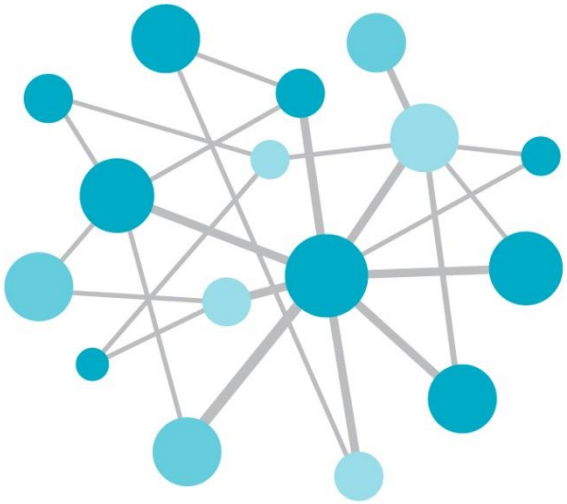


OSIsoft.

FEDERAL WORKSHOP 2014

The Power of Data

DECISION READY IN REAL-TIME

9:00 AM **Welcome and Introductions**

Steve Sarnecki, VP of Federal Sector, OSIsoft

9:05 AM **An Introduction to OSIsoft and the Power of a Real-time Data Infrastructure**

Mark McCoy, Solution Architect, OSIsoft

9:30 AM **88 Acres -- How Microsoft Quietly Built the City of the Future**

Darrell Smith, Director of Facilities and Energy, Microsoft

The Microsoft Redmond Campus Story A small, covert team of engineers at Microsoft cast aside suggestions that the company spend US$60 million to turn its 500-acre headquarters into a smart campus to achieve energy savings and other efficiency gains. Instead, applying an "Internet of Things meets Big Data" approach, the team invented a data-driven software solution that slashed the cost of operating the campus' 125 buildings. The software, which is saving Microsoft millions of dollars, has been so successful that the company and its partners are helping building managers across the world deploy the same solution. With commercial buildings consuming an estimated 40 percent of the world's total energy, the potential is huge.

10:15 AM **A Case Study on Carnegie Mellon University**

David Doll, Microsoft Alliance Program Manager, America's

CMU has created a living lab on its campus to study energy management Strategies. Collecting data from thousands of sensors required them to think outside the box, but their approaches have resulted in 30% energy savings. Now they are spreading their insights through their campus, their city and across the globe.

11:00 AM **Enabling Real Time Geospatial Data: The Fusion of the PI System & Esri ArcGIS**

Sheila Steffenson, Director Real Property and Facilities Management, Esri

Bob Conroy, Account Manager, DOE and Federal Laboratories, OSIsoft

Fragmentation of data has long been a struggle for Facilities Managers. Today, many organizations are tuning to GIS as a means to overcome this fragmentation and gain greater value from the myriad of facility data sources available. The Esri, OSIsoft partnership will take this to the next level, enabling users to integrate real-time facilities network data into the map to perform spatial analysis and more efficiently detect patterns that can lead to better/faster decisions

11:30 AM **Energy and Resource Management and Surety in the Federal Context**

Dave Roberts, Fellow - Smart Cities/High Penetration Renewable Energy, Industry

OSIsoft customers across the Federal and Public Sector are deploying projects for improved energy surety and efficiency. Many of these include a common data infrastructure for the installations and facilities to support microgrids, integration of renewables and building energy management

12:00 PM **Working Lunch/PI System Demonstration Pods**

1:00 PM

The University of Iowa's PI System Powered Energy Control Center

George Paterson, Senior Utilities Systems Specialist, University of Iowa

The University of Iowa installed OSIsoft's PI System in 2003 as an infrastructure to support campus-wide energy management. In addition to power and chilled water plant operations, the PI System monitors building energy data for every campus building. While year-over-year university growth carries an added energy load, the PI System has been selected by the University of Iowa as the campus-wide infrastructure to maintain 2010 energy consumption year after year through 2020.Recently, the University of Iowa's Energy Control Center began analyzing campus-wide PI data with Microsoft Business Intelligence tools. The added value of Microsoft Power BI atop OSIsoft's PI System infrastructure has given the University new value and insight into how energy is consumed across the campus, and where future energy management efforts are best directed

1:30 PM **Improving Energy Performance in a High Performance Computing Environment**

Marriann Silveria, Deputy Integrated Computing & Communications Program Facility Manager, Lawrence Livermore National Laboratory

Many DOE Laboratories and research institutions have High Performance Computers to aggregate computing power to solve large problems in science, engineering, or business. HPC facilities have large and growing energy consumption as higher performance is deployed. This session will explore best practices in reducing energy consumption in energy in HPC facilities.

2:00 PM **Coffee Break/PI System Demonstration Pods**

2:30 PM **Making Data Decision-Ready for the Intelligent Enterprise**

Curt Hertler, SR Partner Solutions Architect, OSIsoft

Recent technologies have evolved for taking data beyond the information layer and transforming it into intelligence. Microsoft Power BI for Office 365 provides innovative, self-service analysis tools and new ways to leverage PI System data. This session will demonstrate how these tools can be used for improved data discovery and for astute decision making within your organization.

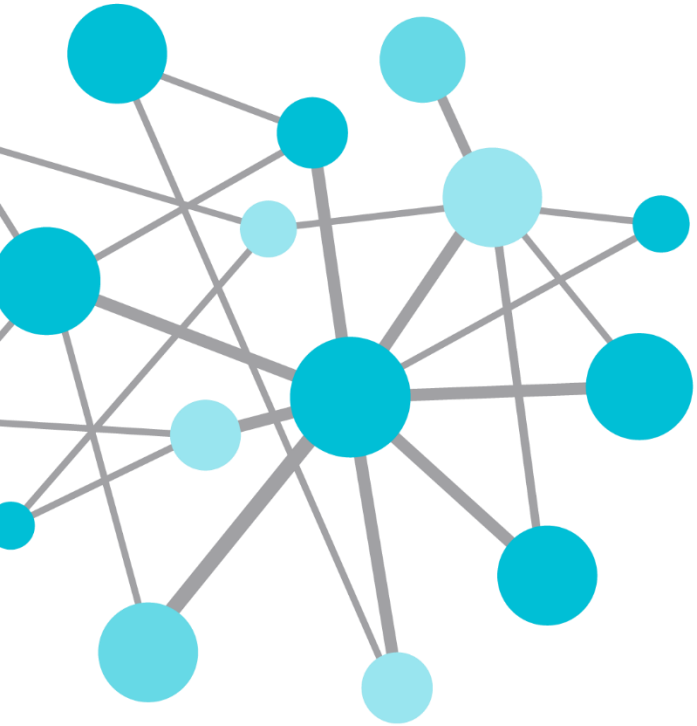
3:00 PM **Closing Remarks and Call to Action**

