EMPOWERING VITAL APPLICATIONS FOR A DIGITAL WORLD:
AN INTRODUCTION TO VERTIV
WE ALL DEPEND ON A WORLD WHERE TECHNOLOGY ALWAYS WORKS
WHEN THE DIGITAL WORLD DEPENDS ON YOU, YOU CAN’T FAIL
VERTIV ENABLES THE VITAL APPLICATIONS OF OUR DIGITAL WORLD

We design, build and service mission-critical technologies for:
- Data centers
- Communication networks
- Commercial and industrial applications

We support today’s growing mobile and cloud computing markets with a portfolio of power, thermal and infrastructure management solutions.

We offer unsurpassed global scale and broad expertise, built from our heritage as Emerson Network Power.

And now as Vertiv, we match industry leadership with the focus and spirit of a startup.

Your Vision. Our Passion.
DATA CENTERS

Enabling reliability, efficiency and scalability from the core to the edge

Expertise from design through construction and commissioning derived from decades of experience

Innovative solutions that reduce costs, improve management and speed deployment

World-class services that drive uptime and deliver insights into performance

Product, system and integrated solutions for:

• Distributed IT and Edge
• Enterprise
• Colocation
• Cloud
COMMUNICATION NETWORKS

Providing smart, fast, flexible solutions for advanced networks and network management

Innovation enabling flexible architectures

Fast deployment, turnkey solutions, seamless service

Intelligent systems for smart, holistic network management

Products, solutions, services and expertise for:

• Small Cell
• Macro Site
• Central Office
• Data Center
COMMERCIAL AND INDUSTRIAL

Delivering reliability and simplifying complexity in industrial and rugged environments

Robust protection in even the most extreme conditions

Solutions customized to meet specific needs and budgets

Expert technical teams who get there fast

Products, solutions, services and expertise for:

• Healthcare
• Rail/Mass Transit
• Power Generation
• Oil and Gas
WHO WE ARE

SALES
3.9 B

EMPLOYEES
~20,000

CUSTOMERS INCLUDE
Alibaba, Alstom, America Movil, AT&T, China Mobile, Equinix, Ericsson, Reliance, Siemens, Telefonica, Tencent, Verizon, Vodafone

MANUFACTURING SITES: 28
CUSTOMER CENTERS/LABS: 16
OPERATIONS: 51 COUNTRIES

Offering
- Power Mgmt
- Services
- Thermal Mgmt
- Software & Solutions

Global, well-established footprint and supply-chain network

End Market
- Data Centers
- Communications
- Commercial & Industrial

Serve vital applications in data centers, communication networks, and commercial/industrial environments

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OUR FLAGSHIP BRANDS

We’re a new company that’s also an established industry leader

Chloride®
Our global industrial power solutions meet the most demanding technical specifications and provide safe, reliable power – no matter the challenge

Liebert®
Our global power and thermal management solutions are some of the world’s most efficient and reliable power and cooling technologies

NetSure™
Our global intelligently engineered DC power systems deliver high availability, energy efficiency and scalability for converged networks
## OUR GLOBAL PRESENCE 2018

### US and Canada
- **Manuf. and Assembly Locations**: 13
- **Service Centers**: 100+
- **Service Field Engineers**: 850+
- **Technical Support/Response**: 120+
- **Customer Experience Centers/Labs**: 4

### Latin America
- **Manuf. and Assembly Locations**: 1
- **Service Centers**: 20+
- **Service Field Engineers**: 240+
- **Technical Support/Response**: 20+
- **Customer Experience Centers/Labs**: 2

### Europe, Middle East and Africa
- **Manuf. and Assembly Locations**: 9
- **Service Centers**: 70+
- **Service Field Engineers**: 630+
- **Technical Support/Response**: 250+
- **Customer Experience Centers/Labs**: 5

### Asia Pacific
- **Manuf. and Assembly Locations**: 5
- **Service Centers**: 60+
- **Service Field Engineers**: 930+
- **Technical Support/Response**: 80+
- **Customer Experience Centers/Labs**: 5

### WORLDWIDE
- **Manuf. and Assembly Locations**: 28
- **Service Centers**: 250+
- **Service Field Engineers**: 2,650+
- **Technical Support/Response**: 450+
- **Customer Experience Centers/Labs**: 16
HOW IT ALL COMES TOGETHER

Infrastructure & Solutions
- AC Power
- DC Power
- Energy Storage
- Industrial Solutions
- IT Management
- Management Systems
- Solutions
- Thermal

