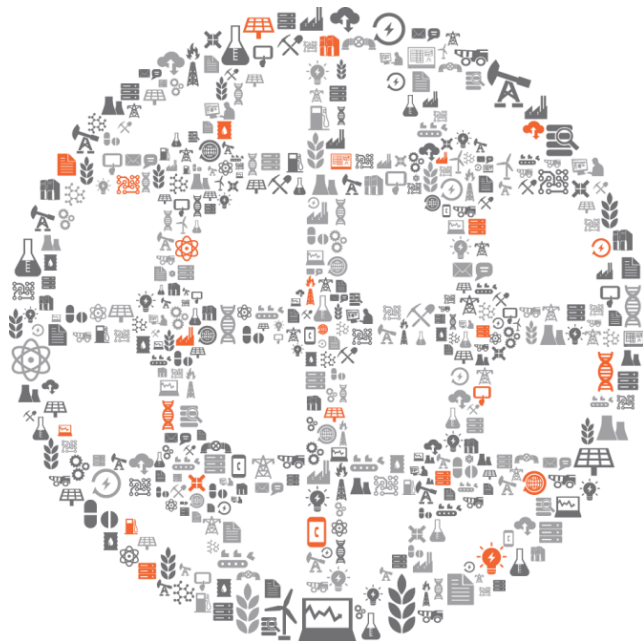




OSIsoft®

# REGIONAL SEMINAR

The **Power** of **Data**

**THRIVING  
IN A  
WORLD OF  
CHANGE**



# The Power of a Data Infrastructure: The PI System® Explained

Presented by **Chris Lonsberry, Systems Engineer**

# Why Plan a Data Infrastructure?

Roads: Infrastructure takes you

*Where you are*

*to Wherever you want to go*



How is your data infrastructure organized?

# Why a Data Infrastructure

Electrical Power



Water Systems



Transportation



Communication



Data



**Sustainable**

**Reliable**

**Accessible**

**Enabling**

**Organized**

# Context

*"I am the **energy efficiency expert**. I need to **analyze and compare truck performance** for **different mining sites** located hundreds of miles from my office."*

*"An incident happened last night."*

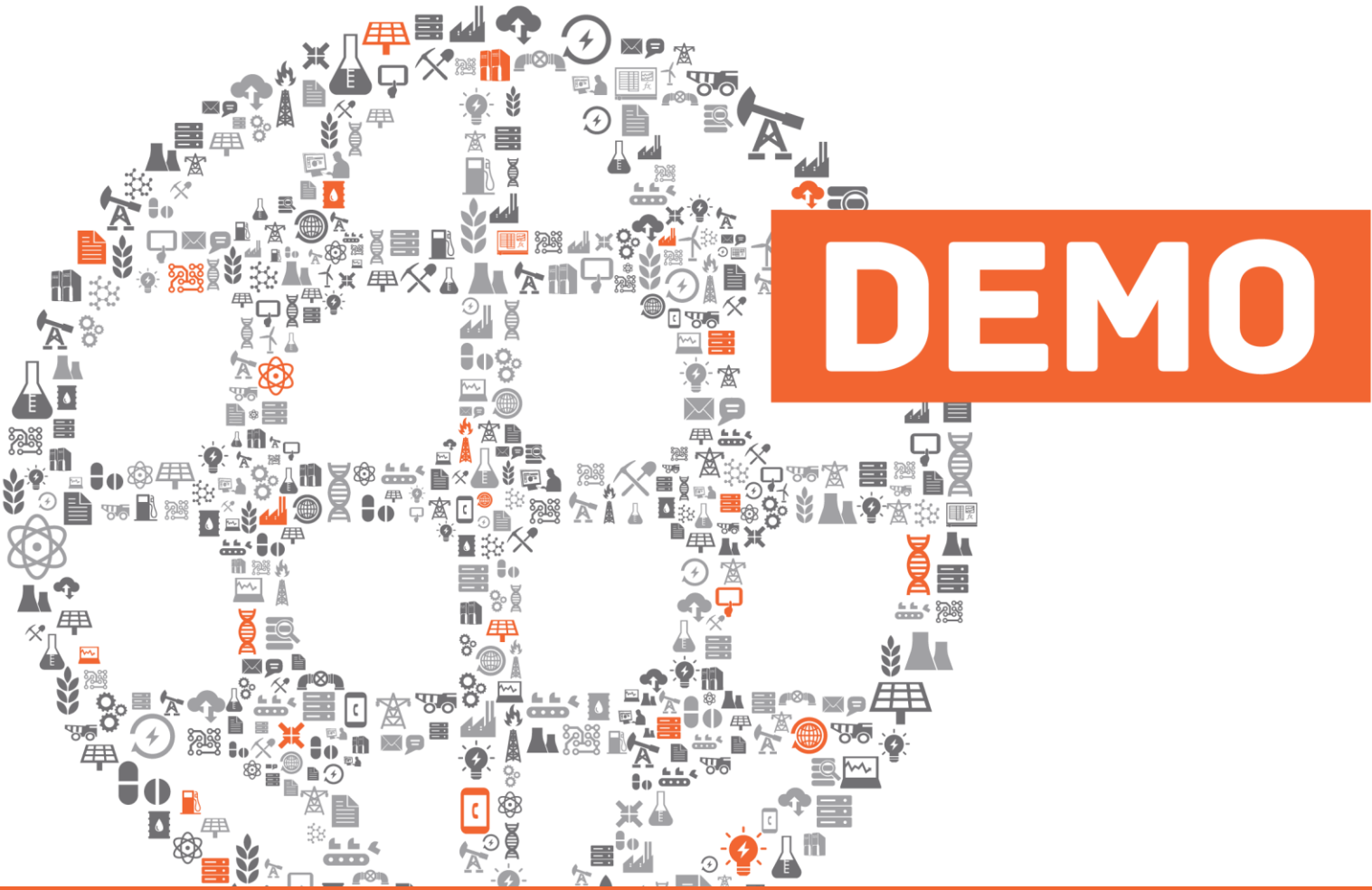
*"I need data to assess the situation but it is not readily available."*



