Community, Convergence, & Collaboration from Cloud Data for BAS.

Tuesday Jan. 29, 9:00 am

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News Resources Products Education About

Welcome to Dallas AHRExpo
2013 Trends and Direction of Smart Green Building Automation

This unique venue/arena supplied by International Exhibition allows us to take our online service/magazine off line and Face 2 Face with you.

4 Free Sessions on

Our Changing Industry and Connection Communities for BAS
Speakers - Jim Sinopoli & Ken Sinclair
Monday, Jan. 28, 9:00 – 10:00 am

Market Trends for Integrated and Intelligent Building Systems
Speakers - William Rhodes, Market Analyst, & Ken Sinclair
Monday January 28, 1:30 – 2:30 pm

Community, Convergence, & Collaboration from Cloud Data for BAS.
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Why we need to be part of several Connection Communities
Ken Sinclair, Moderator with Various Industry Leaders
January 29th, from 2:00 - 3:30 pm.

Open Connection Communities

My overall takeaway from AHR Expo 2012 Chicago was the growing importance of being part of several strong Open Connection Communities. Who we are connected to and the value they bring to our products and services defines who we are and likely who we are to become. Open Connection Communities will shape building automation's future.

Convergence and Collaboration from Cloud Data

It has never been clearer that the true convergence and anywhere collaboration that we all seek will be found in a cloud. The marriage of social media as data and its embedded human opinion will seamlessly mesh with real time data, shoulder to shoulder in large databases in a concept now being billed as Big Data or Data as a Service “DaaS”.

Big Data from Building systems must learn to share well with others

We Need to use the common semantics from Project Haystack as a common ontology for our big data. It will be mandatory to share with the Big Data from the IOT… Internet of Things.

Haystack Connect 2013
A New Industry Event

http://haystackconnect.org/

Cloud Control and the evolving Cloud Control Languages "CCL"

Building to Cloud to Building "B2C2B" will revolutionize Building Control as the control languages of DDC did in the early 1980's. It will allow new relationships and interactions to be created with internet's

anywhereness and everybuddyness

Legacy Building Automation Systems Integration to the Cloud

I wanted to find out if this is a real market direction, get a feeling if there was a predominant standard being used, and get a handle on how quickly the demand is growing.

It was a bit of an experiment to see if LinkedIn Groups could effectively be used to gather market research.

From interview Feb issue Steve Jones S4

New Rhodes; cloud based building analytic services gain traction

* *May 2012, we saw the (GSA) announce it would be retrofitting 50 of its highest energy consuming buildings with cloud based integrated and intelligent technologies*
* *Use of cloud computing in conjunction with big data could change the tide for building analytics vendors in 2013*
* *We anticipate cloud solutions (amongst other drivers such as carbon taxes, rising cost of energy and reducing operational overheads) will facilitate an increase in installations of intelligent solutions in small building in 2013*
* *From interview Feb issue Will Rhodes IMS*

Future Building

As we transition to more complex, higher performing, and energy efficient buildings, it is apparent that traditional building management systems are not up to the task of monitoring and managing today's building operations.

What are the shortcomings of the legacy BMS?

The list is quite long but the major items include limited integration capabilities, inadequate and elementary analytic tools, proprietary programming languages, a dearth of software applications and legacy user interfaces.

Cloud Vs Own

Pros

* Pros
* Easier to maintain
* Convenient
* Scalable
* More secure
* Low set up cost
* No need for technological or security expertise
* Accessibility and collaboration

Cons

* Cost effectiveness Own vs. Cloud
* Losing control
* Internet capacity to transfer files
* Fear of unavailability
* Data ownership and data exchange.

Case Study - Microsoft

* Redmond campus
* Corporate mandate of energy management
* FDD Deployment
* Discover faults and aspects of their HVAC system they were not aware of

Microsoft Project Overview

Corporate Campus

* 118 buildings with 14.9 million sq. ft. of office space
* 50% of MS's global real estate portfolio.
* 30,000 pieces of mechanical equipment
* 7 major BMS
* Average daily consumption of 2 million kWh of energy

Pilot Phase

* 13 buildings
* 2.6 million square feet
* About the same floor area as the Empire State Building
* Age of the buildings varies from over 20 years old to almost new.

Microsoft Results - FDD

* Engineers saved significant time in addressing operational issues.
* Tool provided information for a remedy and corrective action of fault
* Faults were "monetized".
* Microsoft's typical 5-year retro-commissioning cycle accomplished in just one year.
* Annual energy cost savings for Microsoft exceeded $1 million.

Quote from Microsoft:

"demonstrates that a smart building solution can be established with an upfront investment of less than 10 percent of annual energy expenditure, with an expected payback period of less than two years"

MICROSOFT

Illustrative example of fault detection and diagnosis output (simplified)

Building	Bldg. Cluster	Equipment	Fault and Diagnosis	Priority	Estimated Savings*
Bldg 58	Cluster E	AHU - 012	Leaking chilled water value	High	$11,291
Bldg 58	Cluster E	AHU - 003	Damper position fault	High	$4,782
Bldg 53	Cluster E	VAV - 022	Over cooling	Hign	$2,235
Bldg 58	Cluster E	CHI - 002	Changes to set points	Medim	$895

* Estimated savings potential, expressed an annual cost of wasted energy if not fixed.