Steve Sarnecki, VP of Federal Sector, OSIsoft

3:15 PM – 4:30 PM **PI System Demonstration Pods**

Networking and PI System conversations on the

- Data architecture models and security



OSIsoft & The PI System

Presented by **Steve Sarnecki**

VP, Federal Sales, OSIsoft

OSIsoft – Company Profile

1980
OSIsoft Founded

Privately Held

Full Time Employees
>1,000
Worldwide

Dr. Pat Kennedy
Founder, CEO, Majority Shareholder

OSIsoft – Sales Profile

Global Presence 110 Countries

14,000 Installed Sites Worldwide

2011 Federal Sales Team Established

Direct Sales Model

>65% of Global 500

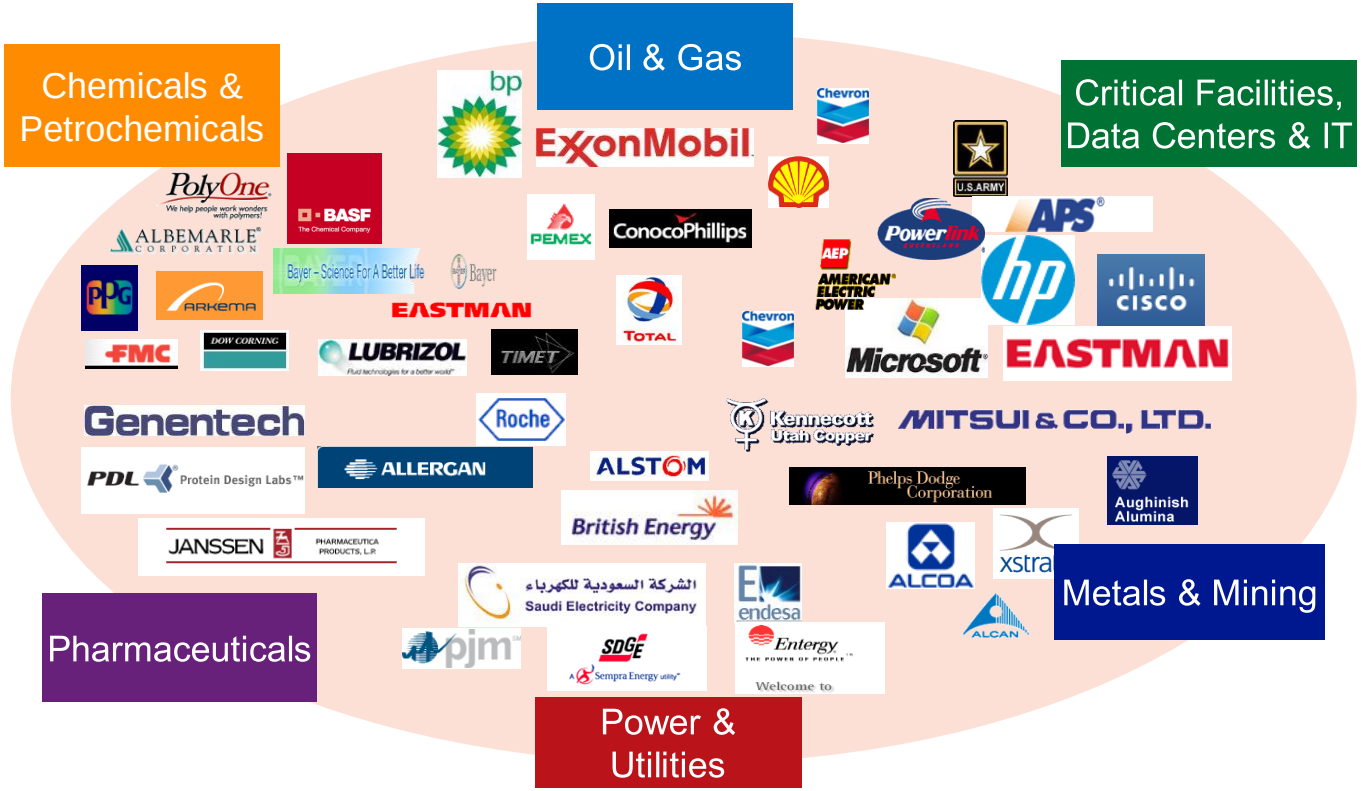
>20% Revenue Invested in R&D

2012 Presidential "E" Award for Exports by U.S. Department of Commerce

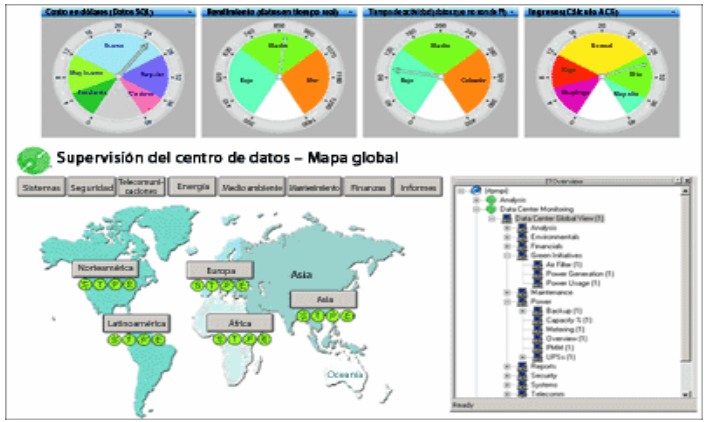
OSIsoft – Industry Verticals

Power & Utilities	• OSIsoft Is Ranked 1st In The Power Industry • DTE Energy, PSE&G, Entergy, British Energy, Iberdrola
Oil & Gas	• 100% of the Global Top 10 Producers Use The PI System • BP, Shell, Chevron, ExxonMobil, Pemex, Total, Petrobras
Chemicals & Petrochemicals	• 40 Of The Top 50 Chemical Companies Rely On PI • Dow Corning, Eastman Kodak, Cytec, Rhodia, BASF
Pharmaceuticals	• Nine Of The Top 10 Pharmaceuticals Use The PI System • Amgen, Bayer, PDL, Allergen, Johnson & Johnson, Roche
Metals & Mining	• PI Is Used In The World's Largest Mining Companies. • CEMEX, Cargill, BHP Billiton Yabulu, Codelco, Alcoa
Pulp & Paper	• 400 Sites Worldwide Use PI To Manage Their Mills • Abitibi, Cascades, Inc., Int'l. Paper, MeadWestvaco
Critical Facilities, Data Centers & IT	• Innovative Use Of PI To Monitor Complex IT Environments • Microsoft, HP, eBay, Thomson Reuters, RBC

