OSIsoft®

USERS CONFERENCE 2016

April 4-8, 2016 | San Francisco

TRANSFORM YOUR WORLD

WELCOME

Facilities, Water, and Energy

Presented by **David Doll, Industry Principal**

Gary Wong, Industry Principal

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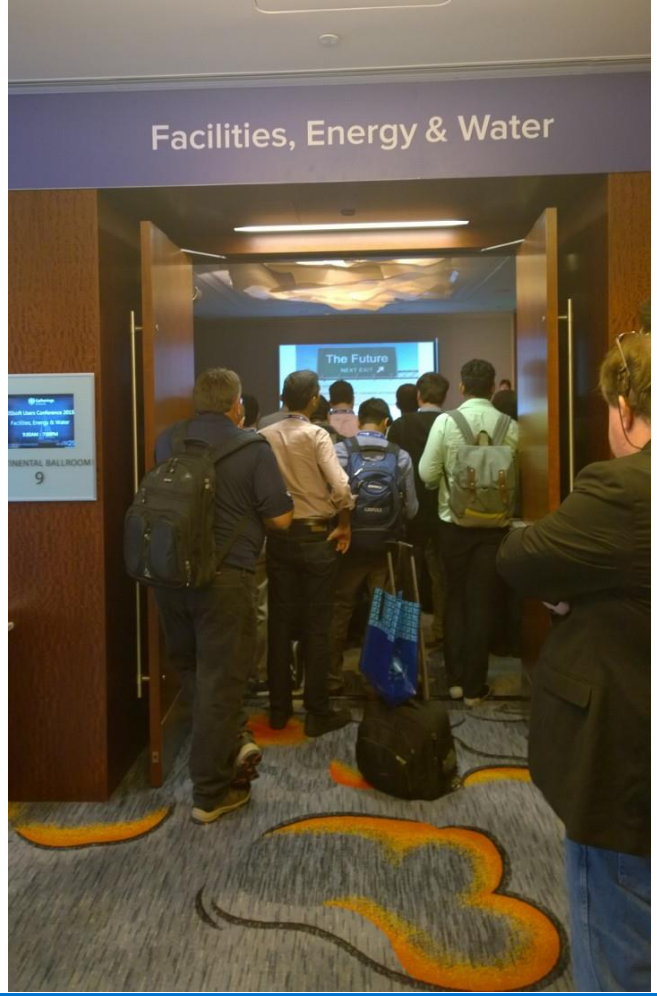
Agenda

- Welcome
- Business Challenges
  - Energy
  - Water
  - Facilities
- Summary for the day



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WELCOME to Day Two

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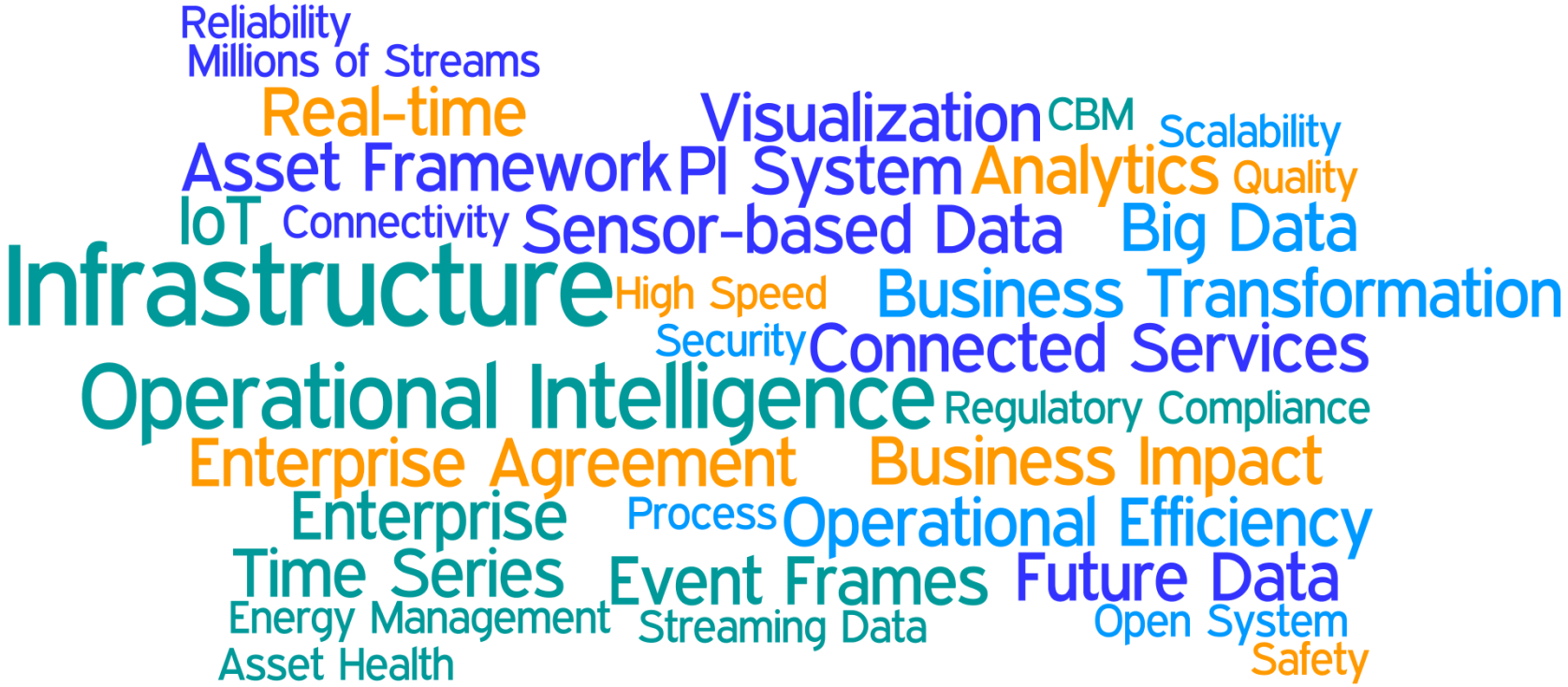
Conference Theme and Keywords



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Day One – Did you see…

- Transforming Your World
- Roadmap: Integrators and Coresight 2016
- Robert Ballard and finding the Titanic
- Discussion forums
- IoT, IoT, IoT

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Do not miss the IoT Zone

Located outside industry tracks on Wednesday April 6th

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Check out our exhibitors!

