VERTIV.

Liebert®

RDU-M

Dynamic Environment Monitoring for
Secure Data Center Infrastructure

LIEBERT® RDU-M

Manage critical equipment activity involving data center power and thermal management at multiple sites and site monitoring around the clock. Vertiv provides 24x7 data center infrastructure management and network monitoring software, hardware, systems and services to provide continuous oversight and security of data centers, computer rooms and network closetMission critical facilities are vulnerable to threats such as excessive heat, power problems, unwanted access, humidity and air impurities to name a few. Data center management doesn't stop in investing to air and power infrastructure equipments, monitoring plays an integral part of the entire infrastructure. Critical infrastructure monitoring is the key to assuring high availability and maximizing the investments made in these critical facilities.s, as well as applications for different market verticals.

Infrastructure Challenges

Challenge: Infrastructure Management
Need: A solution for centralized management of the entire infrastructure

Challenge: Power Density
Need: Efficient power management tools

Challenge: Accessibility
Need: Access type monitoring for rack or data center

Challenge: Availability
Need: Thresholds, event generation and notification capabilities

Rack

Liebert® RDU-A G2

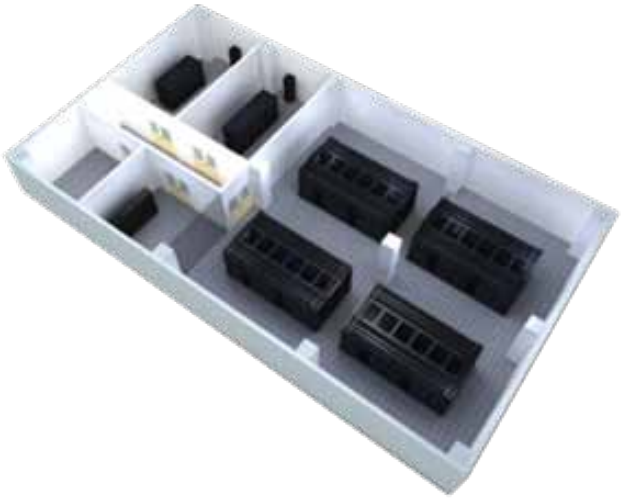
Liebert® RDU-SIC

Row

Liebert® RDU-A G2

Liebert® RDU-SIC

Room



Liebert® RDU-A G2

Liebert® RDU-M

LIEBERT® RDU-M

The Liebert® RDU-M provides round the clock visibility and holistic monitoring approach to your data center. This infrastructure management platform delivers real time monitoring and dynamic management of the entire IT facility from room, rack and equipment level. The Liebert® RDU-M monitoring software is already installed in a server like hardware appliance that can easily fit in racks and cabinets. It is also capable of managing multiple monitoring systems, all at the same time, as it easily integrates environmental and security systems placed in the data center. The Liebert® RDU-M best applies from small, medium-sized and cloud-ready data centers and applications.

System Integrated

Simple installation and automatic system integration of monitoring equipments present in the data center using standard port connections for power, image and video, environment and access & control applications

Real-time Monitoring

Provides real-time access and information to environmental, power, cooling and security aspects of the data center and reported via email and SMS

Remote Management

Capable of intelligent management of equipments and applications from a remote location

Multi-level monitoring for the entire critical infrastructure

Provided room level, rack level and equipment level monitoring

Facility Safety

- Multiple pre-alarm threshold, modes and levels providing preventive alerts to administrators
- Full video surveillance of the facility that includes recording, replay and image capture of the facility
- Intelligent room and door access functionality issued to authorized IT personnel

Security & Peace of mind

- Linux operating system; reliable and less frequently affected by virus. Multi-level system management that provides different access levels to different administrators.
- Capable of backup and querying of historical data of devices, system operations, alarm notifications sent to administrators

Simplified use and maintenance

- User-friendly and customizable graphic interface for a holistic view of the data center
- Provides report and analysis of data center and equipment operation including PUE statistics
- IP network connectivity, standard network cable connection and web remote access capability
- System cloning and critical data backup function for simple and convenient maintenance

Features

- Offers a user-friendly GUI to set up and manage data center infrastructure appliances
- Real-time monitoring on environmental, power, cooling, and security in data center
- Video surveillance supports video recording/back up/replaying/picture capturing/ voice transmission/timed recording and recording action triggered by alarm
- Room access control management
- Relay actions triggered by alarm or events
- Alarm notification by Email, SMS
- Report and analysis on data center / device operation; PUE statistics