OSIsoft – Customer Base



GLOBAL INFRASTRUCTURES / CRITICAL INFORMATION



Supporting Asset & Incident Investigations

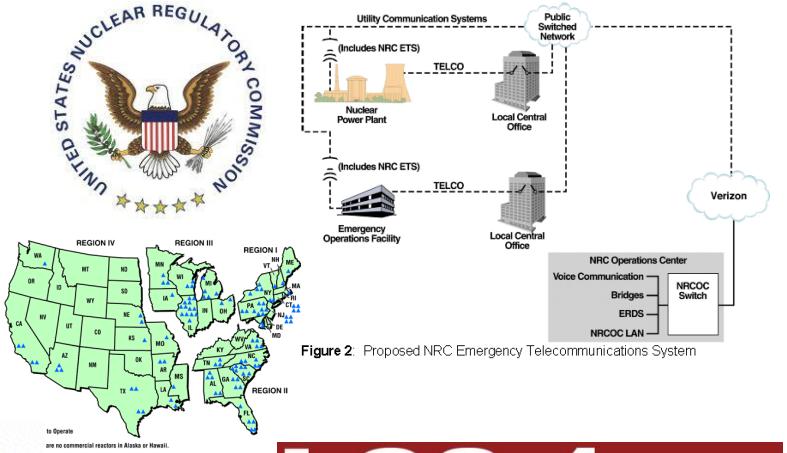
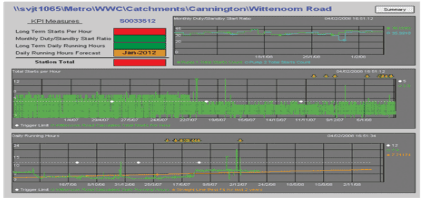
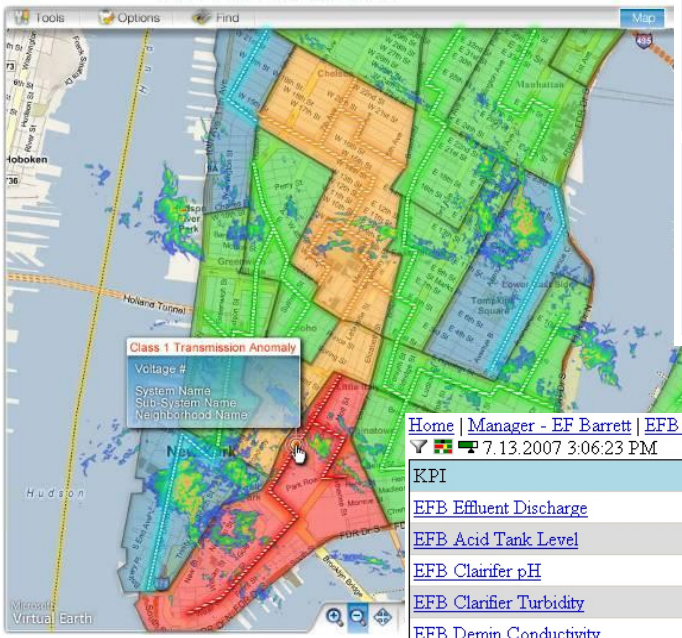
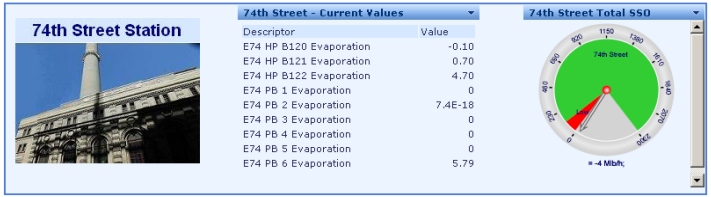


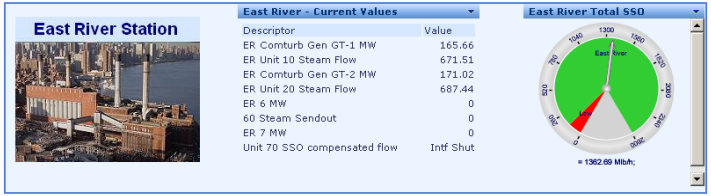
Figure 2: Proposed NRC Emergency Telecommunications System



Providing Situational Awareness



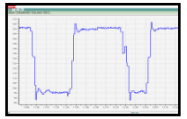


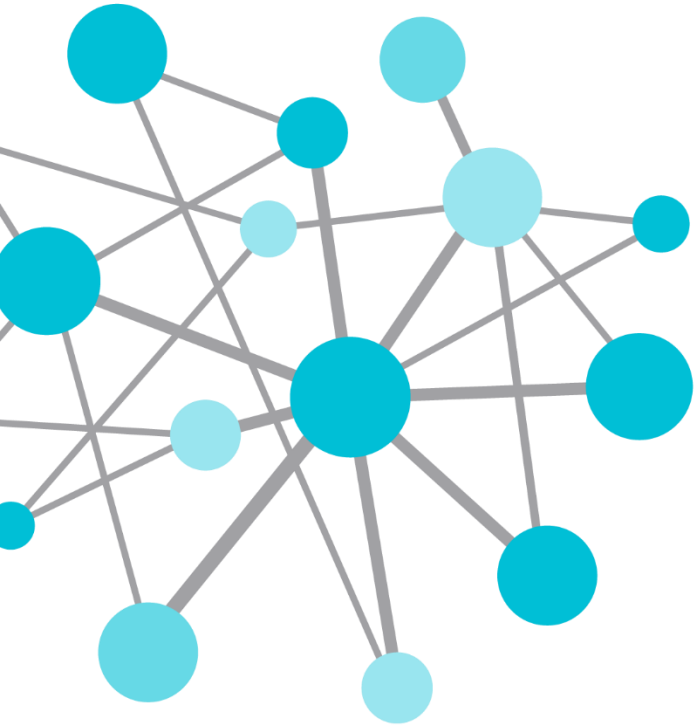


Home | Manager - EF Barrett | EFB WWT

7.13.2007 3:06:23 PM

KPI		Actual
EFB Effluent Discharge	▼	.18
EFB Acid Tank Level	●	11.43
EFB Clairifer pH	●	9.015
EFB Clarifier Turbidity	●	67.3
EFB Demin Conductivity	●	258.5
EFB Holding Pond Level	●	4.325
EFB Neutralization Tank Level	●	6.823
EFB Reactor Tank pH	●	10.54
EFB Surge Pond Level	●	4.057





