

# Transform Information into Intelligence

Presented by **Randy Giguere**  
**Field Service Engineer, OSIsoft**

# Transforming the **value** of data



## Real-time Decision Support



System view



Individual view



Local view



Operation & Business insight



Group insight



Enterprise insight

## Business/Operation Intelligence

# Information to intelligence: Insights to drive decisions



**Context:** Data without context is limited

Real-time **Visualization:** Make information more consumable and actionable in real-time

To **transform** information into operational & business intelligence...

- **Investigation:** People must be able to **ask** and **determine how** and **why**
- **Integration:** Information must be able to span across **physical** and **technological** bounds

# How does the PI System enable **transforming** information into intelligence?



## Capabilities

- PI Datalink
- PI Event Frames
- Future data (New)
- PI Integrator for Business Analytics (Coming)\*
- PI Integrator for SAP® HANA® (Coming)\*



# Enabling Investigation

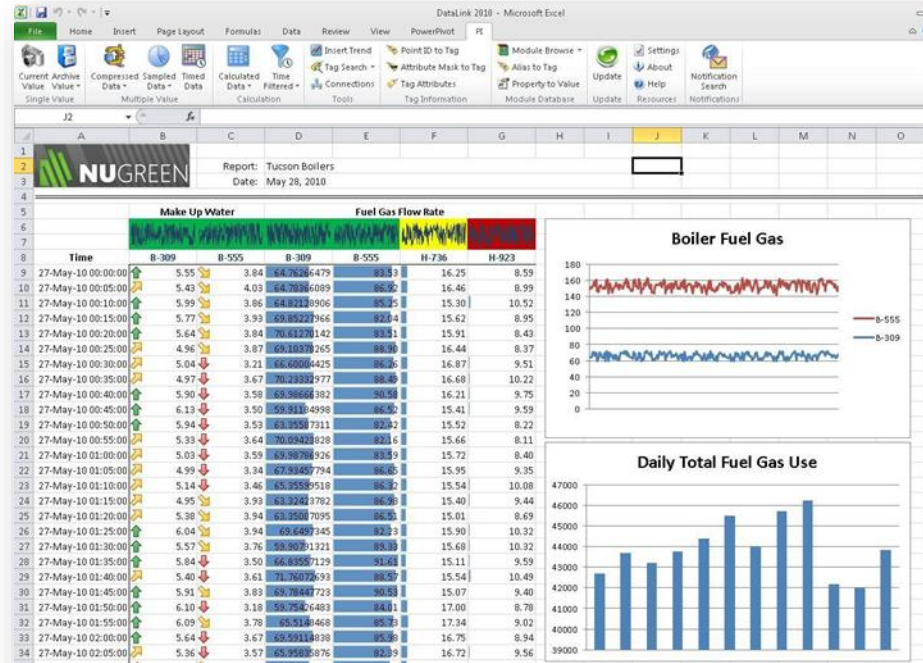
# Asking **How** & **Why**: PI DataLink provides seamless PI System access within Microsoft Excel

**Create novel insights**

**Perform rapid investigation**

*Add-in to Microsoft Excel*

- Create Reports
- Apply Calculations
- Retrieve data



# Asking **How** & **Why**: PI Event Frames easily identifies events for deeper root cause investigation

- The most powerful way to automatically bookmark PI time-series data
  - Allows engineers and business users to derive meaning from their data
  - Simplifies searching, analyzing, and reporting

**Downtime  
Excursion  
Batch**

**Related Data**

Event Attribute	Value
Name	Ex 20141215-0002
Start	15-Dec-2014 10:35:02
End	15-Dec-2014 10:47:26
Duration	12 min, 24 sec
Asset	Boiler-352
Excursion Type	High Violation
Fuel Gas Flow Avg	37.12 k sft3/h
Fuel Start	823.48 k sft3/ton
myPIKPI Max	47.19 bbl/d

# Asking **How** & **Why**: PI Event Frames are integrated across the PI System

Event detection  
Root cause event  
identification

## Event Generation

Hierarchical & batch  
event generation

A scalable event  
Infrastructure

## Event Database

Event storage  
Related data  
Calculations  
Event auditing

Exploring & comparing  
events in Excel  
Ad-hoc reporting

## Event Visualization

Event trending  
Root cause trending  
Hierarchical trending  
Event attribute visualizing  
Event comparing

Reporting &  
BI integration  
3<sup>rd</sup> party integration

## Event Integration

SOAP access  
Mobile app  
compatibility  
Programmatic access





## Integrating Information to Drive Insights

# Integration: What could you do if you knew the future of your...

## PRODUCTION

Are we on track to hit our production targets?