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Facilities and Water PI User Groups

Join to discuss best practices, white papers, share news, and exchange ideas.

Objectives:

- **Identify Best Practices**
- **Share knowledge and ideas across our industry**
- **Foster communication regarding our industry Needs**

This is NOT an avenue for sales presentations or marketing

Want to opt in?
https://pisquare.osisoft.com/groups/facilities
https://pisquare.osisoft.com/groups/water

Or contact jsirois@osisoft.com

Have questions?

- jsirois@osisoft.com – any user group
- ddoll@osisoft.com – Facilities Group
- gwong@osisoft.com – Water Group
- Visit the PI Square Booth

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Energy

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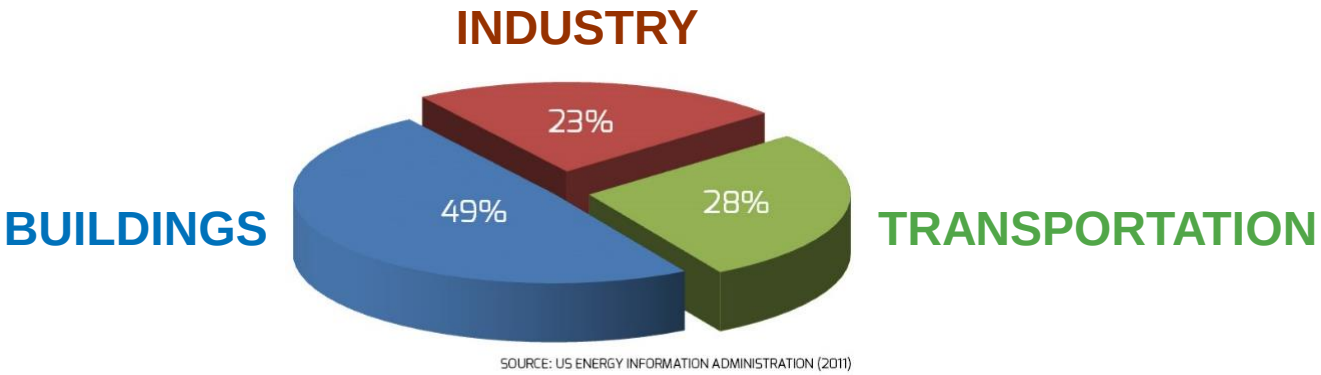
Energy Market Overview:

- 50% of all electricity in the US goes to building operations
- 25% goes to industrial uses
- An estimate 30% is wasted



(1) “Center for Sustainable Systems, University of Michigan. 2014. “Commercial Buildings Factsheet.” Pub. No. CSS05-0

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Energy Intensity and Potential for Improvement by Industry

INDUSTRY	ENERGY INTENSITY Energy Cost as Percentage of Total Product Cost	IMPROVEMENT POTENTIAL OECD Countries	IMPROVEMENT POTENTIAL Non-OECD Countries
Chemical and Petrol Chemical	50%-85%	9%-25%	14%-30%
Petroleum Refining	50%-60%	10%-25%	40%-45%
Non-Ferrous Metals	30%-50%	5%-35%	5%-50%
Iron and Steel	10%-30%	10%	30%
Cement	25%-50%	20%	25%
Glass	7%-20%	30%-35%	40%
Pulp and Paper	15%-35%	25%	20%
Textile	5%-25%	10%	20%
Food and Beverage	1-10%	25%	40%
Automotive	1-10%	10%-15%	25%-30%

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Are you treating energy like a fixed cost or a variable cost?

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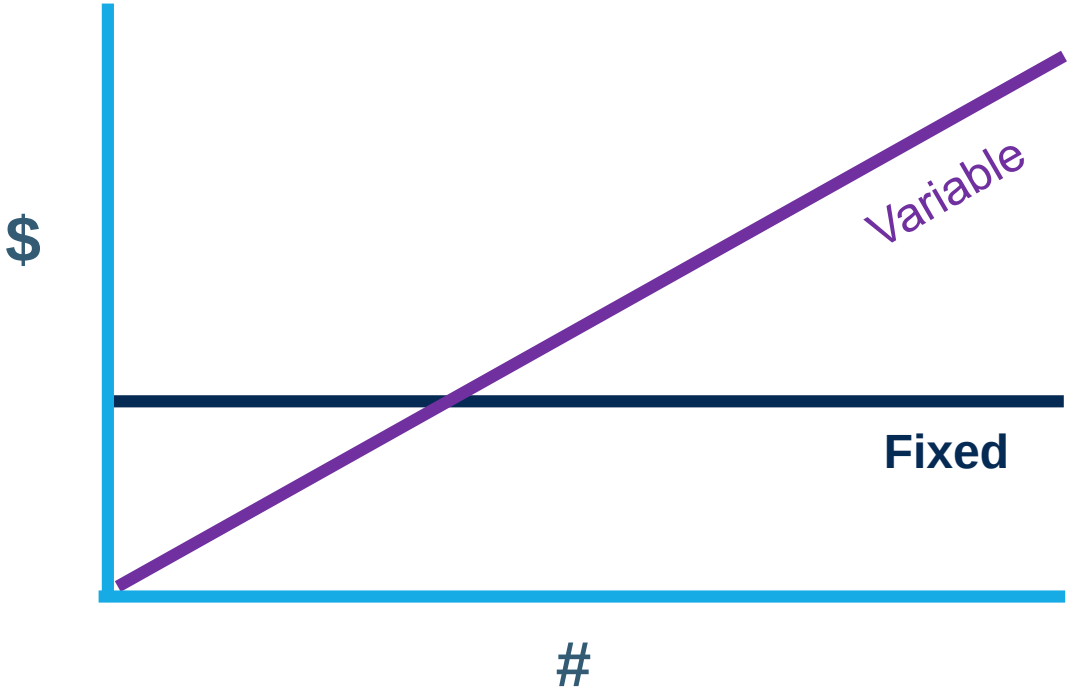

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10 Billion IoT devices in Smart Cities by 2020

