



# The Edge of Simplicity: Infrastructure for Distributed IT

Strategy, Solution and  
Services Guide



# Solve the Challenges of IT Deployment and Management in Any Environment



## Digitization and the Challenge of Distributed IT

With digitization increasing in virtually every sector, distributed IT has become essential to supporting users, delivering services and collecting data. Across education, government, banking, retail and a host of other industries, IT organizations are bolstering the capacity and resiliency of remote sites and deploying equipment to new locations.

But that can mean putting IT in places that weren't designed to support it, like utility closets and storerooms, where it must share space with cleaning supplies and excess inventory. If a problem occurs, on-site personnel don't have the time or experience to deal with it.

That's where deploying and supporting distributed IT gets complicated. And, that complexity can compromise the performance of your network.

## The Edge of Simplicity: Three Keys Strategies to Driving Simplicity for Edge IT

At Vertiv™, we take the complexity out of distributed IT. In fact, we have three key strategies that will simplify your Edge deployments and make your business more productive.

### 1. Full Lifecycle Support – Selection, Installation, Service, Maintenance

Vertiv local business partners bring unparalleled infrastructure expertise to the challenge of distributed IT. They can assess your needs, configure the best solution, and provide installation, maintenance and service support.

With our lifecycle services, you get the peace of mind that comes with knowing you always have access to the systems you need without burdening in-house resources.

### 2. The Power of Factory Integration

We offer a full range of infrastructure technologies to protect edge and remote locations. From racks and enclosures, to power protection and distribution, to cooling and thermal management solutions, our compact and reliable small-space infrastructure delivers the reliability you need to grow your network.

But imagine the improvements in deployment, operation and control when all of these systems are designed to work together to support IT, rather than purchased as individual products that are integrated on site.

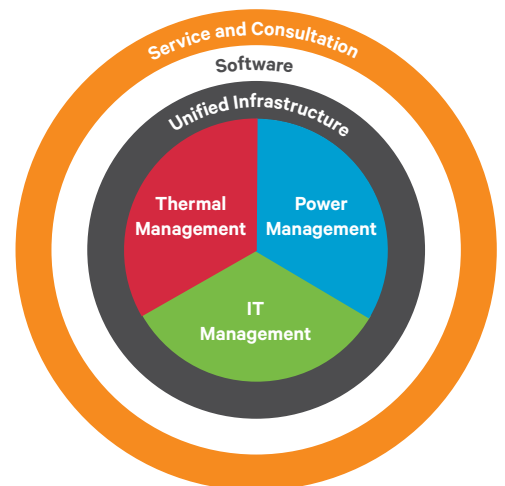
Pre-built, factory integrated systems can be a better approach. They give you the flexibility of a custom solution with the convenience of an off-the-shelf product.

For instance, the Vertiv™ SmartRow™ integrated systems simplify deployment and operation by arriving on-site configured to your specifications, ready for you to plug-and-play servers and networking gear.

### 3. Gain Remote Visibility and Access

One of the biggest challenges of managing multiple distributed IT sites is the lack of visibility. With our range of monitoring, management and access technologies, remote IT resources never have to be out of sight – or out of your control. Our visibility and access solutions include an IoT mobile app to monitor environmental conditions and troubleshoot cooling issues, communication cards, that allow remote monitoring and shutdown, console and switching systems that enable remote access and management, and remote monitoring services that provide real-time and actionable insights.

In the following pages, see how our full range of edge infrastructure and support solutions can simplify your Edge deployments. Then, visit [Vertiv.com](http://Vertiv.com) to find your Vertiv local business partner.



## Lifecycle Services and Support

### Local Sales Support

Vertiv™ local business partners provide easy-to-access, experienced sales and configuration support. They work closely with IT solutions providers in their area to ensure your equipment is configured properly and supported with the appropriate services. No other infrastructure provider has the breadth and depth of local expertise as Vertiv. These experienced, customer-focused specialists can enable the success of your next infrastructure project.

