



Regional Seminar Series Pittsburgh, PA



PI System 2010 and Product Roadmap

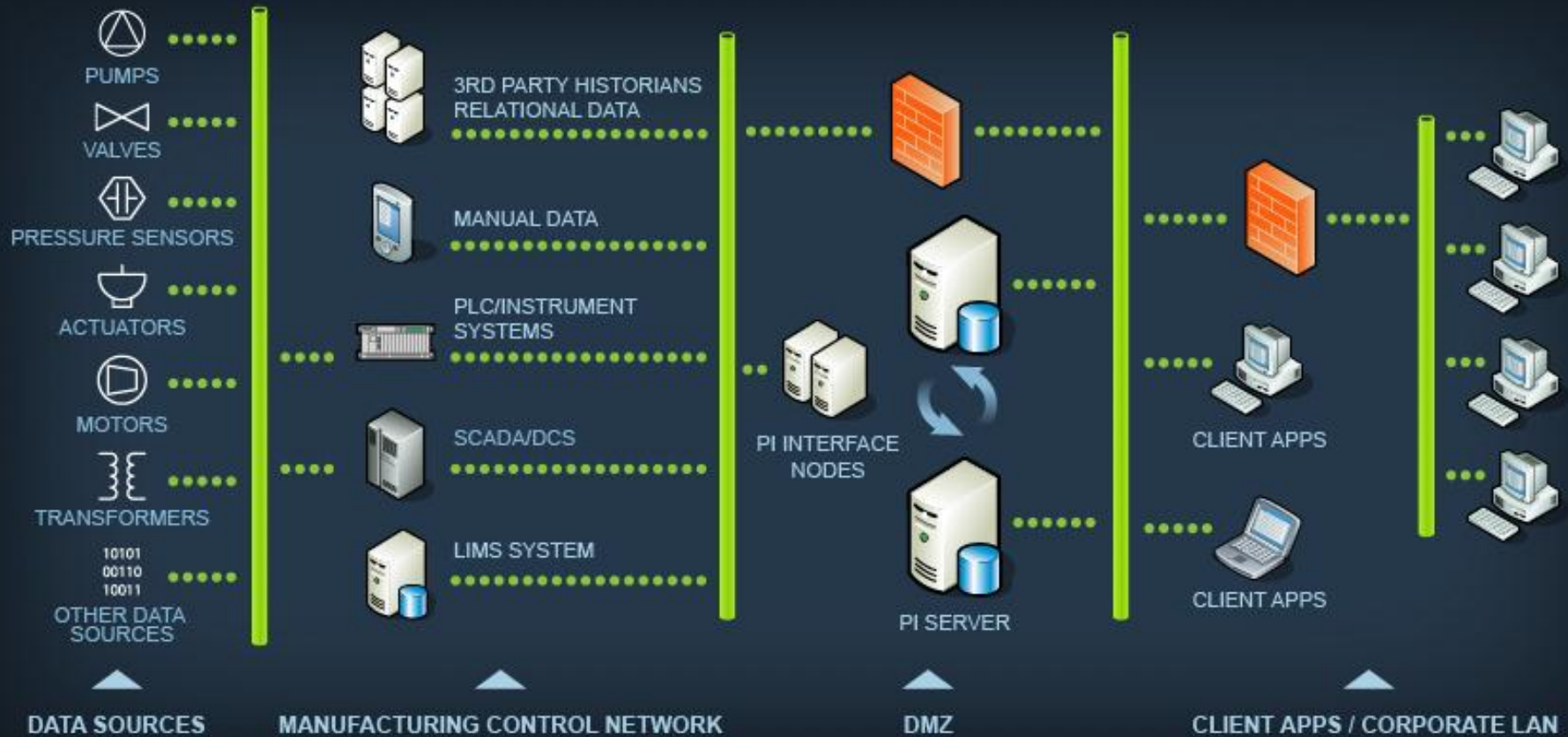
Mark Benninger
Account Manager
OSIsoft - Western PA

October 28, 2010

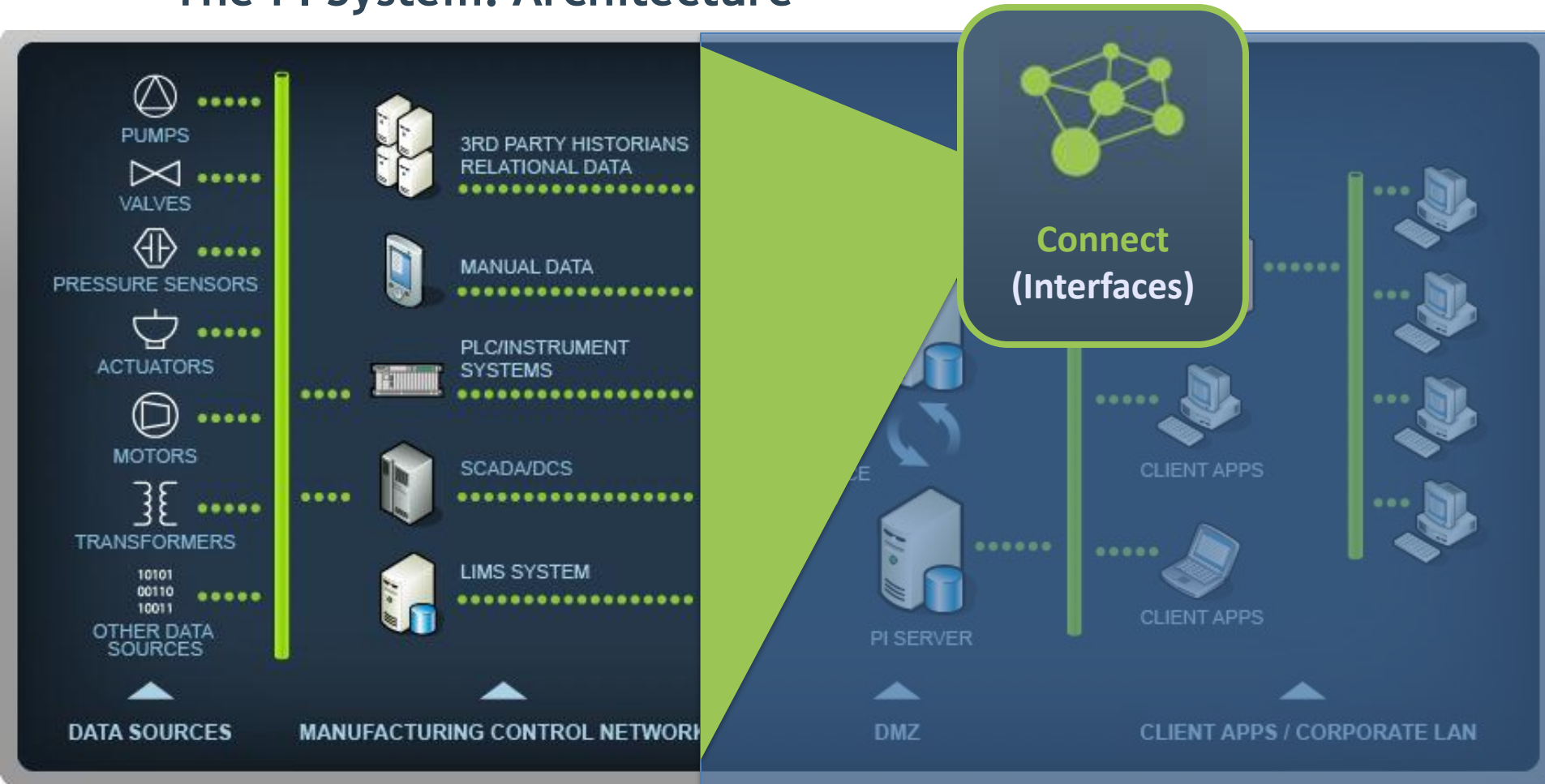
PI System Overview

- The PI System: Architecture
- PI 2010 system

The PI System: Architecture

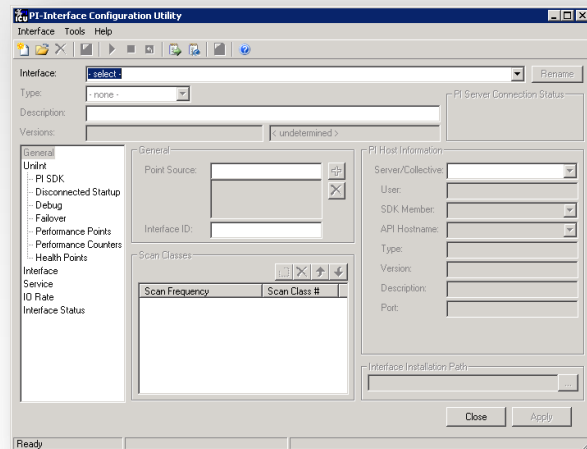


The PI System: Architecture



PI System: Interfaces

- Direct communication to over 400 different sources
- Collect ALL your data, in real-time
- Protect against data loss
 - Buffering
 - Failover

