Benefits of a Connected System

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Booth 33
Benefits of a Connected System

- Compliments, and adds advanced functionality to existing infrastructure and systems
- Increased operational visibility
- Improved decision making
- Increased efficiency: reduces energy usage, costs, and CO2 emissions
- Provides predictive network behavior functionality
- Links usage data and billing to enhance customer experience
- Connectivity to additional systems & data sources
  - Sensors
  - Building automation systems
  - Business systems
  - Transfer data, reports to SCADA

55% Improved Visibility Projects
Success Story - UTA

UTA – The University of Texas, Austin - 3rd largest university campus in the USA

UTA Facts:
Consumers: 50,000  
Campus Buildings: 160  
Plants: 11  
Chillers: 4  
Piping: 9.7 km (~6 miles)  
Temperature: 3.9 °C (~ 39°F)

Project Goals:
- Reduce energy consumption and environmental impact  
- Improve contingency planning  
- Optimize expansion and maintenance  
- Ensure operational continuity and high level of reliability

Solution: District Energy Platform with a Connected System
- Access to real-time application for prioritizing production  
- Reduced overhead production costs  
- Optimizing system pressures and temperatures  
- Knowledge of impact of operational actions beforehand  
- Decrease in operational man-hours
Success Story - UTA
Vancouver based Creative Energy seeks remote monitoring solution for automated metering, customer retention, and more efficient system utilization.

**Project goals:**
- Automate system-wide meter reading
- Provide customers with visibility into energy usage and billing
- Enable mobile maintenance staff with real-time data on mobile devices
- Make generation facility data available outside the control room

**Project Requirements:**
- Customer Retention
  - Detailed explanation of real-time and historical usage information to backup monthly bill
  - Information should enable customers to make smart, energy saving investments
  - Customer portal for real-time viewing
- Automated Data Collection (Meter Reading)
  - Enhance existing infrastructure
- Connect with Building Automation System of customer
- Integration with District Energy provider’s billing software
- Fully interface and compliment energy generation control system
- Provide customer data into CE’s enterprise database for advanced analysis

“Based on the data being brought into our dashboard, I already see items that should be addressed in the Building Automation System.”
- Lori Parker, Operations Manager, on behalf of Creative Energy, 4 Hours after gaining access to DeviceLynk’s Actionable Intelligence
Success Story – Creative Energy
The Connected System

- Any Device
- Anyone
- Anywhere
- Any Industry

Anytime
Progression of a Connected System

1. Connectivity
   The foundation for all machines, systems, and people within the platform.

2. Visualization
   The delivery of actionable information to the people who need it.

3. Optimization
   Where machine learning, predictive analytics, and big data applications come into play.

4. Autonomy
   The platform is able to monitor, predict conditions or events, and take action.
The Platform Concept
The Platform Concept

![Diagram showing data sources feeding into platform common services.]
The Platform Concept

Data Source → Infrastructure → History → Processing → Delivery → Platform Common Services
The Platform Concept
The Platform Concept

Information Supports Decision Making

Applications

Platform Common Services

Infrastructure  History  Processing  Delivery

Data Source  Data Source  Data Source
Beyond the Platform

Connected System: Plant Distribution Network

- Weather Data
- Operations
- Engineering
- Optimization
- GIS / Billing System
- SCADA
- Predictive Analytics
- Enterprise Asset Management
- Historian
- Enterprise Manufacturing Intelligence
- Condition Management
- Operations
- Engineering
- Optimization
“Operating system” approach for applications & systems
Centralized configuration, communication, and connectivity between process and business systems
Controlled management of all aspects of operation and network – from generation facilities to customer sites
Scalable platform – link to existing systems, or add on additional modules for advanced functionality:

- Enterprise Asset Management (EAM)
- Historian
- Condition Management & Maintenance (CMMS)
- Enterprise Manufacturing Intelligence
- Manufacturing Execution System (MES)
- Mobility
- Workflow
- Decision Support
- Predictive Analytics
- Business Systems
Benefits of a Connected System

District Energy System Operator - Generation Facility
- Manage the network efficiently with fluctuations in demand and changing weather conditions
- Increased visibility provides improved decision making
- View key plant data remotely - without affecting production
- Reduce operations and maintenance risks and costs
- Fully optimize pressure, temperature, production to reduce production costs
- Forecast system behavior using real-time data

Mobile Workforce
- Save time and money by automating meter-reads
- Access to operational data any time, any where
- Early detection of malfunctioning / inaccurate equipment

Customer (building operator)
- Provides easy access to usage data via web portal
- Integrate BAS & usage data into a single dashboard
- Relate usage data to external factors (weather, etc...)
- Insight into service status & maintenance
<table>
<thead>
<tr>
<th>Feature</th>
<th>Percentage</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on Investment</td>
<td>Less than 18 months</td>
<td>Up to 10% Reduction of energy loss</td>
</tr>
<tr>
<td>Improved efficiency</td>
<td>76%</td>
<td>Up to 20% Reduced energy costs</td>
</tr>
<tr>
<td>Increased O&amp;M Costs</td>
<td>Between 25-49%</td>
<td>Reduction of O&amp;M Costs</td>
</tr>
<tr>
<td>Increased productivity</td>
<td>Over 75%</td>
<td>Up to 25% Increase in Operational efficiency</td>
</tr>
<tr>
<td>Reduction of CO2</td>
<td>Up to 20%</td>
<td>Reduction of CO2</td>
</tr>
<tr>
<td>Energy consumption</td>
<td>82%</td>
<td>Up to 20% Reduction of energy costs</td>
</tr>
<tr>
<td>Operational efficiency</td>
<td>76%</td>
<td>Up to 25% Increase in Operational efficiency</td>
</tr>
<tr>
<td>Productivity</td>
<td>76%</td>
<td>Up to 20% Reduction of energy costs</td>
</tr>
</tbody>
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Visit me at Booth 33 to discuss your journey toward a connected system!

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