



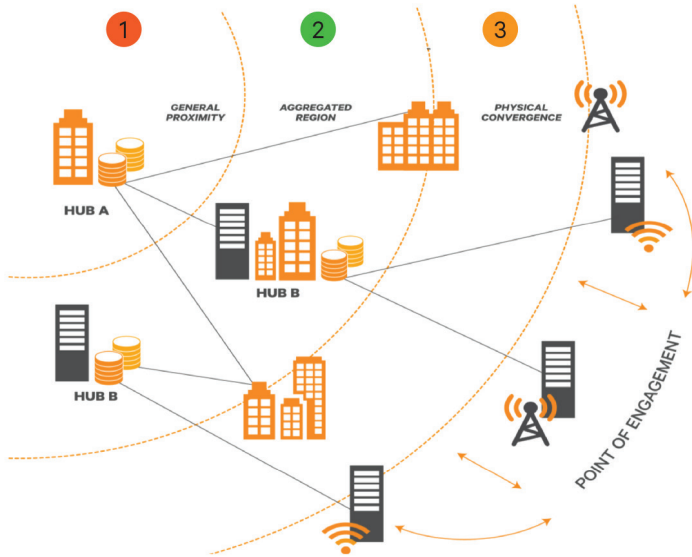
Vertiv™ SmartCabinet™

Intelligent, Integrated Containment
for IT Infrastructure



A CHANGING DIGITAL WORLD

- 1 Traditional**
 - Cloud / Data Center
- 2 Local**
 - Aggregation Sites
 - Metro Data centers
- 3 Edge**
 - Cloud / Data Center

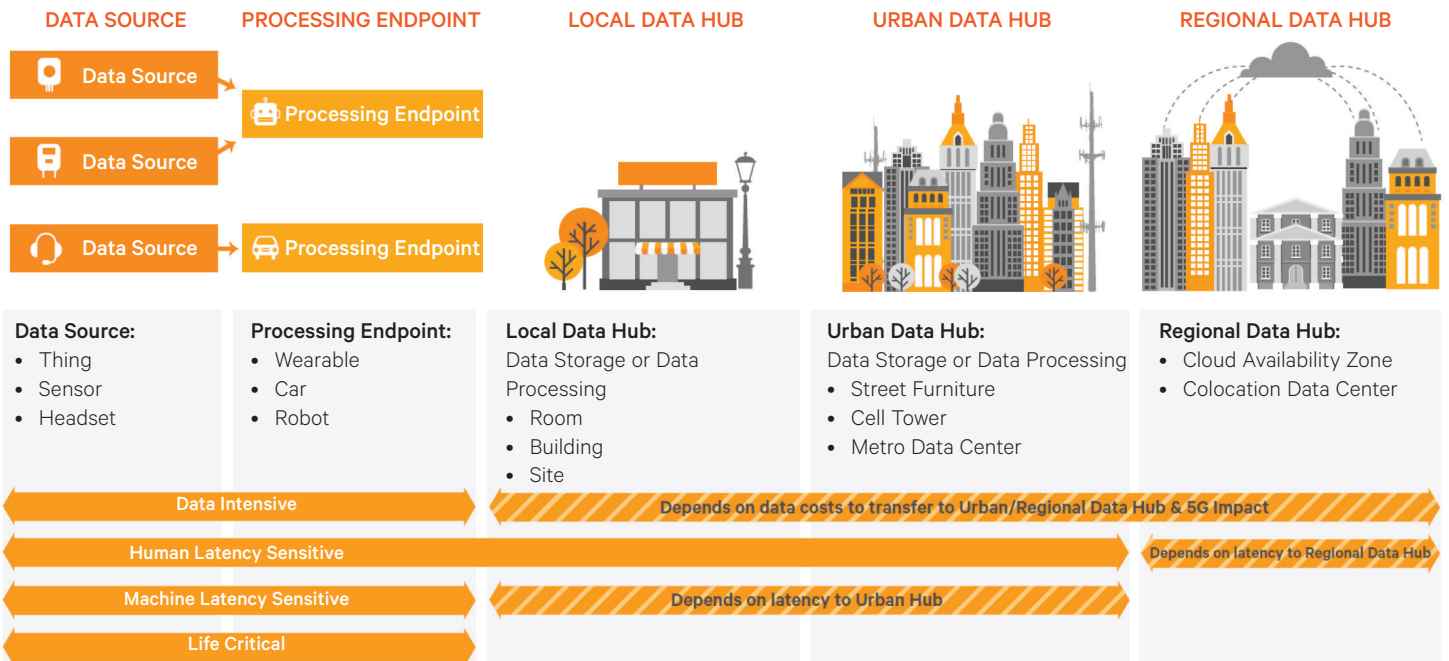


Traditionally, data was generated at the Core and consumed at the Edge.

