

# ***Data Center Infrastructure Management - Transform Your Data Center Cost Structure for Greater Efficiency***

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# About Avocent

## Acquired By Emerson – December 2009 Part of Emerson Network Power Division

### ■ A leader in simplifying the complexity of IT management:

- 85% of the Fortune 1000 rely on Avocent
- HP, IBM, Lenovo ... embed our solution

### ■ Revenue: ~\$23B

### ■ ~120,000 Employees

### ■ Solutions and Services:

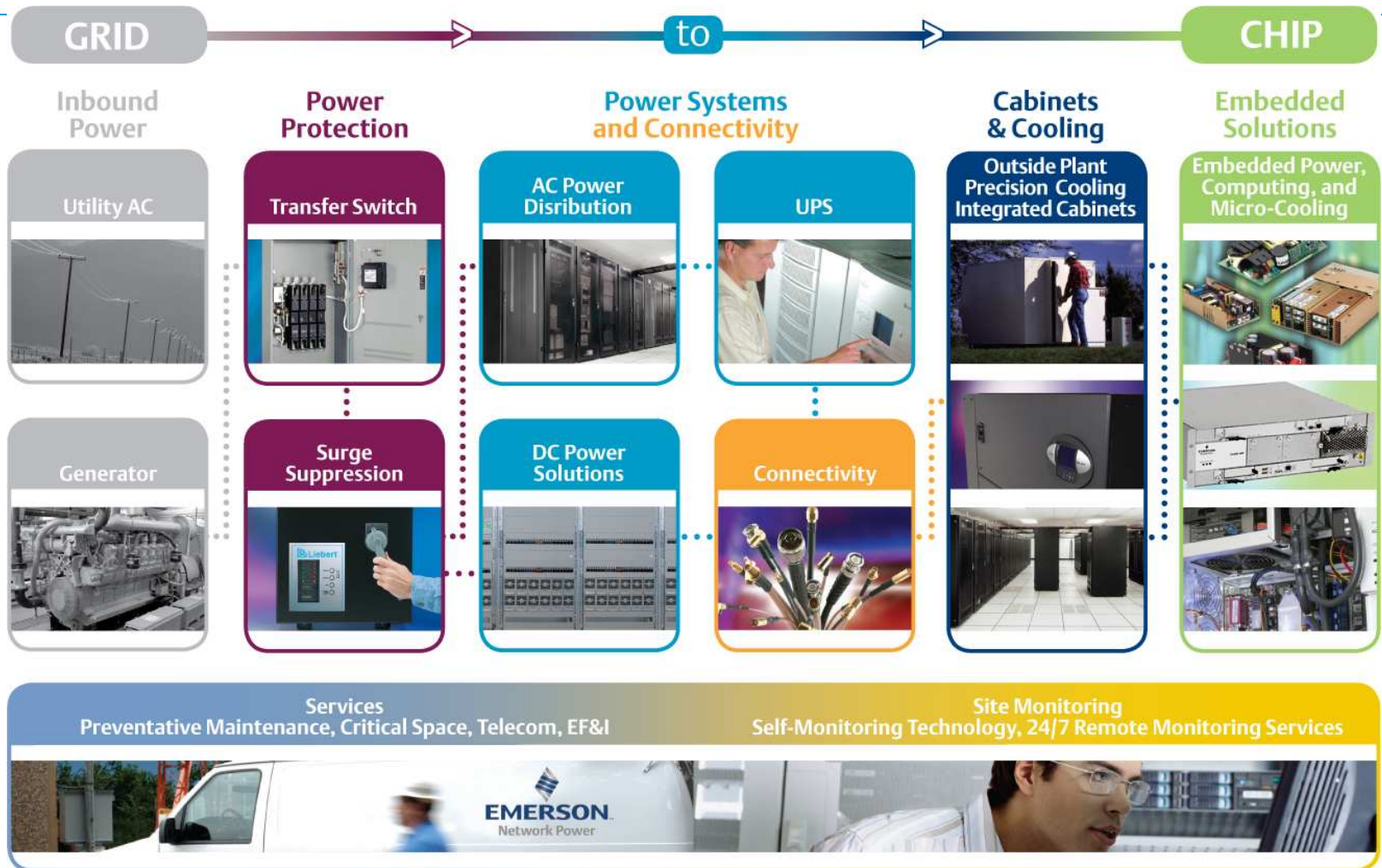
- Data Center Infrastructure management
- Systems lifecycle management
- ITIL & full service management
- End user self service
- Security & compliance
- Asset lifecycle management
- Process automation

### ■ Partner and Supplier to:

- Apple, Acer, Dell, Fujitsu Siemens, HP, IBM, Intel, Lenovo, Microsoft, NEC, Novell
- 1,000+ certified partners worldwide