RDU-MP

Centralized management platform for RDU-A G2 and RDU-SIC

- Can manage RDU-A G2 and/or RDU-SIC up to 32 connections
- Can manage Vertiv Door Access systems up to 32 sets

RDU-MI

Centralized management platform for RDU-A G2 and RDU-SIC

- Can manage RDU-A G2 and/or RDU-SIC up to 128 connections.
- Door = 64
- IP Camera = 64

RDU-MII

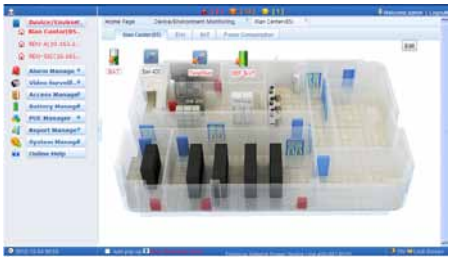
Centralized management platform for RDU-A G2 and RDU-SIC

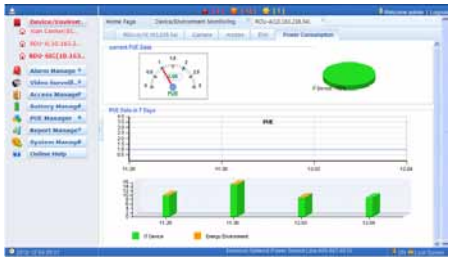
- Can manage RDU-A G2 and/or RDU-SIC up to 256 connections.
- Door = 256
- IP Camera = 256

LIEBERT® RDU-M

Features:

- High performance and high speed video protocol processor
- Optimized H.264 video compression algorithm for smooth transmission of the HD image at low bandwidth
- Built-in Web Server functionality, facilitates the real time monitoring and management setting of the front end of the equipment through standard IE explorer
- Supports remote system upgrade
- Connectivity: DNS, LAN and Internet (ADSL, Cable Modem)
- Supported network protocols: HTTP, TCP/ IP, UDP, STMP, DDNS, DNS, SNTP, DHCP, FTP
- Supports two-way voice intercom and voice broadcasting
- Self-adaptive network technology and automatic adjustment of video frame rate according to network bandwidth
- Alarm functions for video loss and motion detection (configurable area and sensitivity)
- Built-in high-speed dome decoder protocol
- Video recording / Still image capture
- Automatic recovery function and connection during network interruption or disturbances
- Supports up to 32GB of SD 2.0 protocol
- Installation: Flat or wall mounted



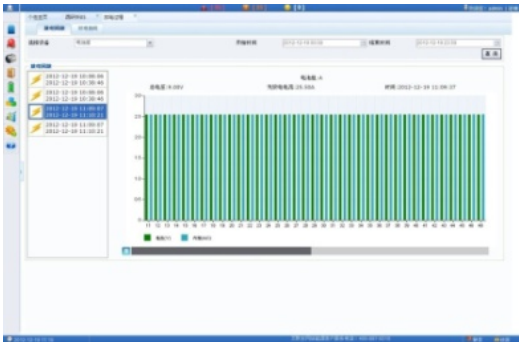


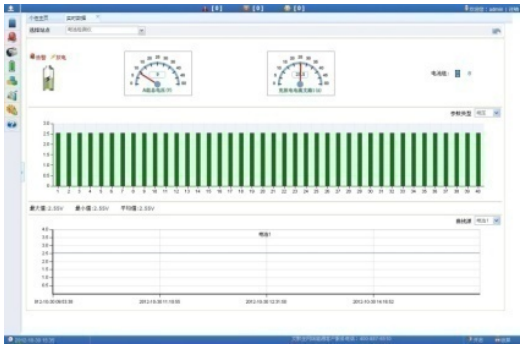
Hemisphere & Bullet Camera

- High Sensitivity LCD
- Automatic white balance tracking and gain control
- Digital signal processing and CCD aperture

Battery Monitoring System

Liebert® RDU-M also monitors the state of batteries in real time. It provides battery discharge data, playback and understand the discharge trend.