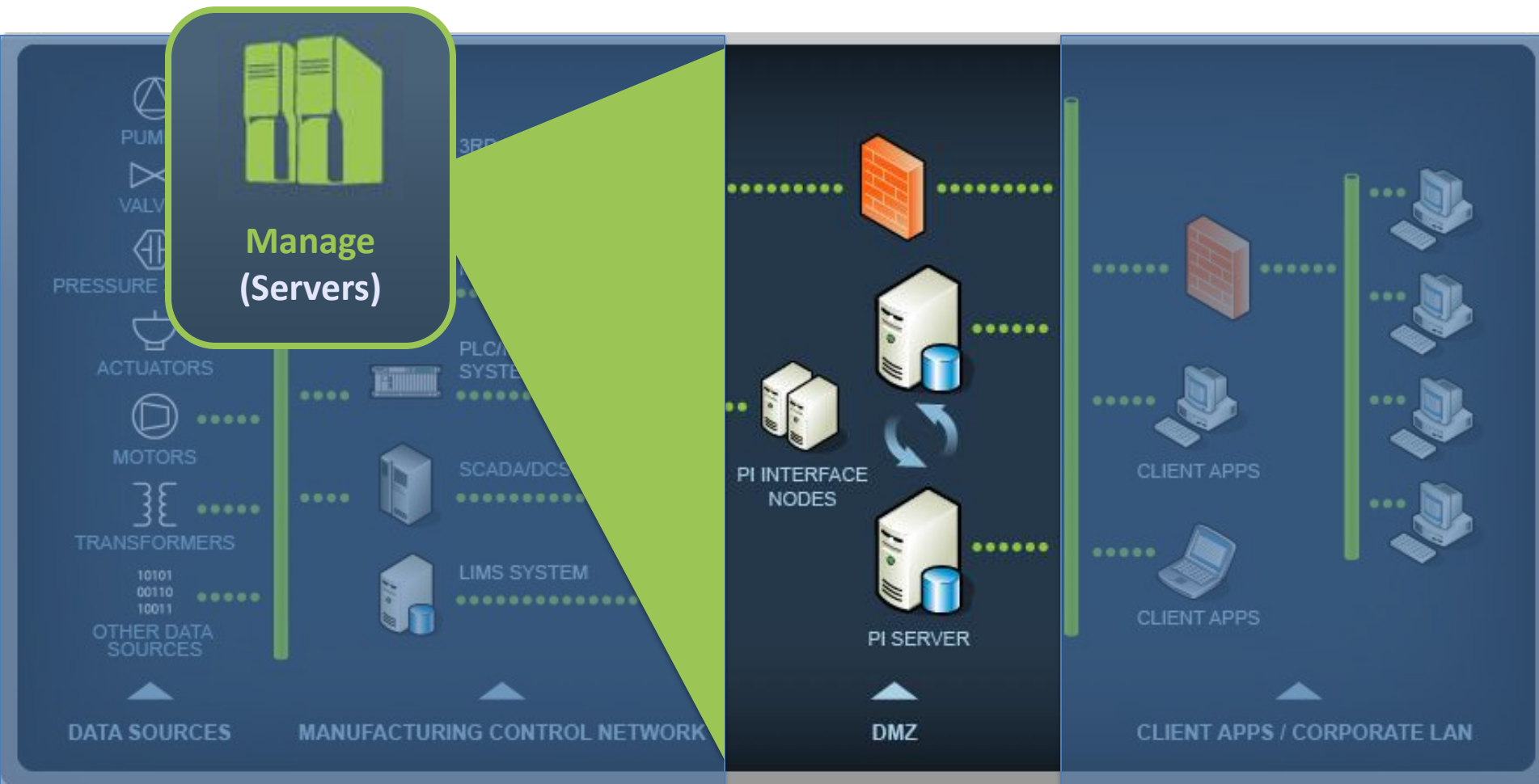


Easy to set up and manage with simple configuration tool

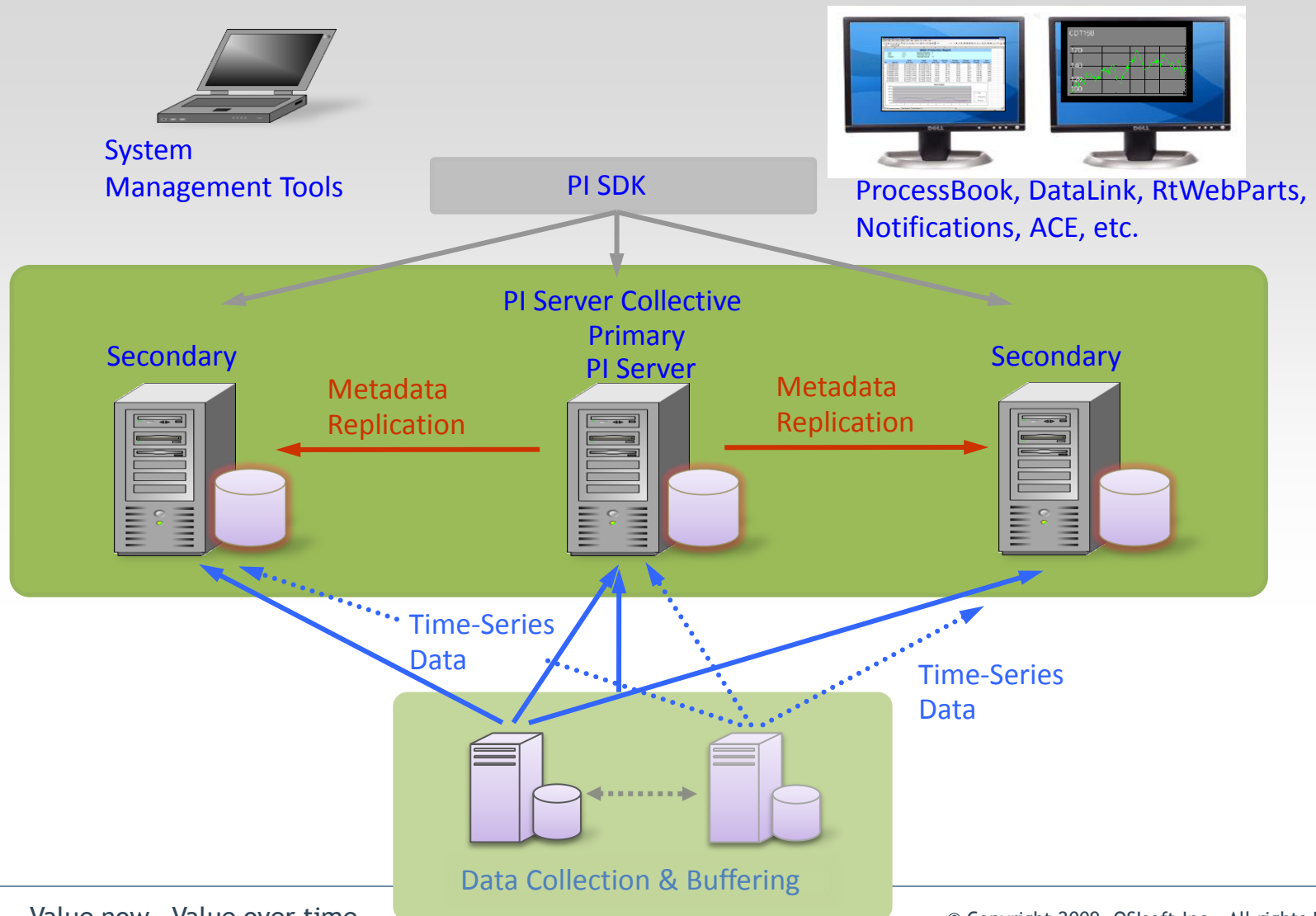


... and many more

The PI System: Architecture



PI High Availability Architecture

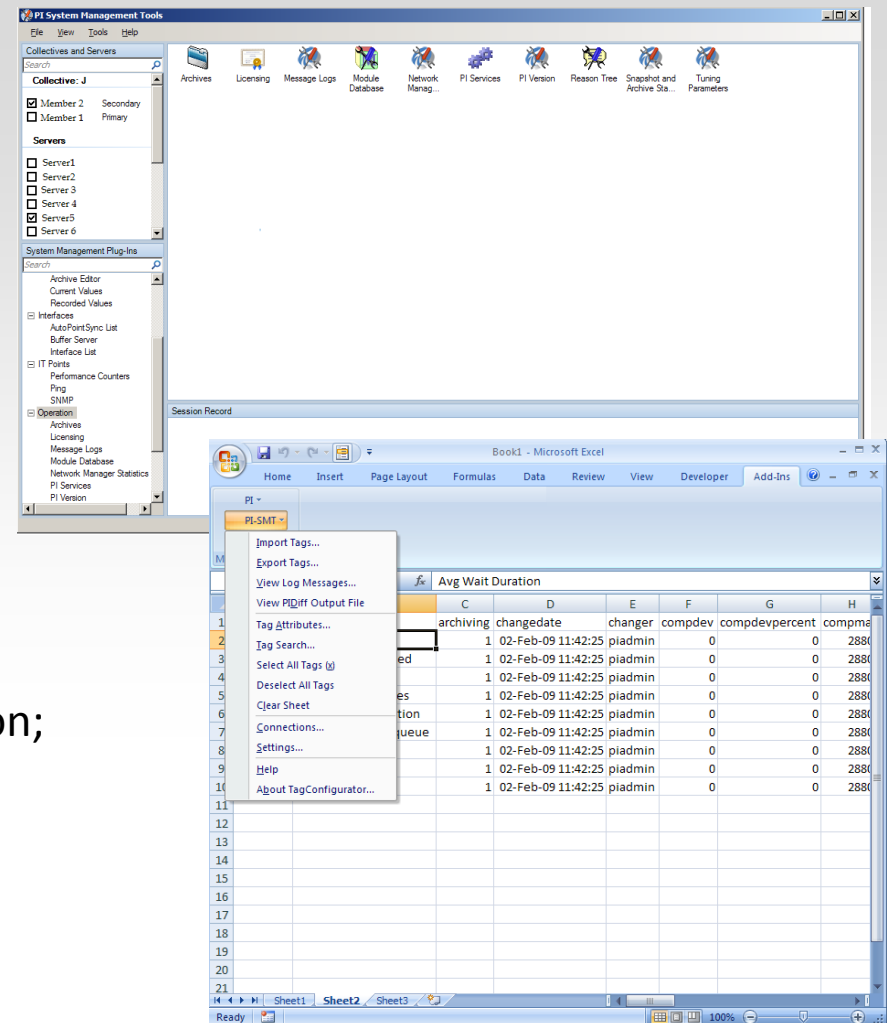


PI System Management Tools (PI SMT)

- PI SMT is a set of easy-to-use, Windows-based graphical applications used to administer any PI System from remote personal computers.

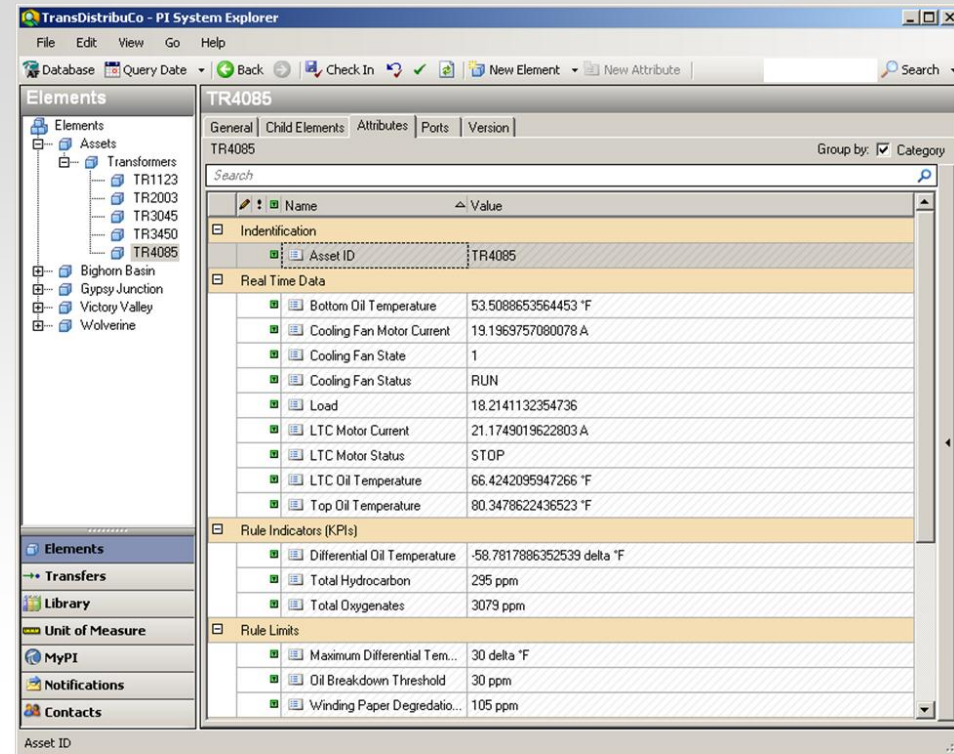