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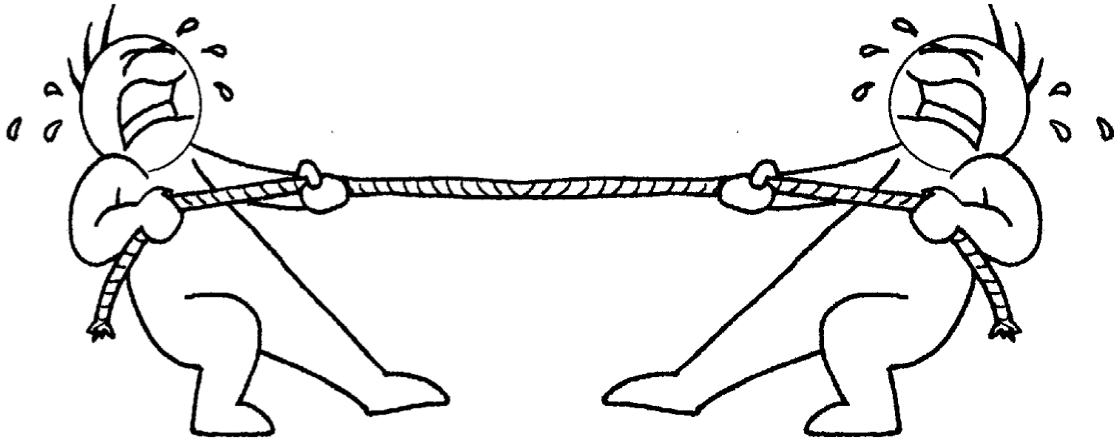
The tug of war



Efficiency Consumption

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Water

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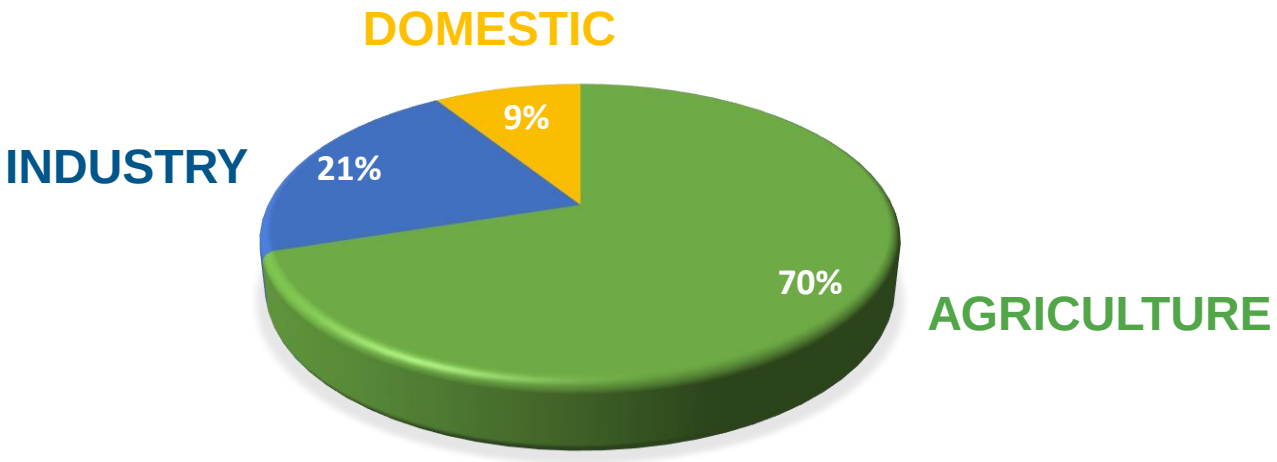
Water Industry Overview

- ~70% of water consumed by agriculture
- What's the impact of water scarcity in you business (mining, food & beverage, oil & gas)?
- Up to 50% water leakage



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The Water Energy Nexus

- 30% of a water utility's operating cost attributed to energy
- 3% of America's energy consumption attributed to water
- 4 gallons of Water / KWh consumed

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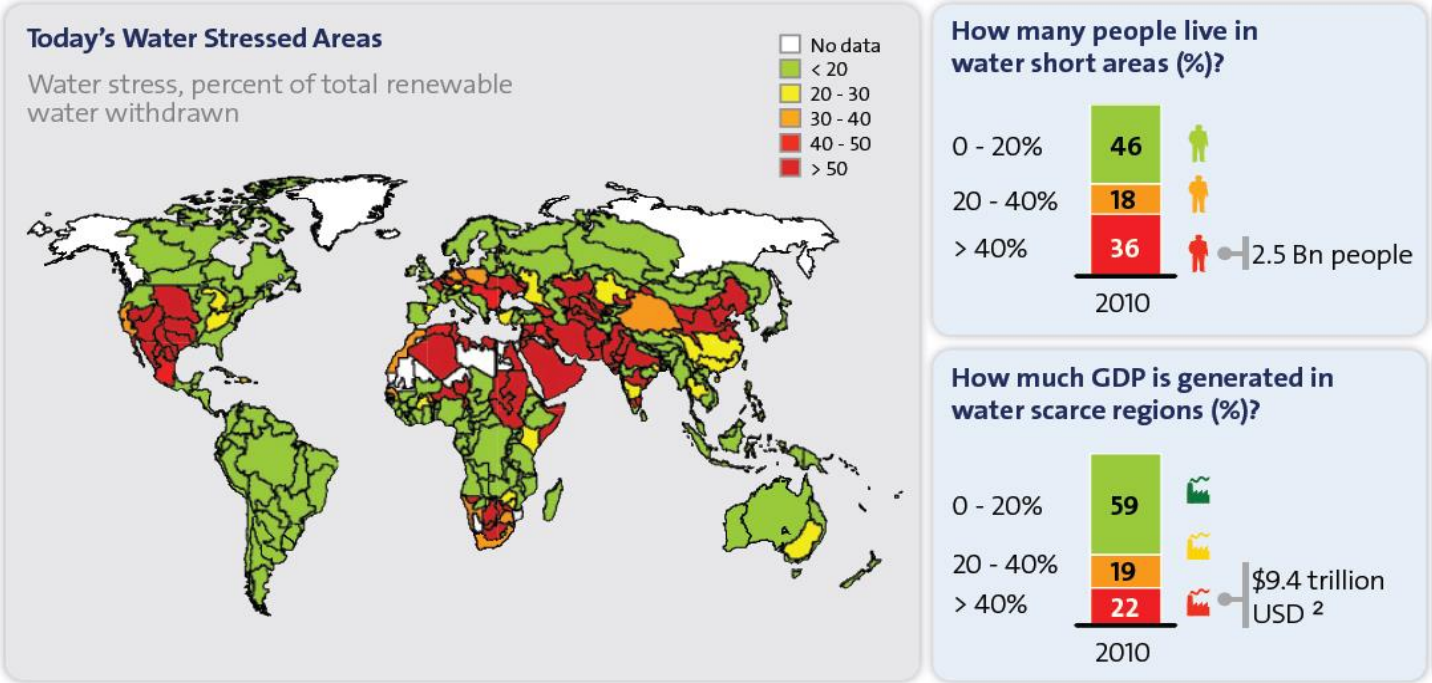
Water Stress: Today & 2050