Do the fiscal projections justify deviating from standard operation?

## DEMAND

How much power will our customers need in the next 24 hours?

How much material are we obligated to deliver?

## ENVIRONMENT

Are there enough units online to handle the storm?

Is there an abnormal heat wave that will compromise the grid?

Historical



0 1

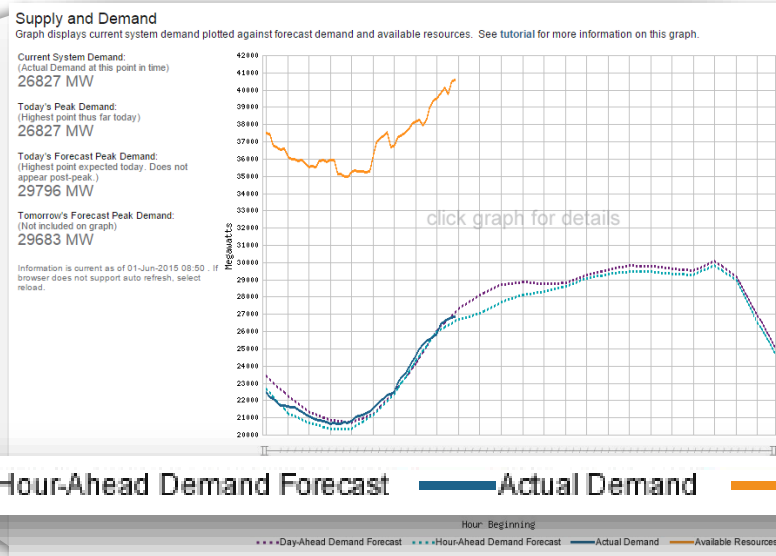
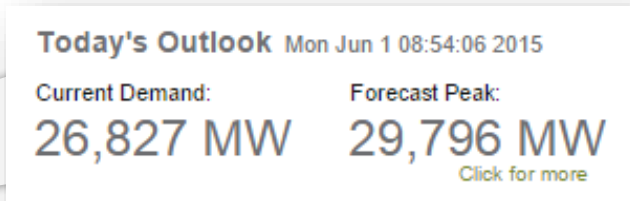
Real-Time



Future Data



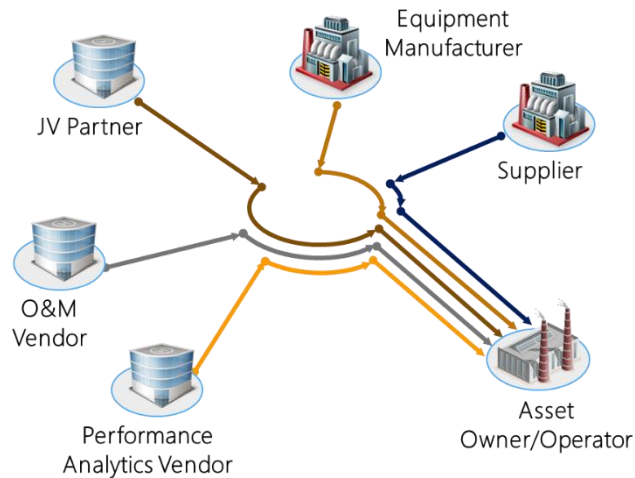
# Integration: Integrate forecasts directly into your PI System



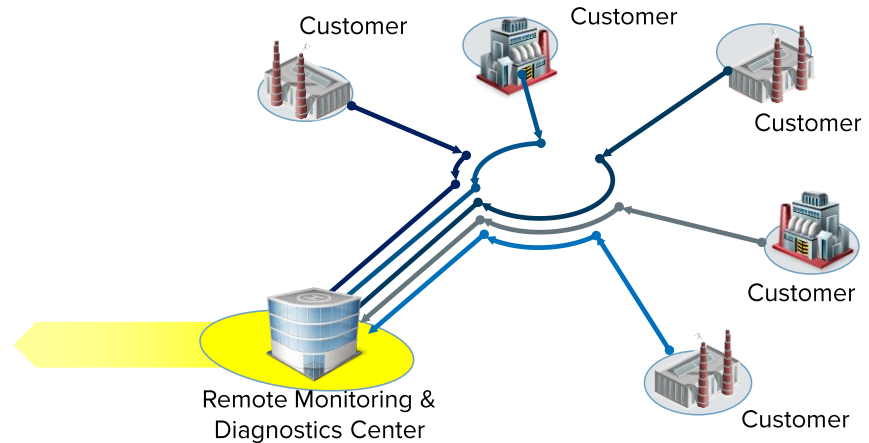
■ ■ ■ Day-Ahead Demand Forecast   ■ ■ ■ Hour-Ahead Demand Forecast   — Actual Demand   — Available