Environment System Monitoring

Temperature/Humidity Sensors
Monitor room temperature and humidity

Alarm Beacon Flashing LED beacon
provides visual exception event notification

Smoke Sensors
Monitor fire / smoke in the room or cabinet

Water Stripe Sensor
Detects water perimeter leakage

IR Detector
A thermographic camera or infrared camera is a device that forms an image using infrared radiation

LIEBERT® RDU-M

Requirements on Client Operating Environment	
WEB Browser	IE 6.0 or above version
Hardware Configuration	Hard disk: 1G and above, memory, 1G and above, network card, 10MB and above
Network Bandwidth	OptimizeIT server bandwidth: 10MB and above Client bandwidth requirement: 10MB and above
Power Supply	
AC power supply equipment (each power supply equipment)	
RDU-MP	350W, Auto Ranging(100 – 240 VAC, 50/60 Hz)
RDU-MI	350W, Auto Ranging(100 – 240 VAC, 50/60 Hz)
RDU-MII	Redundant power infeed, 350W x 2, Auto Ranging (100 – 240 VAC, 50/60 Hz)
Voltage	100-240VAC, 50/60Hz
Maximum Surge Current	Under the typical circuit condition and within the operating range of the overall system environment, the surge current of every power equipment is likely to reach 25A within 10millisecond or even a shorter time.

Category	RDU-MP	RDU-MI	RDU-MII
Weight	8Kg	8Kg	15Kg
Dimension	42.6 x 431 x 393.7 (mm) 1.67” x 17.1” x 15.5”	42.6 x 431 x 393.7 (mm) 1.67” x 17.1” x 15.5” (with mounting bracket and bezel)	42.9 x 434.0 x 612.6 (mm) 1.69” x 17.10” x 24.12”
RDU Integration	2-layers	2-layers	3-layers
RDU	RDU-A G2, RDU-SIC	RDU-A G2, RDU-SIC	RDU-MII/MI/MP, RDU-A G2, RDU-SIC
Quantity allowed	<=32 (IP Address)	<=128 (IP Address)	<=256 (IP Address) and <=16 RDU-M
Video Surveillance			
Camera Type	Not Available	IP Camera (Dome/Box)	IP Camera (Dome/Box)
Quantity allowed	None	<=64 (IP Address)	<=256 (IP Address)
Quantity of door access controller allowed	<=32	<=64	<=256

The Liebert® RDU-A G2 intelligent monitoring hardware is an intelligent monitoring platform from Vertiv that allows data center administrators to combine monitoring of the equipments, environment and safety of the facility altogether. Its flexible structural design enables the user to customize configurations according to the specific requirements of the IT infrastructure operations.

The Liebert® RDU-A G2 allows data center managers to perform the following operations through a secure web page:

- Monitoring of the health and status of the equipment
- Environment temperature and humidity
- Transmission of control or commands to the equipment and parameter setting
- Data and logs of historical information of alarms and notifications

FRONT

BACK

The Liebert® RDU-A G2 serves as the communication gateway for the equipment and the Liebert® RDU-M solution. It intelligently collects and communicates data and commands, giving IT administrators a comprehensive view of what's happening at the equipment level of the facility.

Mechanical Specifications

Components	Size (L × W × H, unit: mm)	Weight (unit: kg)
RDU-A G2 host	483.0 × 286.0 × 40.3	≤ 5
Power module	198.2 × 108.0 × 42.6	≤ 1
IRM-E04COM board	122.0 × 180.0 × 20.0	≤ 0.5

Environment Conditions

Item	Requirement
Application location	In data center or computer room, with air conditioner
Working temperature	-10°C ~ +50°C
Relative humidity	5%RH ~ 95%RH, no condensing
Working environment	Dust: compliant with the indoor requirements of GR-63. No corrosive gas, flammable gas, oily mist, steam, water drops or salt
Air pressure	70kpa ~ 106kpa
Storage temperature	-40°C ~ +70°C
Cooling	Natural cooling
Power distribution network	TT/TN
Protection level	IP20

LIEBERT® RDU-M

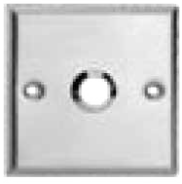
The access control system of the Liebert® RDU-M primarily provides security and prevention of unauthorized access or entry to the data center facility. The hardware components of this access control system is based on leading international facility security designs that is also equipped with high adaptability to monitoring systems, clock technology, surge and lightning protection design, anti-interference and anti-static designs.

