

# ***Data Center Infrastructure Management (DCIM)***

*Trellis*



# Avocent, A Division of Emerson Network Power

- A leader in simplifying the complexity of IT management:
  - 85% of the Fortune 1000 rely on Avocent solutions
  - HP, IBM, Lenovo ... embed our solution
- Solutions and Services:
  - Data Center Infrastructure management solutions
  - Remote Management of servers and serial devices
  - Remote monitoring and control of power strips
  - Local Access and Control solutions
  - Secure KVM Switches
- Partner and Supplier to:
  - Apple, Acer, Dell, Fujitsu Siemens, HP, IBM, Intel, Lenovo, Microsoft, NEC, Novell
  - Certified and skilled partners worldwide



# Today's Agenda

1

*The Problem*

2

*Why Emerson Network Power*

3

*Our Solution*

4

Q & A

# Powerful Forces are Driving Change in Data Center Infrastructure

Server virtualization

Dynamically changing computer loads

Increasing energy costs

High-density equipment

Energy efficiency targets

Increased ROI hurdles

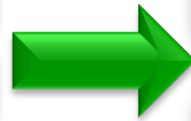
Public and private cloud computing

Increased SLA expectations

Decreasing capital budgets

Changes in technology

Increasing demands for customer interaction



# Challenges Facing All CIOs

## Availability

- Identify outages before they occur
- Identify interdependencies between facilities and IT infrastructure
- Automate impact analysis
- Identify gaps in redundancy
- Reduce human error

## Efficiency & Cost

- Centralize access to IT equipment
- Minimize energy required to meet service levels
- Identify inefficiencies in energy usage
- Understand total cost of ownership of IT services

## Agility

- Understand inventory of data center assets
- Plan for future needs of IT services
- Model alternative deployment scenarios
- Reduce number of vendors
- Reduce the number of management tools

## Compliance

- Control and log access to IT systems
- Control physical access to data center infrastructure
- Meet energy efficiency standards

*Most Critical*

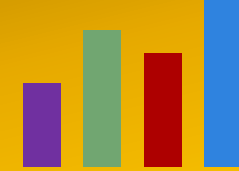
*Critical*



**The Emerson Global Data Center Showcased a Gap**

# “Traditional” Data Center Thinking Focuses On Functional Layers & Static Design

**Business Service Layer**  
• Business Applications



**IT Infrastructure Layer**  
• Virtualization, Compute, Storage, Network



**Data Center Equipment Layer**  
• Equipment (Physical Space, Power, Cooling)



Static Design

Hold original design together

Plan

Design

Deploy

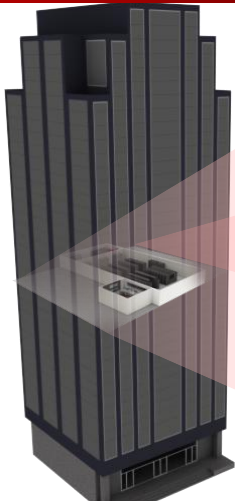
Operate

Maintain

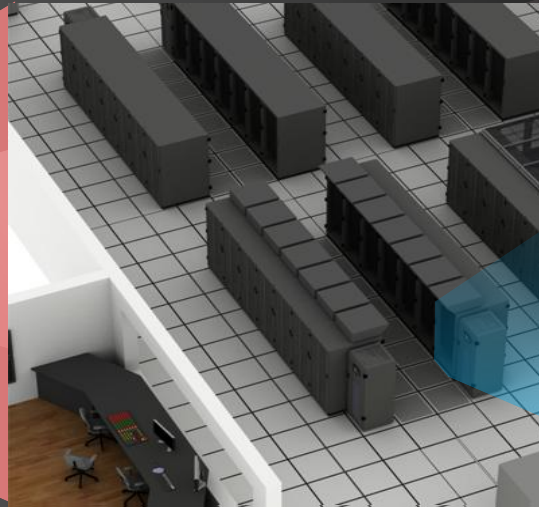


# A Gap Exists Between IT Infrastructure and Physical Infrastructure

Building Management



Data Center Infrastructure



IT Management



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Companies lack cohesive management strategy for data center infrastructure