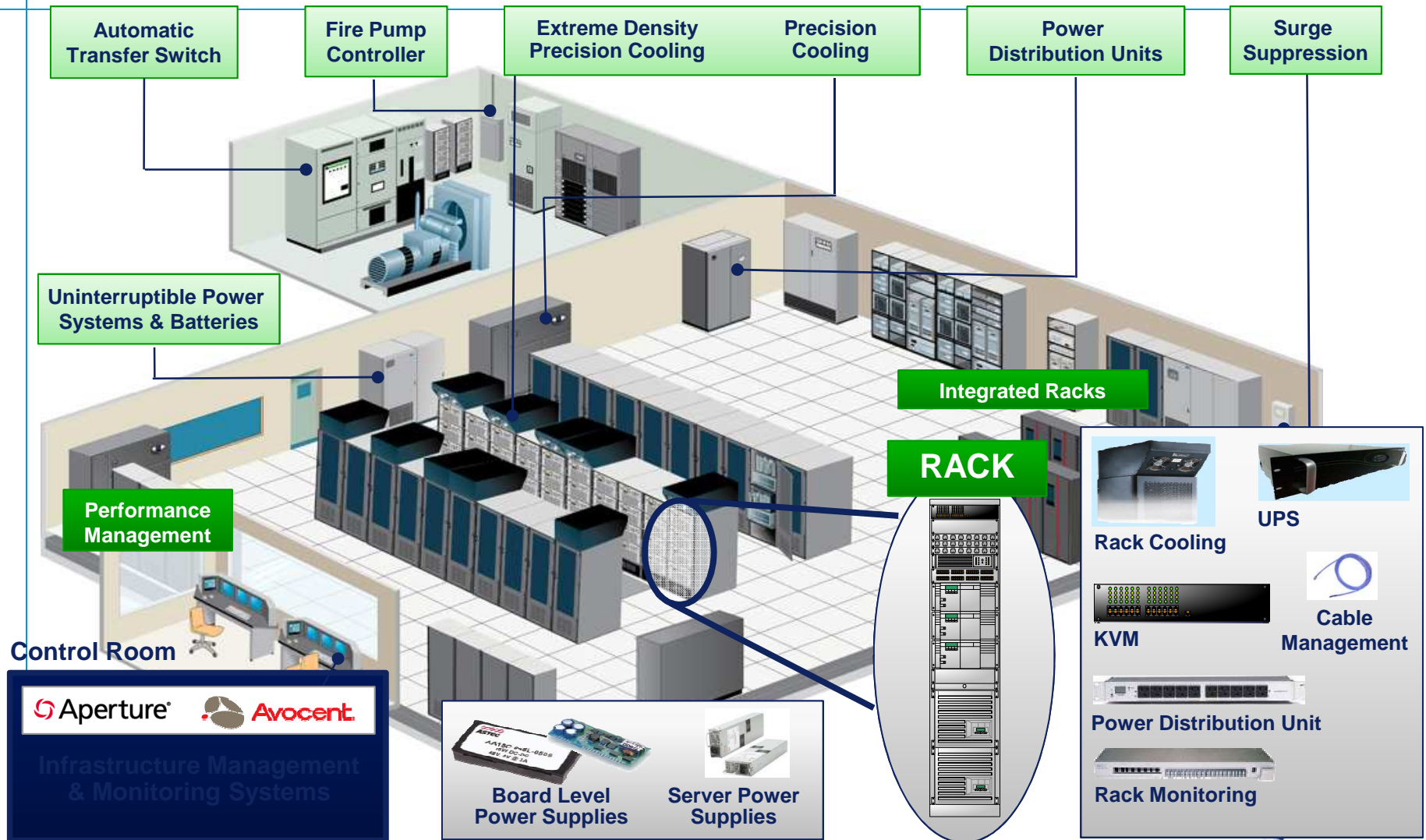
# Emerson Network Power – Products



*Products from grid to chip*



# Emerson Presence in the Data Center



Aperture Avocent

Infrastructure Management & Monitoring Systems

Avocent

EMERSON  
Network Power

# Why Avocent?

94% of the Fortune 100 customer select Avocent as a partner to increase their IT Operations Management Capabilities



## Increase IT Efficiency

1. Resolve data center issues remotely and return to productivity quickly
2. Creates a collaborative repository for data - eliminating CAD, spreadsheet
3. Reduces time required to locate missing item



## Cost Reduction

1. Do more with less by effectively managing a heterogeneous server environment
2. Increase utilization and lifespan of data center – better planning
3. Better understanding of Power



## Risk Management

1. Reduction in unplanned downtime
2. Immediately identify potential impact
3. Mitigate risk of future project conflicts
4. Run What If Scenario



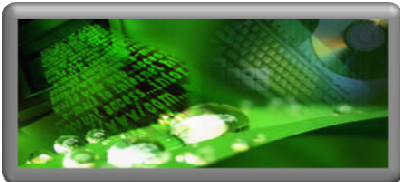
# Data Center Infrastructure Challenges



IT requirements continually outpace facility capacity which leads to ever increasing availability failure rates



The cost of operating a data center is rising dramatically as the cost of raw commodities and energy rise



Green initiatives driving needs to lower energy costs while improving efficiency.