With PI SMT, system managers can:

- Handle any PI Server administration tasks such as managing archives, configuring security settings, creating new PI points or accessing message logs;
- Monitor performance characteristics for multiple PI Servers from one central location;
- Look at current and/or archived values and edit them if required;
- Isolate stale instrument values.

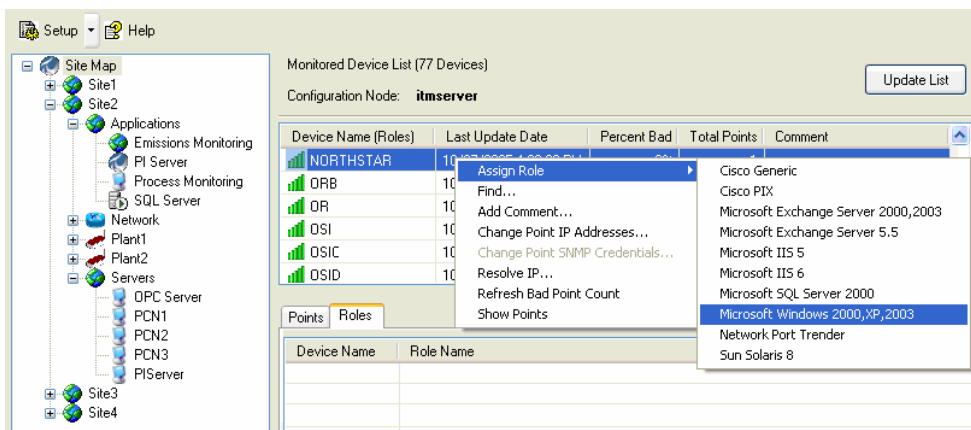


PI AF (Asset/Application/Analysis Framework)