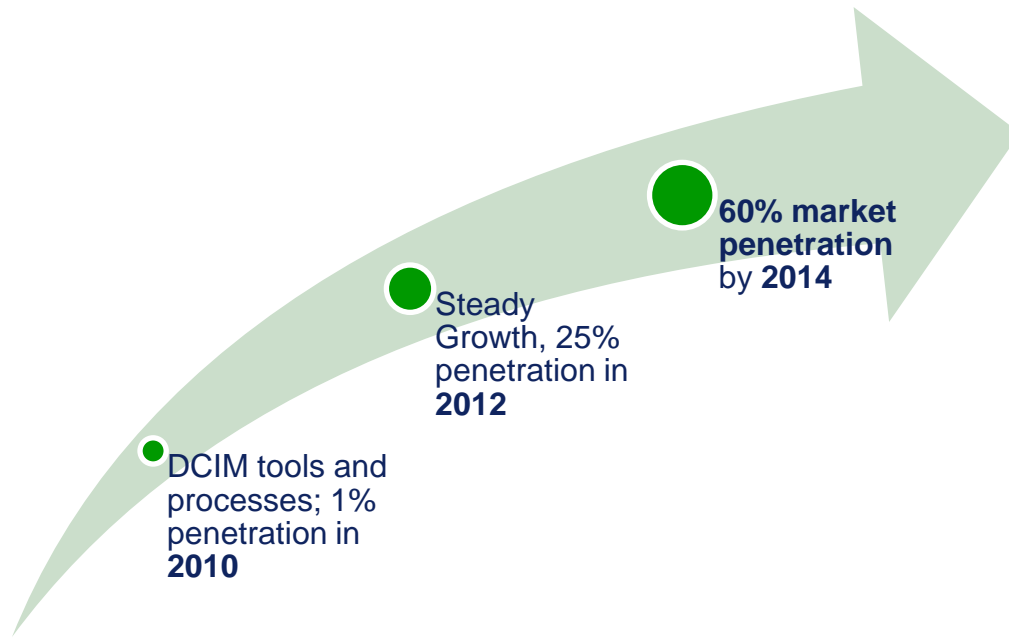


# DCIM Adoption (Gartner)

“By 2014, DCIM tools and processes will become mainstream in data centers, growing from 1 percent penetration (in 2010) to 60 percent.

To take advantage of the benefits as they evolve, I&O leaders should begin the DCIM evaluation process in 2010 and 2011”

-- *David Cappuccio, managing vice president and chief of research for the Infrastructure teams with Gartner, DCIM: Going Beyond IT problems*



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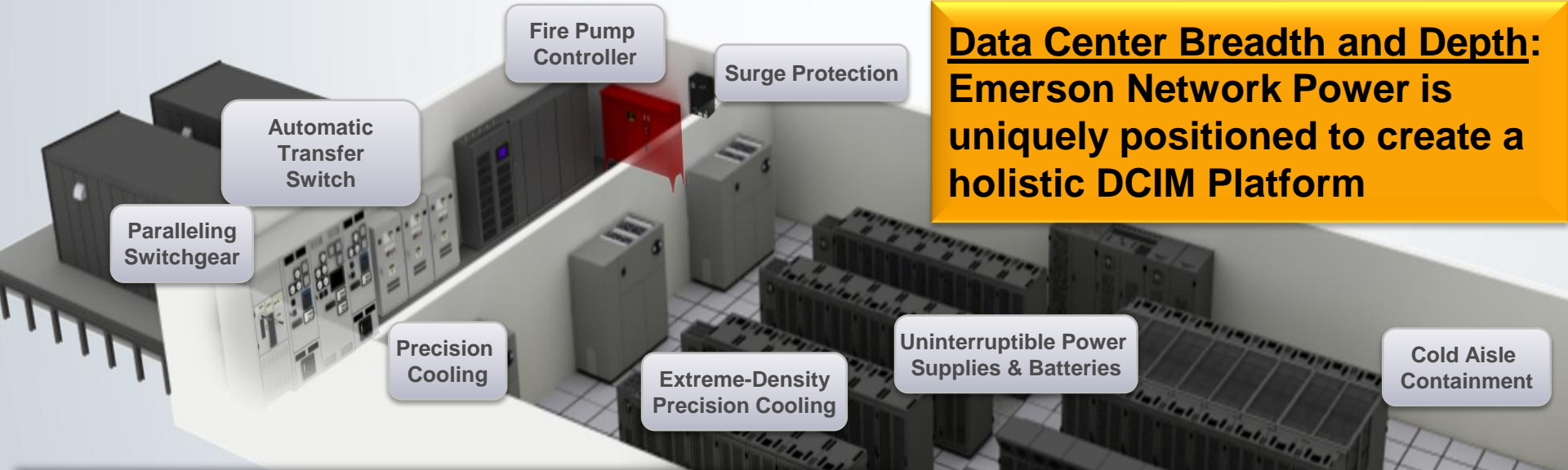
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# Data Center Breadth and Depth: Emerson Network Power is uniquely positioned to create a holistic DCIM Platform