Data center operators need to understand more about their space, power, and cooling capacities

# Comments from the Industry

## DCIM: Going Beyond IT

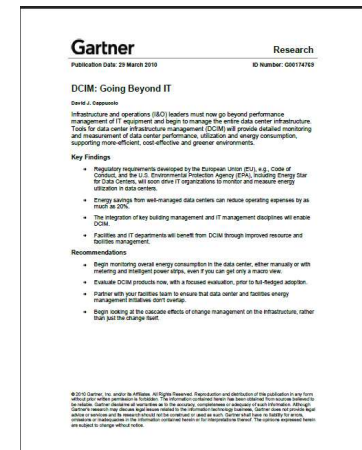
### Key Findings

- **Regulatory** requirements developed by the European Union (EU) e.g. Code of Conduct, and the US Environmental Protection Agency (EPA), including Energy Star for Data Centers, will soon **drive IT organizations to monitor and measure energy utilization** in data centers.
- Energy Savings from **well-managed data centers** can **reduce operating expenses by as much as 20%**
- The integration of key building management and IT management disciplines will enable DCIM
- Facilities and IT departments will **benefit** from DCIM **through improved resource and facility management.**

### Recommendations

- **Begin monitoring overall energy consumption** in the data center, either manually or with metering and intelligent power strips, even if you can get only a macro view.
- **Evaluate DCIM products** now with a focused evaluation prior to full fledged adoption
- **Partner** with your **facilities team** to ensure that data center and facilities energy management initiatives don't overlap.
- **Begin looking** at the **cascade effects** of **change management** on the **infrastructure** rather than just the change itself.