- Assets and Processes Definition across the enterprise
- Serve as an information/asset model or integrate with existing Enterprise Asset Model (EAM)
- Template framework for standardization and reusability
- Support for generic calculations, displays and reports definition for reuse through templates
- Extensive searching and modeling capabilities to support different business views
- Provide end user with relevant context to data for ease of accessibility and diagnosis



MCN - IT Monitor Administration



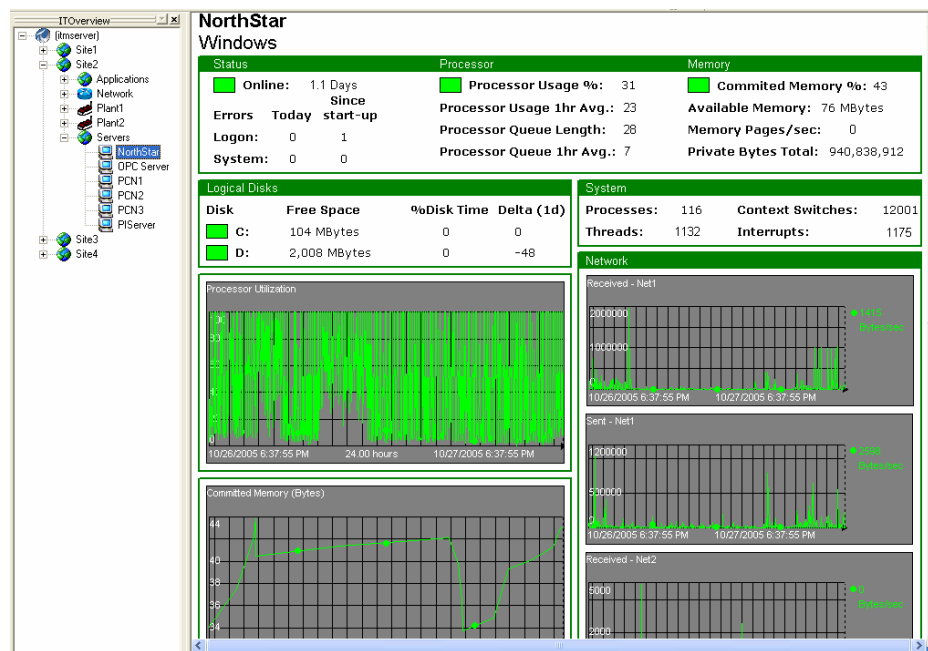
Simplified Installation & Usability. Implement, configure, and begin using IT Monitor within minutes on your own, or with assistance from OSIsoft or one of its business partners.

IT Organizer. IT Monitor utilizes a management console to centralize the viewing and management of your IT infrastructure. From a single console view you can build tags, configure monitoring of IT devices, organize devices in a logical IT view and automatically create displays of your IT assets.

Extensive sets of Interfaces. Using a wide spectrum of communication protocols, connect IT Monitor to almost any device, application, operating system, database, network component, or infrastructure technology in your manufacturing process facility.

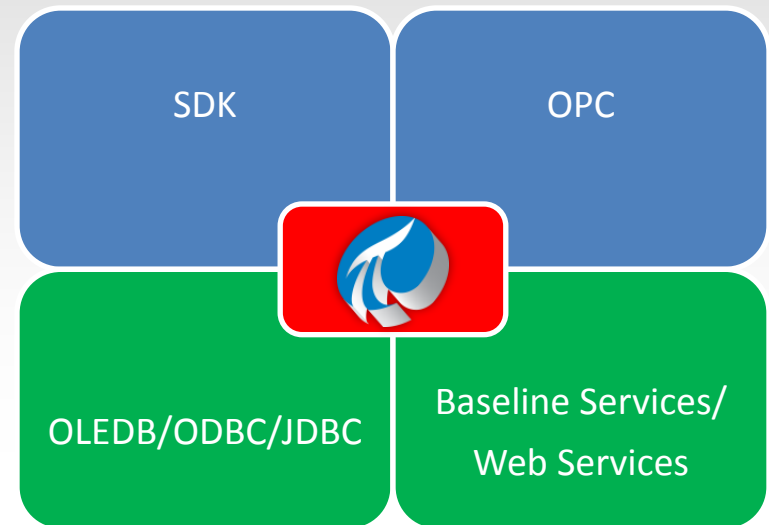
Standardized templates. Incorporate industry-best practices in your collection and visualization of performance data.

Data Collection nodes. Install IT Monitor interfaces on distributed data collection nodes, as many times as needed.

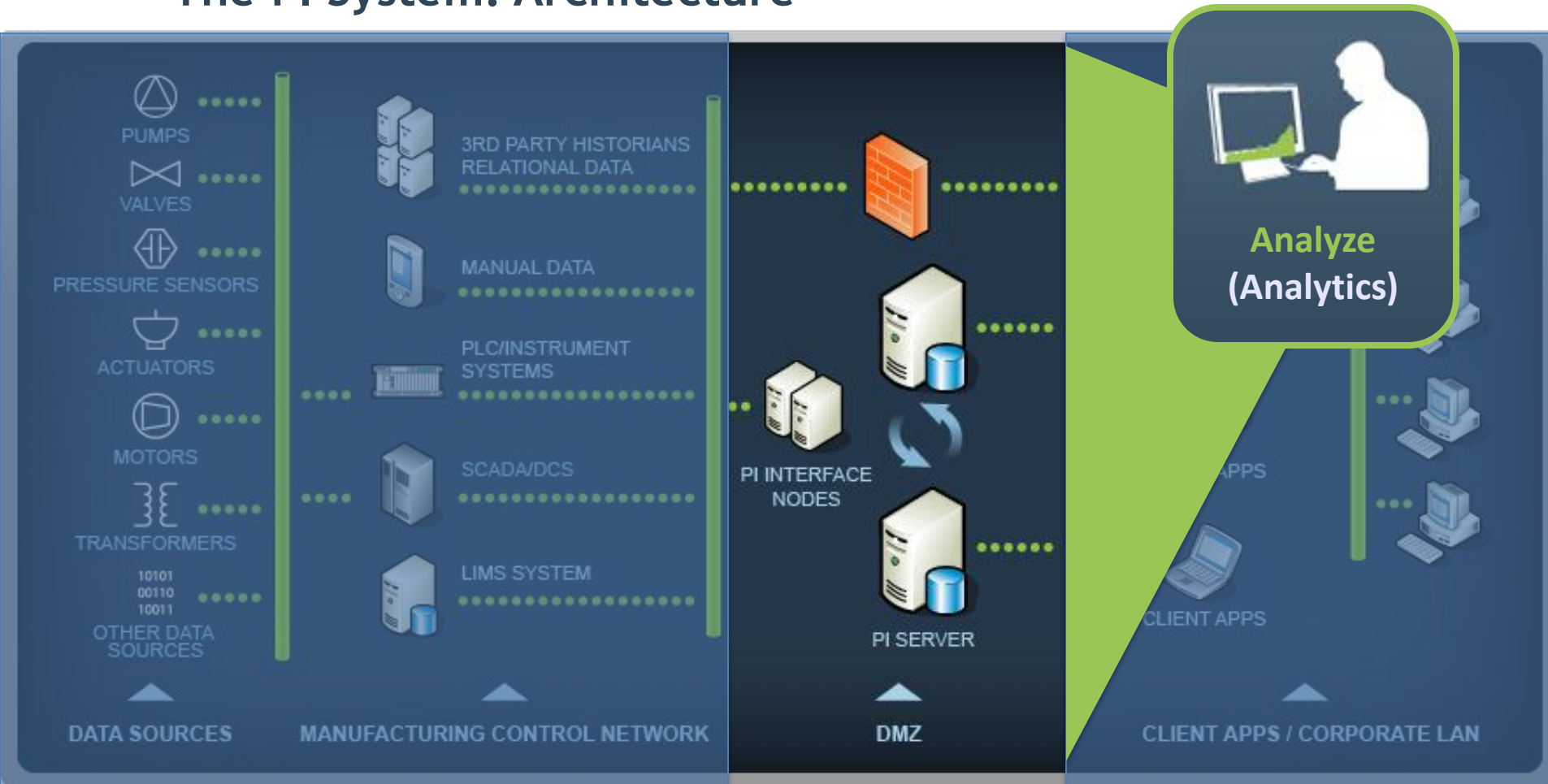


PI Data Access (DA)