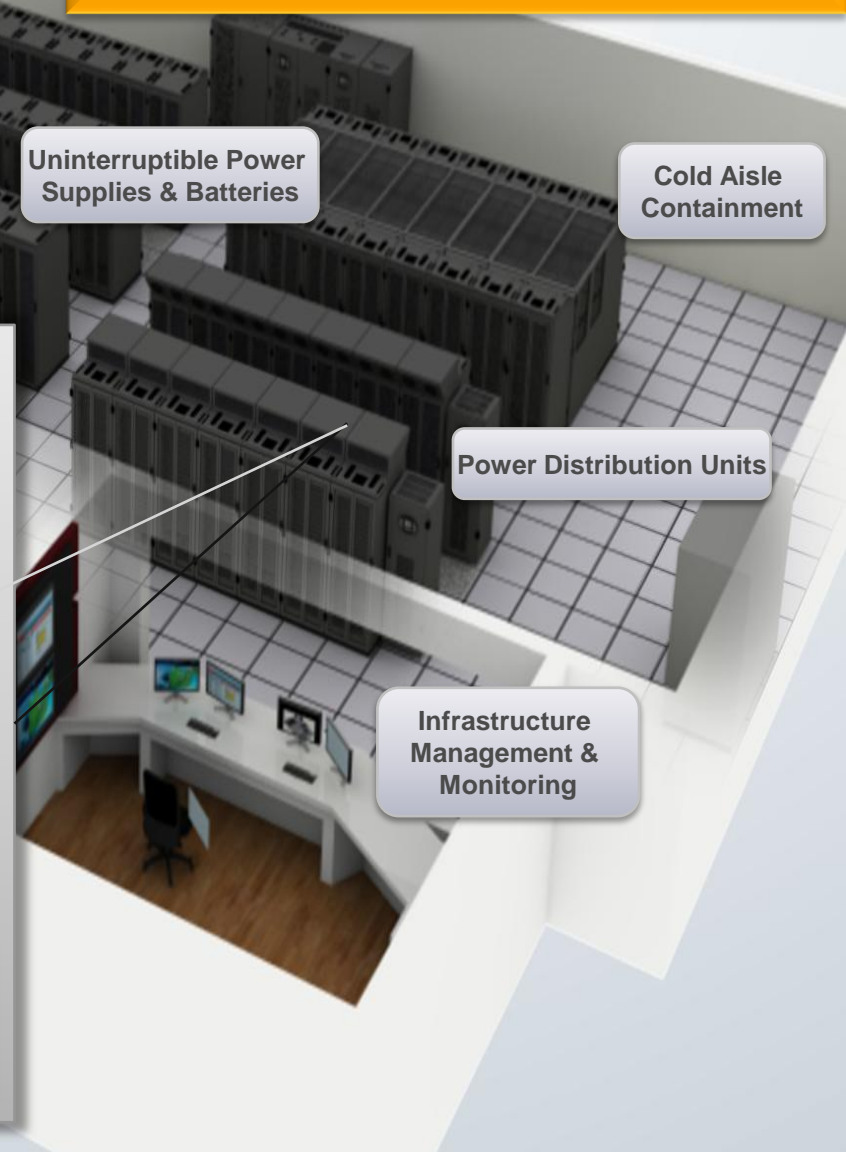


## Integrated Racks



Rack

- Cooling
- Power Distribution Unit
- KVM Switch
- Serial Console Switch
- UPS
- Monitoring
- Power Supplies
- Service Processor Firmware