The PI System

Presented by **Mark McCoy**

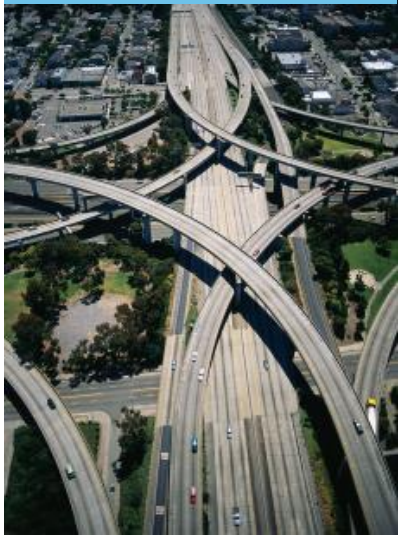
Federal Solutions Architect, OSIsoft

Value of an Infrastructure

Power

Water

Transportation



Data

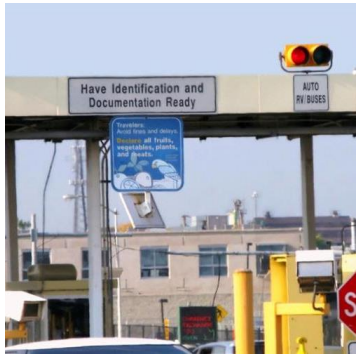
Characteristics of an Infrastructure

SCALABLE

HIGH PERFORMANCE

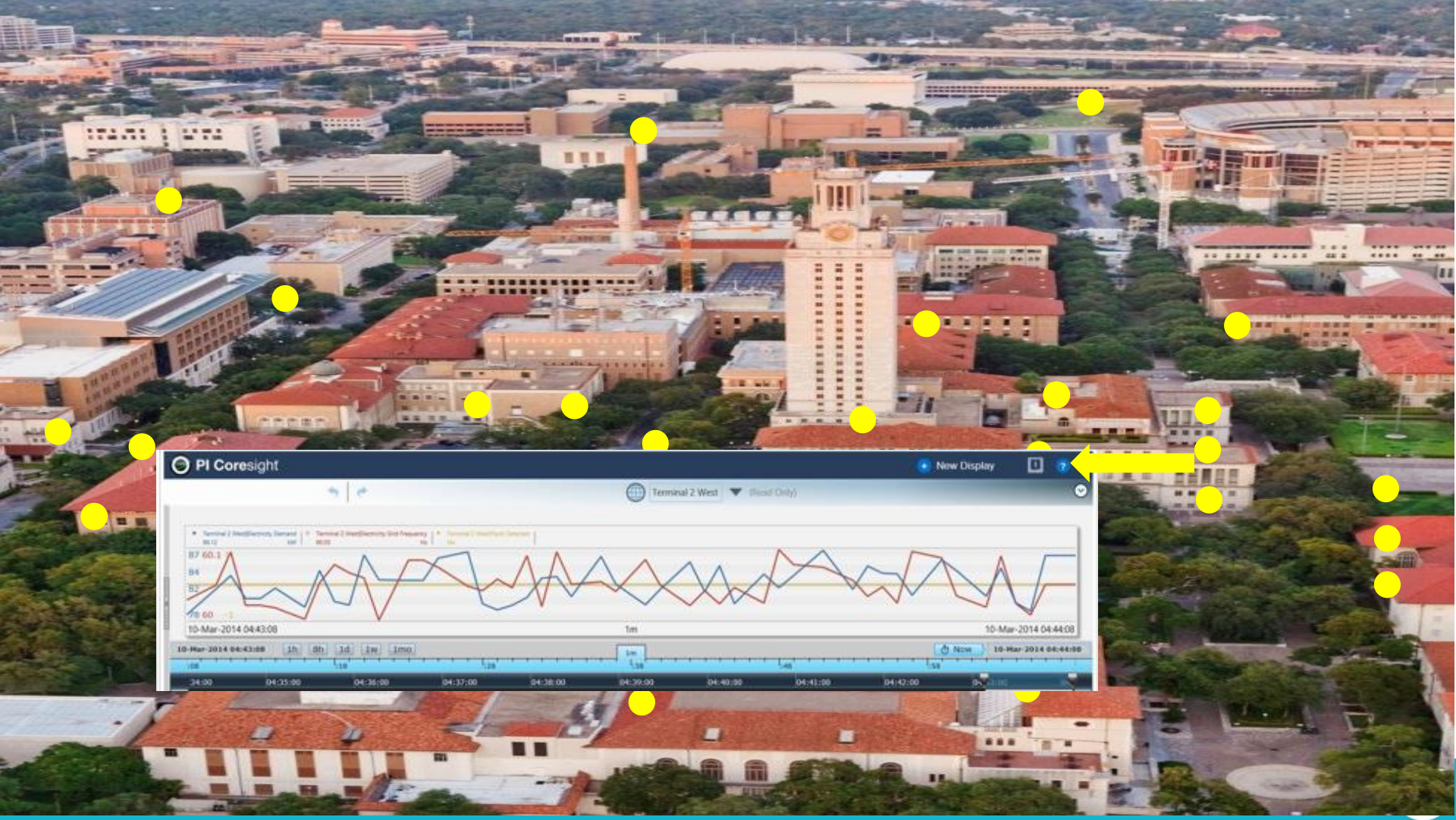
RELIABLE

MANAGEABLE



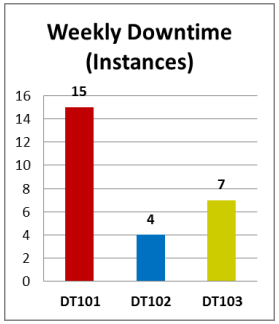
SECURE

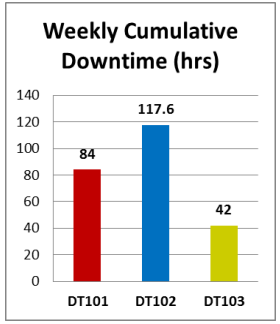
INFRASTRUCTURES


PI Coresight
New Display
Terminal 2 West
(Read Only)
87
84
81
78
60.1
60
10-Mar-2014 04:43:08
1m
10-Mar-2014 04:44:08
10-Mar-2014 04:43:08
1h
8h
1d
1w
1mo
1m
Now
10-Mar-2014 04:44:08
04:34:00
04:35:00
04:36:00
04:37:00
04:38:00
04:39:00
04:40:00
04:41:00
04:42:00

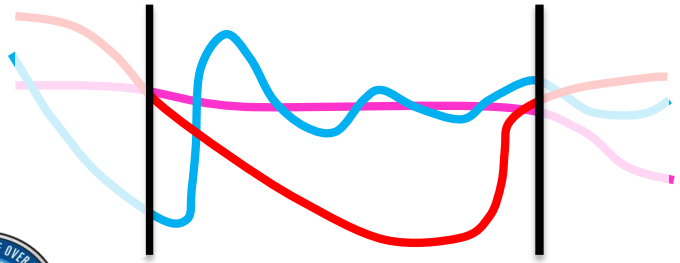
OSIsoft's PI System

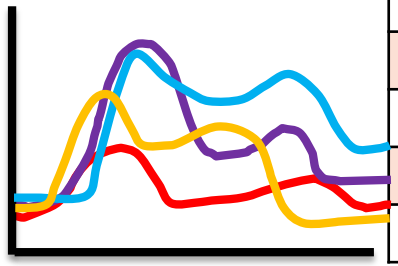
Compare Assets



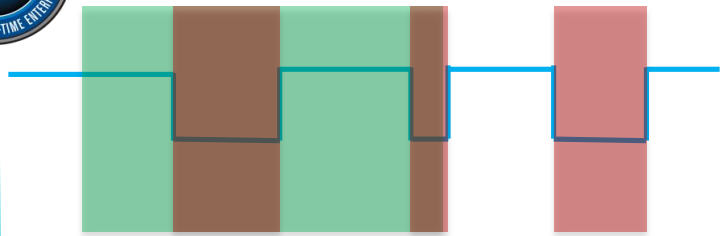


Simplify Data Analysis





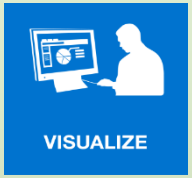
Name	Max
EF1	122.47
EF2	112.73
EF3	98.61
EF4	125.24