- Expose real-time data for integration with other systems and applications
- Provide standard data access (SQL) to PI System data
- Seamless integration of PI System data with other relational data in an enterprise
- Multiple methods to access data to meet your needs:
 - SDK
 - OLEDB/ODBC Access – Including Asset Centric (AF) PI
 - PI as an OPC Server
 - Baseline Services for Web Access
 - Web Services Data Access
 - JDBC access for UNIX based applications
 - OPC UA

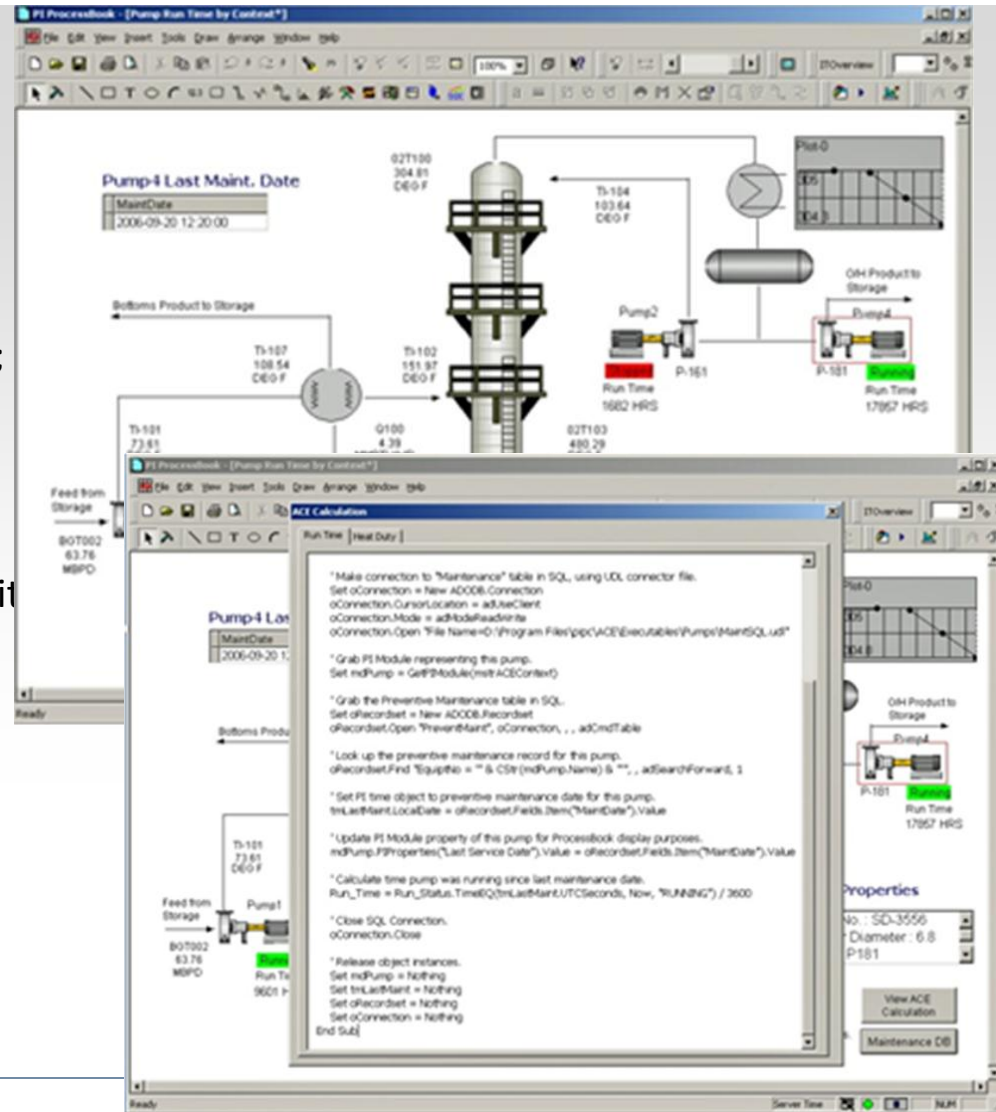


The PI System: Architecture



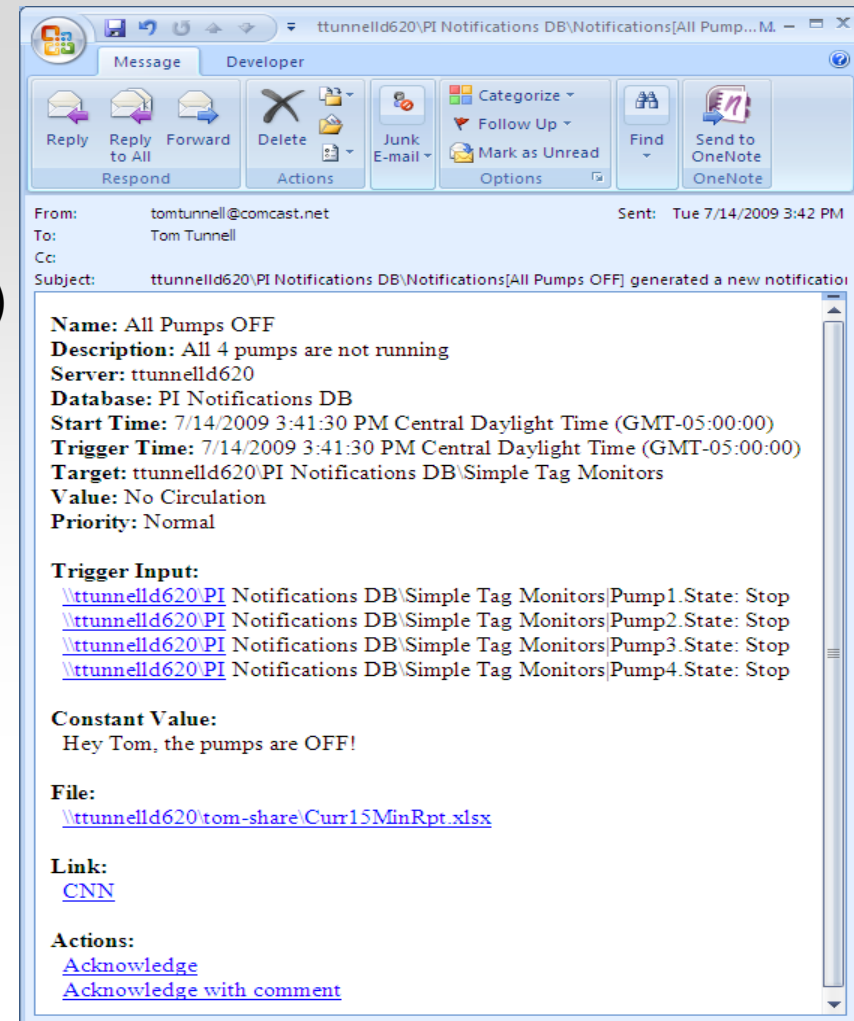
PI ACE (Advanced Computing Engine)

- Allows users to write, with minimal effort, simple or complex equations, which are reusable for similar data sets.
- PI ACE provides a managed interface to PI data within the Microsoft Visual Studio environment for application development;
- Schedule and manage the execution plan for every ACE application;
- Write a single generic equation and apply it to hundreds, or thousands of contexts;
- Solve complex data integration problems with an extensible programming environment;
- Determine and define optimal scheduling for every equation and context.