### Power Assurance Package

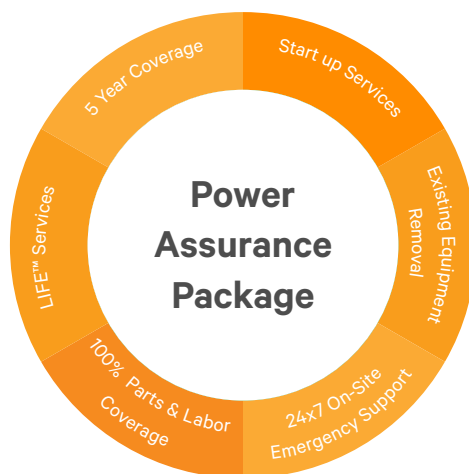
Worry-free protection for your remote power requirements is possible when you protect Vertiv UPS systems with a five-year protection plan supported by the industry's premier service capability. The Power Assurance Package is far more than an extended warranty for small edge UPS systems. It puts your power in the hands of our experienced team of factory-authorized technicians from day one to ensure network availability. The Power Assurance Package includes:

- On-site installation and/or start-up by factory authorized technicians, including optional removal and safe disposal of existing equipment
- Five year comprehensive labor, travel, and parts coverage
- On-site support, including emergency response to system failure
- Optional LIFE™ Services

### LIFE™ Services

Minutes matter when critical systems go down. But even knowing there is a problem can take hours without constant oversight. LIFE™ Services from Vertiv is an ideal solution for maximizing the availability and lifespan of critical infrastructure without burdening in-house resources. Designed as a comprehensive service solution for edge locations, LIFE™ Services enhances service contract support with:

- 24/7 Remote monitoring of key equipment parameters to detect trends and operating anomalies
- Data analysis to identify trends and anomalies that could lead to failure
- Rapid incidence report response to quickly address issues that threaten uptime
- Detailed periodic reports to give you greater insight into equipment performances and service response



### Remote Monitoring

Vertiv remote monitoring provides continuous connectivity and monitoring of critical infrastructure by trained service specialists. The service can be customized to application requirements, including hardware maintenance and software updates. It also provides an online portal with reporting of monthly alarms and health summaries so you stay informed of critical system operation and the recommended action plan. Vertiv remote monitoring services deliver:

- Real-time response to UPS/ battery and thermal events
- Optimized service life of critical assets
- Customized escalation plans for timely problem resolution

### On-site Services

Vertiv™ offers a complete range of on-site services to keep your critical infrastructure functioning properly without taxing your resources. Our on-site services include:

- Start-up/Installation Support
- Upgrade Services
- Preventive Maintenance
- Emergency Response
- Professional Services

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## Integrated Solutions

### SmartRow™

SmartRow is a unique, intelligent, integrated infrastructure solution in a self-contained line-up. This multi-rack system allows you to deploy a complete mini data center in just weeks. It can be configured with four to 14 racks, with data center-grade thermal management, power backup and conditioning, power management and control, fire suppression and cable management — all fully integrated in an enclosed, highly efficient, room-neutral system.

SmartRow replaces the traditional open server room with a compact, efficient, physically secure solution that deploys quickly and simplifies management. The benefits of SmartRow include:

- Up to 27% lower energy costs compared to open-room infrastructure
- Streamlined monitoring and management
- Greater physical security of IT assets



## Rack Power Distribution

### Vertiv™ Geist™ Rack PDUs

In an ever-growing digital age, it is more important than ever for a data center's power distribution to function properly. You will find that Vertiv Geist rack PDUs offer an affordable solution to match your business needs, ensuring that your daily tasks run smoothly, without any glitches.

Geist Monitored and Switched rPDUs are equipped with a network interface to allow for remote monitoring, management, and automated alerts. They also feature the following:

- IP Aggregation: Daisy-chain up to 50 devices on a single IP address and reduce deployment time with self-configuration of downstream devices.
- High Temperature Grade - 60°C temperature rating ensures reliable operation in high temperature environments.
- Input Power Monitoring - 1% Accuracy (ANSI and IEC) allows data center managers to accurately reconcile power usage.