**David J. Cappuccio – March 2010**  
*Research VP*

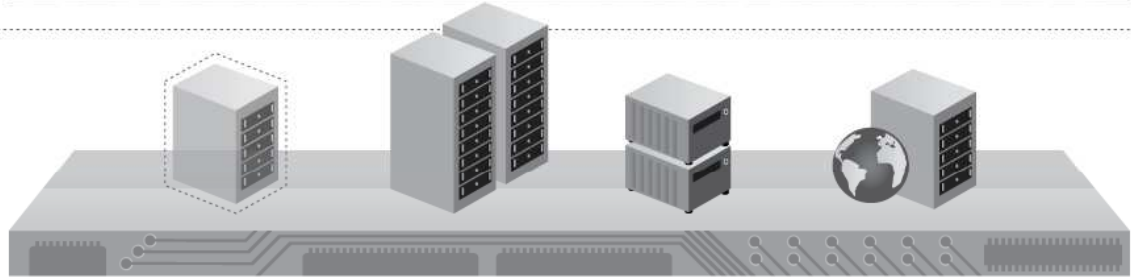


# The Data Center as the Core of the Business

**BUSINESS SERVICE LAYER**  
■ BUSINESS APPLICATIONS



**IT INFRASTRUCTURE LAYER**  
■ VIRTUALIZATION  
■ COMPUTE, STORAGE, NETWORK

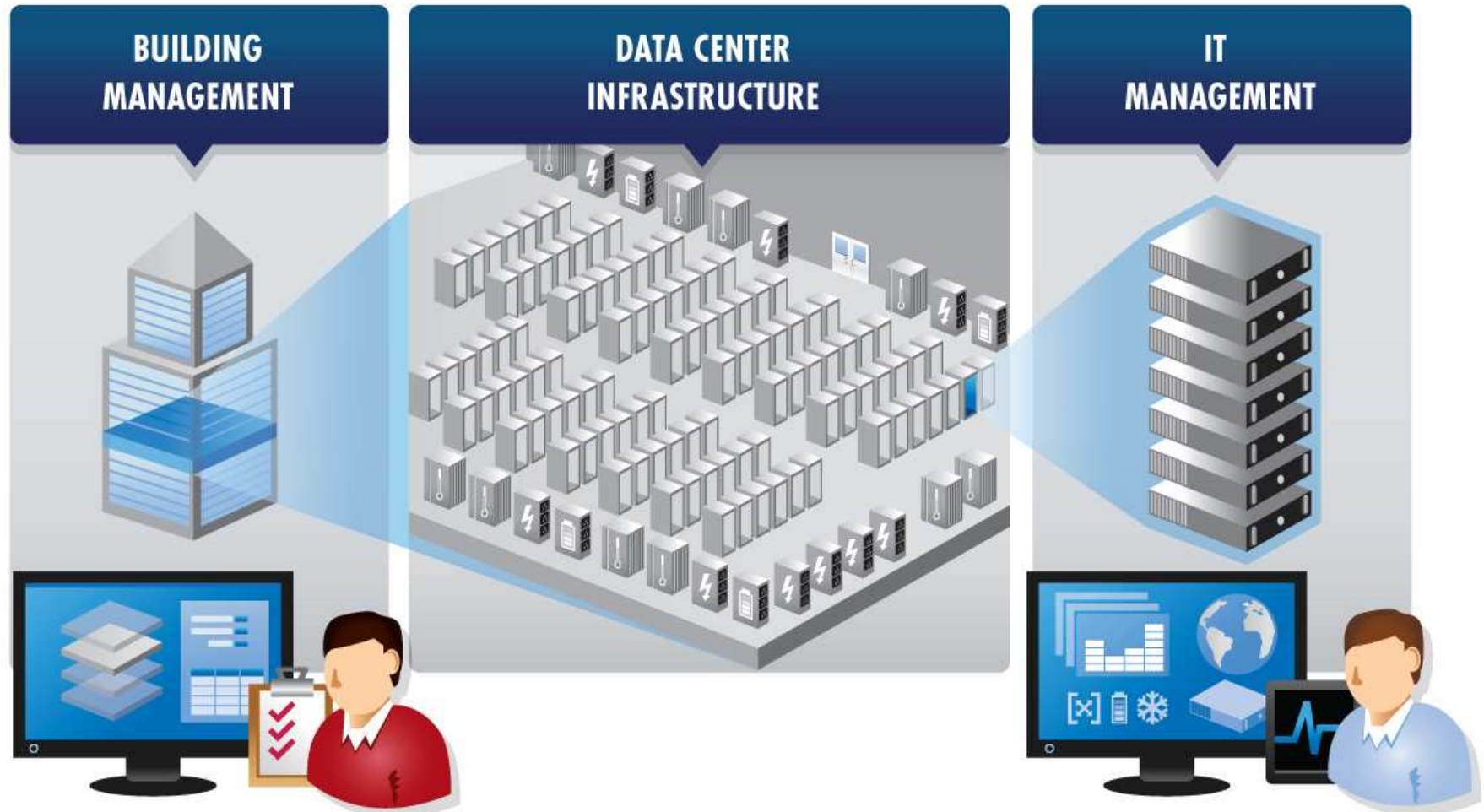


**DATA CENTER INFRASTRUCTURE LAYER**  
■ EQUIPMENT (PHYSICAL)  
■ SPACE, POWER, COOLING



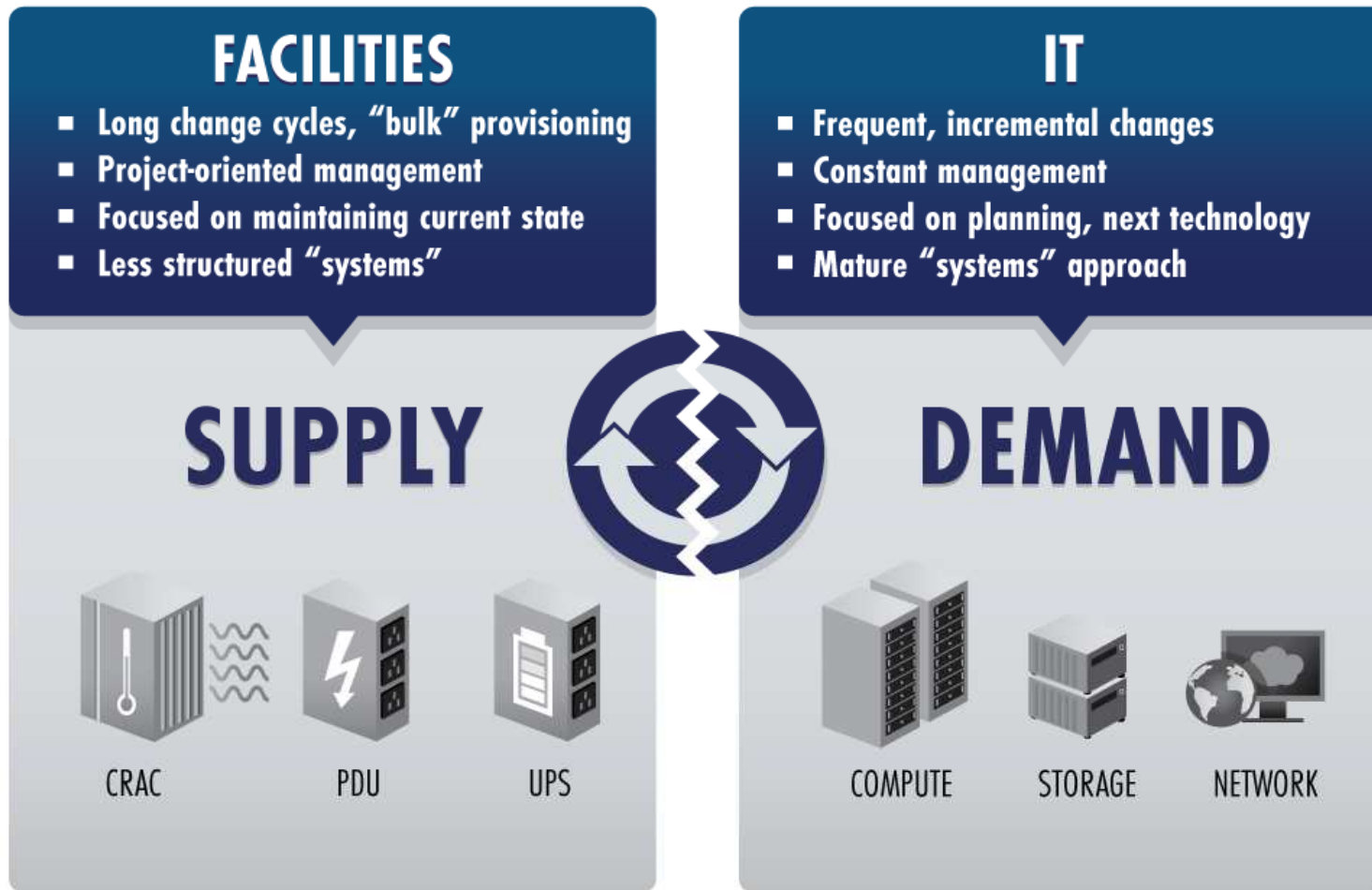
*Companies are realizing foundation begins at physical infrastructure*

# Managing the Data Center "Gap"



***Companies lack cohesive management strategy for data center infrastructure***

# Balancing Supply and Demand



# Visibility into Data Center Operations



## IT MANAGEMENT

- How do we align data center operations with the strategic corporate objectives?
- How do we manage to our existing budget and maintain or reduce costs?
- What can we do to ensure that SLA's and KPIs are met across all data centers?
- Can I get visibility into future data center capacity requirements?
- How can I improve resource efficiency and extend the life of my data centers?
- How can I get more accurate and timely information for making decisions?
- How can I get comprehensive, accurate chargeback reporting?
- How can I create an integrated IT (service) management strategy?