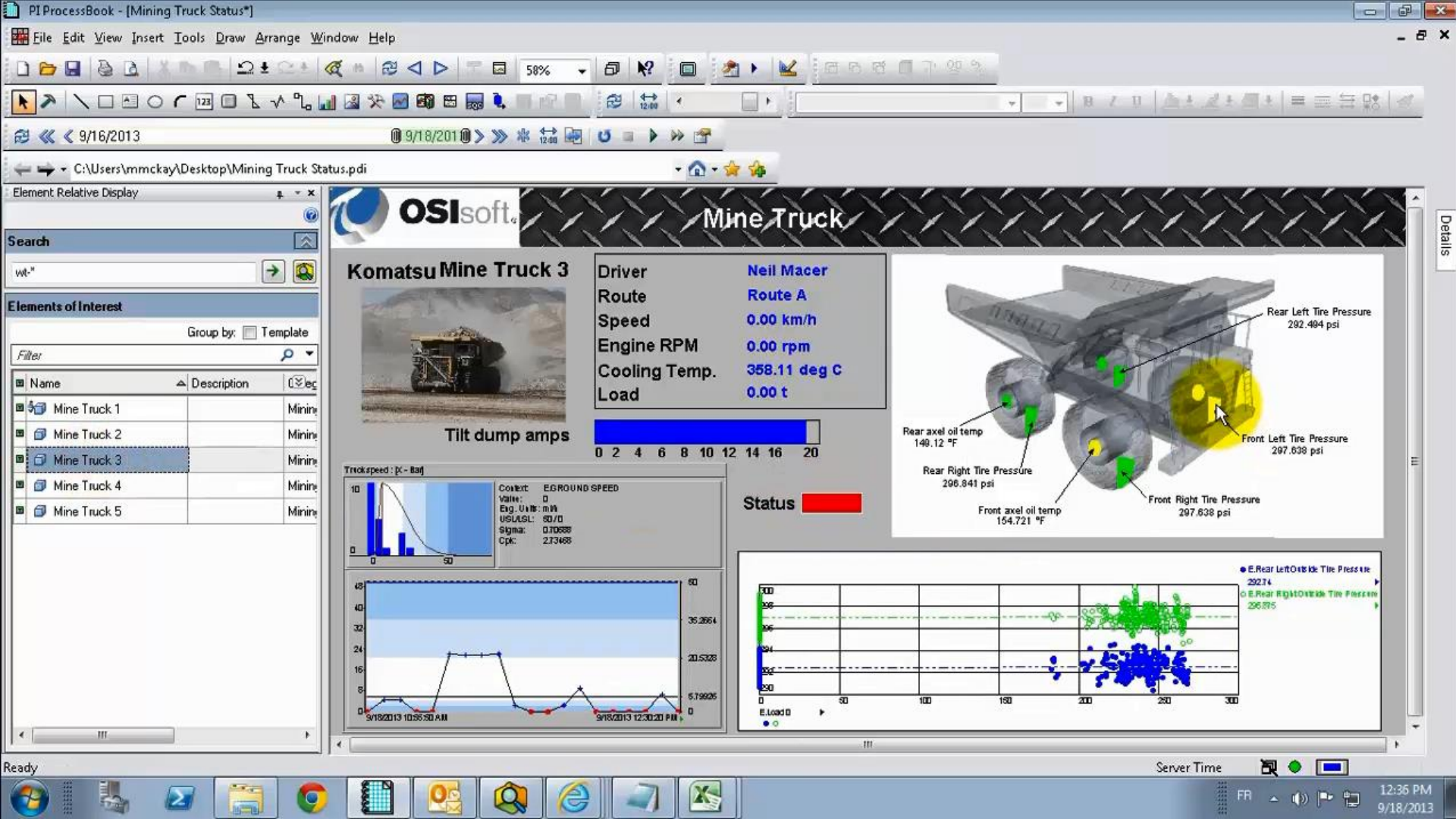
*Chris*

*Energy Efficiency  
Expert*





# DEMO



# PI System Infrastructure



*I need to be notified when this kind of events happen.*



*I need the big picture of my wind turbines to understand what is going on.*



*The pump is not working. What's the problem?*



*Information must be shared across the enterprise through different business systems.*



*I need to analyze and compare turbines performance.*

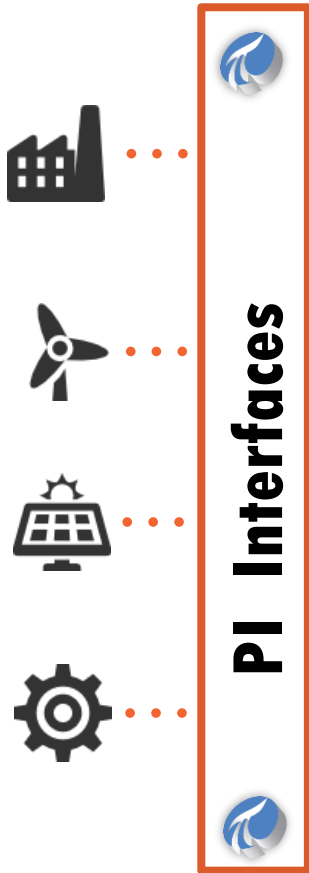


*We all want to know how the plant is performing in real-time.*





# PI System Infrastructure



*The pump is not working. What's the problem?*



# PI Interfaces

- More than **450** interfaces
- Support multiple **protocols** and **data sources**
  - OPC, Modbus, SNMP, Text File, ODBC
- Robust and reliable



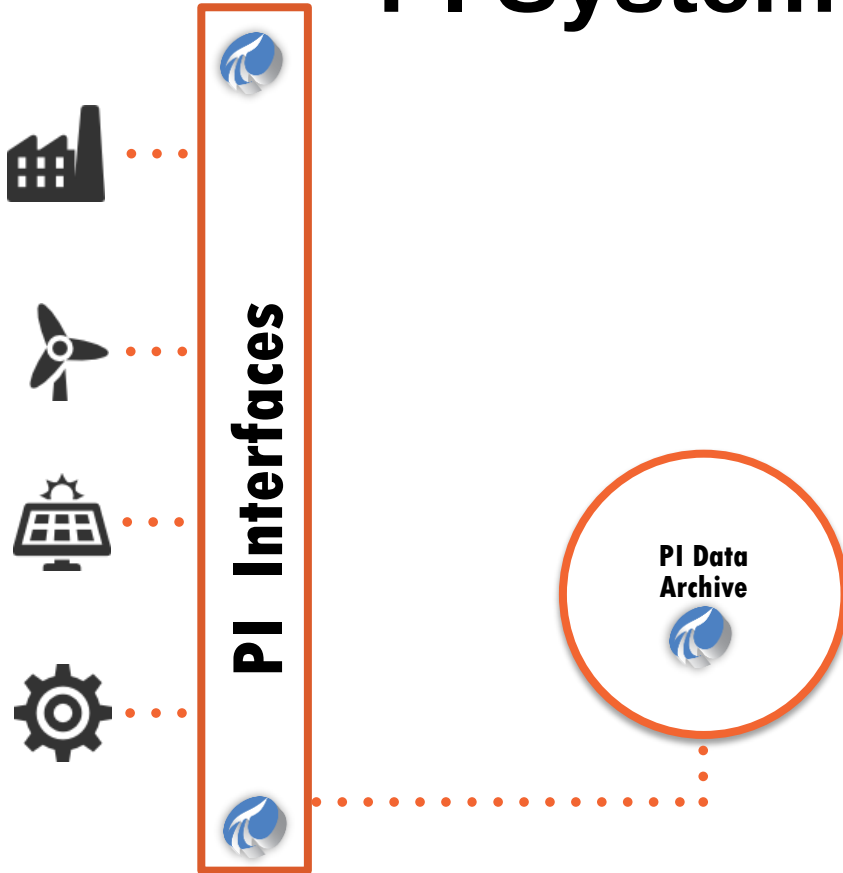
MY SUPPORT PRODUCTS DOWNLOAD CENTER KNOWLEDGE CENTER CONTACT US

## PI Interfaces

Type a few keywords and hit "Enter" to find the right PI Interface for your system.  
Hint: try the vendor name (for example: "Honeywell").

| Interface                                                                                    | Platforms |
|----------------------------------------------------------------------------------------------|-----------|
| <b>PI COM Connector for OPC HDA Servers</b><br>PI-CTR-OS-OPCHDA                              | Windows   |
| <b>PI Interface for OPC Alarms and Events</b><br>OPCae, DeltaV, Delta V<br>PI-IN-OS-OPCAE-NT | Windows   |
| <b>PI Interface for OPC DA</b><br>OPCInt, OPC Client, OPC DA<br>PI-IN-OS-OPC-NTI             | Windows   |
| <b>PI Interface for OPC HDA</b><br>OPC HDA Client, OPCHDA<br>PI-IN-OS-OPCHDA-NT              | Windows   |
| Emerson DeltaV Smart Connector                                                               | Windows   |

# PI System Infrastructure



*The pump is not working. What's the problem?*



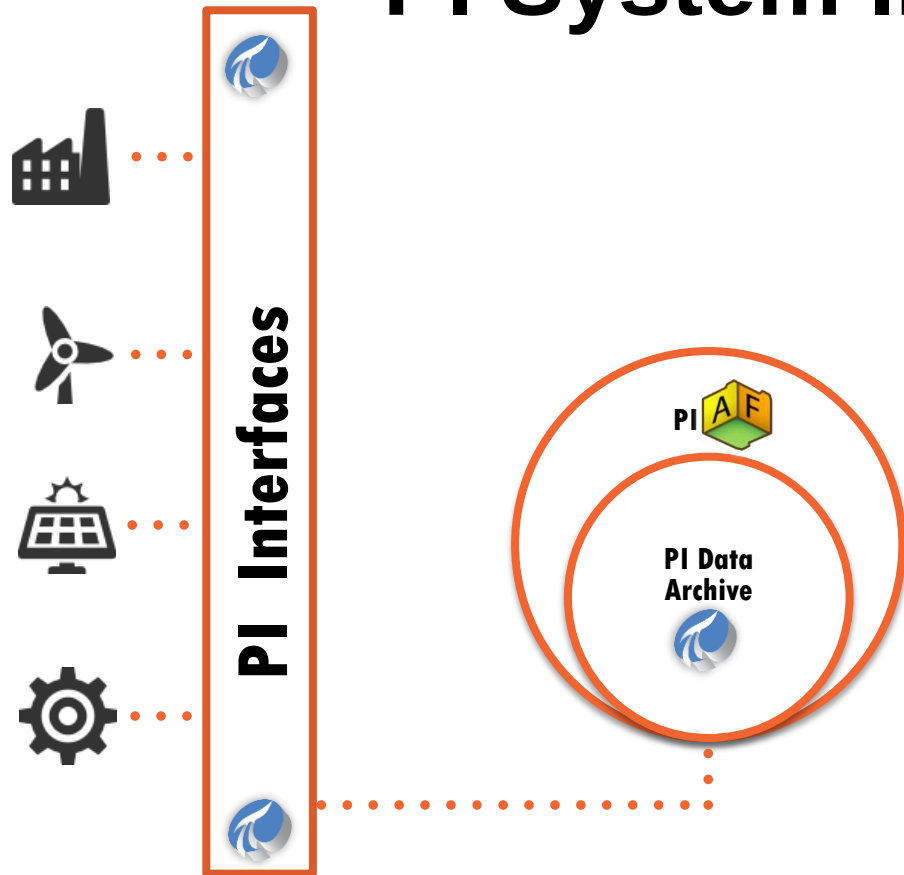
# PI Data Archive

- Optimized for **real time** data **streams** - TAGS

| TAG         | TIME               | VALUE | STATUS |
|-------------|--------------------|-------|--------|
| TIC1001.PV  | 23-MAY-08 11:01:02 | 12.3  | GOOD   |
| LIC30211.PV | 23-MAY-08 11:01:03 | 198.4 | GOOD   |
| ...         | ...                | ...   | ...    |