# Integration: Leverage external expertise to deliver intelligence with Connected Services

## Multiple stakeholders...

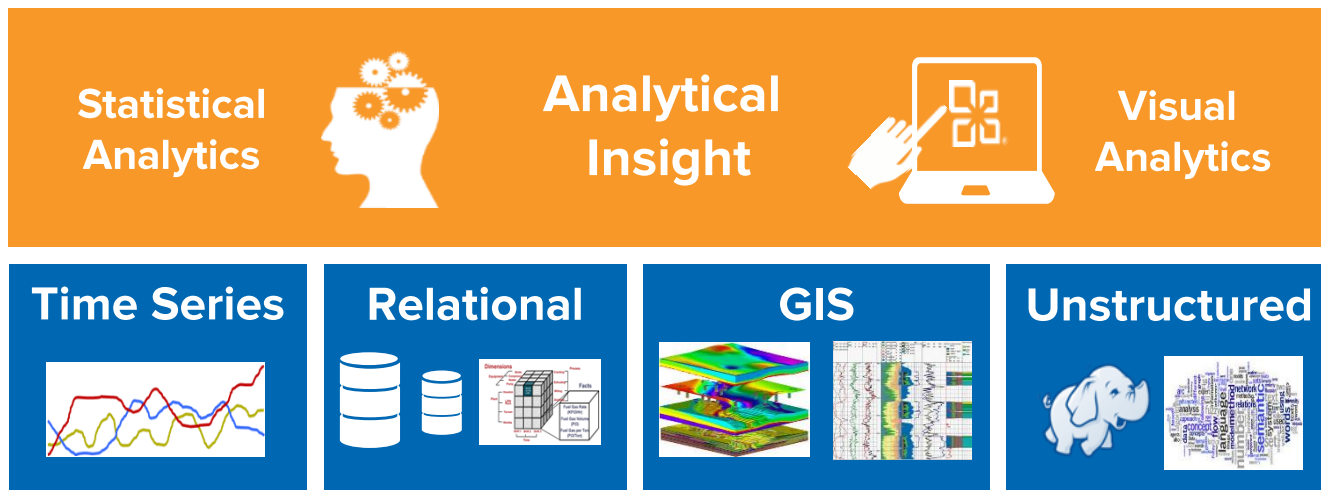


## ... a Service Provider perspective



Connected Services is a simple, secure, technical and **commercial framework** for **service providers** to obtain the data they need to drive service excellence

# Integration: Derive Big Data insights and intelligence from your PI System data



The Internet of Things Creates Big Data

The PI System let you Leverage Big Data for Insights

# Integration: Employ PI Integrators to gain Business Intelligence for the **Physical** World

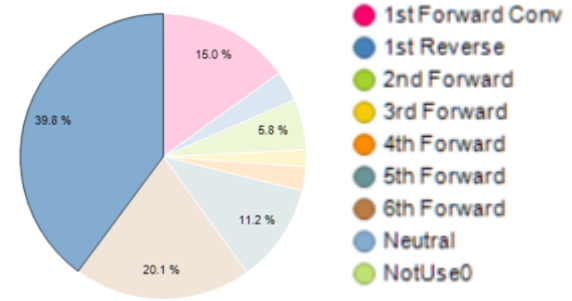


## 3 Contexts / 3 Perspectives

- Time-series: Time Focus
- Assets: Equipment Focus
- Events: Event Focus

PI  
Integrators

## Gear Select by Operator



2015-04-23 15:59:50	23.6547420812366	23.2147636153275	28.3663721651326
2015-04-23 16:00:00	23.6547420812366	23.2147636153275	28.3663721651326
2015-04-23 16:00:10	23.6547420812366	23.2147636153275	28.3663721651326
2015-04-23 16:00:20	23.6547420812366	23.2147636153275	28.3663721651326
2015-04-23 16:00:30	23.6547420812366	23.2147636153275	28.3663721651326
2015-04-23 16:00:40	23.6547420812366	23.2147636153275	28.3663721651326
2015-04-23 16:00:50	23.6547420812366	23.2147636153275	28.3663721651326
2015-04-23 16:01:00	23.6547420812366	23.2147636153275	28.3663721651326
2015-04-23 16:01:10	23.6547420812366	23.2147636153275	28.3663721651326