Access Control Box	
Dimensions:	(L×W×H): 380mm×200mm×69.5mm
Maximum Connection Distance:	1200m
Display:	6-digit red LED, displaying numbers or simple English characters
Lock Driving Interface:	NO/NC contacts
Contact Capacity:	DC12V/2A/25Sec, DC24V/2A/25Sec, AC75V/3A/25Sec
Card Reader Port:	Wigan Signal Input Effective Low Level (or OC Door Conduction): -0.7V- +0.7V, IOUT MAX =8mA Wigan Signal Input Effective High Level (or OC Door Shut-off): high resistance -+4.0V, IOUT MAX=0mA Wigan 26BIT, 34BIT Wigan Signal Input Effective High Level (or OC Door Shut-off): high resistance -+4.0V, IOUT MAX=0mA Wigan 26BIT, 34BIT, 36BIT and 44BIT card number automatic identification
Operating Temperature:	-10°C ~ 50°C
Storage Temperature:	-30°C ~ 70°C
Humidity:	5% ~ 95%RH (no condensation)

Fingerprint Reader		
Dimension:	155mm(L) * 52mm(W) * 39mm(D) ±5%	
Weight:	0.2Kg ±5%	
Working Voltage:	12VDC ±5%	
Working Current:	300mA ±5%	
Car Type:	ID or IC card	
Frequency:	ID card: 125KHZ ±5%	IC card: 13.56MHZ ±5%
Reading distance:	50-100mm (without other same products interferences)	
Working environment:	-10 ~ +55° C degree, 20% ~ 90%	-20 ~ +70°C, 5% ~ 90%
ESD parameter:	Air discharge ±8KV	

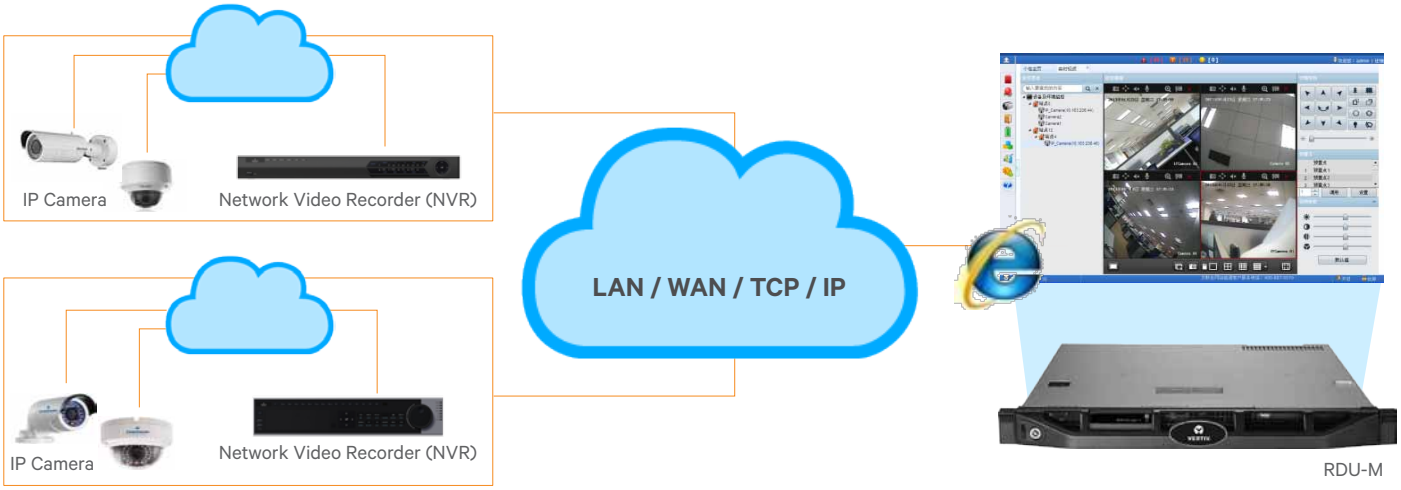
Electrical Lockset	
Rated Operating Voltage:	12V DC
Input Voltage Range:	10.8VDC-13.2VDC
Operating Current:	Single-opened: 0.48A
Minimum Supply Current:	Single-Opened: at 800mA/12V DC input
Rated Power:	Single-opened: ≤6.2W
Rated Pulling Force:	Single-Opened: 270Kg ±5Kg
Door Open Mode:	90o
Operating Environment	
Temperature:	10°C ~ +50°C
Humidity:	20% ~ 90% (no condensation)
Applicable Door Type:	Applicable to wood door, glass door without bottom frame (with U support) and fireproof door

Outside Button	
Model:	EP67
Maximum Switch Current:	48VDC, 2A
Operating Temperature:	-25°C ~ -105°C
Button Material:	Brass with nickel plating
Panel Material:	Stainless steel
Mechanical Life:	1,000,000 times
Projecting Button Size:	22×2mm
Pane Size:	86×86×6mm

