Data Center Infrastructure Management
Creating The Efficient Converged Data Center

- How to manage IT and facilities infrastructure
- Advantage of a holistic approach
- Architectural requirements
- Trellis – a new concept and solution for DCIM

February 2013

Wolfgang Goretzki, Product Marketing Manager EMEA
wolfgang.goretzki@avocent.com
Today`s DCIM Solutions

DSView 4
- Remote management of IT (access & control)
- Universal Management Gateway
  - Next generation KVM/Serial/SPM in one appliance
  - Access and control for the data center
- ACS advanced Console Servers
- MPU KVM-over-IP Switches
- Open framework: scalability and standards support

Data Center Planner 4
- Plan and manage data center inventory
- Real power values, Spanish language support

Aperture
- Manage data center inventory and processes
- New functionality for capacity planning, dashboards and reporting

Rack Power Manager
- Monitor & manage real time data center power
- Dashboard, history, and trend views

Liebert SiteScan Web
- Quick equipment assessment and corrective action
- Trend reporting and capacity management
- Reduce risk of downtime and staffing requirements through centralized monitoring and control
Traditional Model: Integrate Products

- Workflow
- Assets
- Change Management
- Capacity Planning
- Monitoring
- Access & Control
- Reporting
New platform

Real Time Fabric
Ability to sense, detect, and respond to changes in the Data Center in real time.

Whole Product Design
Hardware and Software engineered together to maximize performance and availability.

Context Driven Applications
Role based applications providing an integrated view into IT and Facilities Assets.

Cloud Enabled
Multi-Tenant Architecture provides relevant information to all users.
Scale Aggravates Everything

Infrastructure Costs  Impact of Outage  # of Activities

TIME

CLOUD  x100

VIRTUAL SERVERS  x10

PHYSICAL SERVERS  x1

INFRASTRUCTURE DATA POINTS

EMERSON
Network Power
Visibility Requires an Integrated Approach

Universal Management Gateway
- Heterogeneous Communication
- Bi-Directional Communication
- Collect data from devices
- Multiple Protocol Support
- Real-Time Collection
- Support Environmental Sensors
- Connect to Service Processors
- Thresholding and raising alerts
- Aggregation of data values

DCIM Platform Applications
Universal Management Gateway

Common Services
Applications
Dashboard

Event Distribution Network

Communications
Data Points
Analysis CEP
Element Library Framework
Protocol Libraries
Physical Connections

Time Series Database

Protocol Libraries
Modbus, Velocity, SNMP, BACnet

Modbus, Velocity, SNMP, BACnet

UPS, PDU

Storage, Switch, SP / Server, Virtual

Site Link, CRAC

Complex Event Processing

Site
Link
CRAC
UPS
PDU

Storage
Switch
SP / Server
Virtual

Modbus
Velocity
SNMP
BACnet

Emerson
Network Power
Add More Value

CURRENT POINT PRODUCTS
- PM Rack PDU for intelligent power distribution
- KVM
- Console Server
- Service Processor Mgr.
- RDU

FUTURE SOLUTION
- Universal Management Gateway
- KVM-over-IP
- Manages Windows servers and IPDU
- Console Server
- Manages Linux/Unix servers, serial devices, and RPDU
- Service Processor Mgr.
- Manages service processors
- RDU
- Manages rack sensors/environmental
- INFRA-structure Data

(Facilities Infrastructure Monitoring: Power Chain/Environmental/Security)

SENSORS

NETWORK

SENSORS (Physical Sensor Monitoring)
Heterogeneous Support

- **Trellis intelligence engine**
  - Device discovery via multiple industry protocol support (BACnet/Modbus/SNMP/Velocity)
  - Bi-directional communication – Facilities device control

- **Heterogeneous service processor support**
  - Support for a wide variety of SPs
  - Auto-discovery of SPs
  - Embedded KVM
  - Serial over LAN (SoL) traffic logging
  - Platform sensor monitoring and alerting
Platform Strategy
See - Decide - Act

Visualize all critical data center information and know the real situation (in real-time or historical trending)

Make well-grounded decisions, based on a 360 degree view of the critical infrastructure

Take actions with confidence and immediately validate the effects of their actions, assessing the impact on data center infrastructure
Unique Capabilities

- All facilities and IT data in one location
- Real-time analytics
- Intelligent elements (auto characteristic recognition)
- Interactive one-line diagram from generator to rack
- Real-time redundancy evaluation for power infrastructure
- Event timelines (as opposed to single points in time)
- Complex event processing
Benefits

Availability
- Predict outage risks
- Monitor facilities / IT dependencies
- Automate impact analyses
- Reduce MTTR
- Eliminate risk with root cause analyses
- Identify redundancy gaps

Efficiency & Cost
- Minimize energy consumption
- Understand IT services TCO
- Optimize resource utilization
- Improve process efficiency
- Centralize IT equipment access

Capacity Planning & Agility
- Understand data center asset inventory
- Plan future IT services
- Optimize IT resource deployment
- Model deployment scenarios
- Reduce vendors

Compliance
- Control / log IT systems access
- Control physical access to data center
- Meet government / industry energy efficiency standards

Simplify complex eco-system management
**Where does this fit?**

<table>
<thead>
<tr>
<th>Layered Model</th>
<th>IT Infrastructure Library (ITIL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layers</td>
<td></td>
</tr>
<tr>
<td>2-7</td>
<td><strong>bmc software</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Capacity Mgt</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Service Mgt</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Problem Mgt</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Release Mgt</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Incident Mgt</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Change Mgt</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Config Mgt</strong></td>
</tr>
<tr>
<td></td>
<td><strong>IT Service Delivery</strong></td>
</tr>
<tr>
<td></td>
<td><strong>IT Service Desk</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Layers</th>
<th>Data Center Infrastructure Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td><strong>EMERSON</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Remote Access</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Network Power</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Energy Management</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Availability Mgt</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Operations</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Inventory Tracking</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Alerting</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Change Planning</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Tracking</strong></td>
</tr>
<tr>
<td></td>
<td><strong>treliss</strong></td>
</tr>
</tbody>
</table>
Innovation Pathway

15-May-2012
**Emerson auf einen Blick (2012)**

Umsatz: $24.4 Milliarden

- Produktions- und/oder Vertriebsstandorte in mehr als 150 Ländern
- 235 Produktions-Standorte
- No. 120 auf der 2011 FORTUNE 500 Liste Amerikas größter Unternehmen
- Gegründet 1890

Unternehmenszentrale: St. Louis, Mo. NYSE: EMR

Diversifizierter globaler Hersteller und Technologie-Lieferant

Ca. 135,000 Mitarbeiter weltweit
Emerson Network Power Portfolio

- Automatic Transfer Switch
- Paralleling Switchgear
- Fire Pump Controller
- Surge Protection
- Uninterruptible Power Supplies & Batteries
- Precision Cooling
- Extreme-Density Precision Cooling
- Infrastructure Management & Monitoring
- Power Distribution Units
- Cold Aisle Containment
- Integrated Racks
- Rack
- Server power supplies
- KVM Switch
- UPS
- Cooling
- Power Distribution Unit
- Monitoring