Compare Events

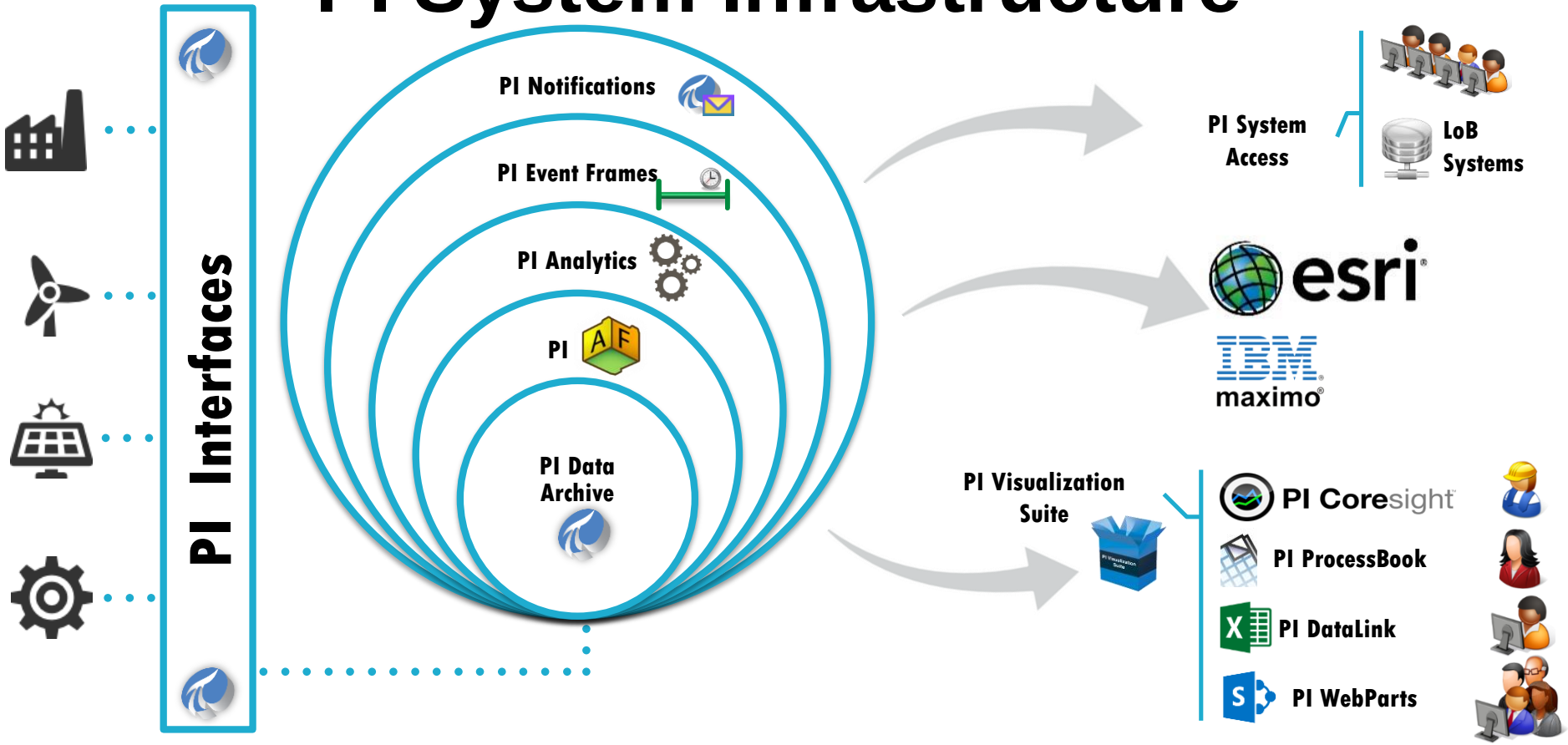
Discover Interrelationships

The PI System Basics

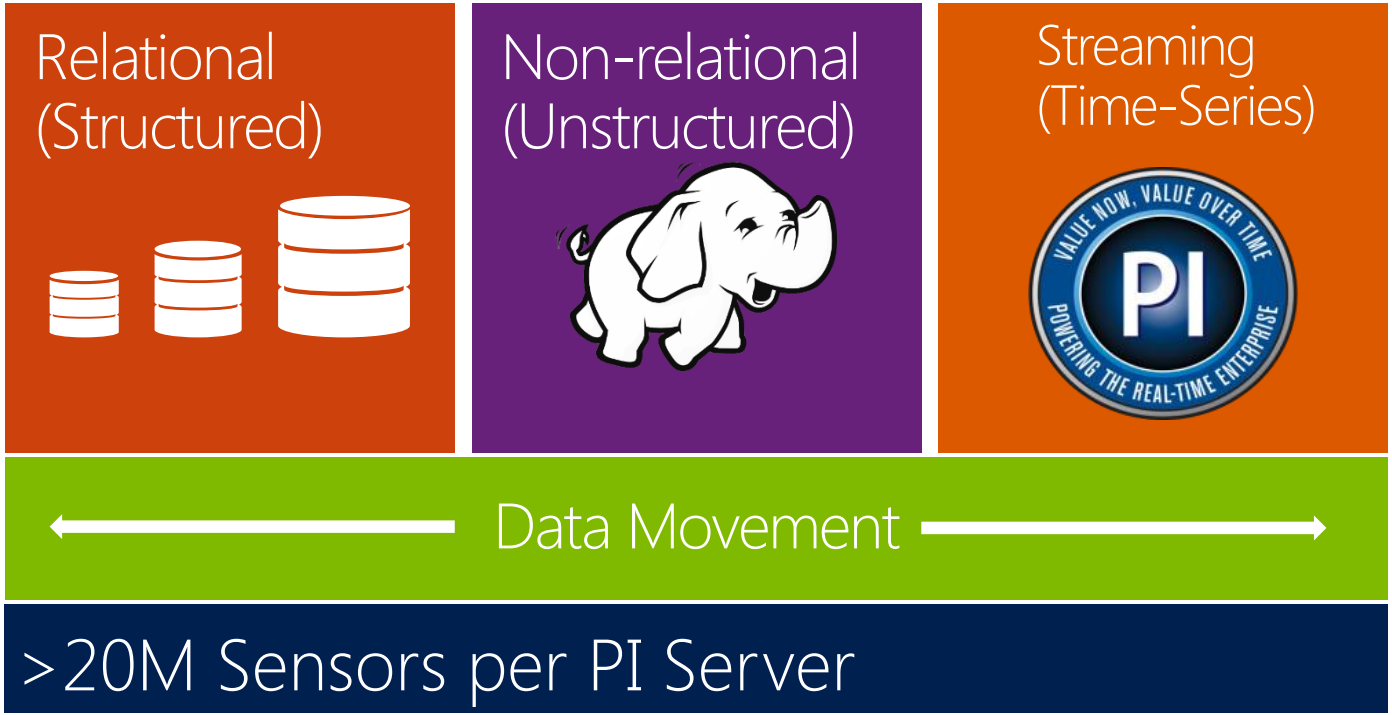


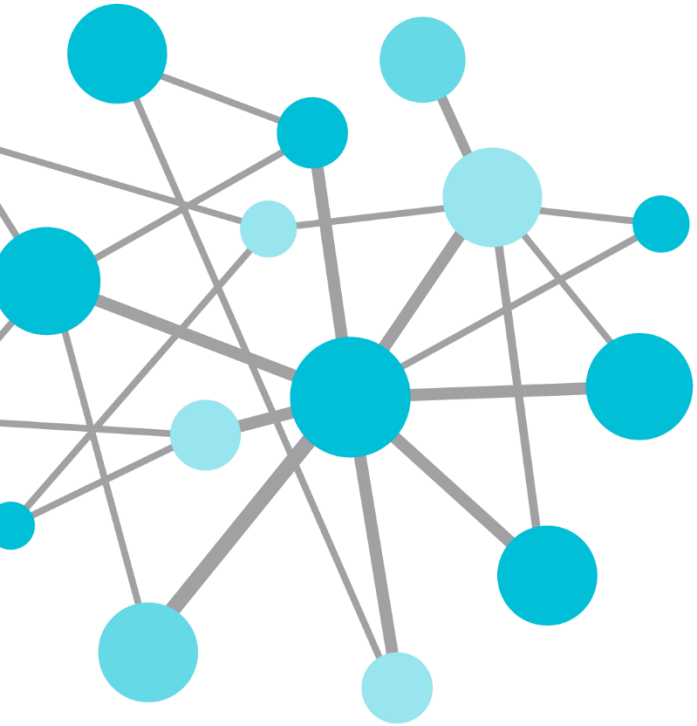
Collect	Historize	Analyze	Visualize
Collect data from hundreds of sources. Over 450 Interfaces.	Archive large volumes of data. Scalable Infrastructure.	Access real-time or historical data for the entire enterprise at any time.	View data, identify problems, and take corrective action with familiar, easy-to-use graphical tools.