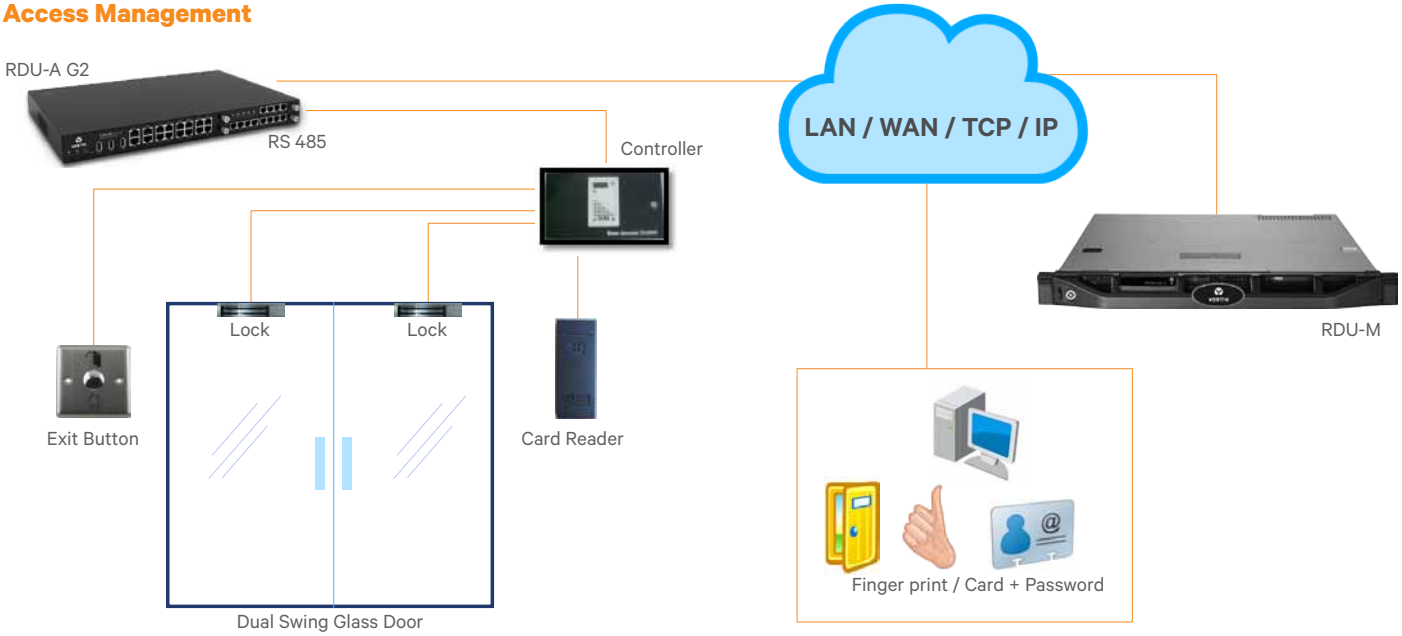


LIEBERT® RDU-M

Video Surveillance



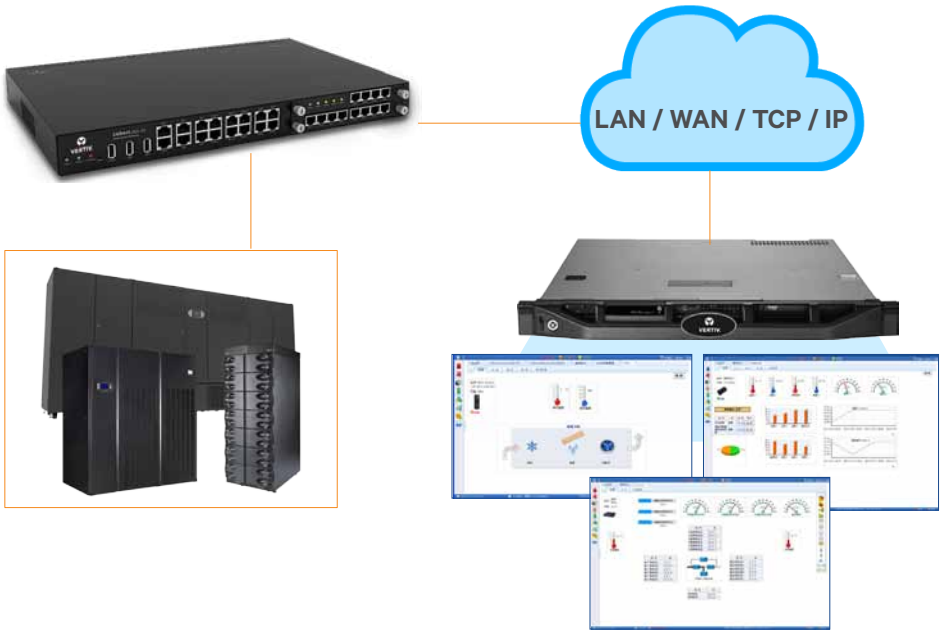
Access Management



Battery Monitoring

- The battery group voltage, resistance, and maximum, minimum, average value of temperature, etc.
- Monitoring of battery state, the alarm information and charge and discharge state.