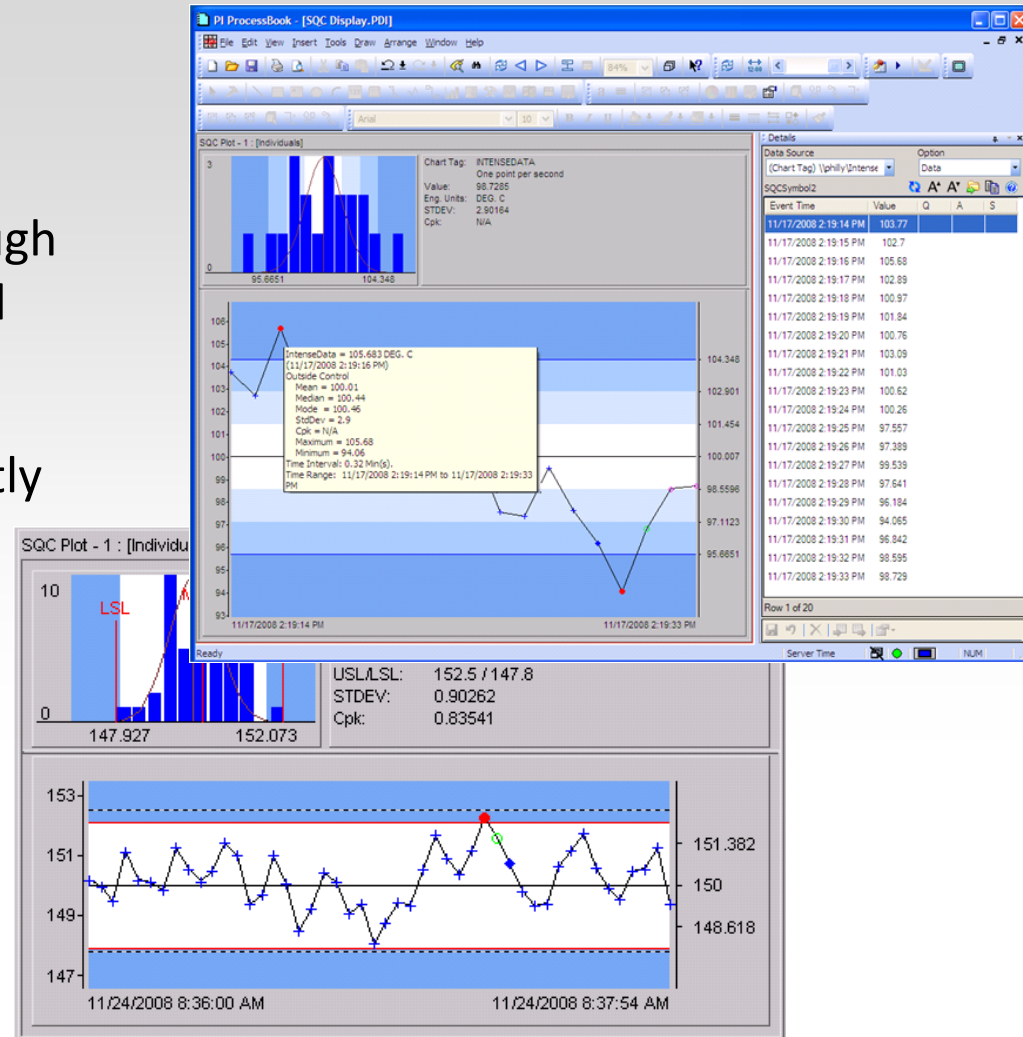
PI Notification

- How will you find out a crisis is brewing?
- Let PI Notification alert you by e-mail
- Including:
 - Details about the event
 - The triggering condition (there may be many)
 - A simple explanation
 - A supporting file (report)
 - A link to a pertinent Web Page



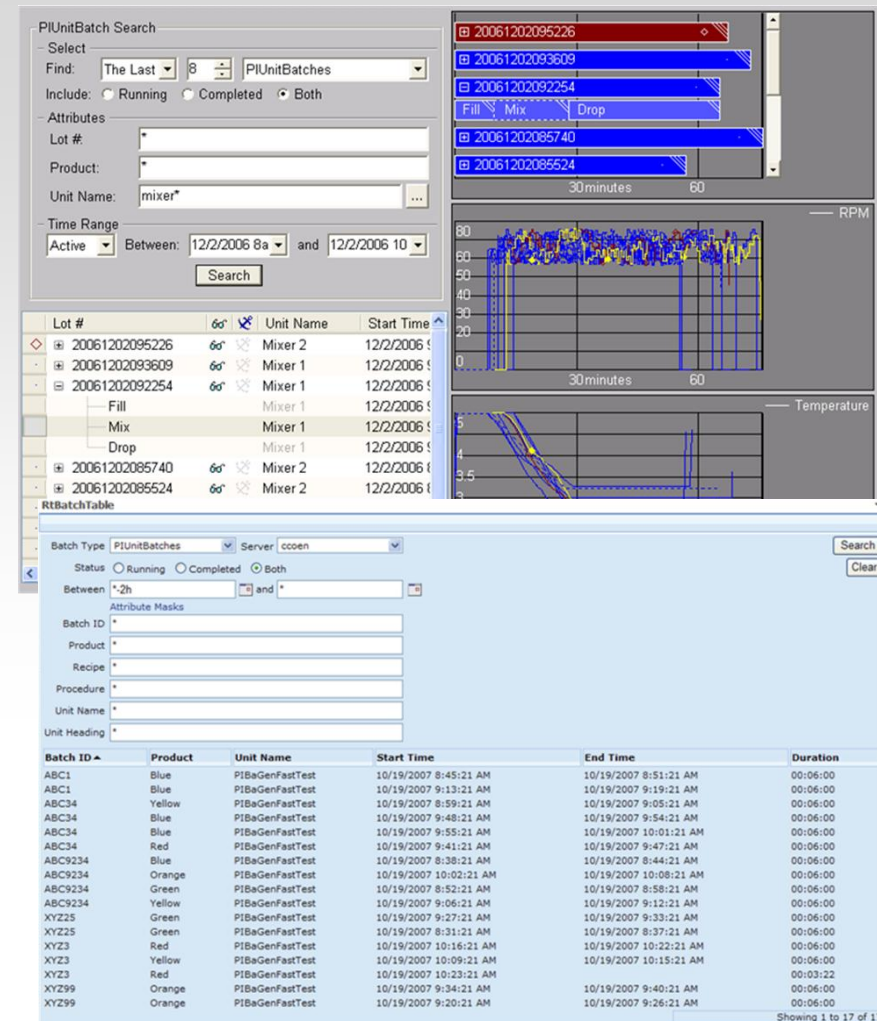
PI Statistical Quality Control (SQC)

- Create and view SQC charts in PI ProcessBook.
- Maintain operational quality through control charts that have upper and lower control limits
- Monitor process variables efficiently
- Examine natural versus unnatural performance fluctuations.