- Today: 2.5B people and 22% of the world's GDP under water stressed regions



Reference: International Food Policy Research Institute, 2010

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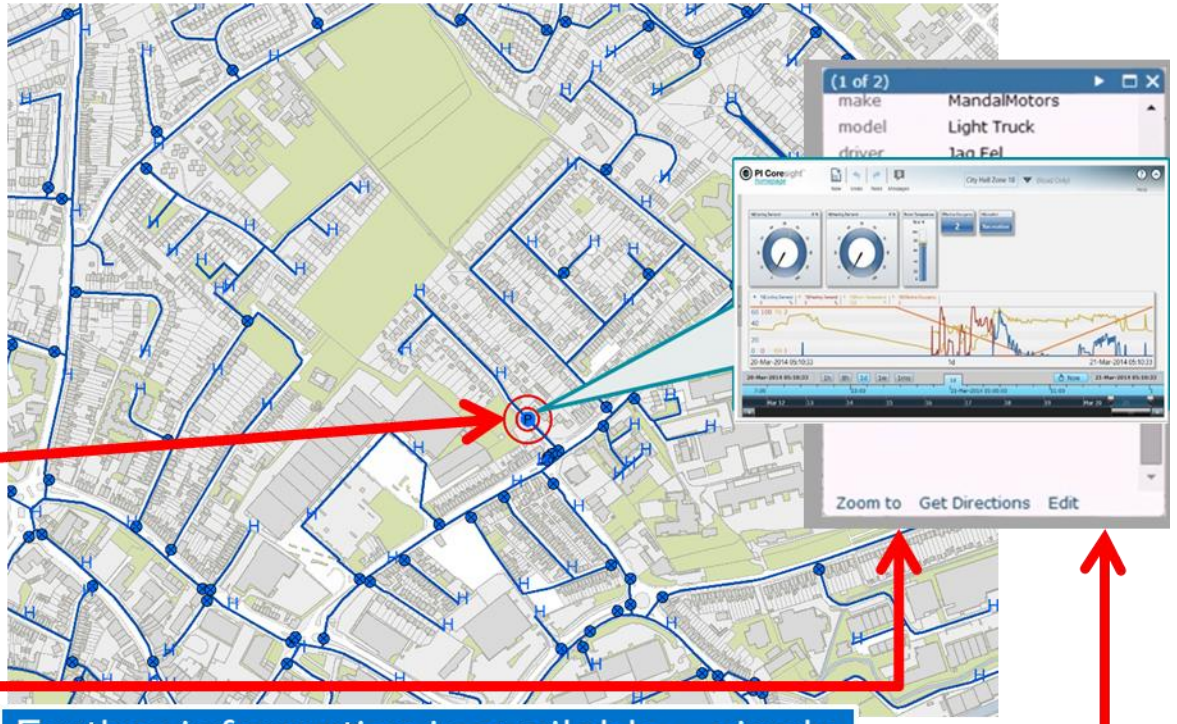
Real-time, Asset, and Geospatial Data

Operator clicks on the Asset on GIS display

Real-time information from the PI System for this Asset is displayed



Further information is available - single click to access

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Helpful content

- Public microsite
  - http://www.osisoft.com/corporate/waterutilities/
  - Webinars
  - Videos
  - Case Studies
  - Papers
- Customer presentations
  - Many Users Conferences
  - Coming soon – this UC
- PI Square Community
  - Water Users Group

http://bit.ly/1UxV6Zx

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Facilities

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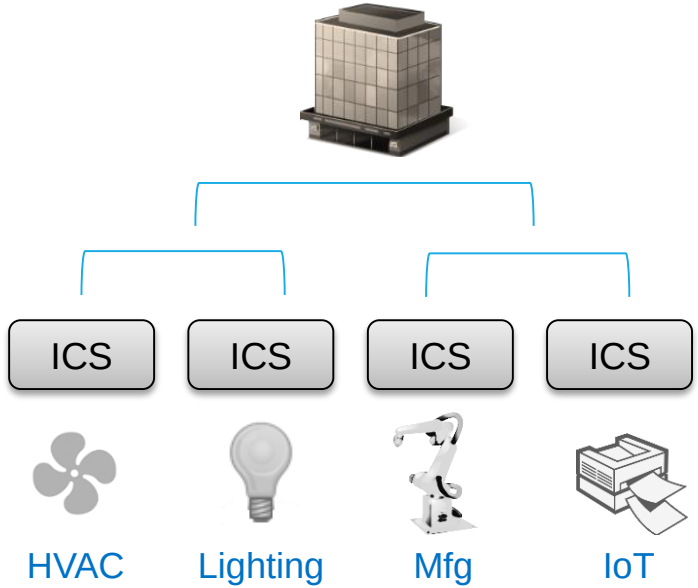
Building Control Systems

- Any Control System is myopic
  - Only knows about assets it controls
  - Only knows it's programming
  - Doesn't include energy usage
- What should it be doing?
  - How to validating programming?
  - How to compare to other systems or sites?
  - Limited history and analytics
  - How to "normalize" data?