# Stages of Data Center Infrastructure Management

## Data Capture and Planning

- What and where are assets in the data center?
- How are they interconnected?
- Do we have space, cooling and power to meet future needs?
- How can I efficiently commission decommission?

Improved Planning

## Monitor and Access

- How are my assets operating?
- Am I getting real-time notification of alarms and alerts?
- How do I get my server back up and running?
- Can I populate my planning tools with actual performance data?

Early Warning  
(Reactive)

## Analyze and Diagnose

- How do I extend the life of the data center?
- How do I reduce mean time to repair (MTTR)?
- How do I synch infrastructure with virtualization automation?
- How are we doing against SLAs?

Reduced MTTR  
and Effort

## Recommend and Automate

- How do I anticipate potential failures and automatically shift compute and physical load to eliminate downtime?
- How can I optimize efficiency across my data center?

Availability at  
Optimal Performance  
(Proactive)

Different Entry Points Based On Customer Requirements

# Emerson's DCIM Software Solutions Today

Data Capture and Planning	Monitor and Access	Analyze and Diagnose	Recommend and Automate
Aperture Suite Avocent Data Center Planner (formerly Avocent Mergepoint Infrastructure Explorer) Services	Liebert Nform Liebert SiteScan Avocent DS View Services	Aperture Integrated Resource Manager Services	<b>Emerson's Future Solution</b>
Improved Planning	Early Warning (Reactive)	Reduced MTTR and Effort	Availability at Optimal Performance (Proactive)

**Customers Can Start With Emerson Today Knowing They Have a Path to the Future**

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# The Next Challenge: Dynamic Infrastructure Optimization

## MEETING DEMANDS OF THE BUSINESS REQUIRES RETHINKING DATA CENTERS FOR OPTIMIZED PERFORMANCE

FORRESTER®

“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

“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.**”

 IDC  
*Analyze the Future*

“In heterogeneous data centers, **optimization** is the key issue in the market. A **holistic approach** is required for sustainability.”



# ***Dynamic Infrastructure Optimization***

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## **Dynamic**

“..of or relating to physical force or energy”

## **Infrastructure**

“the underlying foundation or basic framework

## **Optimization**

“an act, process, or methodology of making something (as a design, system, or decision) as fully perfect, functional, or effective as possible”