## CRITICAL SYSTEMS/FACILITIES

- Where can I get accurate information on energy consumption?
- How do I improve equipment efficiency?
- What plans does IT have for installing additional equipment?
- How can I proactively diagnose issues before they occur?
- How can I centralize my monitoring and reduce TCO?



## DATA CENTER OPERATIONS

- Where can I get accurate information on IT assets and resources?
- What are the capacity requirements on the data center over the next 6, 12 months?
- What projects (IMACs) are currently in process and what is their status?
- How do I reduce errors associated with changes?
- How do I reduce mean time to repair (MTTR)?
- How are we doing against SLAs?

***To perform their functions, each team  
need information to cross the chasm***

# IT is Faced with Managing the Infrastructure

- “Faced with the harsh realities of a difficult economic climate, data center managers need to focus on creating the most efficient operating environments in order to extend the life of existing data centers.”
- “In heterogeneous data centers, optimization is the key issue in the market. A holistic approach is required for sustainability.”
- “When asked how investment plans in 2009 have changed due to the recessionary climate, IT ops professionals rated “reducing facilities costs” as their top investment priority.”

**Gartner**

 **IDC**  
*Analyze the Future*

**FORRESTER**

 **Avocent**

***Meeting demands of the business  
requires optimizing performance***

  
**EMERSON**  
Network Power

# Optimizing Performance in the Data Center

- Managing Capital/Operating Expenses and Human Capital
- Efficiently meeting future business demands for services
- Balancing IT demand with (facility) supply of resources
- Implementing SLA-driven, chargeback model



*Optimizing performance requires a holistic view of efficiency – more than just energy*

# Data Center Optimization

## PERFORMANCE OPTIMIZATION

- Optimize operational efficiency – CapEx, OpEx, Human Capital
- Meet future business demands for services
- Balance IT demand with supply of resources
- SLA-driven, chargeback model
- Transition to automated, dynamic infrastructure

### MONITORING AND CONTROL

- Measure energy consumption
- Reduce downtime (alarms, alerts)
- Prevent outages through predictive diagnostics

### MANAGING PHYSICAL ASSETS AND RESOURCES

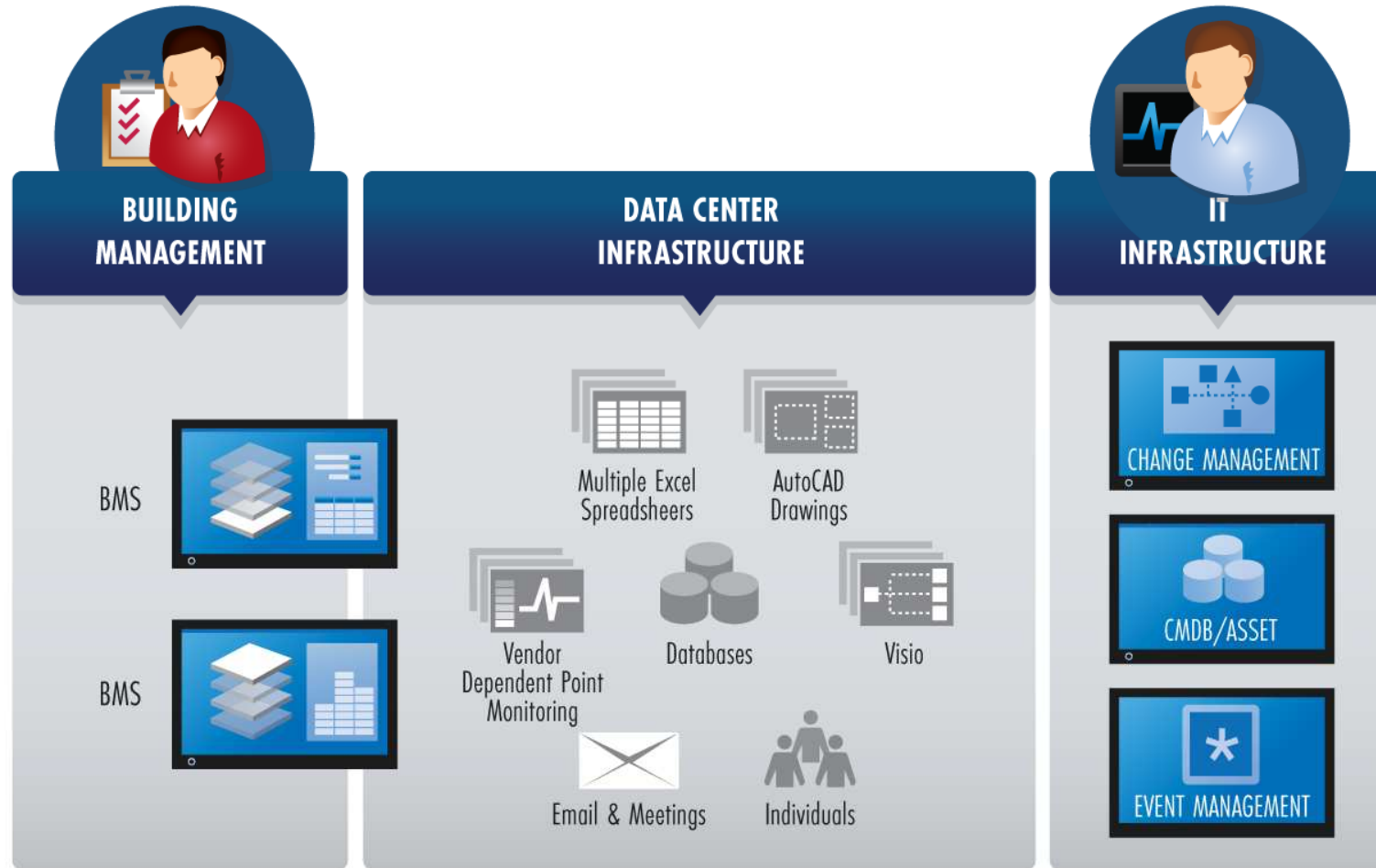
- Single version of truth for IT and FM
- Visibility into the relationship of assets & resources to business services
- Proactively analyze change impact to reduce risk