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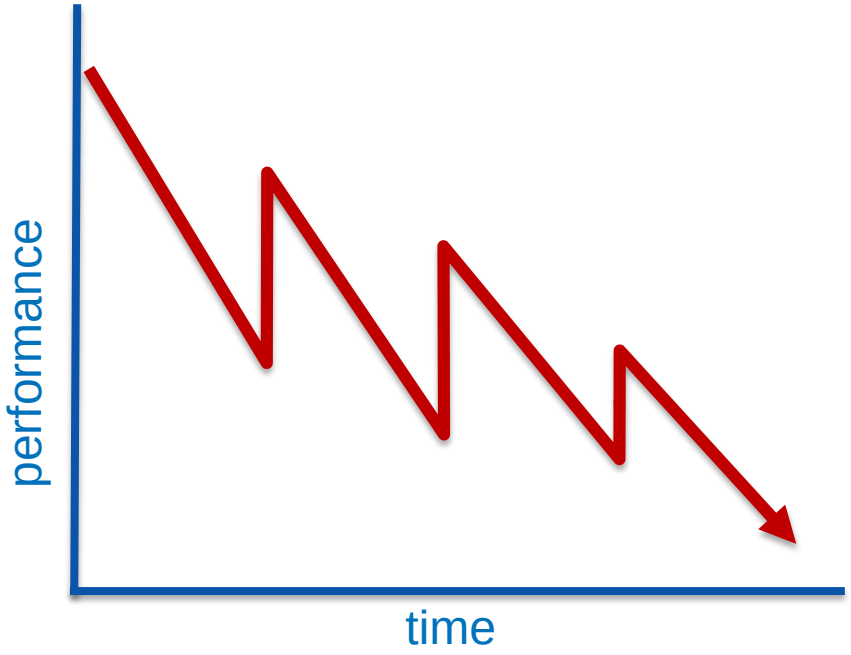
The inevitability of failure



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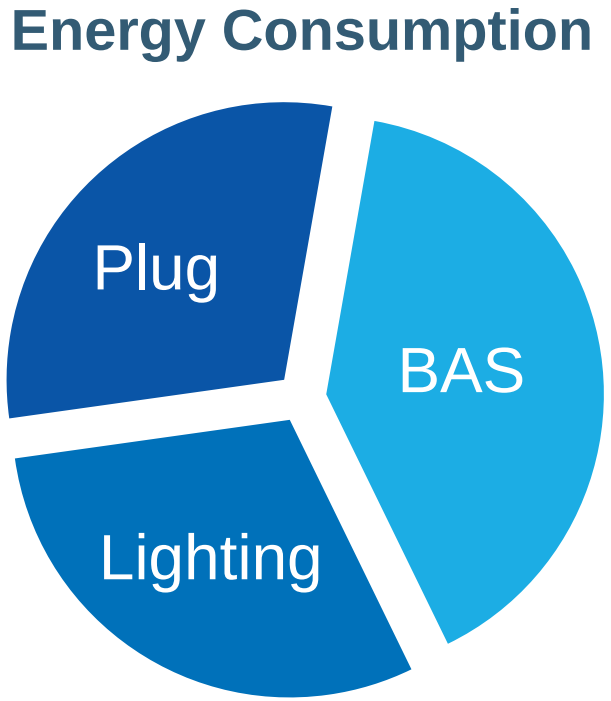
Going Beyond the BAS

- Systems tied to BMS/BAS typically represent <50% of the power consumed
- Other systems
  - Water
  - Manufacturing assets, ICS
  - Exterior systems
  - Elevators
  - Data Center assets
- Smart Grid integration
  - Generation / Solar
  - Demand response
  - Microgrid



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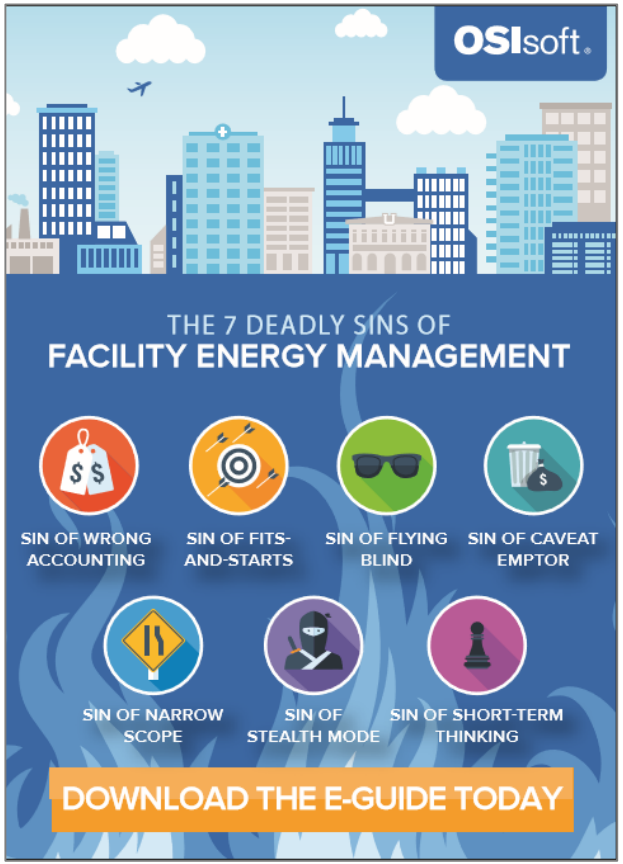

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Today’s Breakout Sessions

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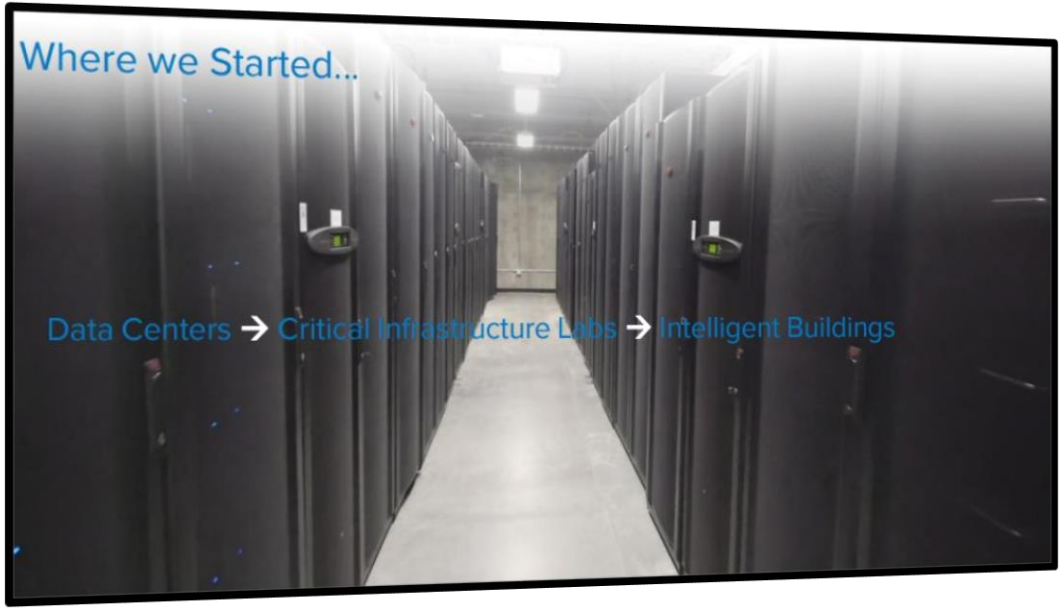