**Goal: Smarter decisions**

# *The Future Requires a New Platform Combining the Best of Emerson Technologies*



# trellis

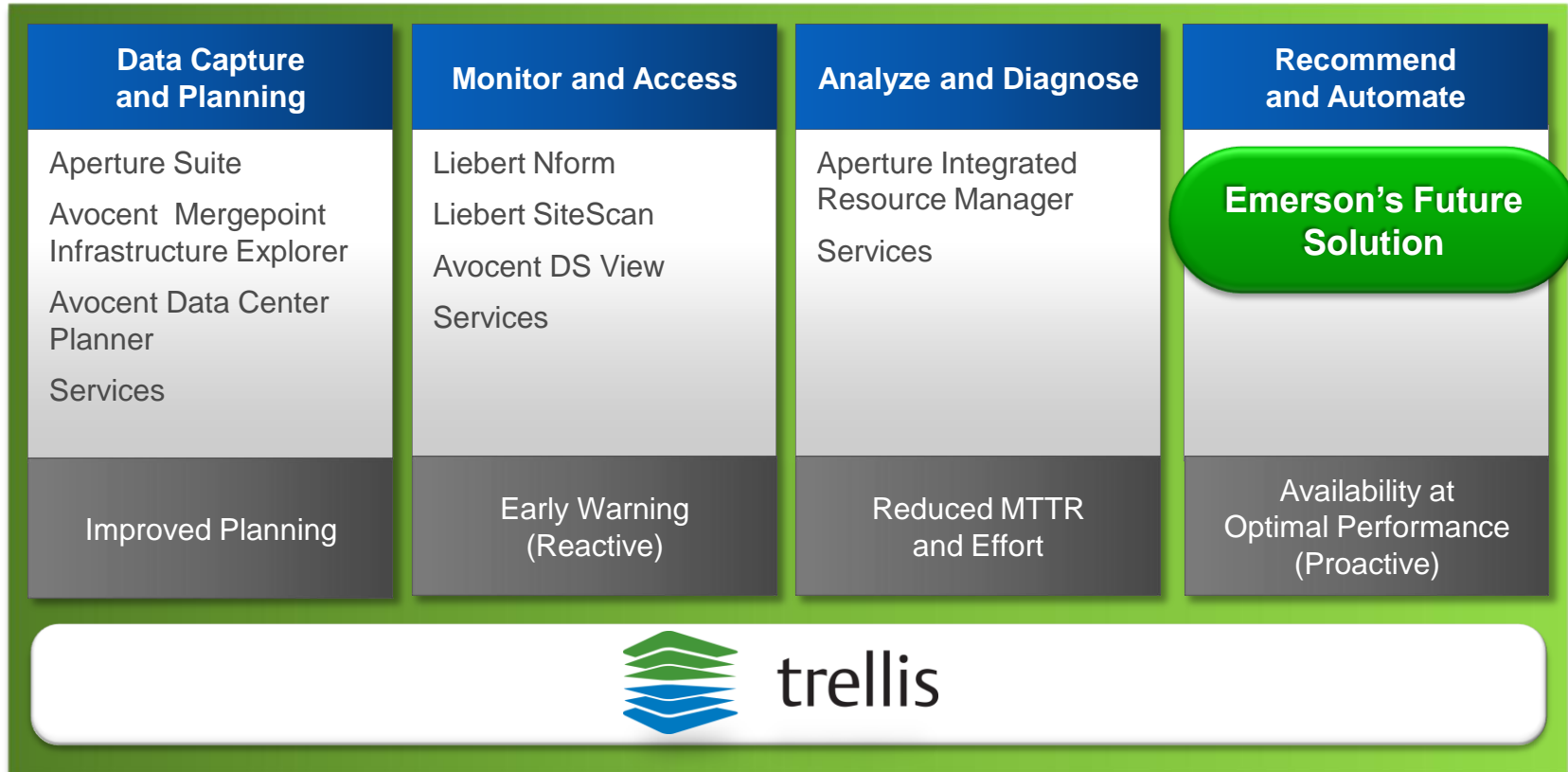
## **Trellis**

*dynamic infrastructure optimization platform*

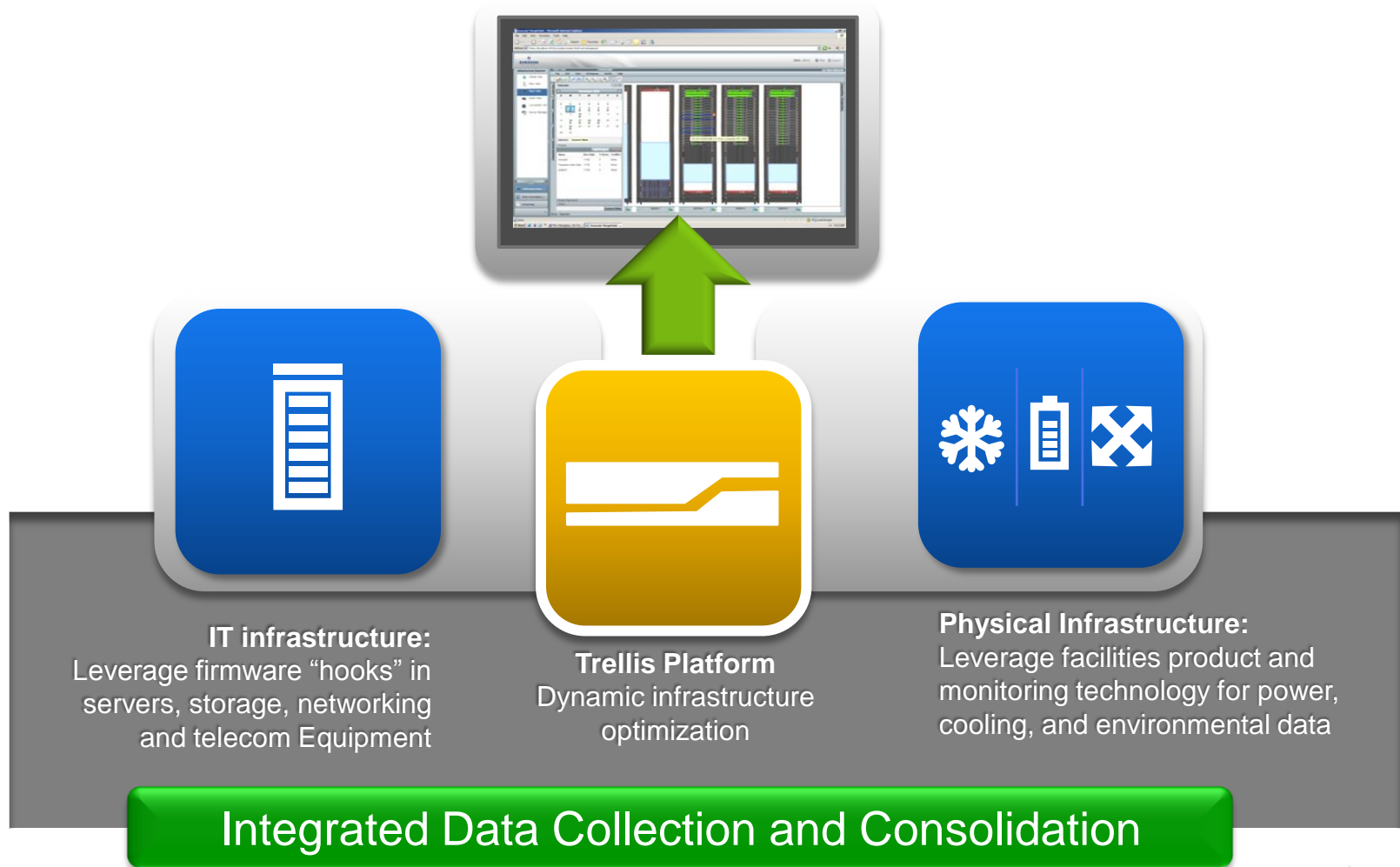
The first holistic data center infrastructure management (DCIM) platform of hardware, software and services to bridge the critical gap between IT equipment and data center physical infrastructure.

# Emerson's DCIM Software Solutions with Trellis

The Trellis platform will be the most comprehensive DCIM solution in the market



# What Trellis Is: Bridging the Gap Between IT and Facilities





# How Trellis Works: Hardware, Software and Services Working Together



Inventory

Configuration

Operations

Change

Monitoring

Facilities

Access

Trellis Software Modules

Data  
Consumption



Trellis Appliance



Power



Cooling



IT Equipment



Battery Monitors



Meters



Sensors



Environmental  
Monitoring

Data  
Collection

Data Center Assessment, Design and Integration Services





## **Trellis: Providing a Scalable Foundation for Growth**

- Integrates with existing Emerson Network Power DCIM solutions and well as other vendors' solutions
- Provides the structure to grow your DCIM solutions “up and out”
- Existing Emerson Network Power DCIM solutions will migrate seamlessly into the Trellis platform, allowing current Avocent, Aperture and Liebert customers to keep moving forward from whichever point on the maturity model they began from





## **Trellis: One Source of Truth**

- Integrated, real-time visualization, analysis and control across IT equipment and physical infrastructure
- Enables smarter decisions and greater capacity utilization
- Stakeholders can slice and view information from the most illuminating vantage, pulling information from a common repository – one source of truth