IT & Edge Infrastructure
- Edge Solutions
- Rack
- Rack PDU
- Rack UPS
- Rack Thermal

Services

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TECHNOLOGIES AND SERVICES:
SERVICES
A complete life-cycle approach to service, from project launch to ongoing maintenance and performance optimization

**PROJECT**

When launching new facilities or powering up new equipment, you want to do it right – right from the start

- Plan
- Design
- Engineer
- Integrate
- Commission
- Project Management

**MAINTENANCE**

Services to ensure that your business-critical infrastructure operates reliably, safely and efficiently

- Preventive and corrective maintenance
- Remote services and monitoring
- Cap / Fan / Battery replacements
- Repair
- Spare parts

**PERFORMANCE**

Full range of services designed to optimize infrastructure performance and reduce process complexity

- Assess
- Audit
- Model
- Configure
- Upgrade
- Train

Increase mean time between failure
Decrease operating cost
SERVICES

THE VERTIV DIFFERENCE

Services ensure that your vital applications stay up and running. We do this through our vast array of project, maintenance and performance capabilities, supporting you in making better decisions to operate more efficiently and reduce complexity.

- **Truly Global Geographical Coverage and Capacity**
  Largest Customers Engineers workforce

- **Knowledge, Reputation and Experience**
  Technology, R&D access, Field knowledge

- **Consistent Service Delivery and Offering**
  Offering diversity, Breadth of technologies

- **Single Service Partner and System Level Expert**
  Reliability – we are the trusted partner
CUSTOMER SPOTLIGHT: QTS REALTY TRUST

Customer Need
• Improved cooling system efficiency and greater visibility into system performance

Solutions
• Installed electrically commutated (EC) fans and Liebert® iCom™ control systems into 64 cooling units
• Provided and installed wireless sensors for monitoring of cooling improvements

Benefits
• Initial savings of $12,000 per month in energy costs, with additional savings expected through continued system optimization
• Reduced carbon footprint with more than 75 percent immediate reduction in the energy consumption of Liebert® thermal management units
• Improved Power Usage Effectiveness (PUE) by 0.16
• Provided better intelligence to building management system (BMS) for improved system visibility

“As soon as we placed the first new EC plug fan into a unit, even at 100 percent speed, the power consumption dropped 30 percent. We were very excited to see that result, but then it got even better. By varying the fan speed to match the load in the zone, the power consumption dropped another 33 percent, and we are now experiencing higher than expected energy savings!”

- Western Region Vice President, QTS
TECHNOLOGIES AND SERVICES: SOLUTIONS
Our mass-customized, standard solutions offer you the ideal combination of best value and rapid delivery. Our factory-integrated solutions offer you a low risk, high value global solution that can be rapidly delivered and assembled on site.
## VERTIV CAPABILITIES

<table>
<thead>
<tr>
<th>Cabinet</th>
<th>Row</th>
<th>Aisle</th>
<th>Modular</th>
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<tbody>
<tr>
<td>![Cabinet Image]</td>
<td>![Row Image]</td>
<td>![Aisle Image]</td>
<td>![Modular Image]</td>
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**Cabinet**
Cabinets integrated with PDU and cooling units; could include storage and IT gear in addition to all hardware; could be a combination of off-the-shelf products.

**Row**
Integrated sets of cabinets with PDU, cooling units, and monitoring systems as needed; could be a combination of off-the-shelf products.

**Aisle**
Integrated, often enclosed, sets of rows with cooling and power infrastructure.

**Modular**
Integrated, comprehensive set of modular infrastructure in a free-standing enclosure for data centers and other related applications.

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**Network Closet, Micro, Edge, Core & Critical Facilities, Cloud & Colo, Cable Landing Stations**
**SOLUTIONS**

**VERTIV DIFFERENCE**

**OUR METHODOLOGY**
Vertiv applies ultra-modern technology and mass-production principles to enable exceptional scale, velocity and quality for every project regardless of size or complexity.

**OUR PARTNERS**
Vertiv uses modular integration techniques to help our customers, contractor, and consulting partners more effectively design and build data centers.

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Complete Critical Infrastructure Solutions and Deep Domain Knowledge

- Structural Engineering
- Thermal Management
- Power Management
- Software Controls
- Life Cycle Services

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ARCHITECTS & ENGINEERS

CUSTOMER

CONTRACTORS

TECHNOLOGY PARTNERS

REAL ESTATE BROKERS
"The modular design gives us increased flexibility and scalability for future investment, while immediately offering an array of benefits for our customers. (Vertiv) worked with us to deliver true expertise and industry knowledge, positioning us to provide a strong cloud platform that serves both domestic and regional customers in Europe.”