Interfaces	Servers	Analytics	Visuals

PI System Infrastructure



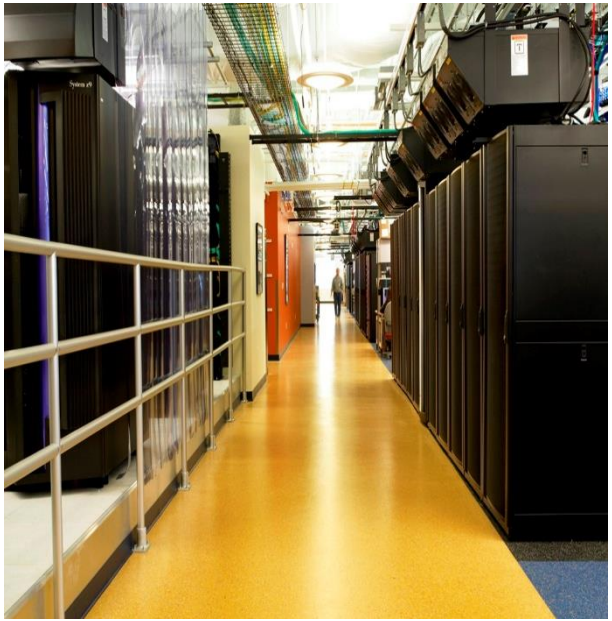
PI System & Big Data





Opportunities

Data Centers



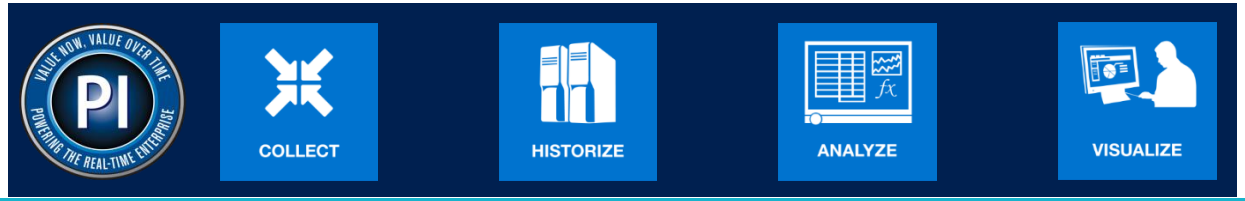
Capacity Planning

Energy, Environment, Power Management

Event Notification and Analysis

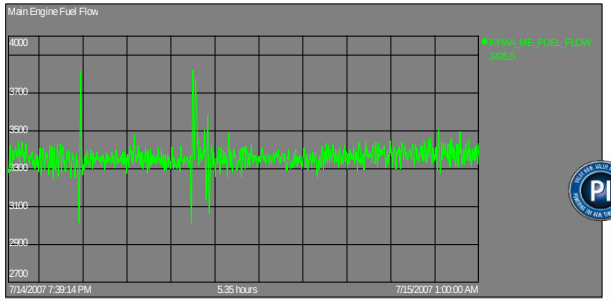
Continuous Improvement, Enterprise PUEs , and KPIs

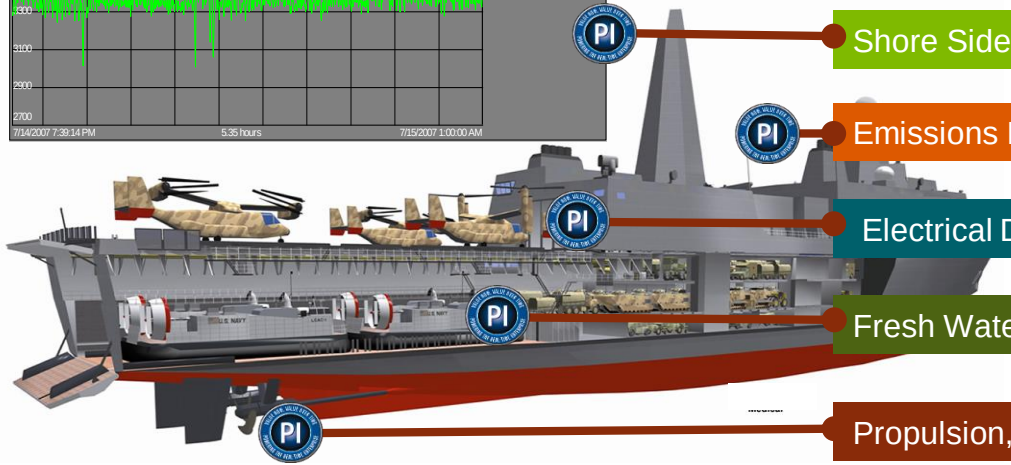
Increase Efficiency, Improve Planning, and Reduce IT and Facility Costs