# Integration: Overcome the challenges to discovering insights



Increasing systems  
**complexity**



**Scarcity of domain &**  
industry **expertise**



Cost and resource  
**constraints**



Not everyone has direct access to information, leaving  
many potentially **impactful** insights **undiscovered**

# Noble Energy presents on the value of integrating data

## Our Approach Data as a Strategic Asset

### Gain New Insights Into Production Dynamics

- Across a wide variety of disparate data sources and variables such as well information systems, SCADA data, sensors, and unstructured data

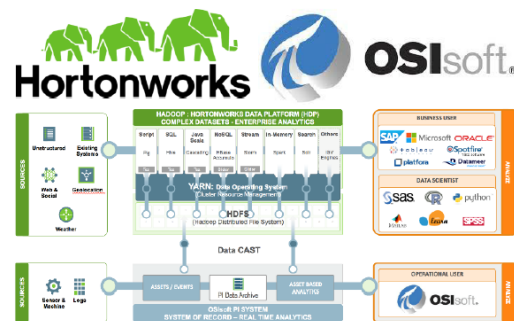
### Build Executive Consensus and Business Sponsorship

- Start with a single business unit – prove the value
- Recognition that data provides sustainable competitive advantage
- Widespread, systemic value creation because data is managed as professionally as capital or labor

### Rely on Trusted Partners to Assist

- Combination of Noble team members along with Hortonworks (Hadoop) and OSIsoft (PI / CAST)
- High performing operational and data science team (Python)

<http://www.osisoft.com/Templates/item-abstract.aspx?id=12337>



USERS CONFERENCE 2015

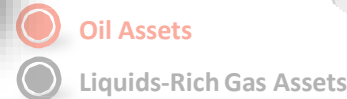
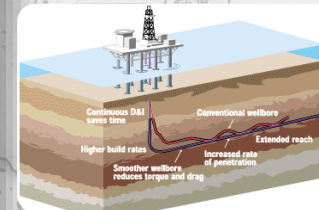
© Copyright 2015 OSIsoft, LLC



# Devon presents on data integration

## What do we gain?

- BI tools become more responsive (Spotfire)
- Users can build queries ad hoc (SQL)
- Scheduled and ad-hoc reporting (SSRS)
- Historical data available to existing BI tools
- Real-time data in Hadoop
- Align data for BI within a common time scheme
- Enable unique uses for real-time data



# Integration: PI Integrator Roadmap - Q3 2015

## **PI Integrator for Business Analytics: BI Edition**

- Create PI Views
- Access decision ready data via ODBC
  - First class support for Tableau, Tibco Spotfire, and Microsoft BI (Excel, PowerPivot, Power View, Power BI)
  - Works with any software with an ODBC data source connection

## **PI Integrator for SAP® HANA®**

- Automatically creates Virtual Tables via Smart Data Access (SDA)
- Native integration with SAP HANA
  - Linux and SAP HANA Cloud Platform
- Available through SAP

# Transforming the value of data



## Real-time Decision Support



System  
view



Individual  
view



Local  
view



Operation &  
Business insight



Group  
insight



Enterprise  
insight

## Business/Operation Intelligence

감사합니다

谢谢

Danke

Merci

Gracias

**Thank You**

ありがとう

Спасибо

Obrigado

# Questions

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



State your  
**name & company**

# Please remember to...

Complete the Survey  
for this session



The **Power of Data**  
DECISION READY IN REAL-TIME

## Evaluation Form (Seminar Location - Date)

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Email: \_\_\_\_\_

### Quality and content of the presentations

Poor Good Excellent N/A

Welcome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Journey To Real-Time Operational Intelligence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Power of Connection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tank Level Management System	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using the PI System to Aid in Troubleshooting Operational Aspects of Oil and Gas Well Drilling and Completion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unleash your Infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information on the Spot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wrap-up/Seminar Conclusion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Quality and organization of the seminar

Choice of date	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time allowed for lunch/breaks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Choice of presentations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Break and time allowed for the presentation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



OSIsoft.

REGIONAL SEMINARS 2015

© Copyright 2015 OSIsoft, LLC

# Come See Us At The Pods!

Bring your questions, comments, and suggestions!