- Designed to archive data for **millions** of tags and **tens** of years

# PI System Infrastructure



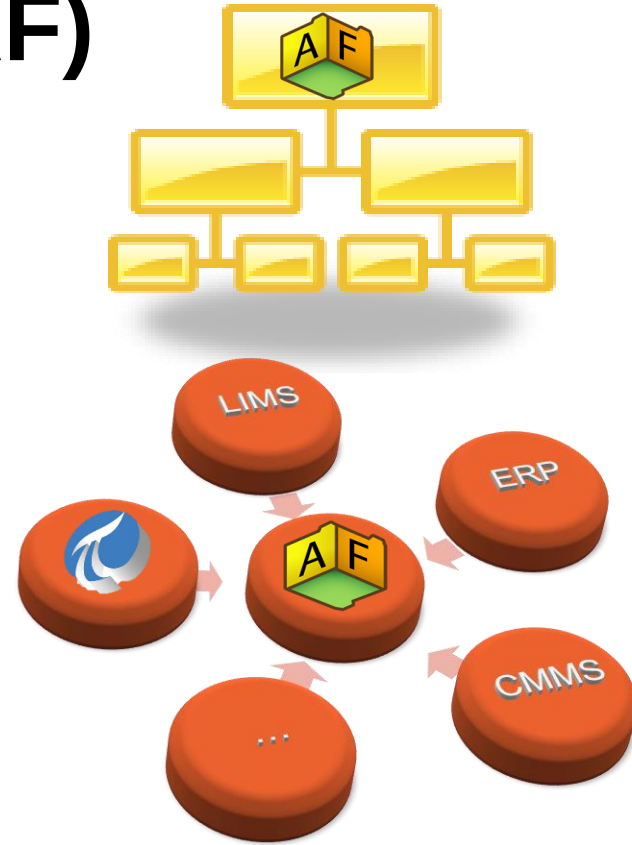
*The pump is not working. What's the problem?*



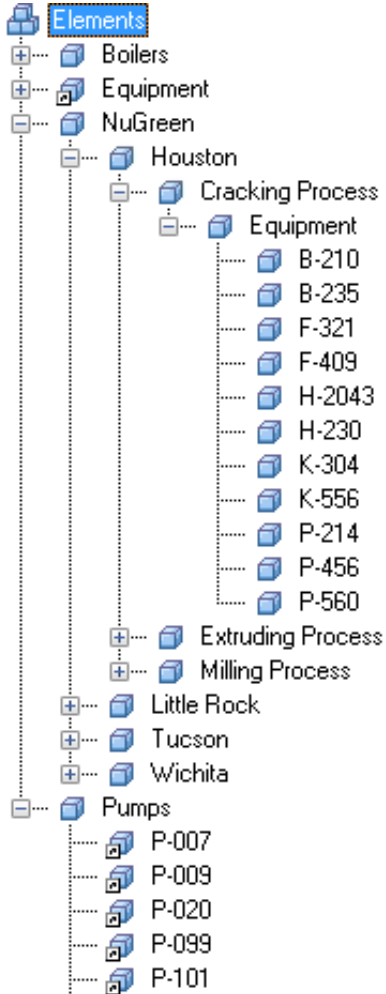


# PI Asset Framework (PI AF)

- Organize your assets data in a **hierarchical**, **scalable**, **secure**, and **extensible** database
- Model data from **different PI Servers**
- Relate **non time-series** data sources
- Integrate with **analyses** and **notifications** tools



# The Big Picture



## Analyses

- Efficiency analysis
- Key Performance Indicators (KPI)

## Events

- Downtime
- Startup
- Failure

## Notifications

- High speed
- Rotor failure
- Low pressure

## Time-series

- In-Flow
- Pressure
- Vibration data

## Asset details

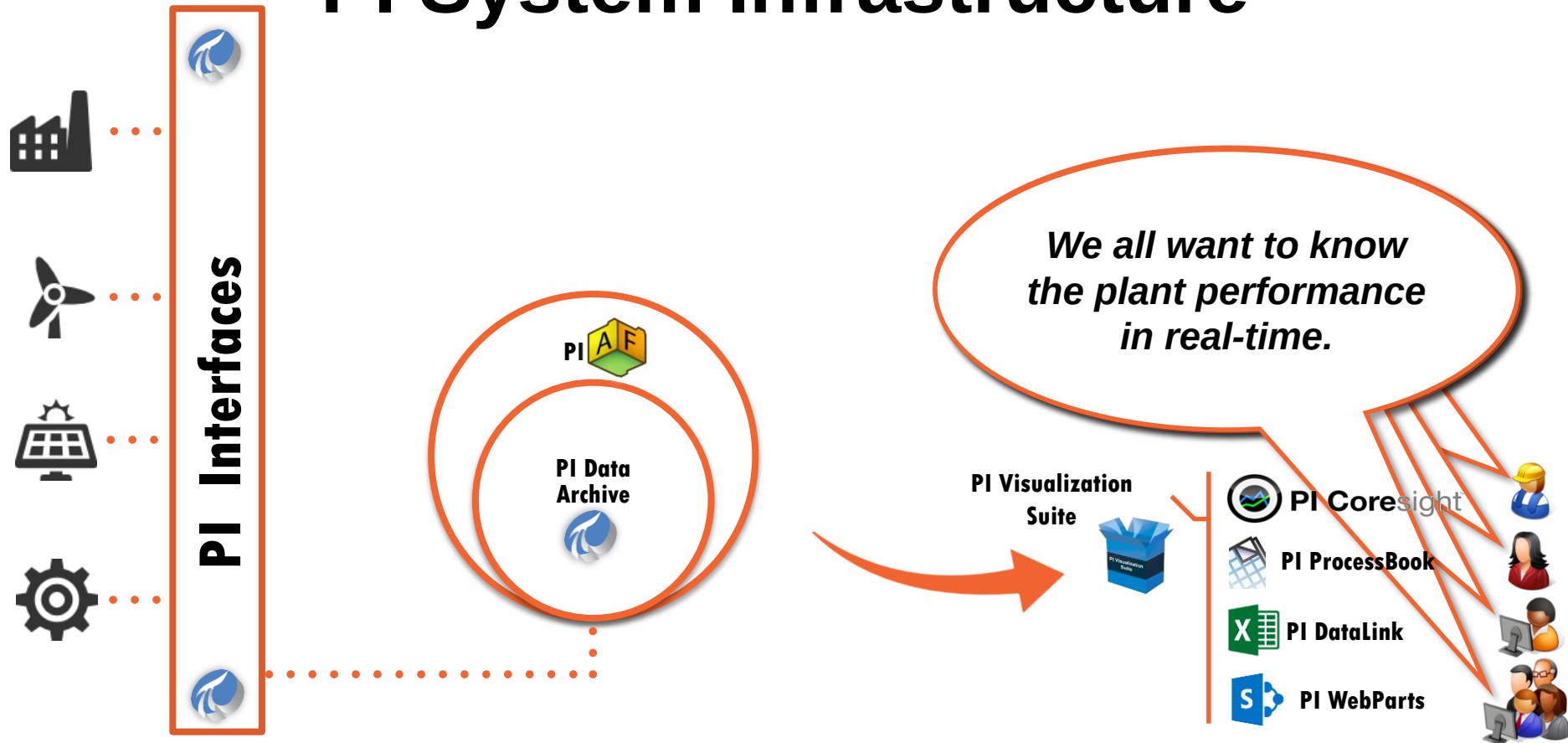
- Name
- Model
- Manufacturer

## External data

- Performance curves
- Last maintenance date
- Design documents
- Best operating procedures