- Program Manager, T-Systems Iberia
TECHNOLOGIES AND SERVICES: THERMAL MANAGEMENT
A complete line of energy-efficient and reliable technology

- Perimeter, in-row and high-density cooling
- Freecooling chillers, heat rejection and economization
- Evaporative freecooling
- Custom air handling solutions
- Small systems for edge applications, small computer rooms and network closets
- Modular Smart Solutions to add capacity with IT growth

Controls to optimize efficiency and uptime

- Unit and supervisory controls with machine to machine communication and real-time monitoring
- Advanced algorithms for system auto-tuning, energy optimization, and capacity management
THE VERTIV DIFFERENCE

Unmatched efficiency and reliability for mission-critical applications

• **We deliver** the highest level of protection and uptime
• Industry-leading efficiency levels (Power Usage Effectiveness as low as 1.1)
• Up to 50 percent lower capital and operating costs
• Industry-leading, award-winning technologies

Deep design and application knowledge

• **We partner with each customer** to develop and deploy solutions that best meet their needs
• Intelligent, self-optimizing solutions that enable customers to spend less time managing cooling and more time managing their facilities
# CUSTOMER SPOTLIGHT: VXCHNGE

## Customer Needs
- Updates to 15-year-old cooling equipment in its Pittsburgh colocation edge data center
- A thermal management offering that would meet sustainability and energy efficiency objectives, enhance data center stability, and enable reporting of environmental data via its customer portal

## Solutions
- Liebert® DSE free-cooling systems with pumped refrigerant economization
- iCOM™-S thermal management software providing native functionality integrated to Vertiv cooling units, as well as vXchnge’s DCIM system and customer portal

## Benefits
- 31% reduction in data center power usage
- Reduction of mechanical PUE from 2.0 to 1.3
- Automated control of economization for greater number of free-cooling hours
- Ensures data center cooling is meeting customer needs and SLAs
- Improves serviceability and reduces environmental impact by eliminating legacy refrigerants from the data center

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“I would say that the main thing about the Liebert DSE is that there is nothing on the market like it. It is not a comparable product to anything else.”

– Regional Vice President of Operations

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TECHNOLOGIES AND SERVICES:
POWER MANAGEMENT
POWER MANAGEMENT

VERTIV CAPABILITIES

PROJECT, MAINTENANCE AND PERFORMANCE SERVICES FOR DATA CENTER, COMMUNICATION NETWORKS AND INDUSTRIAL MARKETS.

RENEWABLES, UTILITY, AND GENERATORS

- UPS
- POWER DISTRIBUTION
- BATTERY MONITORING
- IN-RACK POWER DISTRIBUTION UNITS

DC POWER SOLUTIONS

- POWER DISTRIBUTION
- BATTERY MONITORING
- IN-RACK POWER DISTRIBUTION UNITS

Power Management

Critical Infrastructure Services
Comprehensive range of power solutions for data centers, communications networks, commercial and industrial networks

Industry leader in safe and reliable power solutions for heavy-duty, data center and Edge of Network applications

Complemented by our full software suite and global service organization
CUSTOMER SPOTLIGHT: EQUINIX

Customer Need
- Update and redesign the entire 4 x 800 kVA parallel UPS system based on a centralized, N+1 architecture for one of Equinix’s data centers.

Solutions
- Implemented a new distributed redundancy model with three chains, each composed of 1 MW Liebert® Trinergy™ UPS system in a (N+1) configuration.
- Vertiv LIFE Services for cutting-edge remote diagnostic and preventative monitoring service.

Benefits
- Three different power lines, powering each rack with a 2(N+1) UPS configuration for utmost reliability.
- AC power capacity expansion of up to roughly 500 kW, leading to an increase in rack density per square meter.
- 96% UPS efficiency

“We will make good use of the three Liebert Trinergy UPS systems’ scalability by upgrading the power capacity whenever the critical load evolves. And Vertiv will enable us to do it without any service disruption for our data center customers.”

- Director of Operations, Equinix
TECHNOLOGIES AND SERVICES:
IT MANAGEMENT
Remote data center access and management

- Centralized, secure access to IT devices from any vendor over IP – in traditional enterprise data centers, co-location and remote or edge applications

Control room solutions

- Real-time access to high-resolution content across multiple workstations – in broadcast and post production applications

Desktop productivity and security

- User access to multiple desktop computers with a single keyboard and mouse – in the office environment, test labs and locations with access to both secure and unsecure machines
Vertiv is the leader in IT Management. Its portfolio is unmatched for remote data center access and control and rack power. The portfolio spans devices and software and is supported by cutting edge services.