### MANAGING PEOPLE AND PROCESSES

- Minimize business risk of changes
- Improve efficiency of changes
- Reduce the cost of delivering services to the business

*Optimizing performance requires a foundation of management*

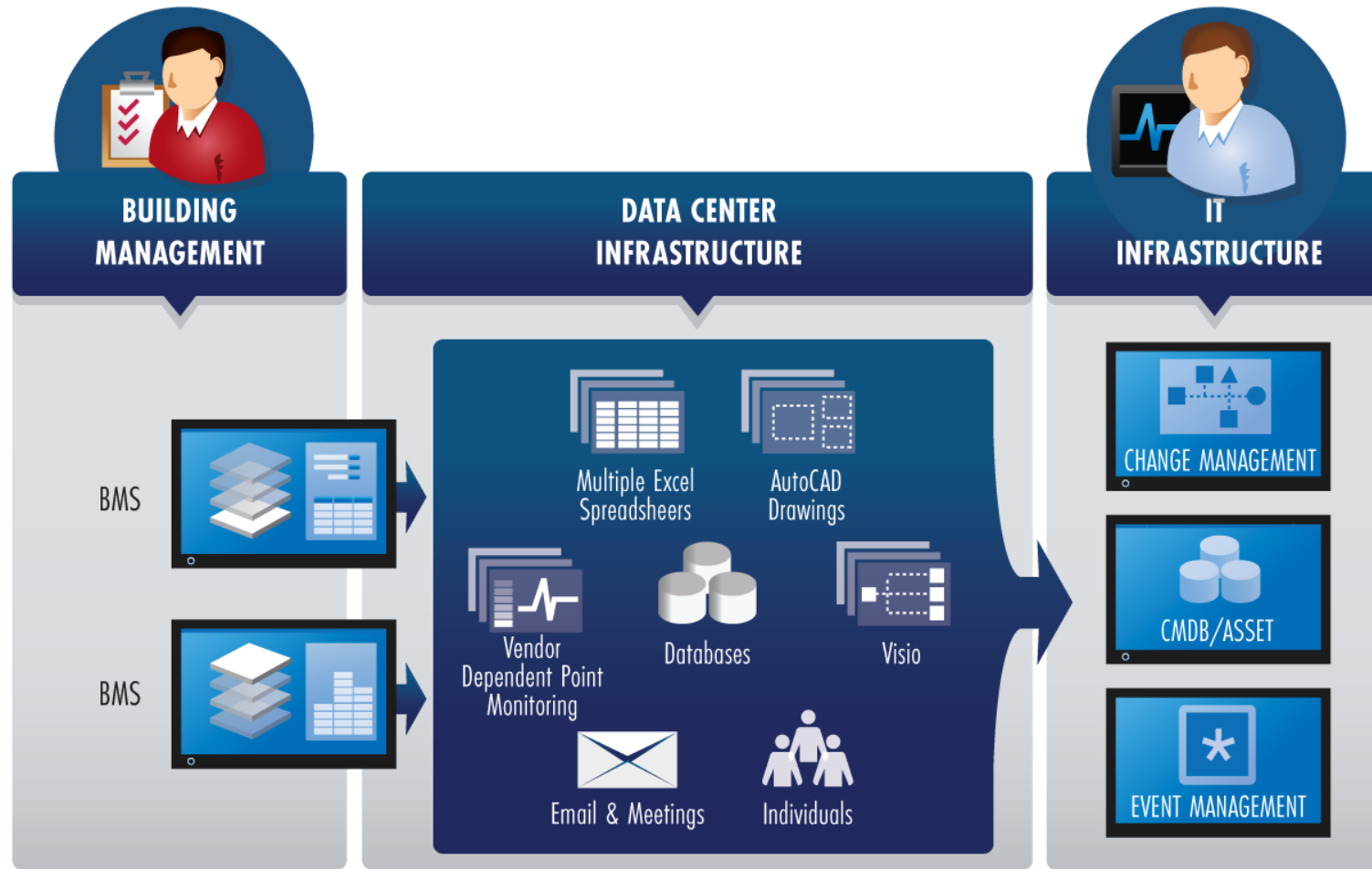
# Data Center Infrastructure Management



*Disparate tools need to be replaced with a cohesive management strategy*



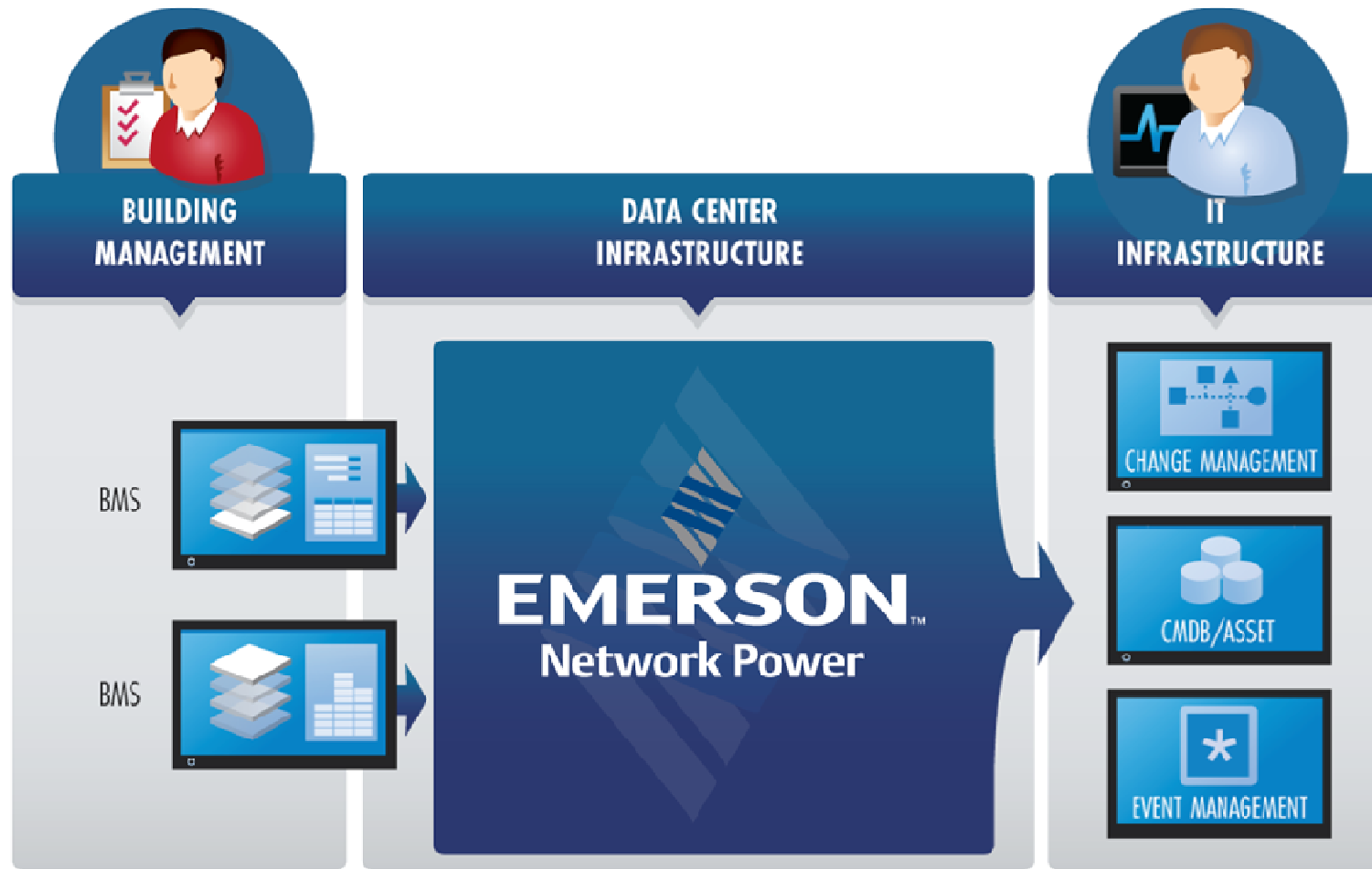
# Data Center Infrastructure Management



*Disparate tools need to be replaced with a cohesive management strategy*



# Data Center Infrastructure Management

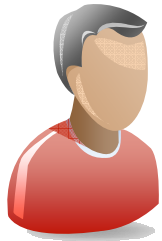


*Disparate tools need to be replaced with a cohesive management strategy*



# Data Center Infrastructure Management Maturity Model

Where are you now?



**Organizations Need to Align their DCIM Strategy with their Maturity**

# Emerson Network Power as a Leader in the Data Center

## Gartner®

“DCIM tools are evolving rapidly and will become a key part of a data center manager's arsenal during the next few years, providing valuable data needed to report on and improve energy efficiencies, identify potential infrastructure trouble spots and increase the effectiveness of capacity planning. To take advantage of the benefits as they evolve, I&O leaders should begin the DCIM evaluation process in 2010 and 2011. Vendors such as [...] Avocent/Emerson [and others] are leading this market”

- Gartner, “Physical Resource Infrastructure Management Is Evolving” (August 2008) and ‘DCIM – Going beyond IT’ (March 2010)

## FORRESTER®

“[...] IT leaders can invest their time and capital wisely by identifying IT's most energy-consuming assets, prioritize projects accordingly, and accurately quantify savings over time. The technology landscape for IT energy and environmental measurement is quite mature — with offerings from facilities vendors such as [...] Emerson [...] — and IT organizations are taking a more active role in investing in these technologies.”