Situational Awareness

Create Consistency Across Fleets, Deliver KPIs Ashore





- Shore Side Data Visibility
- Emissions Monitoring
- Electrical Distribution Systems
- Fresh Water Production, Storage, and Distribution
- Propulsion, Power Generation, and Vessel Automation Systems

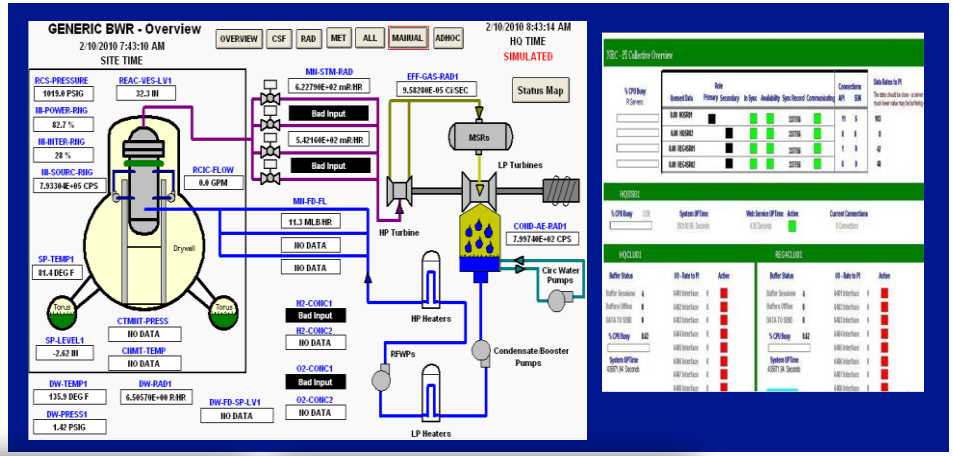
PI — VALUE NOW. VALUE OVER TIME. POWERING THE REAL-TIME ENTERPRISE

COLLECT | HISTORIZE | ANALYZE | VISUALIZE

PI System
NRC ERDS

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Emergency Response Data System (ERDS) is used to receive plant data and display 'one version of the truth' for multiple users across various locations.



Customer Business Challenge

- State Regulators need connectivity
- Need similar interface for both NRC and State Regulators
- Users located at multiple facilities
- Verify that the data being sent is the same data that is being displayed - Need easier way to tell when a plant is disconnected.

Solution

- HA Replicated PI Servers
  - Allows NRC to keep the system online while doing software updates (patches, etc.)
  - No downtime for system maintenance
- PI Visualization Tools
- Custom Interface for ERDS protocol
- Enterprise Agreement (EA) & Center of Excellence (CoE)

Customer Results / Benefits

- **Visibility** - NRC supervision has recognized PI as a key tool in emergency response
- **Security** - Replacement System is much more secure than the original system.
- **Reliability** - Redundancy of servers has provided for a VERY reliable system (High Availability)
- **Compliance** - With stringent government (FISMA) security standards