## ***A World with Trellis Means...***

- A single system to let you troubleshoot problems across the IT and facility infrastructure.
  - **VERSUS:** Going to multiple systems and correlating the information manually to determine what is causing the problem
- The ability to know what impact even simple changes will have to your infrastructure before you make them
  - **VERSUS:** Being able to make only an educated guess at the impact of changes
- Being able to use real-time information in a real-time manner
  - **VERSUS:** Using real-time information for only historical trending

Trellis enables **smarter decisions** and get further control over the data center infrastructure, which will lead to:

- Increased capacity utilization
- Improved efficiency
- Maximized availability

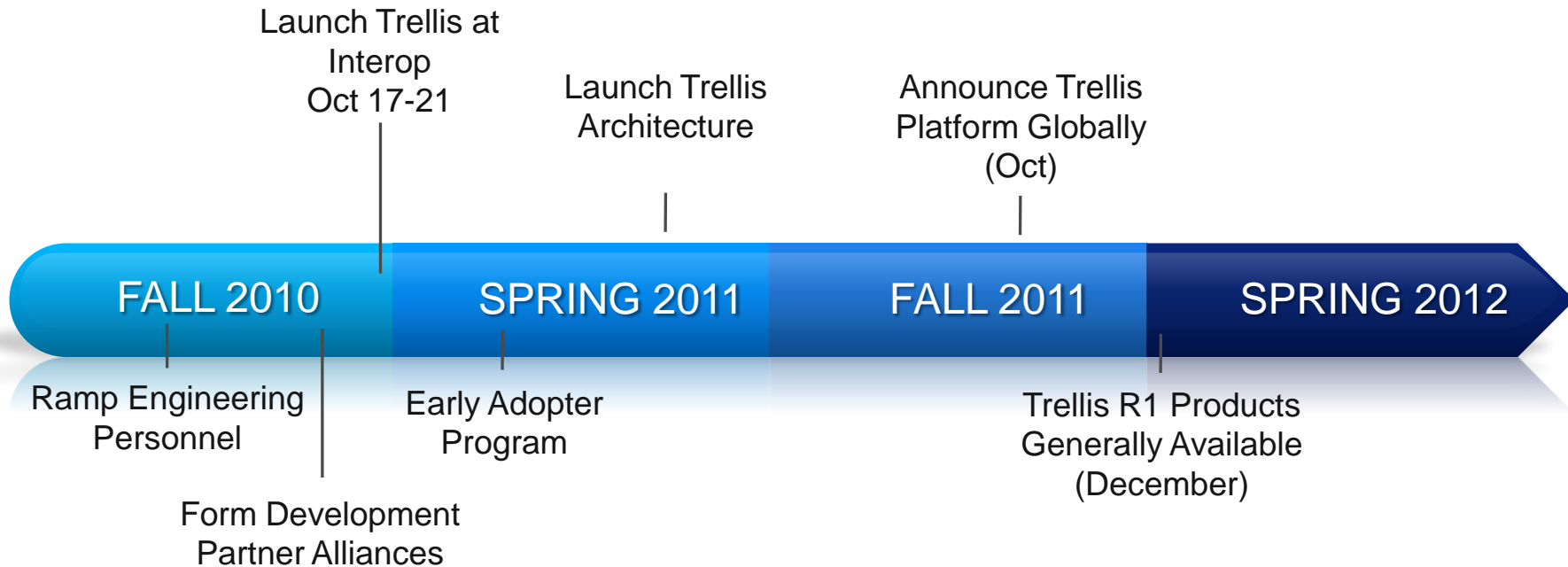


## *The Development of Trellis*

- Emerson invested over \$1.2 billion in the Avocent acquisition to strengthen our position in this space (2009) in addition to the investment to acquire Aperture, a leader in enterprise data center management software (2008)
- Realigned organization to create a business focused on Data Center Infrastructure Management (2010)
  - Cross-divisional development team pulls the best practices from all existing Emerson solutions
- DCIM-focused business led by the former Emerson CIO
  - recently completed a global data center consolidation project
  - brings a deep, first-hand understanding of the challenges CIOs and data centers
- Trellis requirements driven by Executive Advisory Board inputs
  - Executive Advisory Board composed of Chief Information Officers and Vice Presidents of facilities or operations