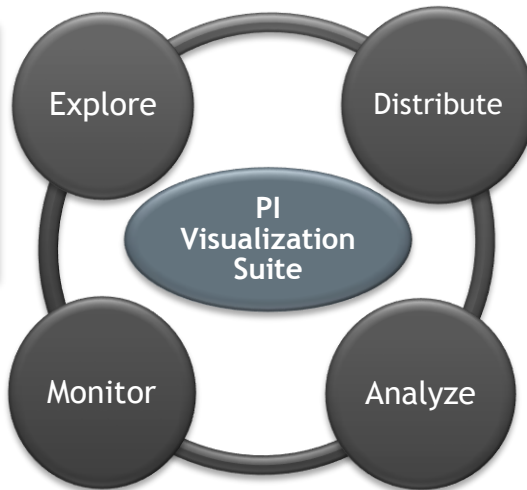
# PI System Infrastructure



# Visualization Landscape

## PI Coresight

## Collaboration and ad hoc analysis



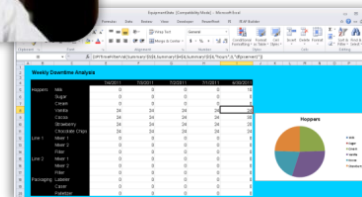
## PI WebParts

## Composite web applications



## PI DataLink

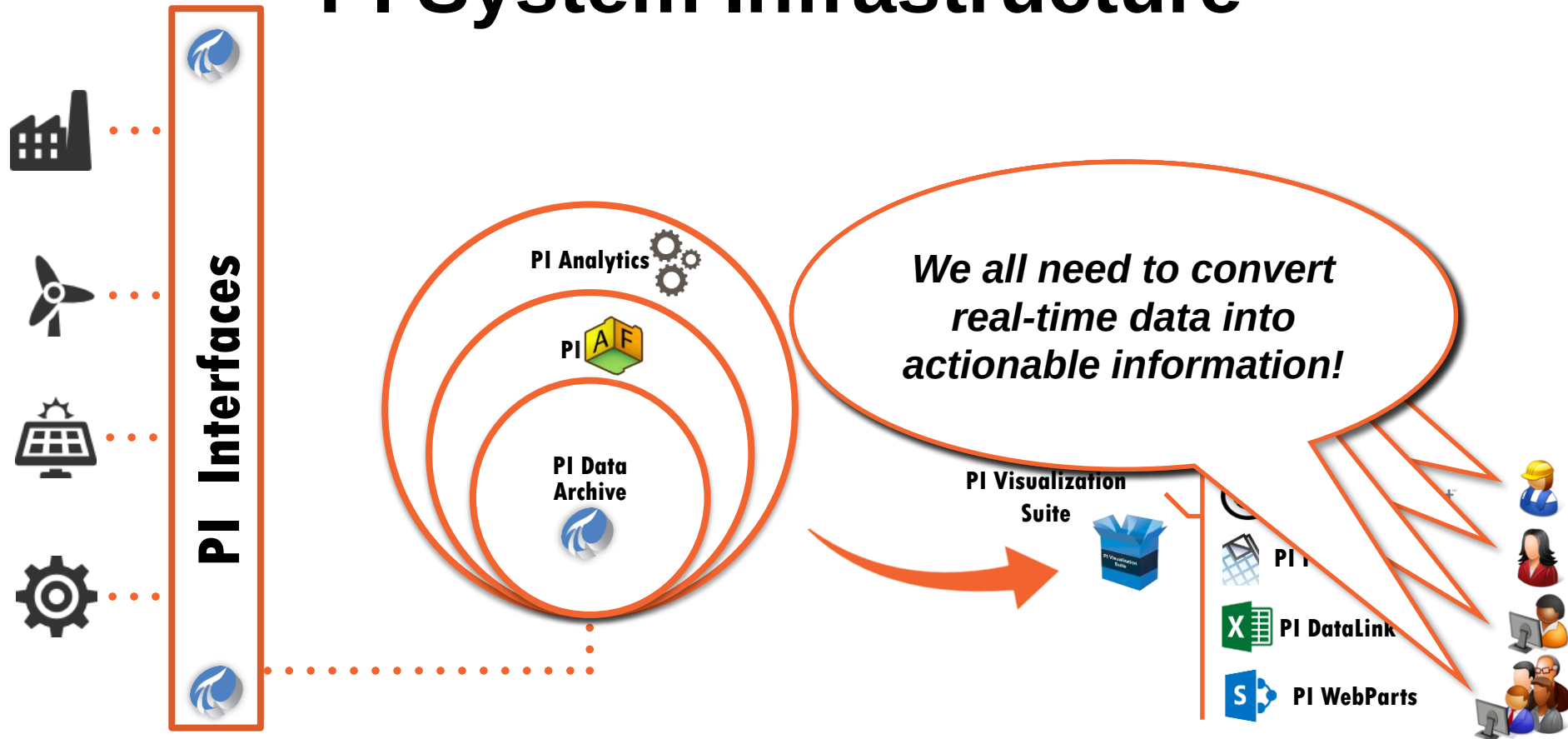
## Reports and data analysis



# PI ProcessBook

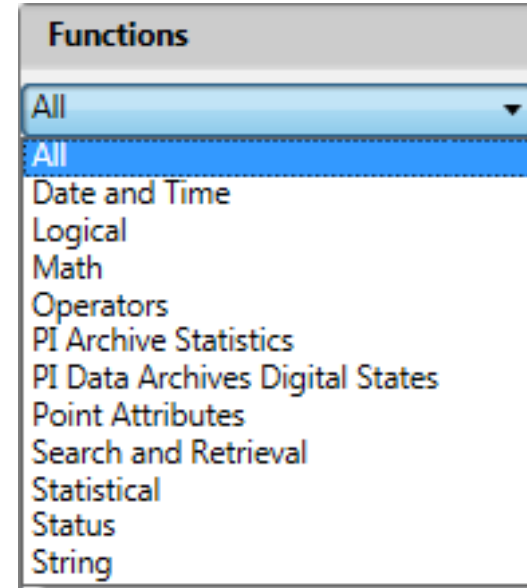
## Authoring tool for process displays and trends

# PI System Infrastructure

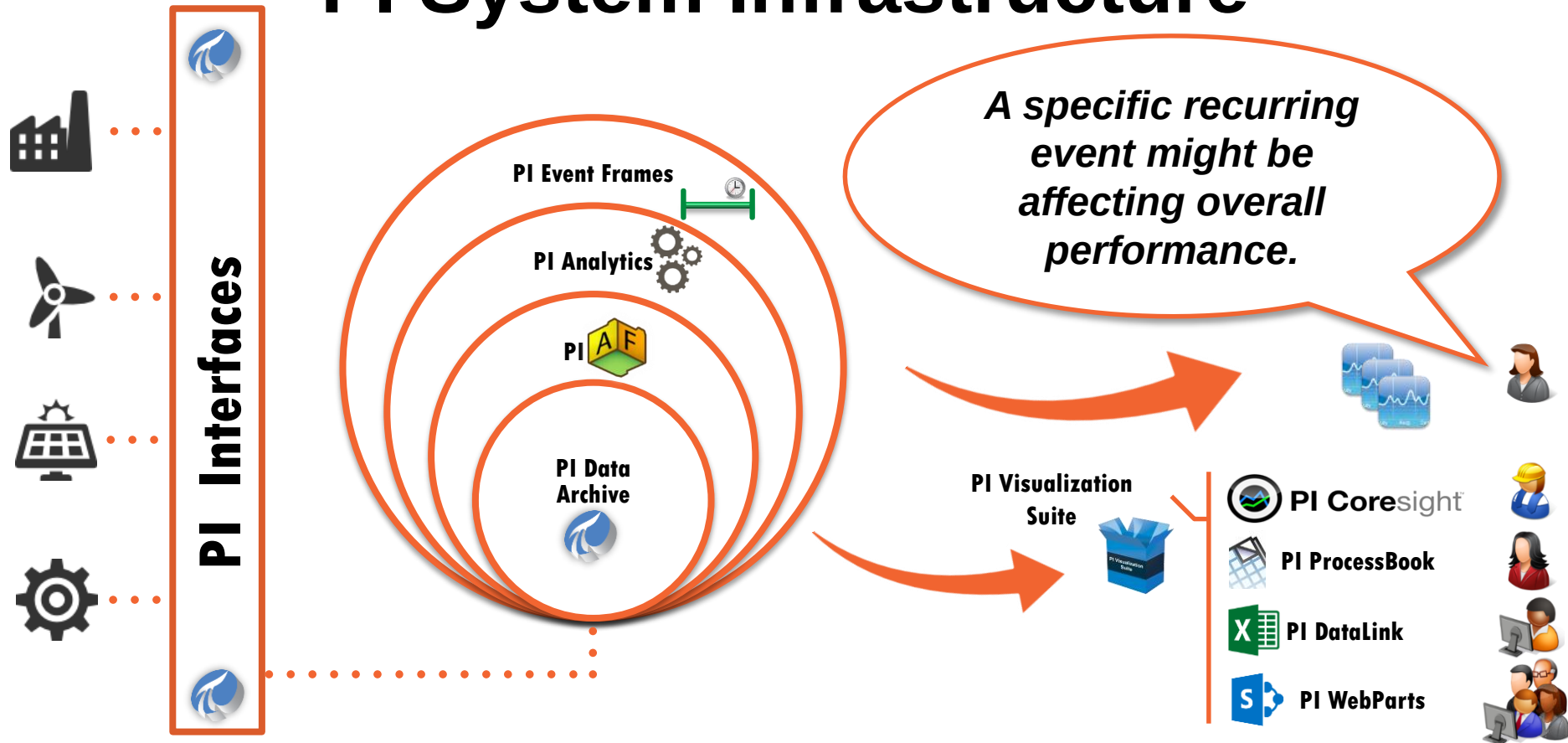


# PI Analytics

- Transforms operational data into **actionable information**
- The analyses are:
  - Created by configuration or programming
  - Triggered periodically or on events
  - Consulted on-demand or historized