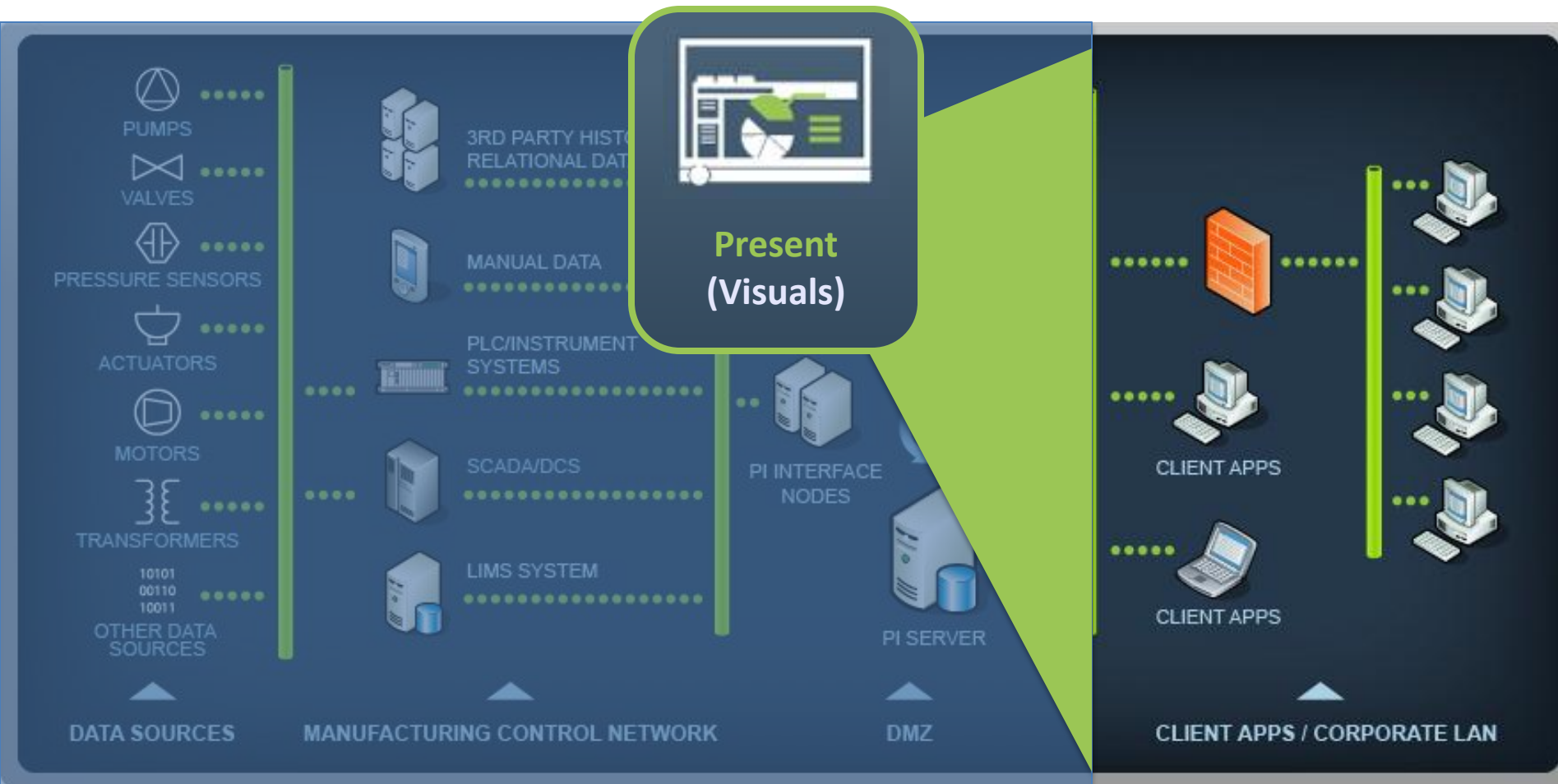


PI Batch / Event Framing

- Analyze batch processes and other repeatable events (such as days, shifts, startups, downtime, and so on).
- Record - Store batch information for real-time and historical access. Easily access process data in batch or event contexts.
- Analyze - Query for the batches you need. Compare cycle times. Compare to a golden (standard) batch. Discover problems while the batch is executing or the event is occurring using batch-to-batch comparisons. Understand patterns in repeatable events.
- View - Reports, Tables, Gantt Charts and Trends across products: Excel (using BatchView), ProcessBook (using BatchView), and PIWebParts.