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?



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.



INTRODUCING VERTIV™ SMARTCABINET™ RANGE

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.

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 eliminate the space constraints.

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



Vertiv™ SmartCabinet™ 2-M

The soaring demand for data and rapid digital transformation in today's technological era calls for an integrated, reliable, and easily deployable IT infrastructure to support massive computing, especially at the edge of the network.

An intelligent and streamlined solution is essential in addressing challenges in terms of space, deployment time, environmental impact, human error, and equipment failures.

Therefore, it becomes essential for IT infrastructure solutions to live up to the dynamic needs of today's business goals.

The Vertiv™ 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 optional on-site intrusion prevention and detection and video surveillance.
- **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 the implementation of custom solutions.



Applications

- Education
- Banking
- Healthcare
- Manufacturing
- Retail

Web Interface

The web interface displays the following information:

- Central Status:** Approved
- Front Temp:** 22.4 °C
- Rear Temp:** 35.2 °C
- Front Door:** Close
- Rear Door:** Close
- Water:** Normal
- FIREFIGHTING Sprayed Status:** Normal
- PDU1:**
 - Voltage: 219 V
 - Total Current: 3.3 A
 - Frequency: 50.0 Hz
- UPS:**
 - Phase A Output V... 220.8 V
 - Phase A Output C... 3.5 A
 - Output Frequency: 50.0 HZ
 - Power Supply: Utility Online
- AC:** Return air temp m... 26.30 °C
- Front Door:**
 - Access Alarm Stat... Alarm
 - Door Lock Status: Open

Control buttons: Save, Select Type, Set Display, Back

Vertiv™ SmartCabinet™ 2-E

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.

LED Lighting

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

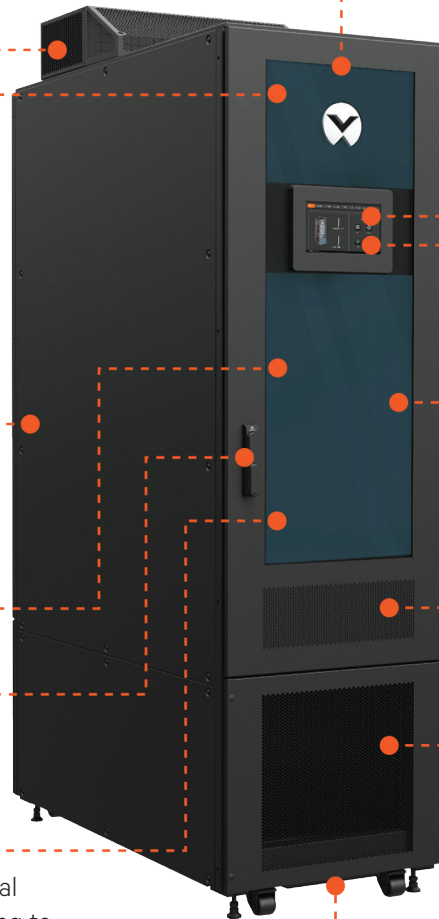
Report critical environmental information and alarm notification. Ensure IT equipment is kept in desired condition.