# PI System Infrastructure





# Bookmarks for your Real-Time Data

PI Event Frames

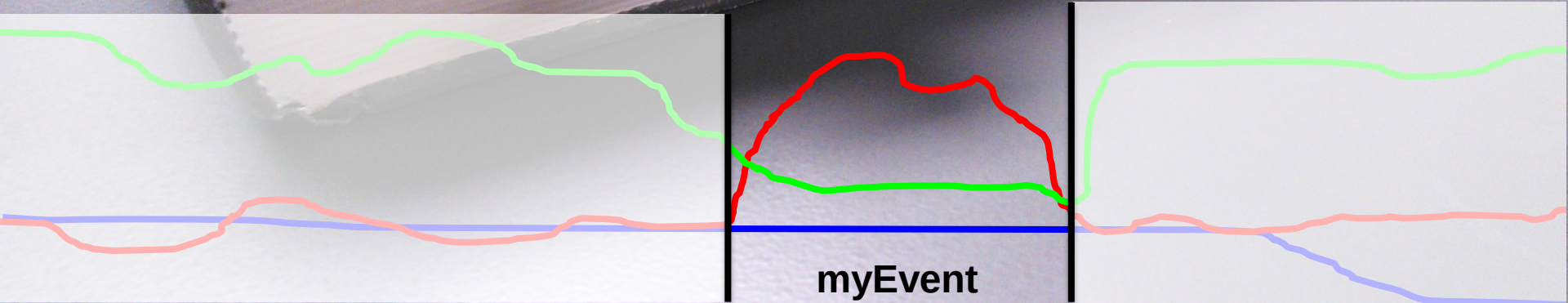


Info

End

Start

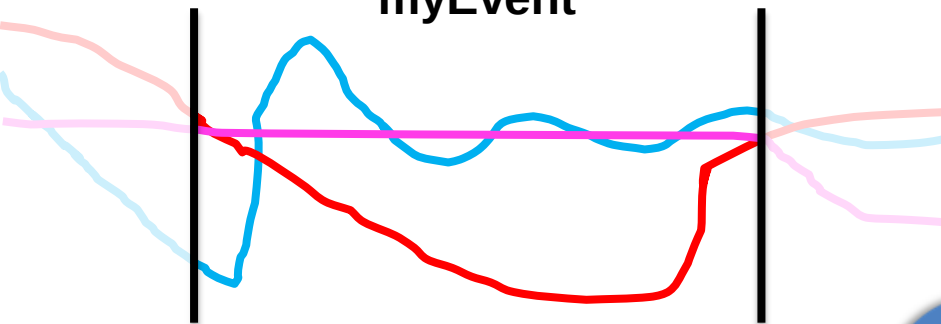
Your  
Data



myEvent

## Simplify Data Analysis

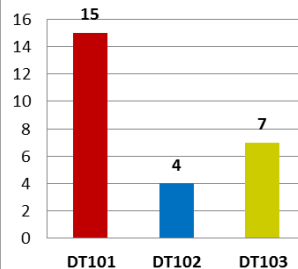
myEvent



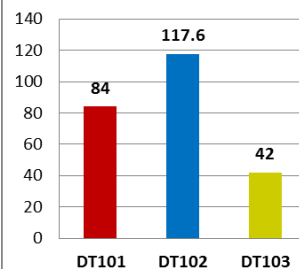
## Perform Asset Comparisons



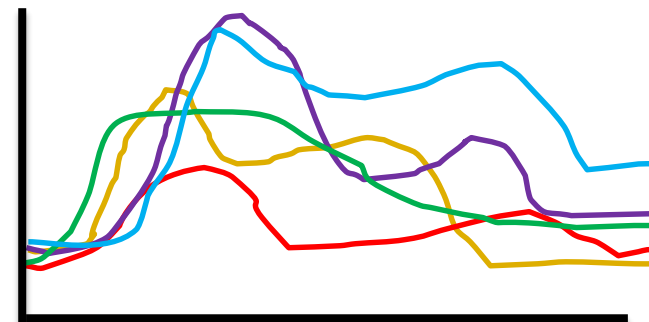
Weekly Downtime  
(Instances)



Weekly Cumulative  
Downtime (hrs)



## Event Overlay Trend (Temp.)

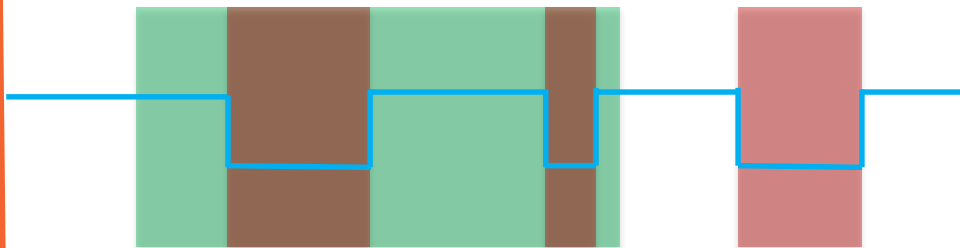


| Name | Temp.Max |
|------|----------|
| EF1  | 122.47   |
| EF2  | 109.34   |
| EF3  | 112.73   |
| EF4  | 98.61    |
| EF5  | 125.24   |

## Downtime Events for Product XYZ

Product XYZ (1)

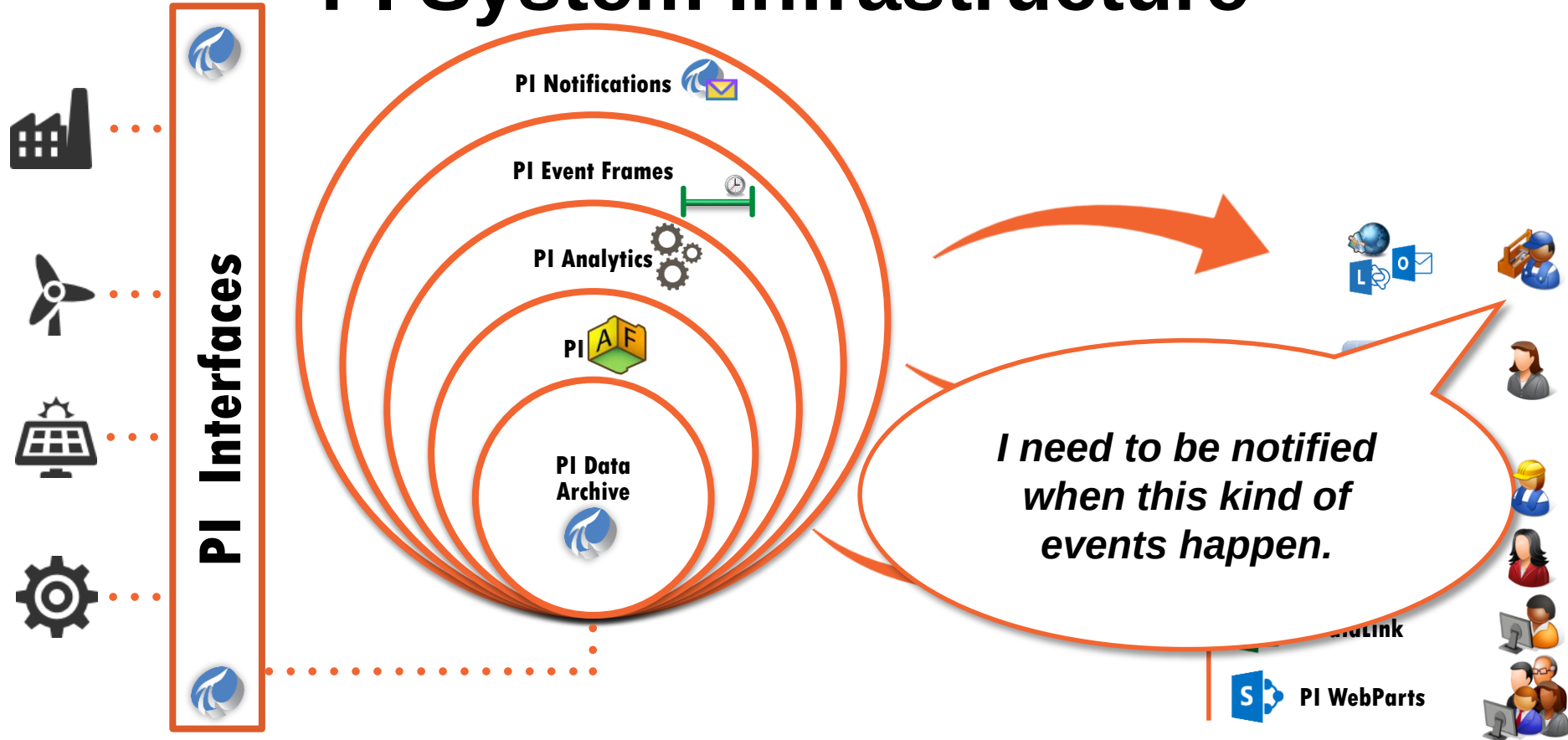
Downtime (2)