**\$1.2 Billion Investment in DCIM Shows Focus and Commitment**

# Trellis Platform Timeline



Existing Products and Expertise Allow for Rapid Delivery of Trellis to Market

# ***Trellis Could Save Businesses More Than \$10 Billion***

- Data center managers typically reserve 20 percent or more of their power system capacity as a buffer against overload
- Virtualization has added to the uncertainty—and increased the size of the buffer in some cases
- According to Emerson calculations, if every U.S. data center could utilize 10 percent more of their capacity, the need to build more than 2 million square feet of new data center space could be eliminated each year

U.S. businesses stand to save more than \$10 billion through improved data center infrastructure management.



# Data Center Infrastructure Management (DCIM) Dynamic Infrastructure Optimization

## Management of a Scalable Heterogeneous Environment

Holistic Data Center Infrastructure Management (DCIM) platform of hardware, software and services to bridge the critical gap between IT equipment and data center physical Infrastructure

**Inventory • Configuration • Operations • Change • Monitoring • Facilities • Access**



- Aperture Capacity Manager
- Aperture Configuration Manager
- Aperture Infrastructure Process Manager
- Aperture Integration Manager

- Liebert® Nform™ Software
- Liebert SiteScan® Web Software

**Simply Manage Complexity**

- Minimize risks associated with change
- Increased visibility for informed decision making
- Consolidate control over facilities and IT infrastructures
- Proactively manage an increasingly dynamic environment
- Reduce cost of achieving service levels
- Improve productivity of people and processes

**Optimize Infrastructure with Confidence**

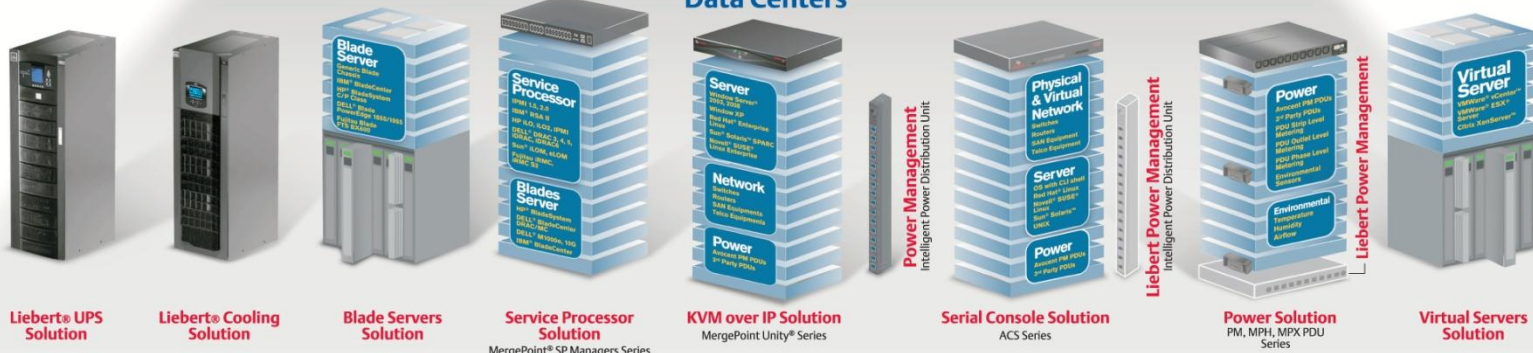
- Maximize infrastructure investments
- Improve efficiency without added risk
- Dynamically adapt data center infrastructures without increased cost
- Plan and manage capacity in real time
- Ensure availability of business-critical services
- Extend functional life of existing infrastructure

**Dynamically Scale And Extend Across A Common Platform**

- Integrates real-time information from disparate systems
- Transforms data into actionable and contextual information
- Extensible via standards based web API's and connectors
- Integrated, scalable architecture for best-in-class hardware and software solutions. Infrastructure agnostic



### Data Centers



# Questions??