- Monitoring of battery discharge data, discharge playback, to understand the discharge trend.

Device Management



- Device status monitoring (PUE, Teamwork)
- Device Control and monitoring
- Individual monitoring interface for each device.

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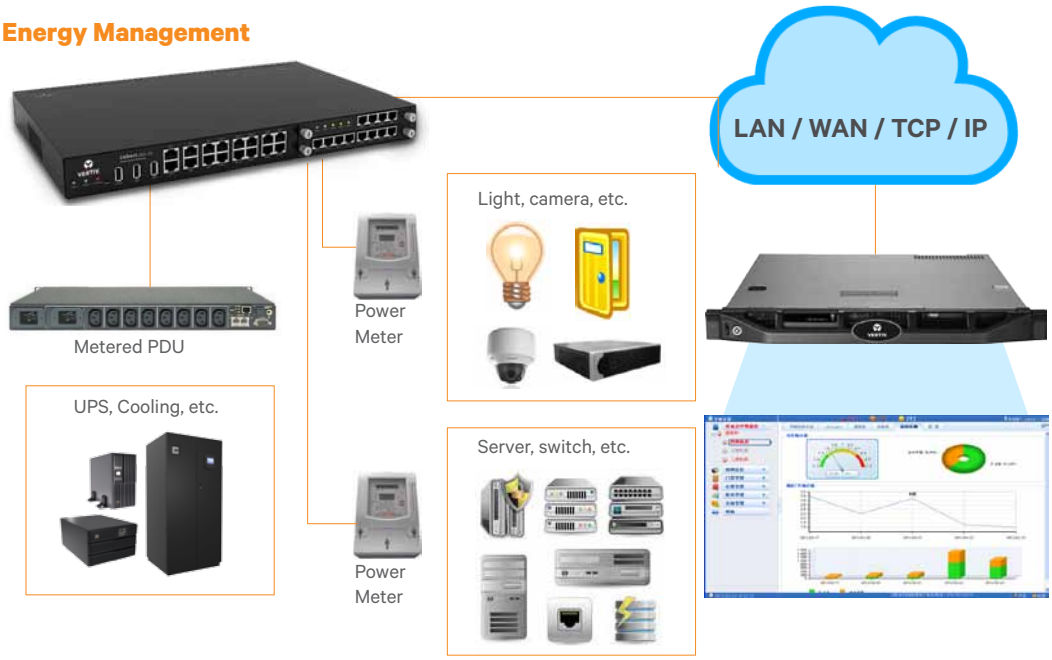
Energy Management

