to power, cooling, environment and security information.

Centralized Management & Monitoring
Enables central management of all intelligent components within the rack.

Environmental Sensor
Report critical environmental information and alarm notification. Ensure IT equipment is kept in desired condition.

Cooling Unit
Features cooling modulation, enables cooling on demand and quick adapt to load fluctuation due to focused area within the system.

Water Leak Detector

Side View	Front View	Rear View
PMU	PMU	PMU
29U	29U	Rack PDU / Rack PDU
UPS	UPS	UPS
Battery	Battery	Battery
Indoor Unit	Indoor Unit (Supply)	Indoor Unit (Return)

Front

SmartCabinet™ Premium

LED Lighting

Cooling Unit
Features cooling modulation, enables cooling on demand and quick adapt to load fluctuation due to focused area within the system.

Smart Lock
Provides secure door access via ID card, web interface and key.

Power Management Block (PMB)
Built-in power management and distribution to UPS, cooling unit and rack PDU. Comes with surge protection device.

UPS & Internal Battery
On-line double conversion UPS with internal battery module ensures clean power feeding to critical IT equipment.
Power Factor: 1.0.

LCD Touchscreen Panel
User-friendly display enables easy access to power, cooling, environment and security information.

Centralized Management & Monitoring
Enables central management of all intelligent components within the rack.
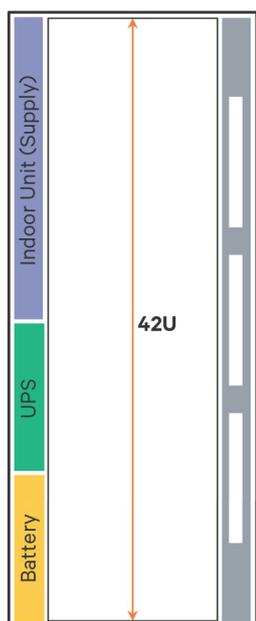
Environmental Sensor
Report critical environmental information and alarm notification. Ensure IT equipment is kept in desired condition.
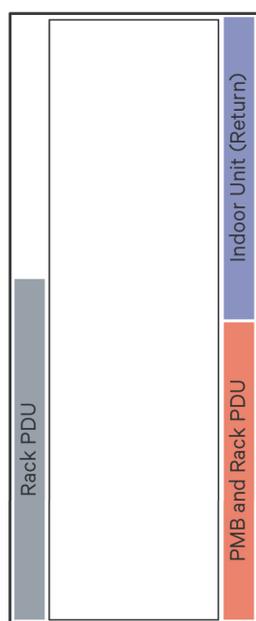
Blanking Panel

Emergency Fan
Activates automatically in the event of overheating or cooling unit failure.
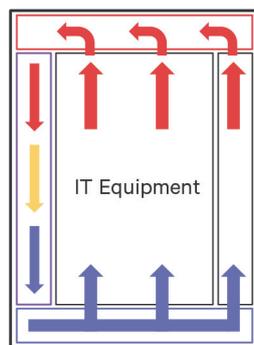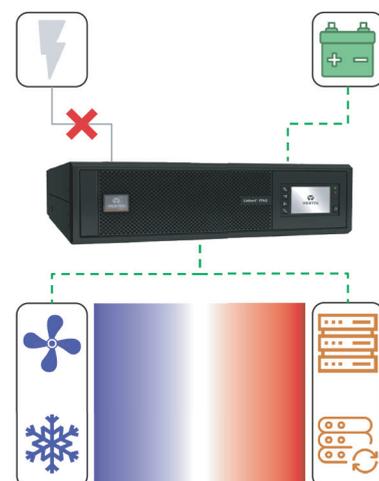
Water Leak Detector

Front View

Indoor Unit (Supply)
42U
UPS
Battery

Rear View

Indoor Unit (Return)
Rack PDU
PMB and Rack PDU

Top View

IT Equipment

SmartCabinet™ 2-E

LED Lighting

ECO Fan Module
Enables ECO mode and activates intelligently. Provides emergency ventilation in the event of overheating or cooling unit failure.

Power Management Unit (PMU)
Built-in PMU provides power management and distribution to UPS, cooling unit and rack PDU. Comes with surge protection device.

Rack Power Distribution Unit (rPDU)
Features branch level metering and remote on/off control of individual receptacles.

Blanking Panel

Smart Lock
Provides secure door access via ID card, web interface and key.

UPS & Internal Battery
On-line double conversion UPS with internal battery module ensures clean power feeding to critical IT equipment. Power Factor: 1.0.