QUALCOMM
Keith Ward

Creating a smater campus

- *Uptime is #1*
- *80 Data Centers, 29 countries, 65 cities*
- *Rack power monitoring, heat maps, to phase balancing*
- *Scalability is important*

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SAN FRANCISCO PUC

Paul Bonitz – SFPUC
Lisa Slaughter – DST Controls

Getting the Most out of your Assets

- *325,000 Assets*
- *Moving from scheduled based to condition base maintenance*
- *Annual savings of $71K on four assets*
- *Top 100 assets equates to $1.77M in annual savings*

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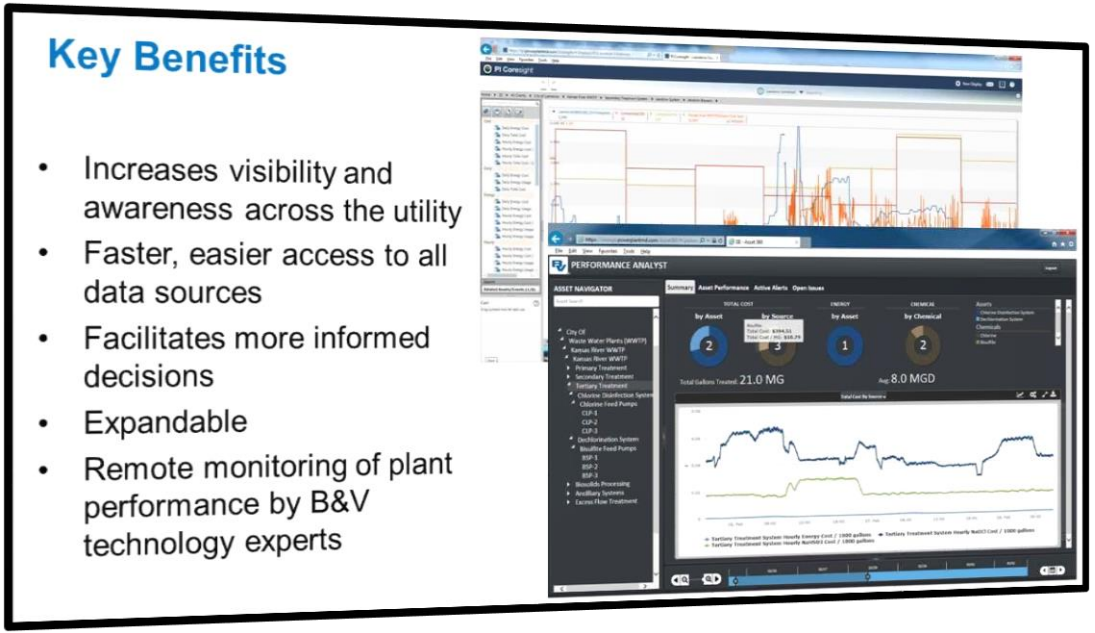

CITY OF LAWRENCE:

Paul Youk – City of Lawrence
Steve Wortendyke – Black & Veatch
Pat Schlotzhauer – Black & Veatch

Using Data Analytics to Monitor and Reduce Energy Consumption

- *Provides drinking water and treats waste water for about 100,000 people*
- *Optimize energy consumption especially during rain / storm events*
- *Analyzes SCADA, lab, and weather data with context for an informed operational decisions*

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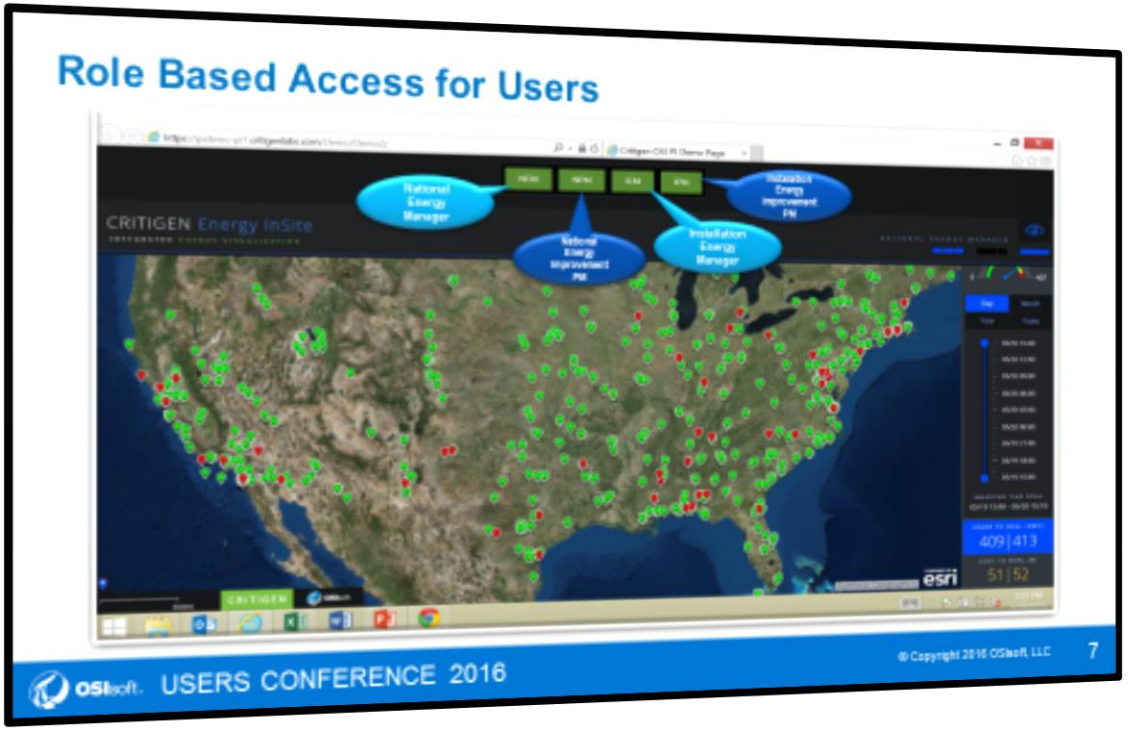