## Perform Event Comparisons

## Discover Event Interrelationships

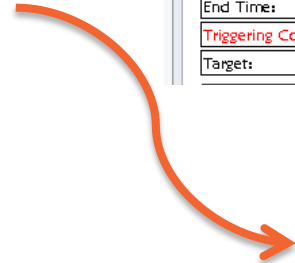
# PI System Infrastructure



# PI Notifications



DELIVER



From: ☐ PINotAdmin  
To: ☒ Mariana Sandin  
Cc:  
Subject: Transformer TR0842 Load is in hi

[Instant PI WebParts Trend](#)  
[Acknowledge With Comment](#)  
[Acknowledge](#)

|                       |                      |
|-----------------------|----------------------|
| Name:                 | Transformer Load - F |
| State:                | High                 |
| Trigger Time:         | 7/29/2012 9:07:01 A  |
| Start Time:           | 7/29/2012 9:07:01 A  |
| End Time:             | 1/1/1970 12:00:00 AM |
| Triggering Condition: | Load > 22            |
| Target:               | TR0842               |

Wind Farm availability is under 70%

DF PI Notifications - Offline

pinotifications@osidf.test.int 2:45 PM

Wind Farm availability is under 70%

Name: Wild River Wind Farm  
Server: DFPIAF  
Database: Windtopia  
Start Time: 8/1/2012 2:30:00 PM Pacific Daylight Time (GMT-07:00:00)  
Trigger Time: 8/1/2012 2:45:00 PM Pacific Daylight Time (GMT-07:00:00)  
Target: Wind Power Generation Fleet(Wild River Wind Farm)  
State: OutsideControl  
Priority: Normal  
Link:  
[Wind Farm Overview](#)  
Actions:  
[Acknowledge](#)