LCD Touchscreen Panel
User-friendly display enables easy access to power, cooling, environment and security information.

Centralized Management & Monitoring
Enables central management of all intelligent components within the rack.
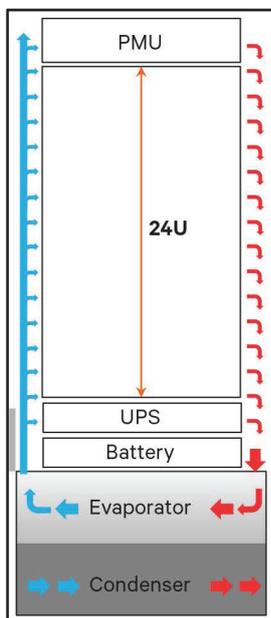
Environmental Sensor
Report critical environmental information and alarm notification. Ensure IT equipment is kept in desired condition.
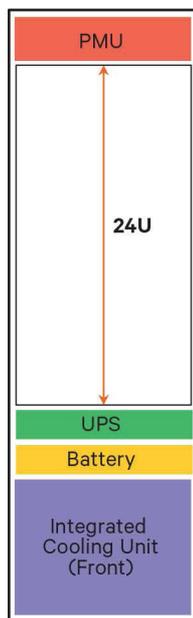
Air Inlet

Cooling Unit
Integrate cooling coil and condenser within the cooling unit for complete heat exchange. Provide variable cooling capacity directly to IT equipment.
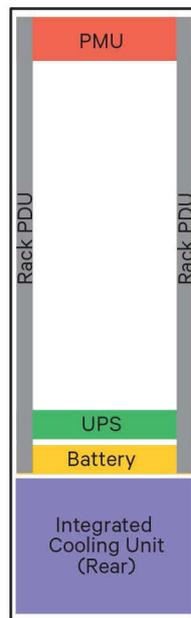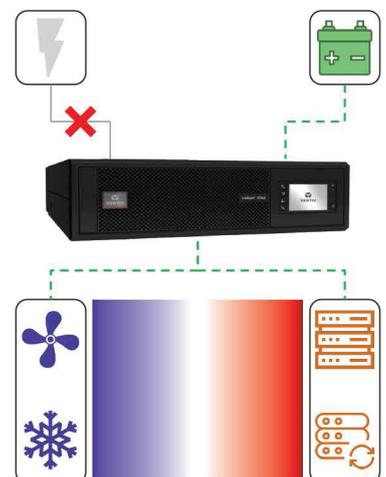
Water Leak Detector

Side View

Front View

Rear View

TECHNICAL SPECIFICATION

Components	SmartCabinet™2-M	SmartCabinet™-Split	SmartCabinet™ Premium	SmartCabinet™2-E
UPS Model	Liebert GXT5	Liebert ITA2		
UPS Capacity	2/3 kVA	5 kVA	6 kVA	
UPS Power Factor	Unity			
System Capacity (IT Capacity)	1500 W	3000 W		
Rack PDU Type	Basic, 10 x C13, 2pcs	Switched, 32A input, 18 x C13 + 6 x C19, 2pcs	Switched, 16A input, 14 x C13 + 2 x C19, 1 pc (PMB) 16A input, 12 x C13 + 4 x C19, 1 pc (PDU)	Switched, 16A input, 12 x C13 + 4 x C19, 2pcs
Rack PDU Form Factor	1U	0U		
Cooling Type	Self-contained	Split		Self-contained w / ECO Mode
Cooling Capacity	1500 W	900 W to 3500 W		
Refrigerant	R134a	R410a		
Supplementary Cooling	None	Emergency Fan		
Cooling High Availability	None		UPS Backup Cooling	
Rack Dimension (H x W x D) (mm)	1640 x 600 x 1020 (mm) incl. top AC unit	2000 x 600 x 1200 (mm) 2000 x 800 x 1200 (mm)	2000 x 800 x 1100 (mm)	2150 x 600 x 1200 (mm) incl. top fan module
Door Lock Type	Mechanical Lock (Tempered Glass Door)	Smart Lock (Tempered Glass Door)		Smart Lock (Tempered Glass Door) Mechanical Lock (Steel Door)
Ingress Protection	IP2X	IP5X		IP2X
Rack Useable IT Space	19U	29U	42U	24U
Centralized Monitoring	In-built Infrastructure Monitoring			
Monitoring Interface	IP-based Web Interface Mobile Apps	9-inch LCD Touchscreen IP-based Web Interface Mobile Apps		