CRITIGEN:
Marshal Worthy

Enterprise Level Situational Awareness for Assets and Infrastructure

- Connecting real-time energy data and Geospatial visualization
- *Providing an executive view of energy performance by organization*
- *'At-a-glance' enterprise view with drill-down capabilities for improved decision making*

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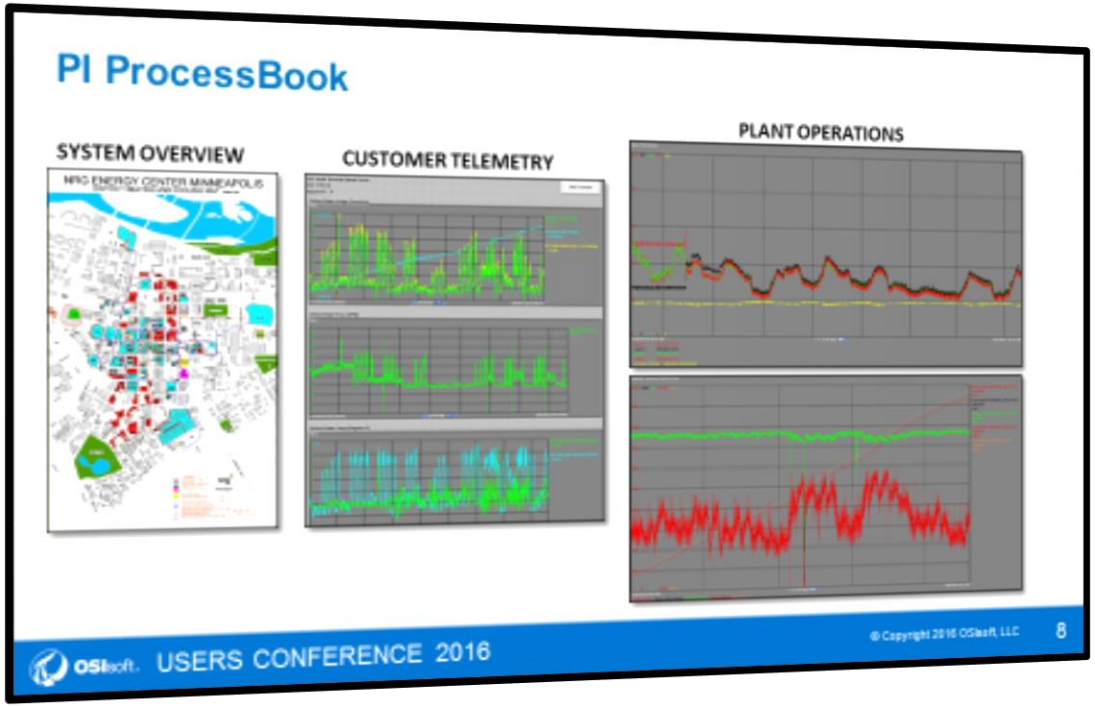

NRG
Ramya Winstead

Driving operational excellence at NRG Energy Center Minneapolis

- *NRG Energy Center Minneapolis*
- *District energy facility serving downtown Minneapolis*
- *Improving efficiency and optimizing operations*

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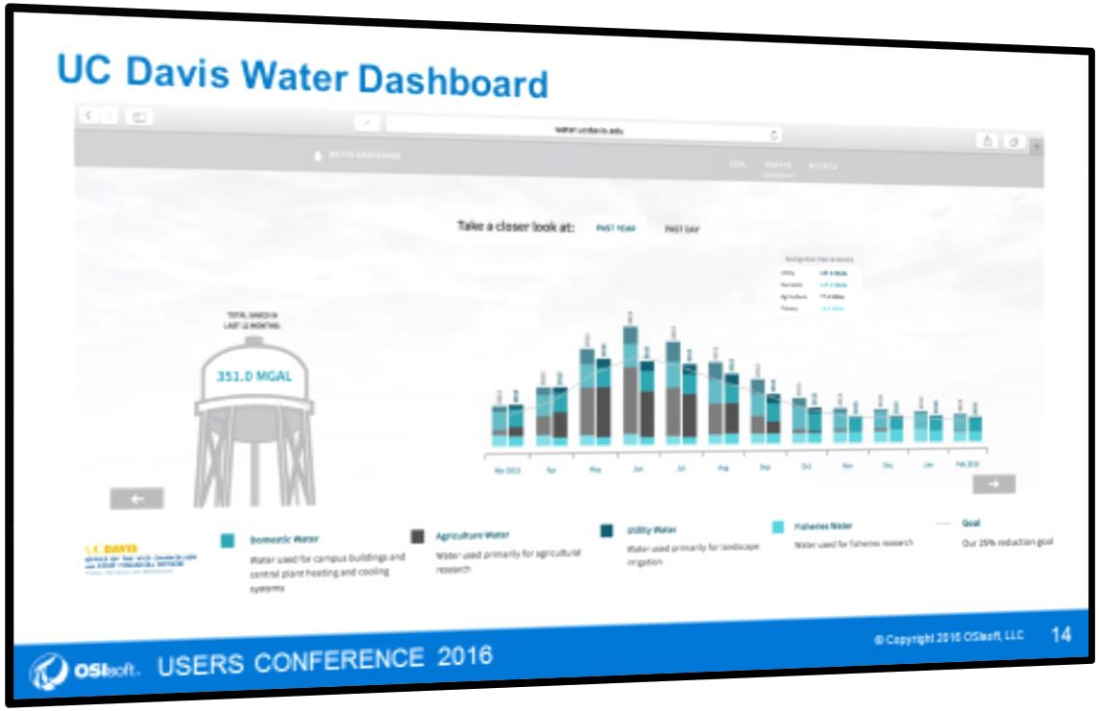

University of California, Davis

Elena Thomsen
Dan Colvin
Sweta Agarwal

Multiple Challenges, Multiple Solutions, Multiple Results, One PI System

- *25% reduction in water consumption in 6 months*
- *Visualizing energy consumption across the campus*
- *Ongoing commissioning through automated fault dete3ction*