Last message received

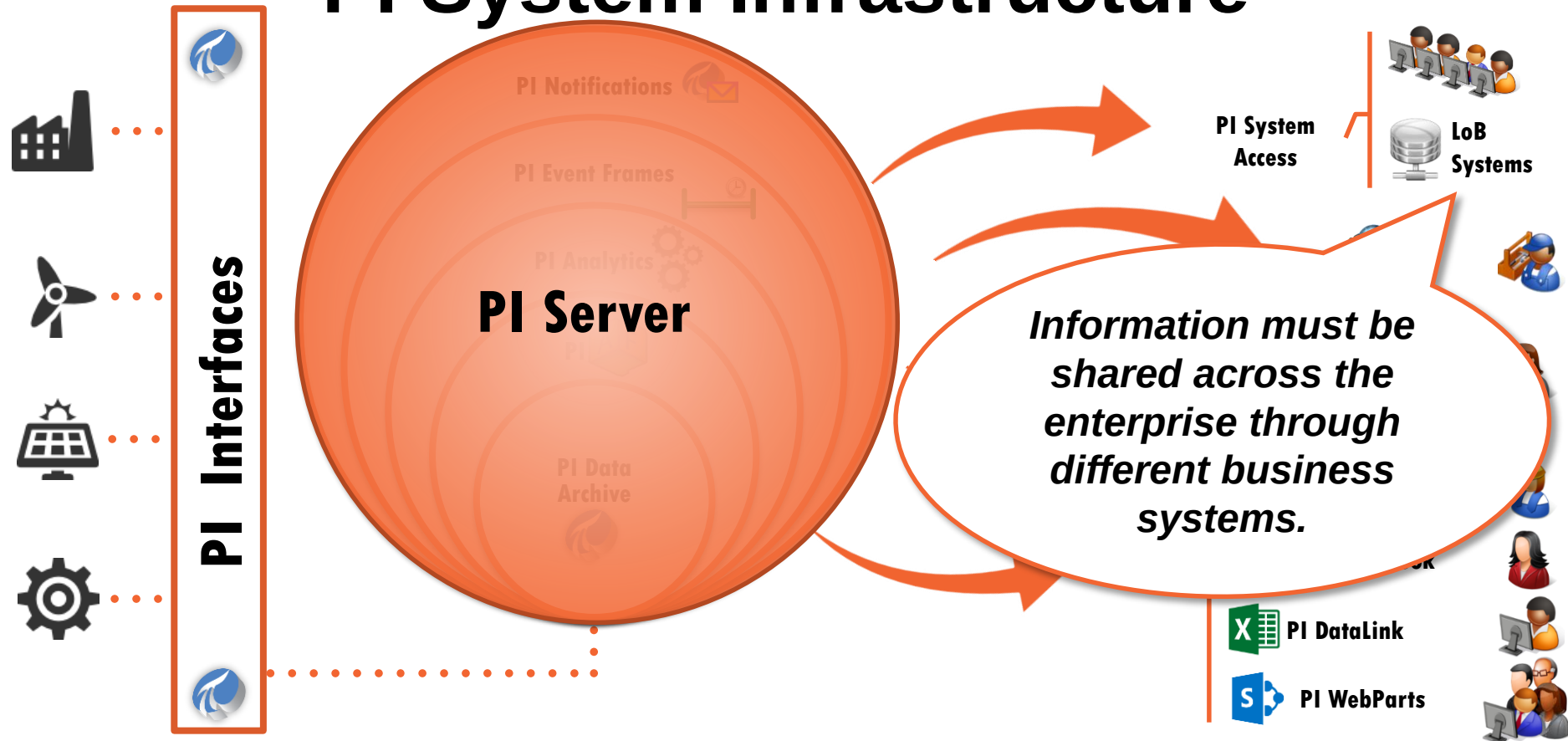
Redirect Ignore



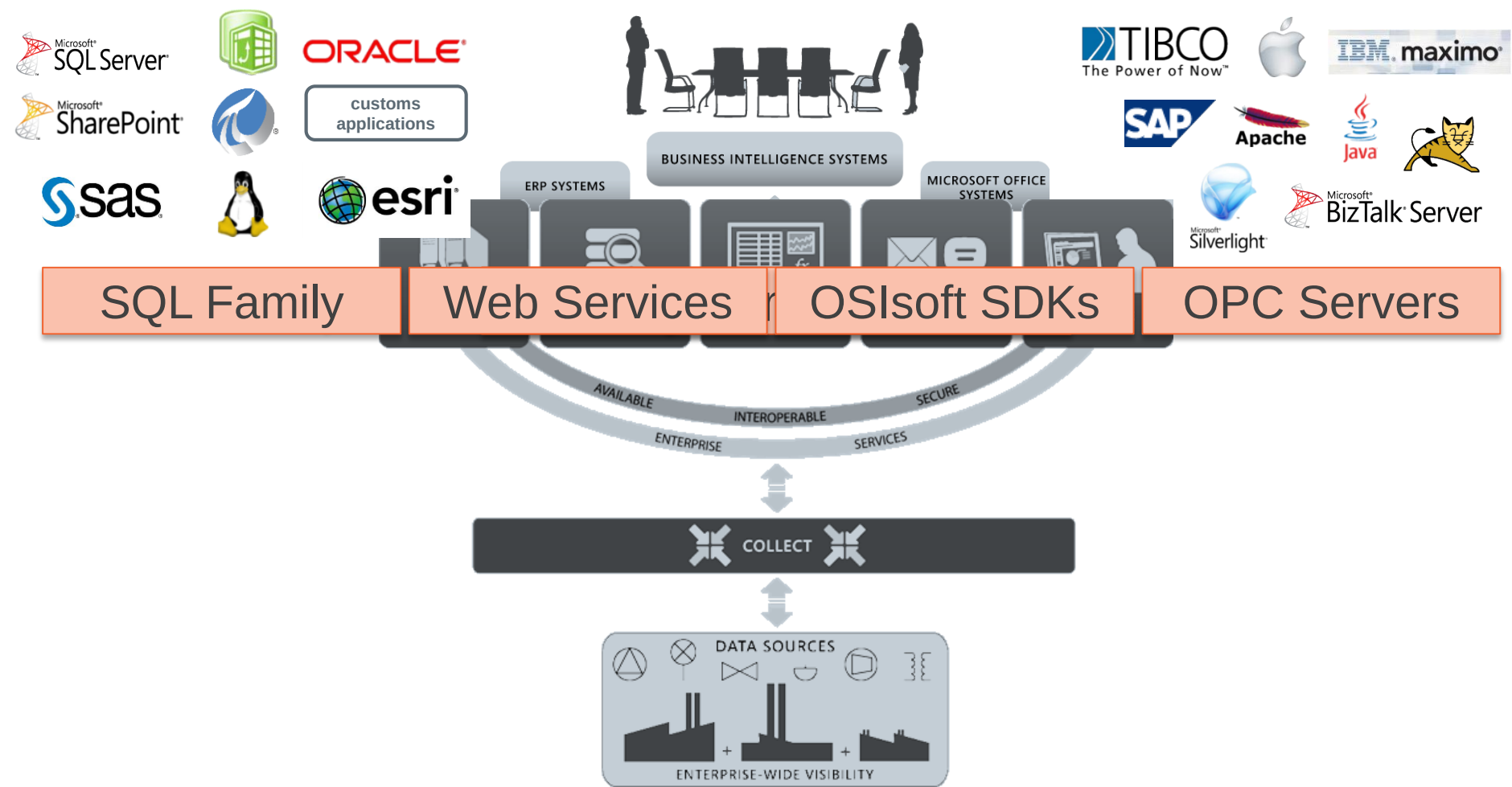
Web Service



# PI System Infrastructure









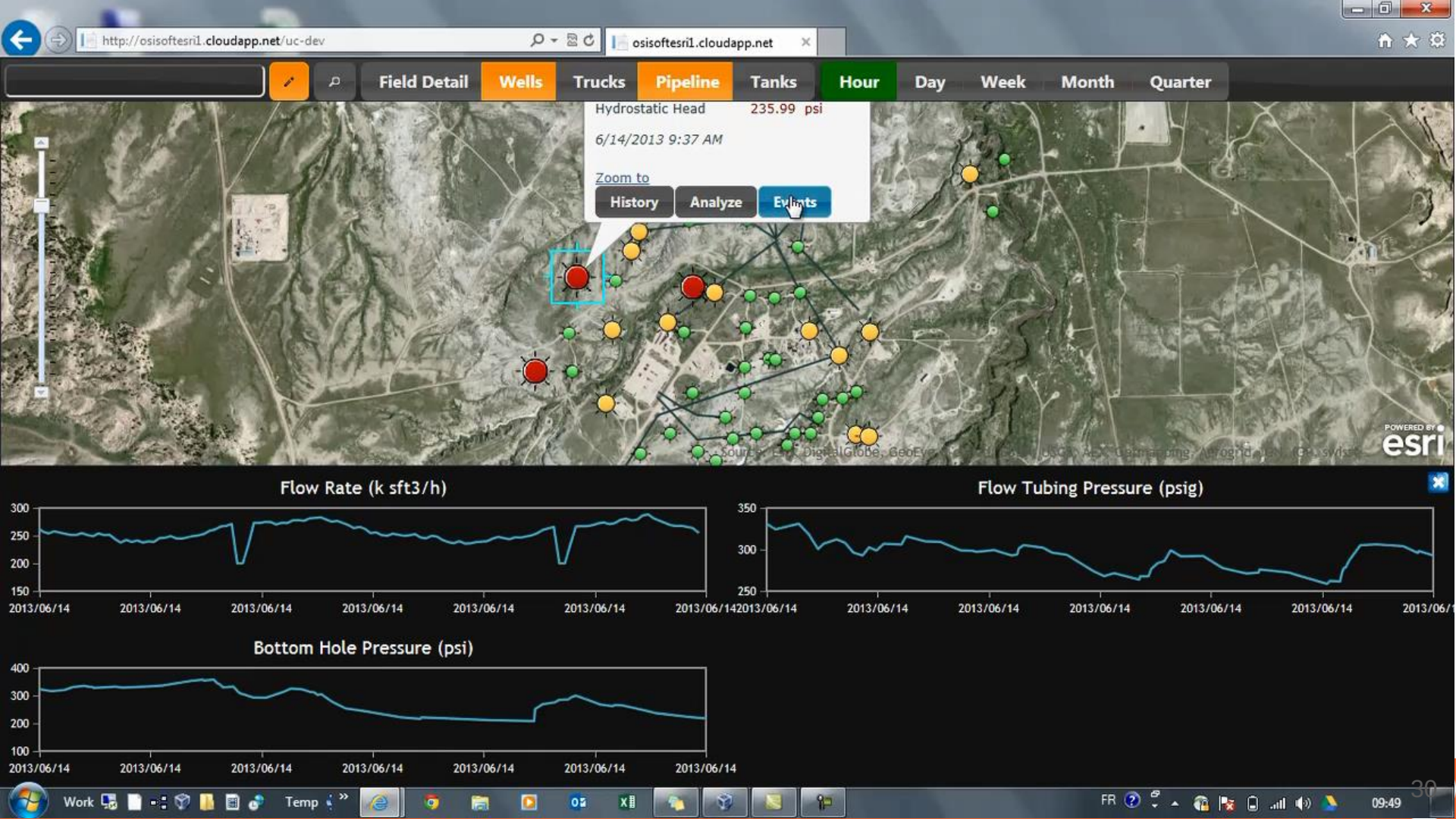
# Partners





- ESRI is the maker of **ArcGIS**, the leading product of Geographical Information Systems **(GIS)**.
- Rely on the PI System infrastructure to **combine GIS** data with **real-time** information





# Find Out More About Our Partners

- Partner Solution Showcase
- Partner List

The screenshot shows the OSIssoft Partner Solution Showcase homepage. The header includes the OSIssoft logo, a search bar, and links for Sign In and Register. The main navigation bar contains links for Home, Browse All Solutions, Solution Directory, News & Announcements, and FAQ. The main content area features a welcome message, a video of Tom Gilson (Director, Partner Programs, OSIssoft), and a list of news and announcements including a 2013 OSIssoft Partner Solution Showcase Webinar. There are also links for Partner List and Solution List, and a button for Browse All Solutions. The footer section highlights Top Rated Partner Solutions and New Partner Showcase Solutions, featuring E-Notification Engineering Consultants Group, Inc. and Amitec SMS Notification for PI AF.

OSIssoft. partner solution showcase

Sign In | Register

Home Browse All Solutions Solution Directory News & Announcements FAQ

Welcome to OSIssoft Partner Solution Showcase where you can find software solutions from OSIssoft partners with specific industry and domain expertise.

Partner List Solution List

Browse All Solutions

Top Rated Partner Solutions

New Partner Showcase Solutions

Amitec SMS Notification for PI AF

The screenshot shows the OSIssoft Partner List page. The header includes the OSIssoft logo, a search bar, and links for Worldwide Locations, Community, Tech Support, Learning, and OSIssoft vCampus. The main navigation bar contains links for Software & Support, PI System Value, Partnering, Events, Resources, Company, and Regional. The main content area features a search bar and a table of partner information. The table has columns for Company, Home Office Location, and Phone. The first row lists ADM Systems Engineering Ltd. with its location in Saint John, New Brunswick, and a phone number. The second row lists BBA Inc. with its location in Mont-Saint-Hilaire, Quebec, and a phone number. The footer section includes a description of ADM and BBA.

OSIssoft.

Worldwide Locations | Community Tech Support | Learning | OSIssoft vCampus

Software & Support PI System Value Partnering Events Resources Company Regional

Search

CONTACT US PRINT EMAIL FEEDBACK

OSIssoft Partners

The OSIssoft Partners listed below combine industry expertise, OSIssoft product knowledge and their individual unique skills to enhance the value of the PI System through the services they deliver.

Interested in learning more about working with OSIssoft products? Visit OSIssoft vCampus, our online community for application development.