Vertiv IT Management products and services make it not only an outstanding performer in the traditional data center but its portfolio is uniquely positioned to deliver outstanding performance in Edge applications.

The Vertiv IT Management portfolio benefits customers by:

- Improving IT operations with an ecosystem of IT Management products
- Streamlining workflows in environments using multiple workstations
- Securing access between security levels in sensitive environments
- Providing the simplicity of sourcing from a single supplier
CUSTOMER SPOTLIGHT: MAJOR NATIONAL BANK

Customer Needs
- Standardize the IT infrastructure in a new acquisition (bank branches)
- Remote data center access and management and rack power
- Simplify their buying process (buy from one supplier)

Solutions
- Sourcing the entire IT management suite of products from Vertiv
- Phase 1: UPS (GXT4)
- Phase 2: Serial Console (ACS) and Cradlepoint wireless module, PDU (MPH2), UPS (GXT4)

Benefits
- Standardized infrastructure across all branches
- Consolidated and simplified management
- Sourced and supported from one supplier — Vertiv

Standardized infrastructure across all branches that supports consolidated and simplified management.
TECHNOLOGIES AND SERVICES: SOFTWARE
Monitoring of the **critical infrastructure** that is vital to the delivery of service from IT installations and data centers.

Management of **power and energy usage** across the entire power infrastructure used to power the IT and Facilities equipment.

Management and control of the use of expensive resources like space, power, cooling allowing the maximum use of these resources when deploying IT assets.

Remote monitoring of equipment performance with **automated or manual recommendations** on how to gain improved efficiency or resilience.
SOFTWARE
THE VERTIV DIFFERENCE

Expertise
Encapsulates our long experience in data center systems engineering and management

• Comprehensive capability across data center inventory, power, thermal and space management
• Deep, rich connectivity across all domains covering IT and facilities equipment from all vendors
• Tightly integrated hardware and systems offerings for optimal performance and efficiency

Scale
Global software and services capabilities for all data center operating models

• Modular software architecture that allows customers to choose the right components as needs dictate
• Installed base of over 5,000 global customers across numerous industries and geographies
• Extensive, experienced channel and business partner ecosystem to serve customers globally

Commitment
Extensive and ongoing investment in products and research to continue our leadership position in critical infrastructure management

• Solid track record of partnering with customers to address their unique needs
CUSTOMER SPOTLIGHT: CAMBRIDGE UNIVERSITY

Customer Needs
• Consolidate multiple server rooms to one
• Reduce carbon footprint by 30 percent
• Reduce IT energy costs by as much as 40 percent
• Consolidate management and standardize service delivery
• Improve security and availability of infrastructure and systems

Solution
• A DCIM tool that provides real-time insights and analytics of the power, thermal management and IT equipment with a service contract including remote diagnostics and preventive monitoring services.

Benefits
• Reduced OpEx
• Improved staff productivity by gaining visibility
• Adhered to governmental regulations by reducing carbon footprint
• Simplified calibration for a reduction in overall maintenance costs

“We’ve been challenged to achieve higher efficiency by virtualising platforms and refreshing equipment throughout our campus via a common, centralised data centre space. We’ve begun implementing a program where we’re seeking to combine the functionality of as many of these server rooms as possible into one facility, and to reduce our carbon footprint by 30 percent in the process, and by as much as 40 percent in IT energy costs.”

- Data Centre Manager, Cambridge University
LEARN MORE ABOUT VERTIV

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YouKu
WeChat
Google+
Weibo
Liebert Corporation was formed as industry’s first manufacturer of computer room air conditioning (CRAC)

Emerson acquires Liebert® Corporation – pioneer in thermal management, power protection for IT systems

Emerson forms Network Power (ENP) business – integrates critical infrastructure technologies under single brand

ENP increases presence in Asia – purchase of Avansys and forms ENP India

ENP acquires Avocent – provider of service processor and data center management software and KVM solutions

ENP acquires Germany-based Knürr AG – leading provider of enclosure systems

ENP acquires Marconi outside plant and power system – expanding telecom industry solutions

ENP acquires Chloride® – customized power solutions for industrial applications

Vertiv launches as stand-alone business building on the success of Emerson’s past while expanding capabilities and commitment to support the mission of designing, building and servicing mission-critical technologies that drive possibility for our customers

Vertiv makes its first two acquisitions, Energy Labs, a U.S.-based manufacturer of custom air handling systems and Geist, a leading manufacturer of rack power distribution units