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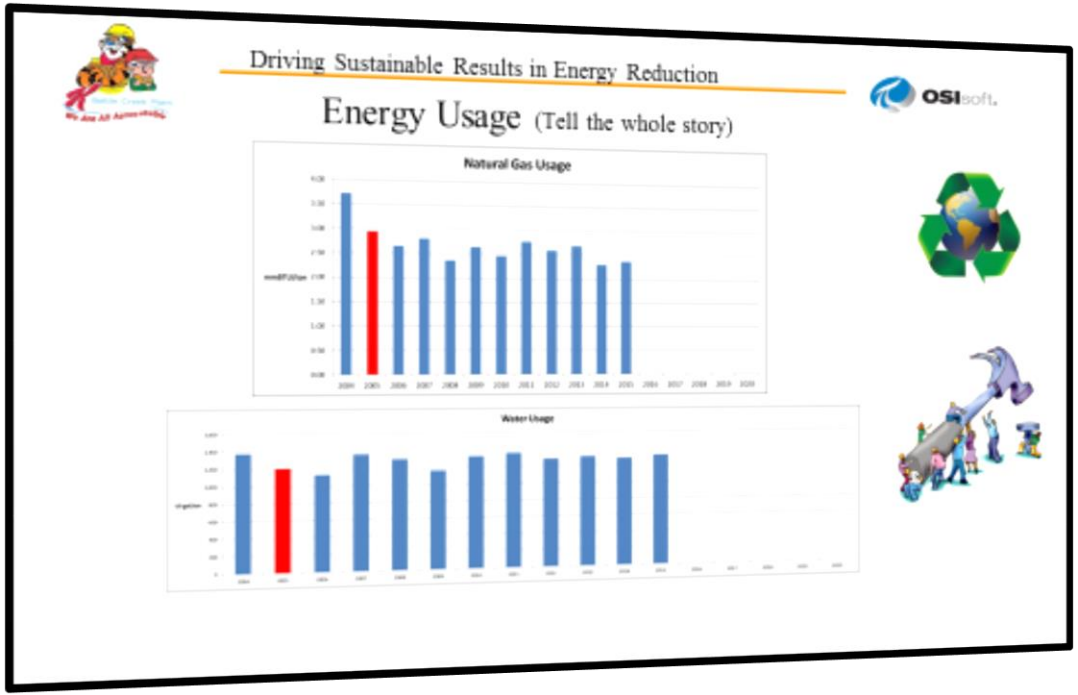

Kellogg

John Gothberg

Driving Sustainable Results in Energy Reduction

- *Measure, Execute, Validate, Repeat*
- *HVAC savings of $40,000 in one week*
- *Cumulative savings over $700,000 in boiler heat recovery*

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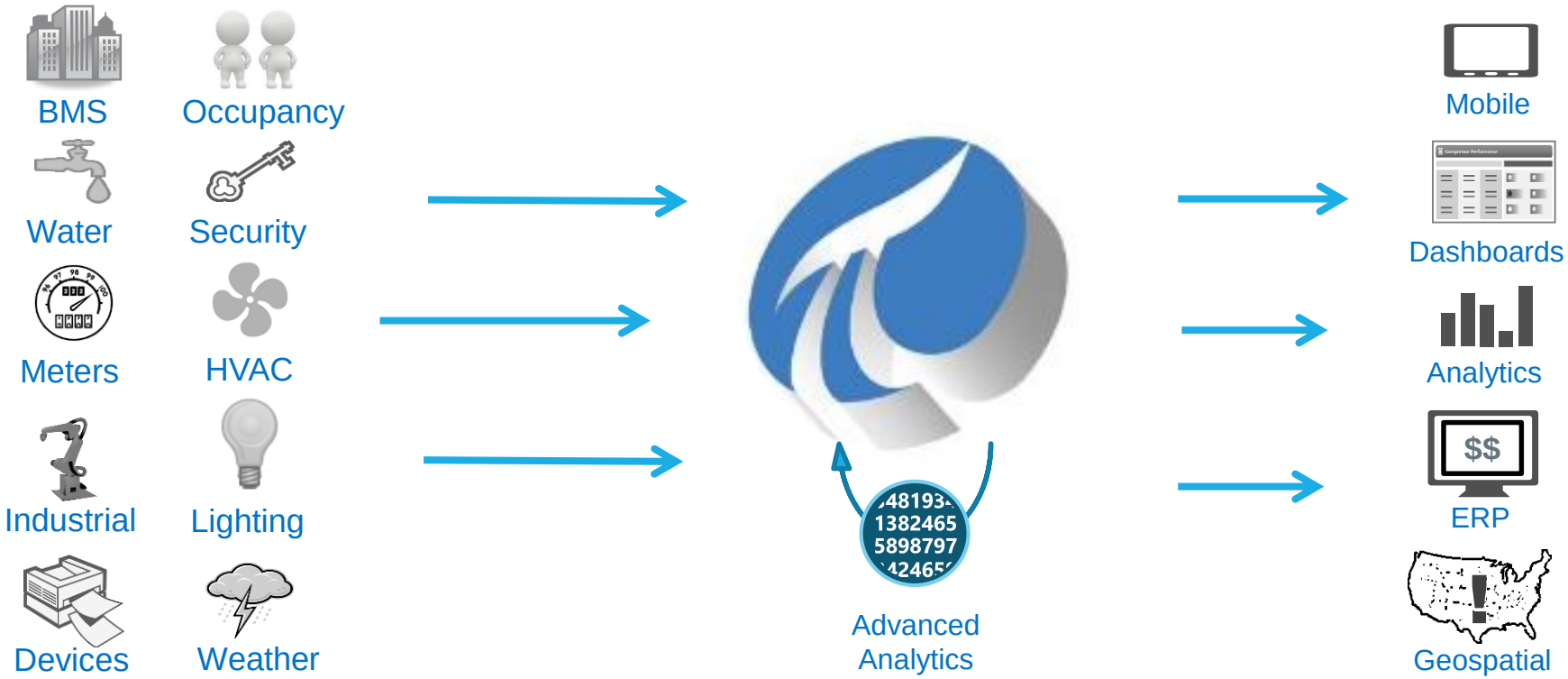
The PI System as the Common Infrastructure



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Questions

Please wait for the **microphone** before asking your questions

State your **name & company**

Please remember to…

Complete the Online Survey for this session

http://ddut.ch/osisoft

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감사합니다

谢谢

Danke

Merci

Gracias

Thank You

ありがとう

Спасибо

Obrigado

“Hope is not a business strategy. Be relentless”

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