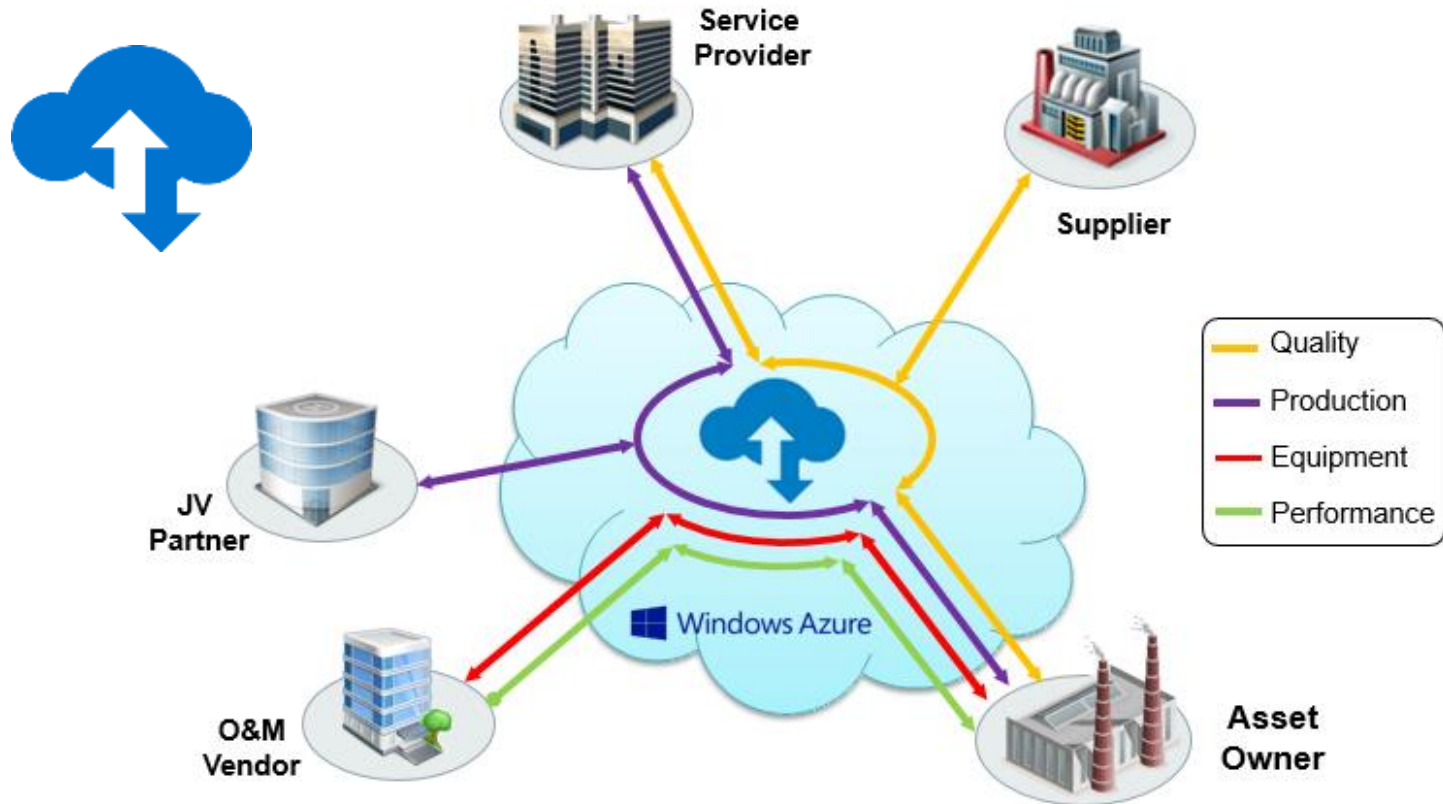
Regions Countries/States Partner name

International Canada Partner name (optional) Find Partners Browse Alphabetically

| Company                                                                                                                                                                                                                                                                                                                                            | Home Office Location                                                            | Phone           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------|
| ADM Systems Engineering Ltd.                                                                                                                                                                                                                                                                                                                       | 55 Drury Cove Rd, Suite 300<br>Saint John, New Brunswick - E2H 2Z8<br>Canada    | +1(506)652-9251 |
| ADM provides software engineering for data management, enabling the flow of data between process, operations and management. With this infrastructure in place, ADM can develop advanced applications and reporting systems.                                                                                                                       |                                                                                 |                 |
| BBA Inc.                                                                                                                                                                                                                                                                                                                                           | 375, boul Sir-Wilfrid-Laurier<br>Mont-Saint-Hilaire, Quebec - J3H 6C3<br>Canada | +1(450)464-2111 |
| BBA is a multidisciplinary engineering firm providing high-end engineering services mainly in the energy, mining and metals sectors. Through system integration and custom application development, its industrial IT team provides innovative solutions to increase visibility and efficiency of available assets. BBA is a CSA certified member. |                                                                                 |                 |



# PI System Data Sharing





# Recap

# PI System Infrastructure



PI Visualization Suite / PI System Access



PI Event  
Frames



PI Asset  
Framework



PI Data  
Archive



PI Interfaces  
for Health Monitoring

PI Notifications



PI Analytics



PI Interfaces



Cloud Computing



Windows Integrated  
Security



High Availability (HA)



64-bit Architecture



Virtualisation  
Microsoft®  
Hyper-V™





# Key Points to Take Home



OSIsoft.  
**REGIONAL  
SEMINAR**  
The Power of Data

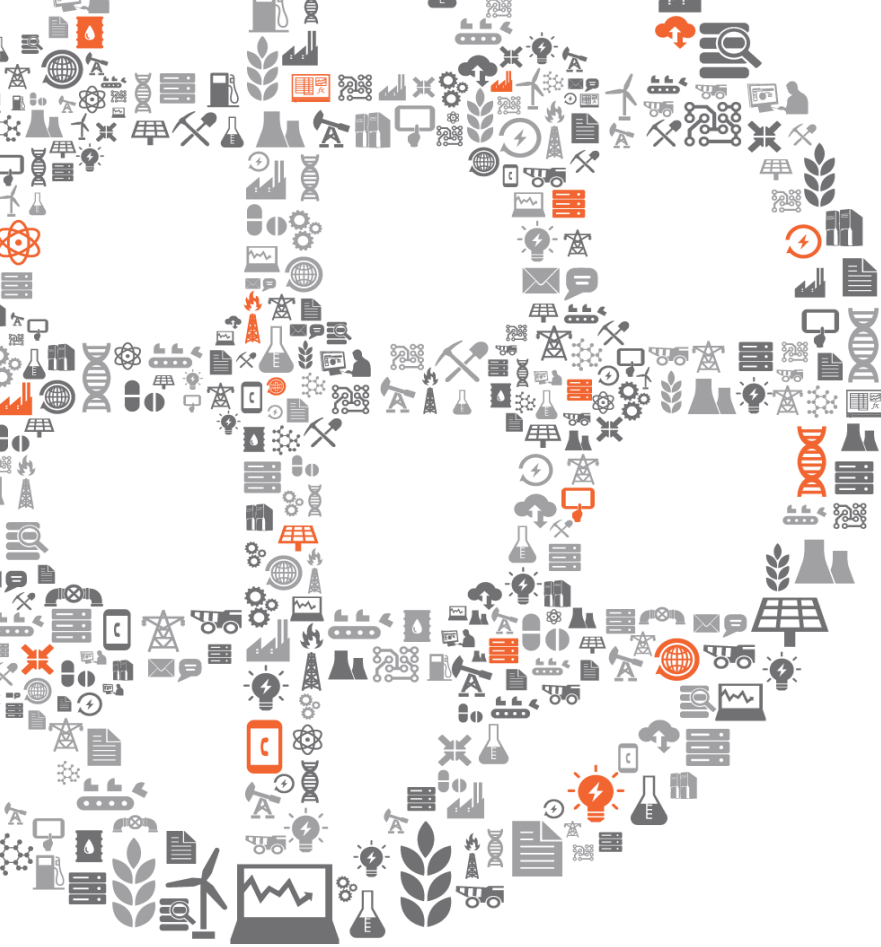
**THRIVING  
IN A  
WORLD OF  
CHANGE**

## The PI System infrastructure...

... manages and stores **time-series**, **assets**, and **events** information regardless of the data sources.

... is **interoperable**, **extensible**, and **secure**.

... continues to **evolve** so you can unleash the Power of your Data!



# Questions

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



State your  
**name &  
company**

# Chris Lonsberry

[clonsberry@osisoft.com](mailto:clonsberry@osisoft.com)

Systems Engineer

OSIsoft



**THANK  
YOU**

Brought to you by



# Resources



OSIsoft Learning Channel

[www.youtube.com/OSIsoftLearning](http://www.youtube.com/OSIsoftLearning)

OSIsoft Tech Support

[techsupport.osisoft.com](http://techsupport.osisoft.com)



vCampus

[vCampus.osisoft.com](http://vCampus.osisoft.com)



OSIsoft.

partner  
solution showcase

[partners.osisoft.com](http://partners.osisoft.com)