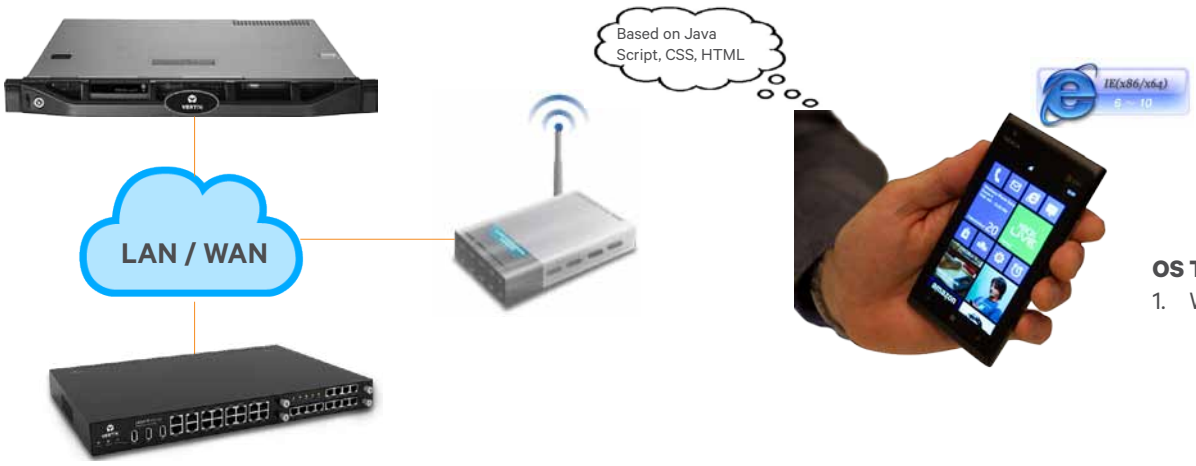


PUE Model Power
Calculate by the monitoring the power meter.

PUE Model Energy
Calculate by the direct reading of UPS power. Can also be computed by manual entry results

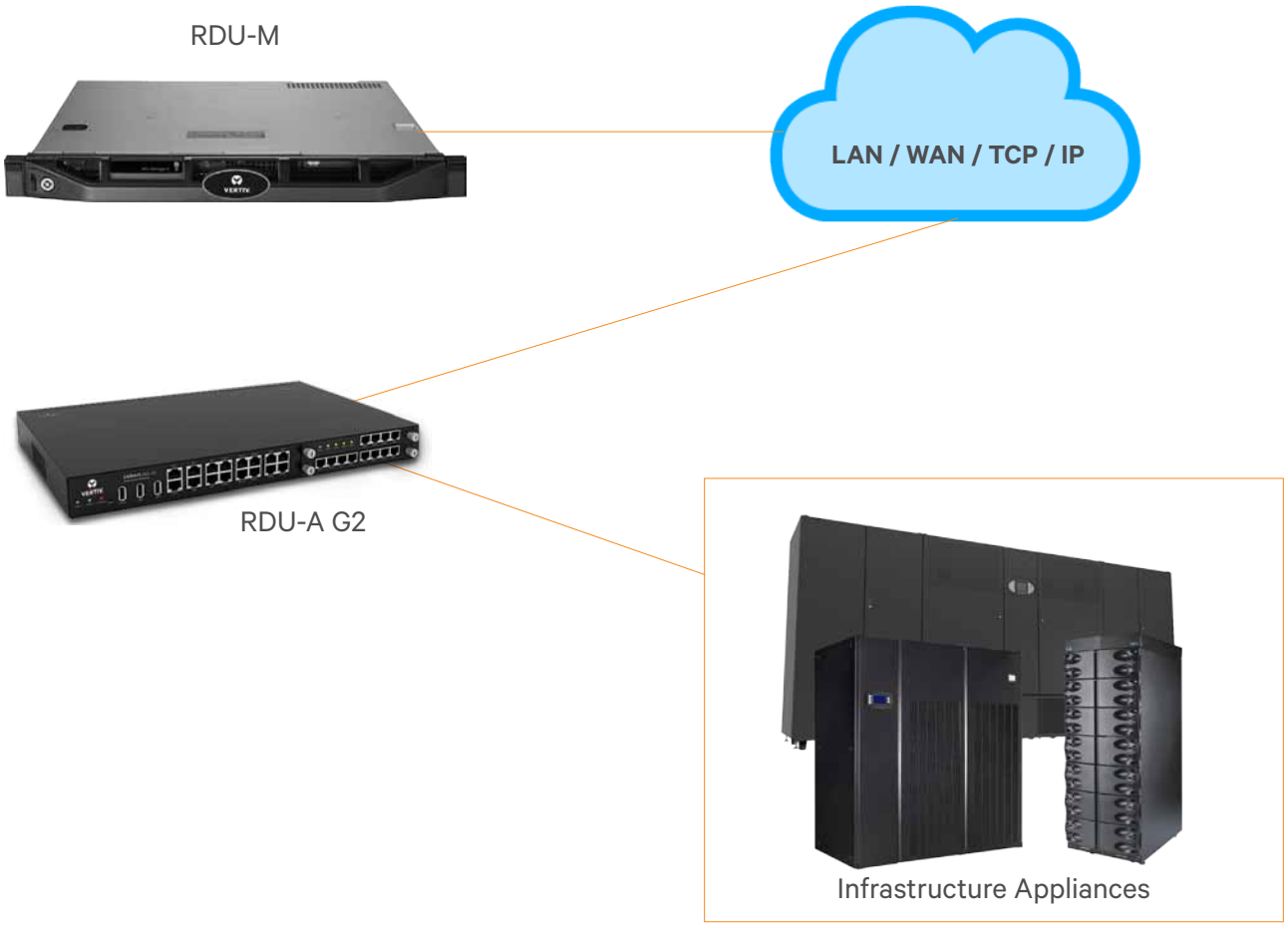
Alarm Management

Mobile



OS Type
1. Windows

How much do you need to manage in small computer rooms / Data Centers?
With this solution, top management monitoring platform is easy to achieve with user friendly graphics and configurations.