Campus

Community-wide Dashboards

Renewable and Microgrid Management

Event Notification and Analysis

Asset Management of Critical Infrastructure

VALUE NOW, VALUE OVER TIME
PI
POWERING THE REAL-TIME ENTERPRISE

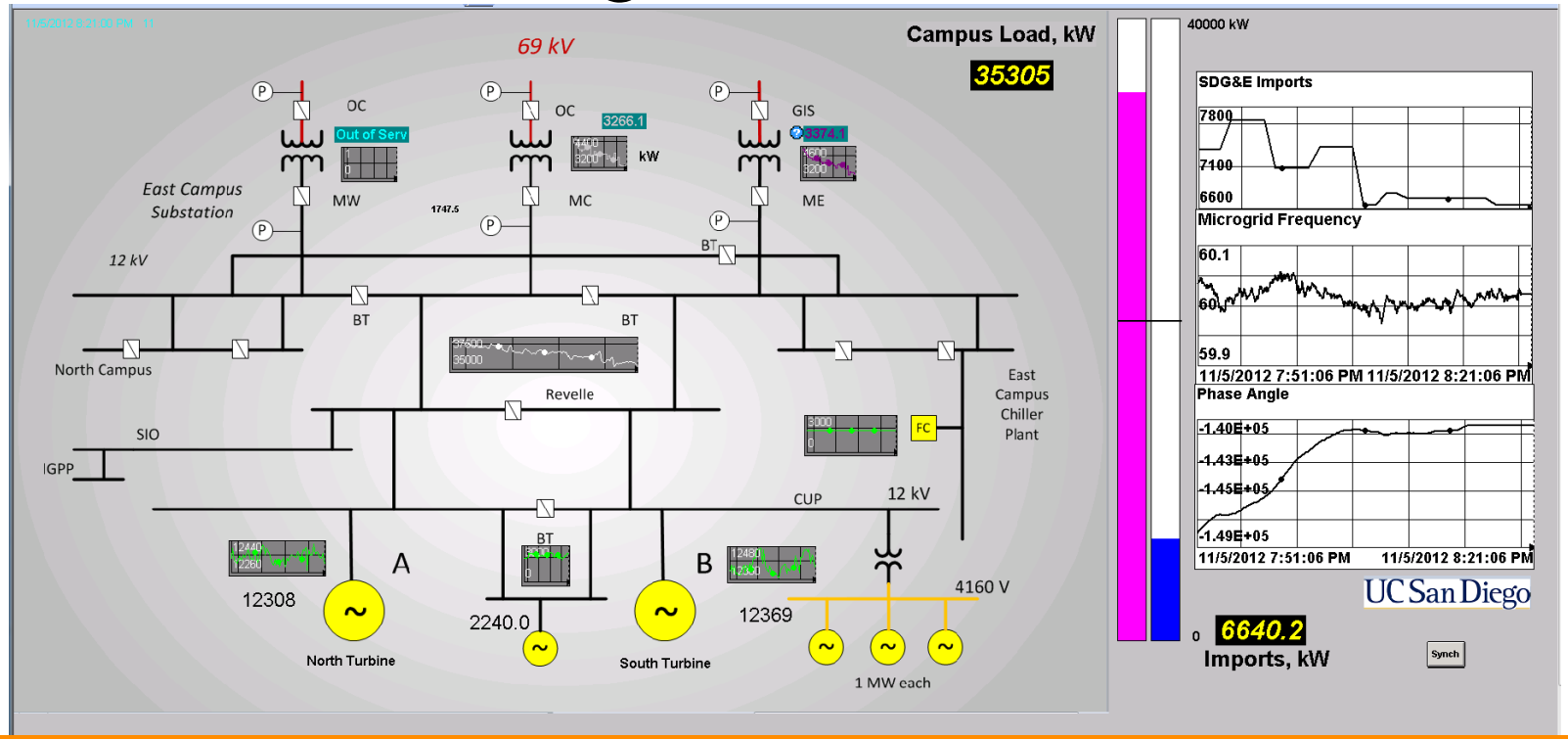
COLLECT

HISTORIZE

ANALYZE

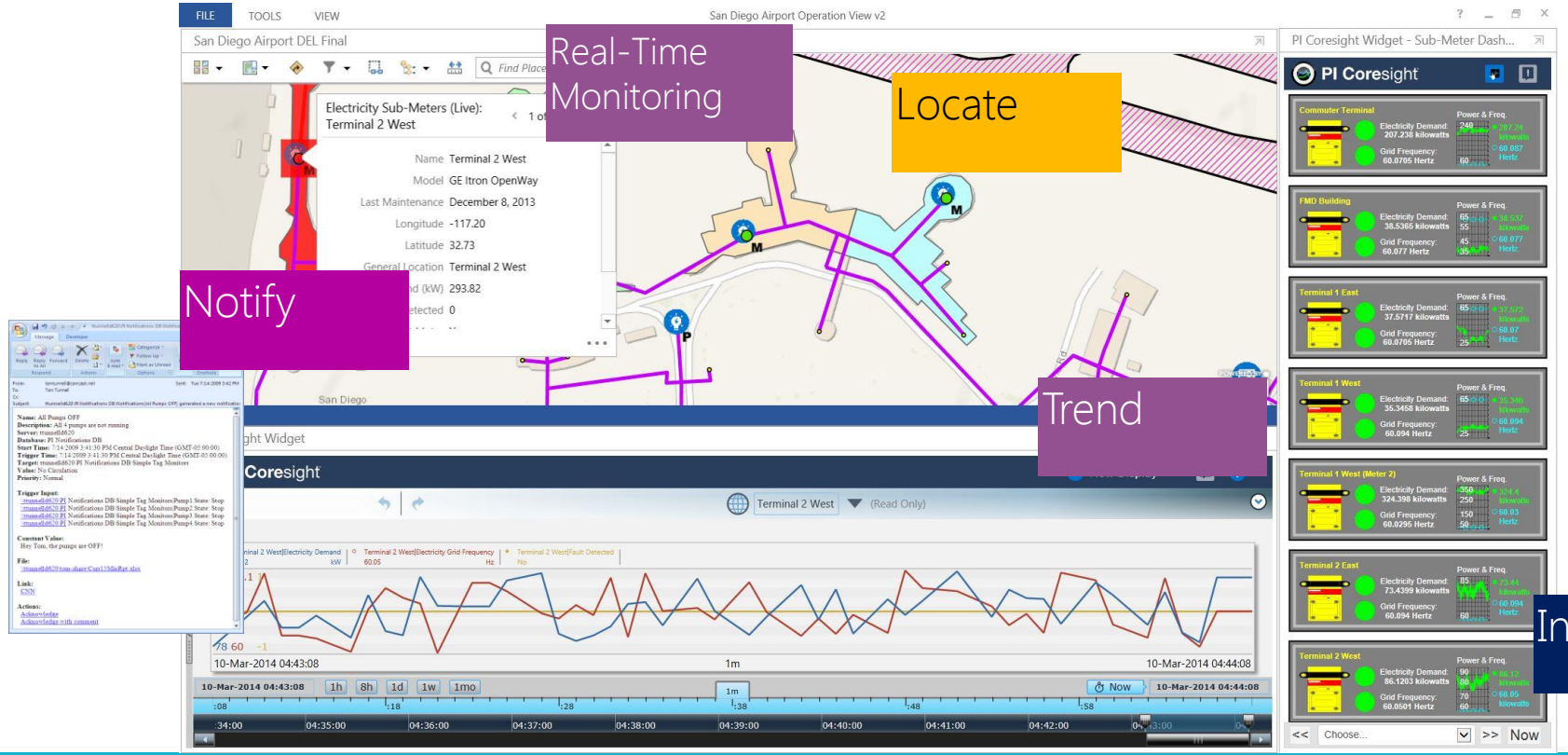
VISUALIZE

PI System: UCSD Microgrid



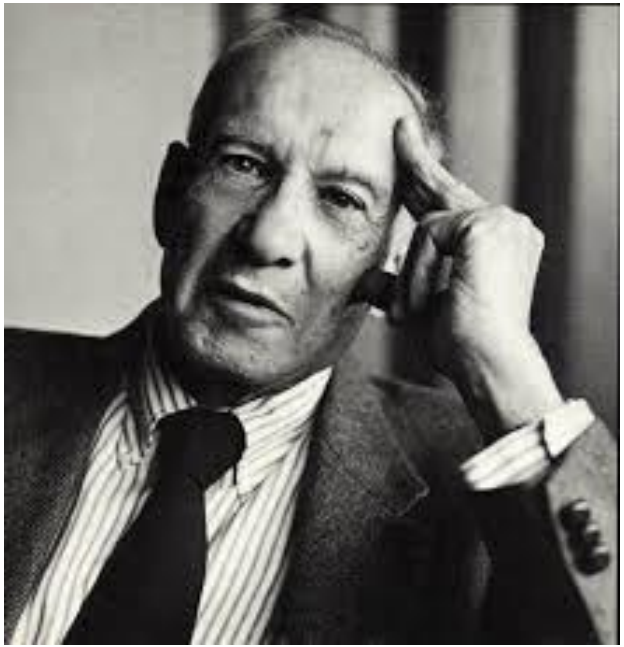
Case Study at:
http://www.osisoft.com/resources/case_studies/Case_Studies.aspx

Bring your Maps to Life

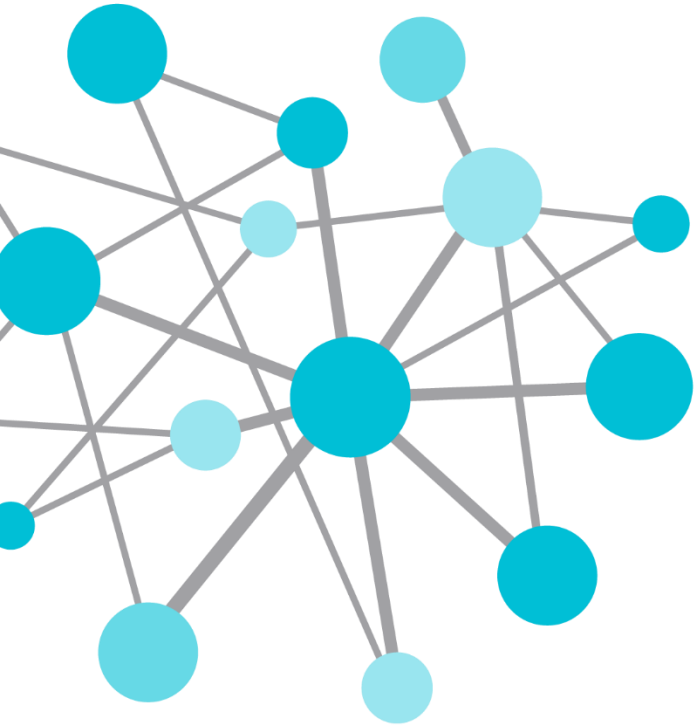


OSIsoft – The PI System
Decreasing the Cost of Curiosity

"The important and difficult job is never to find the right answers, it is to find the right question"



Peter Drucker,
The Practice of Management



Thank You

Presented by

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