- Forrester Research, “TechRadar™ For I&O Professionals: Green IT 1.0 Technologies, Q2 2009” (June 2009)

# Offerings for Data Center Infrastructure Management

## PERFORMANCE OPTIMIZATION

- Aperture Integrated Resource Manager
- Aperture Capacity Manager
- Liebert Data Center Assessments

### MONITORING AND CONTROL

- Avocent DSView
- Liebert SiteScan
- Liebert Nform

### MANAGING PHYSICAL ASSETS AND RESOURCES

- Avocent MergePoint Infrastructure Explorer
- Aperture Configuration Manager

### MANAGING PEOPLE AND PROCESSES

- Aperture Infrastructure Process Manager

## ITSM INTEGRATION PLATFORM

- Aperture Integration Manager

*Avocent/Aperture uniquely offer a set of products and services for data center optimization*

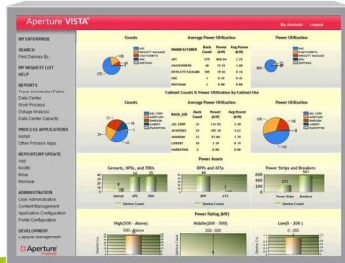


## Management of a Heterogeneous Environment

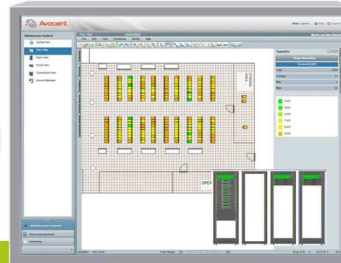
Identify • Manage • Service • Secure • Control

### Asset & Capacity Management

Aperture VISTA

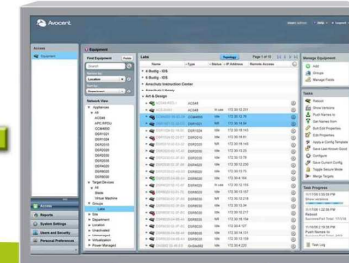


Avocent MergePoint® Infrastructure Explorer



### Operations Management

Avocent DSView®3 Management Software



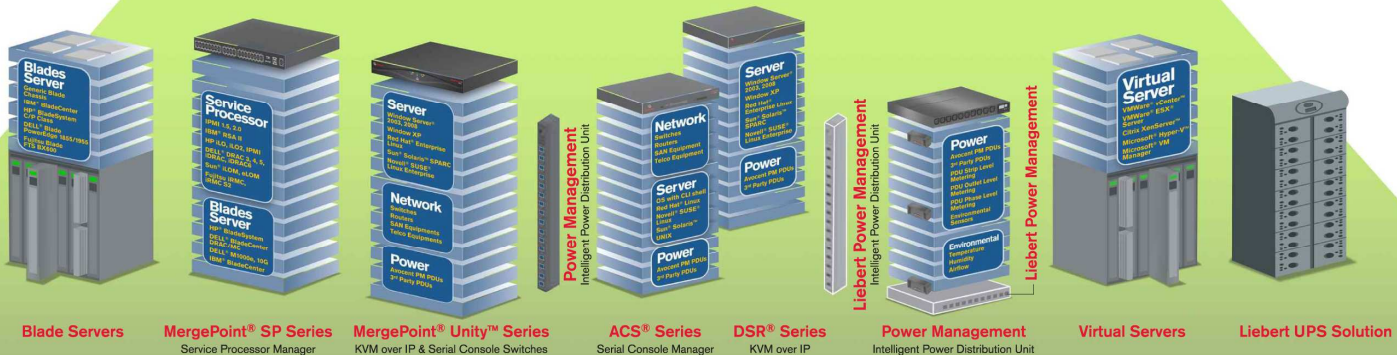
- Physical Asset Tracking
- Impact & Utilization Analysis
- Inventory & Planning Reporting
- Predictability & Scalability
- Accurate & Consistent rules of process
- Planning & Management of Assets
- Automation & Monitoring
- Decrease Operating Cost & Automate Optimization Process
- Capacity Management
- Project Pipeline Management

- Visual Modelling
- Planning & Design
- Capacity Visualization
- Import DC Records
- Launch KVM or Serial Sessions
- Impact Assessment & Analysis
- Asset Identification & Location
- Asset Library
- Various Reporting Capability
- Show Details information of Assets

- Centralized Management
- Events Notification & SNMP
- Redundancy User Access
- Scheduling of Task
- Users Logs & Access Control
- Monitor, Measure Energy Consumption
- Reporting & Audit Logs
- Authentication Services
- Hub & Spoke Architecture
- Virtual Machines
- Virtual Media Support
- Track Assets and Usage



### Data Centers



Blade Servers

MergePoint® SP Series  
Service Processor Manager

MergePoint® Unity™ Series  
KVM over IP & Serial Console Switches

ACS® Series  
Serial Console Manager

DSR® Series  
KVM over IP

Power Management  
Intelligent Power Distribution Unit

Virtual Servers

Liebert UPS Solution