Integration of Real Time Relevant Data

Ed Merwin
Director, VYKON Automation Energy Security
Tridium, Inc.

Agenda

- Technology Considerations
- Data Presentation and Acquisition
  - Dashboards, Diagnostics, Analytics
- Actionable Data from Intelligent Buildings
  - Moving & Updating Data
- Real Projects – Real Value
IT and Data Security

- Security Standards and Certification
  - DIACAP
  - Payment Card Industry Data Security Standard (PCI DSS)
  - Secure Sockets Layer (SSL)
  - Transport Layer Security (TLS)
- Encryption

Mobile Apps

Mobility Graph

- Growth in mobile devices from 2010 to 2015
- Data transmission methods: GPRS, 4G, 5G
Emerging Technologies

- **IPV6**
  - Expanding the IP address space
- **IPSO Alliance**
  - IP for smart objects
  - IT and Buildings Industry Partners
- **Internet Of Things**

Stakeholder’s Perspective

**Site Maintenance**
- Multiple systems to maintain
- Need productivity tools for day to day work
- Easy migration of legacy systems
- Limited training time!
- Reduce operating costs
- Maintain high quality service levels
- Department coordination
- Enterprise integration for business processes

**Energy**
- Develop energy saving strategies
  - Identify/monitor energy usage
  - Reduce operating cost
- Deal with utilities, bills, rates
- Allocate costs or bill tenants

**IT/ Security**
- Network / Server uptime
- Data security & integrity
- Physical Security
  - Access control
  - Video surveillance
- Save energy consumption in datacenters

**Consulting Eng.**
- Open protocol systems
- Reliable solution
- Choice of vendors
- Easy to specify systems and verify operation

**Owner/ CFO**
- Planning & Budgeting
- Control operating costs
- Need proven ROI for spending
- Peace of mind!
What's a dashboard?

• A well-engineered representation of data that fits the mission
• Data and artwork that …
  – Gets Attention
  – Tells a Story
    • At any appropriate location
    • Using any appropriate technology
    • To the right audience
    • With the right metrics, KPIs

787 Dashboard
Role Based Dashboards

Commuter

Tony Stewart

Role Based Information

CFO

Sustainability Officer
Location Based Dashboards

GETTING DATA
Getting Data

• Database to Database
• Web Services, Drivers (Connectors)
  – XML
  – OBIX
  – Haystack
  – Queries
• Mobile
  – Email, Text, Tweet, Apps

From boiler room to board room - Data brings value to your operation
Energy Management & Financial Information

• Connect
• Manage
• Analyze
• Detect

• Getting more granular with sub-metering
• Find the Spark before the Fire

Leverage Technology & Value

Card Access, Event Scheduling

Weather, Leaks

Weather, Demand Response

Pilferage, Food Safety

Vandalism, Leaks
Video Integration - Transformer Vault

- A set of “eyes” to look at a high risk area before entering

IN=13,804 V
OUT=480 V
138 Deg

84.6 Deg

Data to Intelligence

Natural Gas is trending higher YOY for 3 weeks
REAL PROJECTS – REAL VALUE

C-Store

Business Intelligence Applications

Analysis
Promotions
Inventory
Store Traffic

Energy Management

Internet

Equipment Control, Monitoring & Diagnostics
Cooking
HVAC
Security
Lighting
Water
Refrigeration
Fueling Equipment
Irrigation

Benefits
• Energy & Operational Savings
• Reduced Equipment Downtime
• Reduced Risks
• Better Customer Experience
• Higher Profits
Manitoba Hydro Place

- LEED Platinum
- Manitoba Hydro Place has exceeded the original target of 60% energy savings
- $15 million in annual operating costs savings
- Integrated natural ventilation, shades, blinds, geothermal, atrium water feature

City of Raleigh

- HVAC, Lighting, Security, Video, Metering, Car Charging
- Increased Customer Satisfaction
- Lower Operational Cost
- Energy Visibility & Reduction
SFPUC

- LEED Platinum
- Exterior sun shades
- Natural ventilation with the use of operable windows
- Wind turbines along the façade
- Three roof top solar platforms with 684 panels
- 45% daylight harvesting
- Living machine wastewater recycling for flushing use
- Rain harvesting for irrigation

uses 55% percent less energy and consumes 32% less electrical demand than the ASHRAE baseline standard.

Jim Sinopoli-Realcomm Advisory

SFPUC IBMS

- 13,500 Points
- 450 Dashboards
- Rain harvesting for irrigation Elevators
- Waste Water Treatment System
- Direct Digital Controls
- Digital Network Lighting Controls
- Power Monitoring and Control System
- Fire Alarm and Detection System
- Solar Energy Collector Metering
- Wind Energy Power Generator Metering
- Interior & Exterior Shade Control System
- Weather Station Monitoring System
- Window Washing System
- Water Reclamation

- Public information & Education
- Demand Response
- Alarm management
- Building Analytics

Jim Sinopoli-Realcomm Advisory
Data Center/Telecom

Optimum Uptime – Reduced Risk

• Data Centers – Communications Huts
• Battery Power and Distribution
• Generation
• Server Racks
• Equipment Health

Daewoo

Daewoo Automotive

• Collecting data in real time from multiple meters and various equipment systems involved in the manufacturing and production operation

• Processing the data and calculating energy usage and costs for each vehicle

• Manage the energy efficiency on a per manufactured car basis
Conclusions

• Value of Integration from the CFO Point of View
  – Energy Savings
  – Operational Savings – M & O
  – Better customer service response
  – Lower Risk
  – Make SURE It Makes SENSE

• Energy efficiency, comfort, and safety are now a key component of facilities planning, design, and operation

• Think about what the technology, applications, and people can do for you and your ROI model.
  – If you can THINK it, you can DO it!

QUESTIONS
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THANKS!
Buildings have a profound impact on the quality of our lives and the world around us. The Niagara™ Framework® has changed how the world operates and manages buildings by transforming conventional facilities into true, intelligent buildings.

From systems including environmental controls, lighting, security and power distribution, to building utilities including electric, water, gas and solar, to facility services such as fault detection and diagnosis, maintenance management, continuous commissioning and remote command and control, Niagara™ is the foundation for creating Intelligent Buildings — ones that use less energy, have lower operating costs, are safer, contribute to a comfortable and sustainable environment and deliver significant ROI.

For a complete look how Niagara™ is making buildings intelligent, see the Intelligent Buildings video at tridium.com.

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