### Rack Systems

Vertiv™ DCE and VR rack systems have been designed to meet the flexibility, ease of installation, and delivery requirements needed by today's data centers. Choose from either the pre-configured rack selections or choose from our numerous factory installed accessories and configurations to customize your rack the way you need it, when you need it.

- Widths of 600mm, 700mm or 800mm; and depths of 1100 or 1200mm.
- Optimized for cable management and airflow management

DCE	24U, 42U, 45U, 48U heights
VR	42U, 48U heights

## Power Protection and Conditioning

### Liebert® PSI5 UPS

The Vertiv Liebert PSI5 is a compact, line-interactive UPS system with a flexible design that incorporates buck/boost automatic voltage regulation technology to correct power anomalies before they reach connected equipment. With capacities from 1000 VA to 3000 VA, the Liebert PSI5 features hot-swappable batteries with a minimum of five minutes of runtime and integrated USB and network communication. Other features include:

- Remote monitoring through SNMP/ Web card
- Extended battery options
- Advanced early warning shutdown



Liebert® PSI5 UPS



Liebert® GXT5 UPS

### Liebert® GXT5 UPS

A high-availability, double-conversion UPS available in sizes from 500-10,000 VA, the Vertiv Liebert GXT5 is ideal for small spaces and remote locations. This single-phase UPS family provides superior protection and remote management capability, making it ideally suited to protect critical infrastructure in both centralized and edge network applications. Additionally, the Liebert GXT5 UPS offers a scalable battery runtime solution through matching external battery cabinets. Other features include:

- Enhanced local and remote management capabilities enable users to understand the condition of the critical infrastructure space and take action when necessary
- High power factor operation up to unity provides the highest available power (watt) for use by connected IT equipment, allowing for more connected devices
- Integrated serial connection for advanced console server integration or direct terminal control of the UPS
- Energy Star 2.0 certification with efficiency in online (95%) and Active ECO (98%) modes
- SNMP network communications with optional RDU101 NIC and free Trellis™ Power Insight
- Gravity-sensing, color LCD for easy configuration and system diagnosis

### Liebert® APS UPS

The Liebert APS is a modular, double-conversion UPS that provides mission-critical availability while reducing costs and maintaining flexibility for the future. This single-phase UPS includes both single- and three-phase input options to deliver the ultimate combination of availability and flexibility for small spaces with high power requirements. It delivers capacity on demand with flexible power modules that allow capacity to be upgraded from 5 kVA to 20 kVA in 5 kVA increments. Features include:

- Hot-swappable power and battery modules
- Intelligent battery module with automatic offline capability
- A modular design that enables scalability and internal redundancy
- Compatible with Trellis™ Power Insight Application monitoring



### Liebert® EXM UPS

The Liebert EXM UPS is an efficient and economical option for larger Edge locations, or for sites that prefer to support their distributed computing with a centralized UPS. This flexible power system is available in 208V, scalable from 10-40kVA or 60-200kVA; and 480V, scalable from 50-250kVA. It offers redundant features, and it optimized to meet the unique demands of midsize IT and critical power

applications. An intuitive, customizable touchscreen control panel provides Status At A Glance information and multiple levels of user security. Matching ancillary cabinets provide the ability to meet specific demands for run time, bypass and parallel requirements.

- 3-phase input/output
- ENERGY STAR® qualified
- Small footprint



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## Thermal Management

### Liebert® Mini-Mate™ Ceiling-Mounted Precision Cooling System

The Liebert Mini-Mate is a zero-footprint cooling system for 7x24 temperature and humidity control and air filtration in small spaces. It installs above a dropped ceiling and is easy to service, requiring only front access for maintenance. With nominal cooling capacities from 3.5 kW to 28 kW, the Liebert Mini-Mate provides efficient thermal management for spaces not designed for IT equipment.