Air Inlet

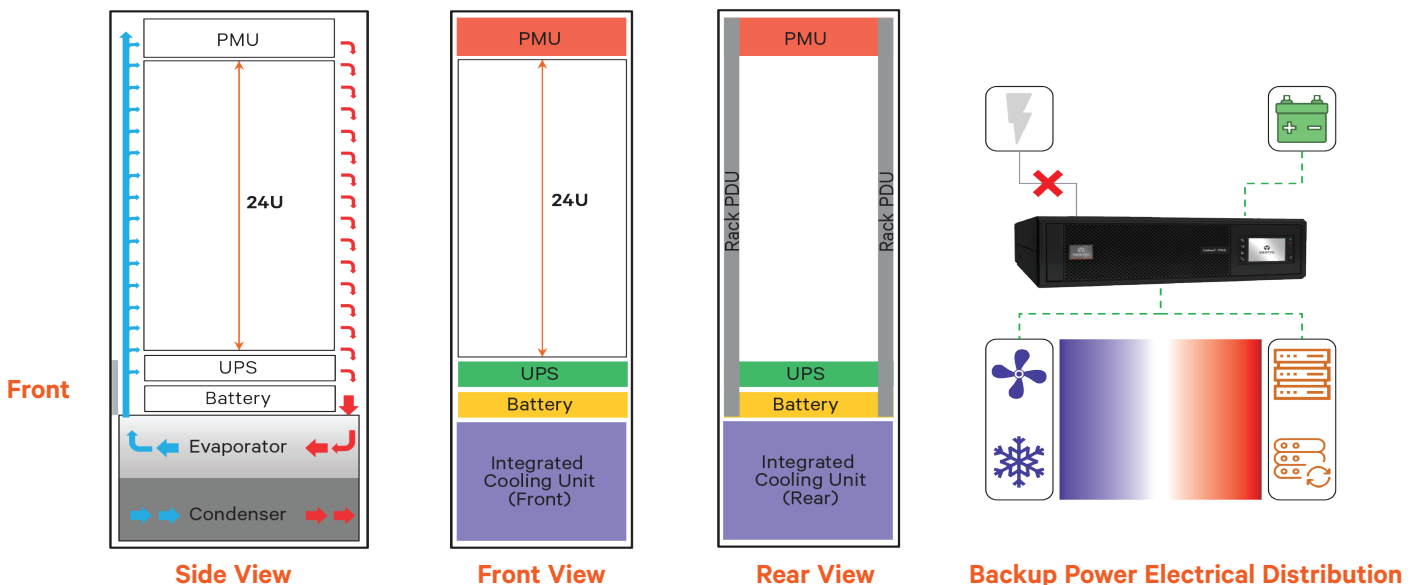
Cooling Unit

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

Water Leak Detector



Cabinet Infrastructure Layout



Vertiv™ 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.

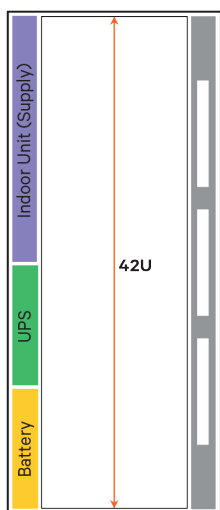
Environmental Sensor
Report critical environmental information and alarm notification. Ensure IT equipment is kept in desired condition.

Blanking Panel

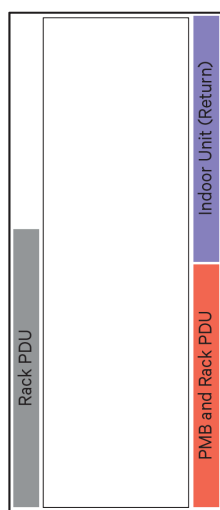
Emergency Fan
Activates automatically in the event of overheating or cooling unit failure.

Water Leak Detector

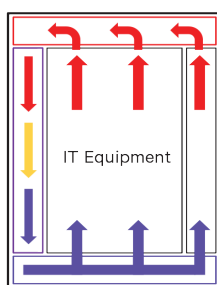
Cabinet Infrastructure Layout



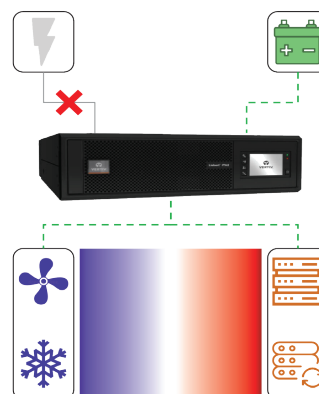
Front View



Rear View



Top View



Backup Power Electrical Distribution

TECHNICAL SPECIFICATION

Components	Vertiv™ SmartCabinet™ 2-M	Vertiv™ SmartCabinet™ 2-E	Vertiv™ SmartCabinet™ Premium
Design Configuration (IT Racks)	Liebert® GXT5	Liebert® ITA2	
UPS Capacity	1.5/2 or 3 kVA	6 kVA	
UPS Power Factor	Unity		
System Capacity (IT Capacity)	1500 W	3000 W	
Rack PDU Type	Basic, 8 x C13, 2pcs Switched, 8 x C13, 2pcs (Optional)	Switched, 16A input, 12 x C13 + 4 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)
Rack PDU Form Factor	1U (Horizontal)	0U (Vertical)	
Cooling Type	Self-contained	Self-contained w/ECO Mode	Split
Cooling Capacity	1500 W	900 W to 3.5 kW	
Refrigerant	R134-A	R410A	
Supplementary Cooling	None	Emergency Fan	
Cooling High Availability	None	UPS Backup Cooling	
Rack Dimension (H x W x D) (mm)	600 x 1020 x 1640 incl. top AC unit	2150×600×1200 (mm) incl. top fan module	2000 x 800 x 1100
Emergency Ventilation	None	Yes	
Lock Type	Key	Electronic Lock	
Rack Useable IT Space	17U	24U	42U
Centralized Monitoring	Liebert RDU Infrastructure Monitoring		
Monitoring Interface	IP-based Web Interface	9-inch LCD Touchscreen, IP-based Web Interface, and Mobile Apps	



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