San Francisco Public Utility

Commission Headquarters, Integrated Building Management System (IBMS)

- 277,000 sq. ft.
- LEED Platinum
- 45% daylight harvesting
- 55% percent less energy
- 32% less electricity demand
- 3 roof tops of solar panels
- Water Reclamation system
- Wind turbines
- 13,500 data points
- 460 Dashboards
- Middleware

Systems & Applications

Building Systems

* Conveying Equipment
* Irrigation System
* Waste Water Treatment System
* Direct Digital Controls
* Digital Network Lighting Controls
* Power Monitoring and Control System
* Communications
* Electronic Access Control & Intrusion
* Digital Video Surveillance System
* Fire Alarm and Detection System
* Solar Energy Collector Metering
* Wind Energy Electrical Power Generator Metering
* Interior and Exterior Sun Control and Window Shade Control System
* Seismic and Weather Station Monitoring System
* Window Washing System
* Water Reclamation
* Domestic Hot Water

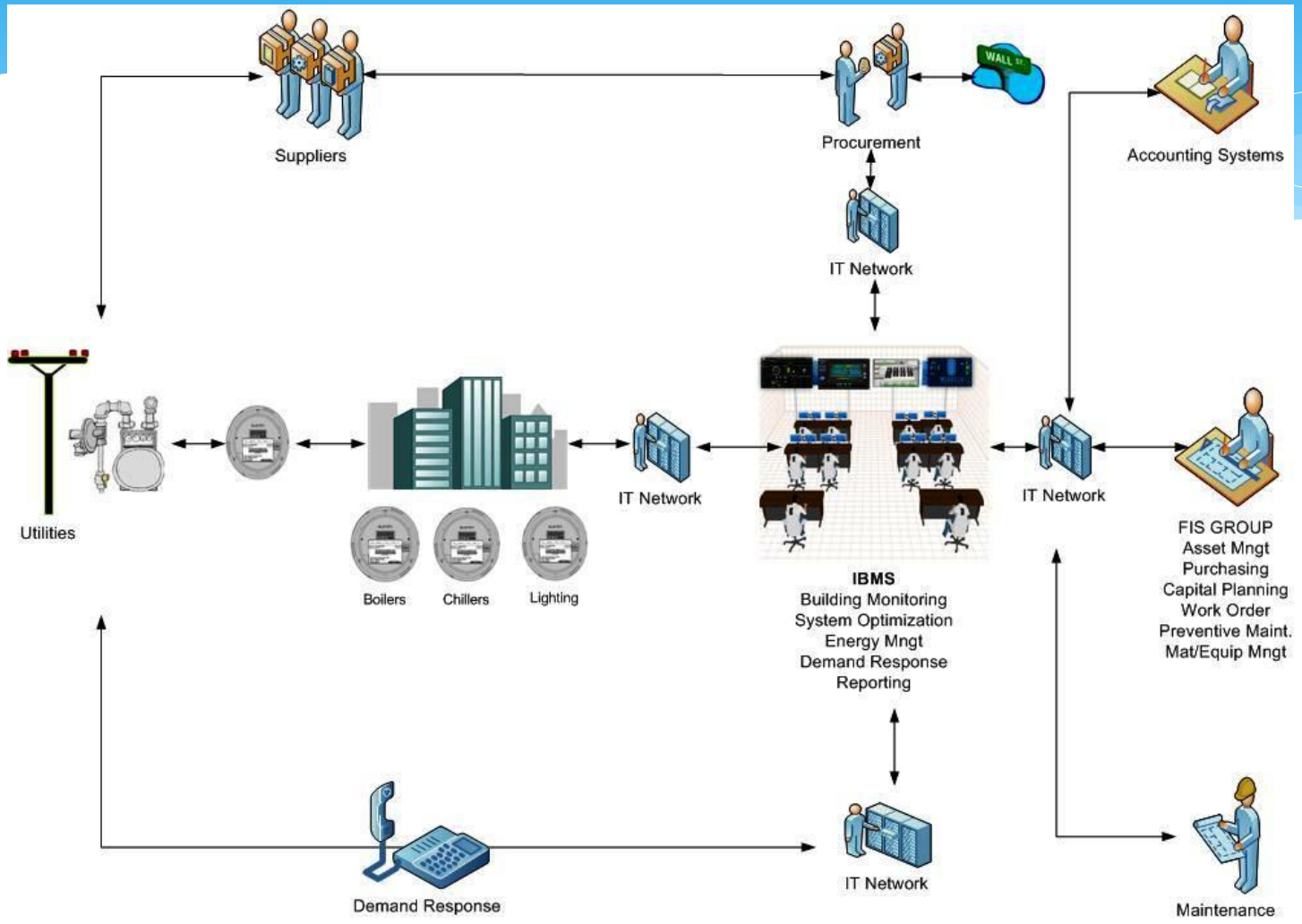
Major Applications

* System Scheduling
* Trend Analysis
* Data Archiving
* Energy Management
* Demand Response
* Building Analytics /Fault Detection And Diagnostics
* Energy Information and Public Information Dashboards

Portfolio of Existing Buildings Major Healthcare Company

- 150 Sites, 50M Sq. ft.
- Expenditures of over $200M annually on electric power and natural gas
- Goals:
  - Reduce Demand
  - Reduce Costs of Supplies
  - Standardize Operations
- Solution: A Energy Operations Center

Energy Operations Center (EOC)



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Additional Resources
"SMART BUILDING SYSTEMS FOR ARCHITECTS, OWNERS, AND BUILDERS"
ISBN 978-1-85617-653-8

Gridwise Education Sessions

Smart Buildings Meet Smart Grid Meet Smart Money

Monday, January 28, 10:30am - 12:30pm Room D174, Dallas Convention Center

Next Generation BAS and Integration with the SmartGrid
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GridWise™ Architecture Council (GWAC)