Other features include:

- Installs as self-contained or split system
- Available in air, water, glycol and chilled water models
- Compatible with Liebert® iCOM™ CMS mobile app for monitoring and management



### Vertiv™ VRC Rack Cooling System, 3500 Watts

The Vertiv VRC rack cooling system is designed specifically for fast, easy installation in small server rooms, network closets, and edge computing spaces. This self-contained IT rack unit saves valuable floor space and provides up to 3,500 watts of cooling to critical equipment. Additionally, its variable speed components ensure high efficiency and scalable capacity. Other features include:

- Easy-to-handle cooling unit weighing less than 150 pounds
- Easy-to-install system with plug-and-play installation and simple heat rejection duct kit
- Highly efficient unit with scalable capacity due to variable speed components



### Liebert® CRV In-Row Cooling System

The Liebert® CRV system offers highly flexible, in-row cooling, installing between racks of IT equipment requiring higher density cooling with greater efficiency and capacity. Nominal capacities range from 19kW to 40kW, depending on cooling medium.

- Visibility with advanced Liebert iCOM™ controls
- Temperature and humidity control
- Variable speed fans



### iCOM™ CMS Monitoring and Control System

iCOM CMS thermal management system with mobile app is the first IoT product to support edge computing and cloud computing in small critical spaces. It provides industry-leading visibility, protection and control through real-time alarms / notifications and troubleshooting workflows via mobile devices,

the web and building management systems (BMS).

- Compatible with Liebert MiniMate2 and Liebert SRC cooling systems
- View real-time room conditions and cooling equipment performance
- Receive immediate alarm notification
- Customizable user interface

## Visibility and Access

### Avocent® ACS Serial Console

The Avocent® ACS 8000 advanced console server series enables access and troubleshooting of remote locations using automatic network failover to cellular.

It includes support for Liebert® single phase UPS systems as well as rack PDUs from Vertiv™, ServerTech, APC, Raritan and Eaton. It also features eight USB ports. Other features include:

- Fast, automated configuration with zero touch provisioning
- Automatic Cyclades and Cisco pin-out conversions to eliminate the need for adaptors
- Integrated support for 1GB SFP fiber modules



### Avocent® KVM Switches

Avocent® KVM switch systems enable your network managers to seamlessly access and share one or more computing resources remotely. The Avocent HMX 5000 provides an “at-the-desktop” experience from management workstations to any appliance or computing resources attached to the HMX IP network. The Avocent MergePoint Unity Digital KVM Switch includes both KVM-over-IP and serial console management technology. Avocent KVM systems deliver:

- Centralized management of remote IT resources, including access, desktop pooling and reporting
- Secure access through 128 bit AES encryption
- High-quality DVI video and CD audio for data-intensive multi-media application



### Liebert® NForm

Liebert Nform monitoring software enables IT and facilities managers charged with the uptime and support of business critical data center performance by offering full service monitoring, proactive alarms, and tracking of the mission critical power and thermal infrastructure.

- Monitor and control all critical power and thermal infrastructure assets and sensors around and into the rack
- Comprehensive and intuitive management dashboards, analysis tools and trend reports
- Autodiscover new power and thermal infrastructure assets to eliminate extra configuration time



### Avocent® DSView™ Management Software

Avocent® DSView™ software is the single-rack view needed for all your remote servers, network equipment and power devices. It provides unified, secure, hands-on control of remote infrastructure with location independent triage and root cause analysis, disaster recovery, SLA management and application usage monitoring. Features include:

- Scheduled and on-demand firmware management
- Hub-and-spoke architecture ideal for remote locations
- Web secure 2048 SSL certificate



### Trellis™ Power Insight

*Trellis™* Power Insight Application gives you powerful, real-time visibility into the status and operation of your small Liebert UPS systems. *Trellis™* Power Insight Application provides a single console to consolidate the current state, collect important events and drill down into each device. This simplifies the operator's job when there is a problem that needs to be investigated or when they are examining the infrastructure closely. *Trellis™* Power Insight provides:

- Monitoring for unlimited number of Liebert rack UPS
- Real-time trending of voltage and current
- On-screen notifications
- Alarm views that are sorted or filtered
- Summary view of individual devices
- Web UI access
- Remote monitoring 24/7





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