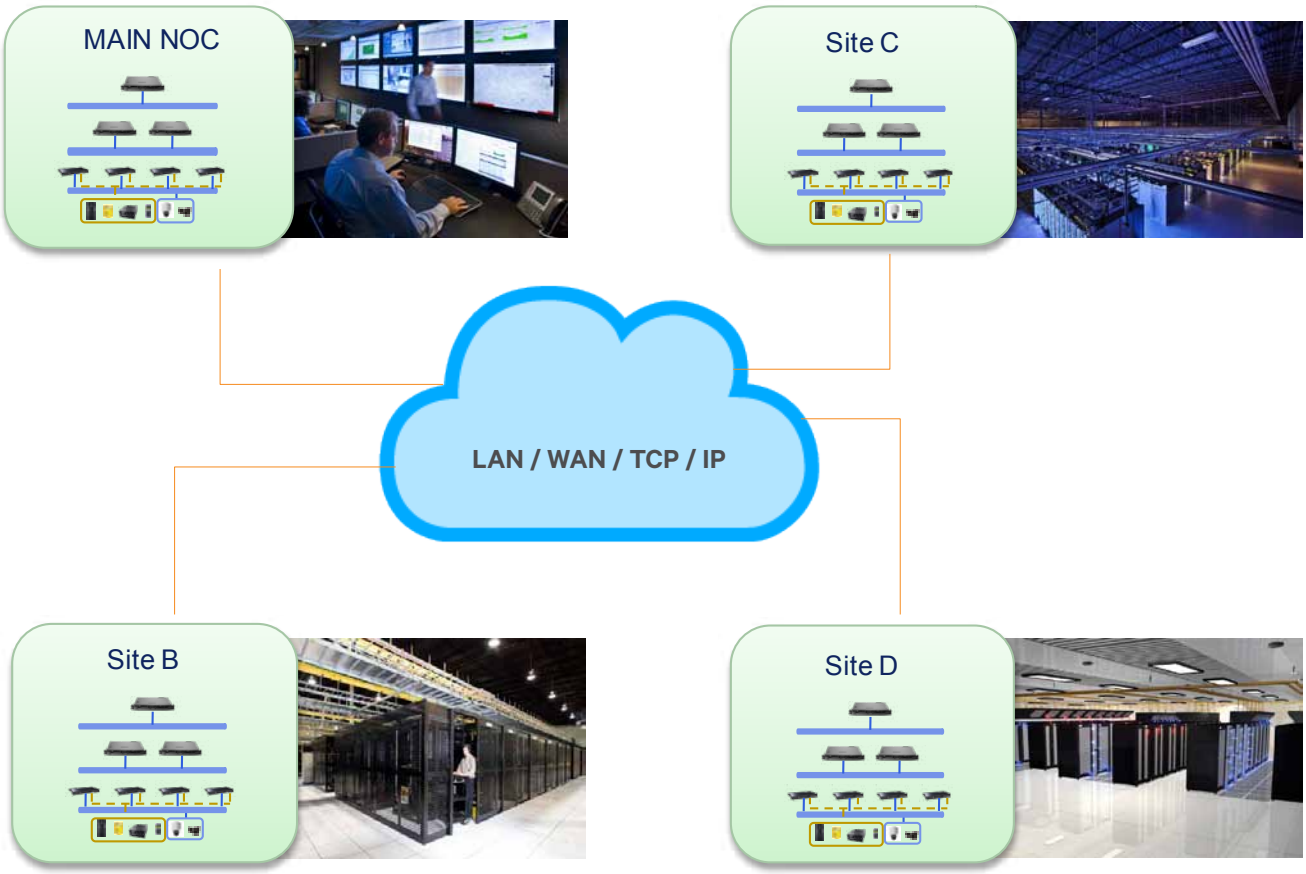


LIEBERT® RDU-M

Expanding your data center?
With this solution, scaling to adapt to your current changes is manageable and easy to maintain.

Cloud Ready?

Data Centers on cloud need not to be expensive in terms of management. Scalability with security is the key.



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