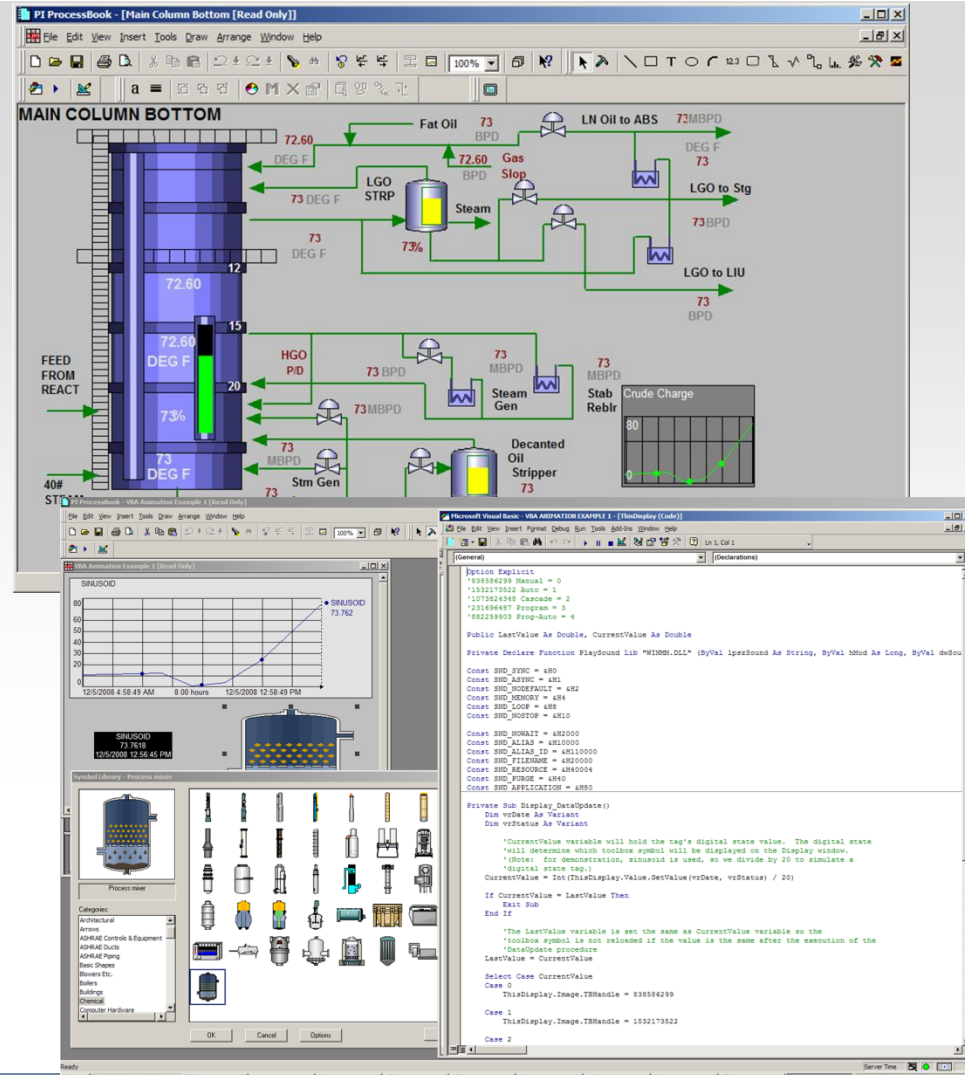


The PI System: Architecture



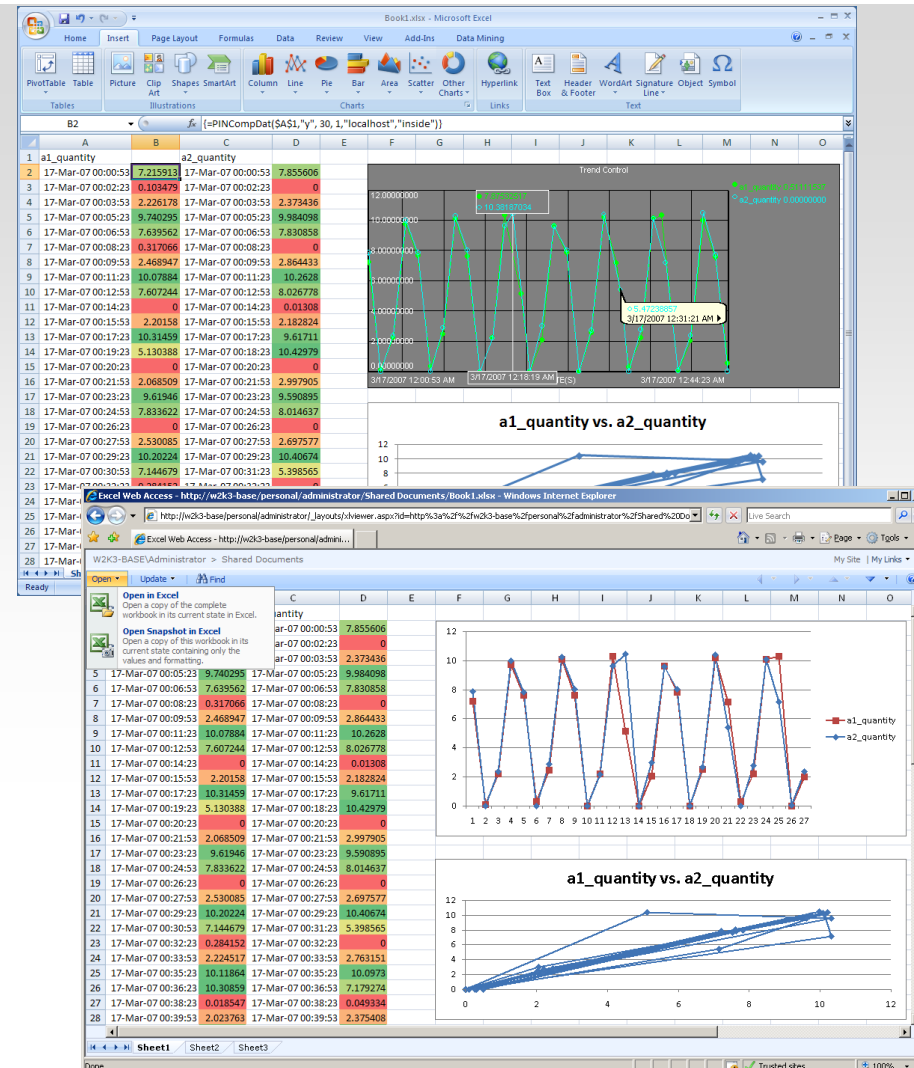
PI ProcessBook

- An easy-to-use display interface to the OSIsoft PI System.
- Efficiently display real-time and historical data residing in the PI System and other sources;
- Create interactive graphical displays that can be saved and shared with others;
- Create dynamic, interactive displays and populate them with live data;
- Write scripts that automate displays and trends using Microsoft Visual Basic for Applications, which is seamlessly integrated into PI ProcessBook;
- Use OSIsoft add-ins to perform PI SQC, PI Batch and other analyses



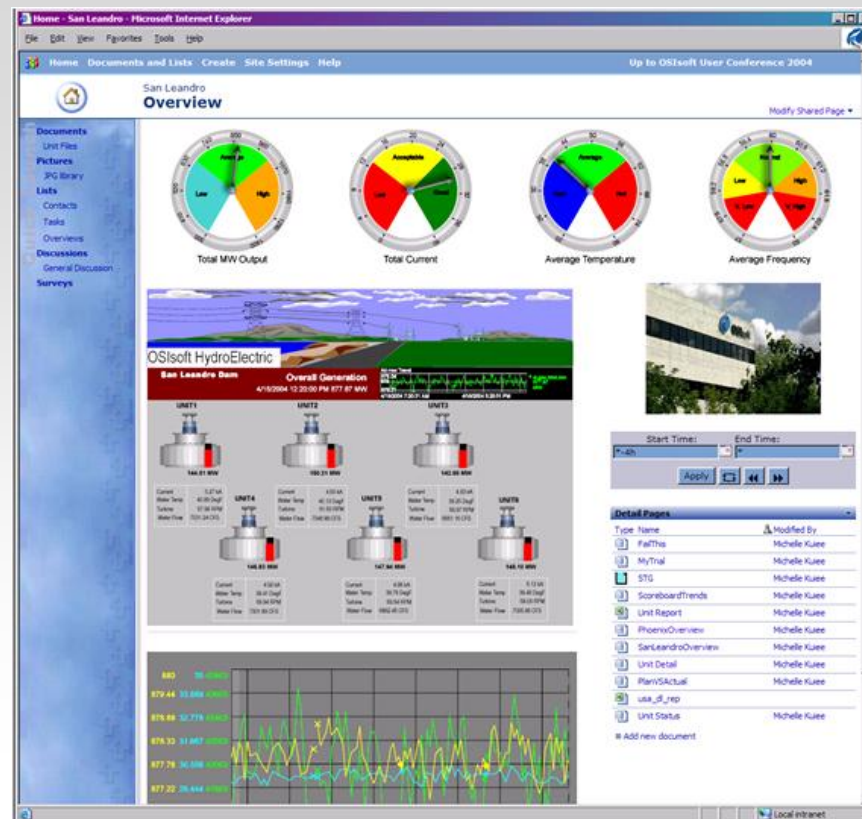
PI DataLink

- A Microsoft Excel add-in that enables information retrieval from the PI System directly into a spreadsheet.
- DataLink provides a graphical interface to retrieve data and build functions and calculations. DataLink functions are embedded in spreadsheet cells and can provide active updates of data from the PI Server.
- Combined with the computational, graphic and formatting capabilities of Microsoft Excel, DataLink offers powerful tools for gathering, monitoring, analyzing, and reporting PI System data.
- DataLink for Excel Services enables users to retrieve data from the PI System and view it in Microsoft Excel spreadsheet format using only a Web browser.



PI WebParts

- A set of components used within the Microsoft SharePoint Portal Server
- Investigate real-time information—including time series, transactional, and web services information, all within a familiar Internet browser-based environment;
- Combine data from many different sources: real-time, maintenance systems, production planning systems, and financial systems;
- Use a highly flexible, configurable interface to customize views and architect security to display user-appropriate information



Experience

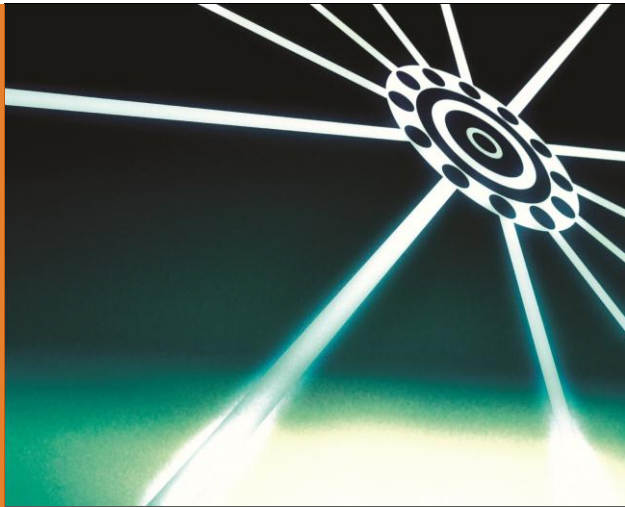


PI 2010 (License Package)



Server Modules	Enterprise Server	Enterprise Server Professional	Server 2010
<u>Base Modules</u>			
PI SQL Interpreter	X	X	X
PI PE	X	X	X
PI Totalizer	X	X	X
PI Steam Tables	X	X	X
PI Recalc	X	X	X
PI Alarm	X	X	X
PI Module DB	X	X	X
PI APS	X	X	X
<u>Optional Modules</u>			
PI AF	Optional	X	X
PI DA	Optional	X	X
PI ACE	Optional	X	X
PI Batch	Optional	X	Optional
PI RTSQC	Optional	X	X
PI Notifications	Optional	Optional	X
PI MCN Heath Monitor	Optional	Optional	X

What are the benefits of PI System 2010



Simple

Easy to get started, system grows with you



Relevant

Deliver the most important data to right people



Collaborative

Everyone has access to the data, easy to share



PI Clients

- PI WebParts 2010
- PI DataLink 2010
- PI for Office 2010

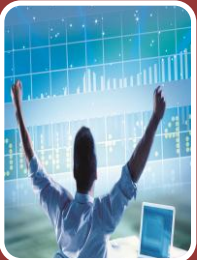
Business User Experience



PI Data Access

- PI OLEDB Enterprise 2010
- PI Web Services 2010
- PI JDBC 2010

Business Collaboration Platform

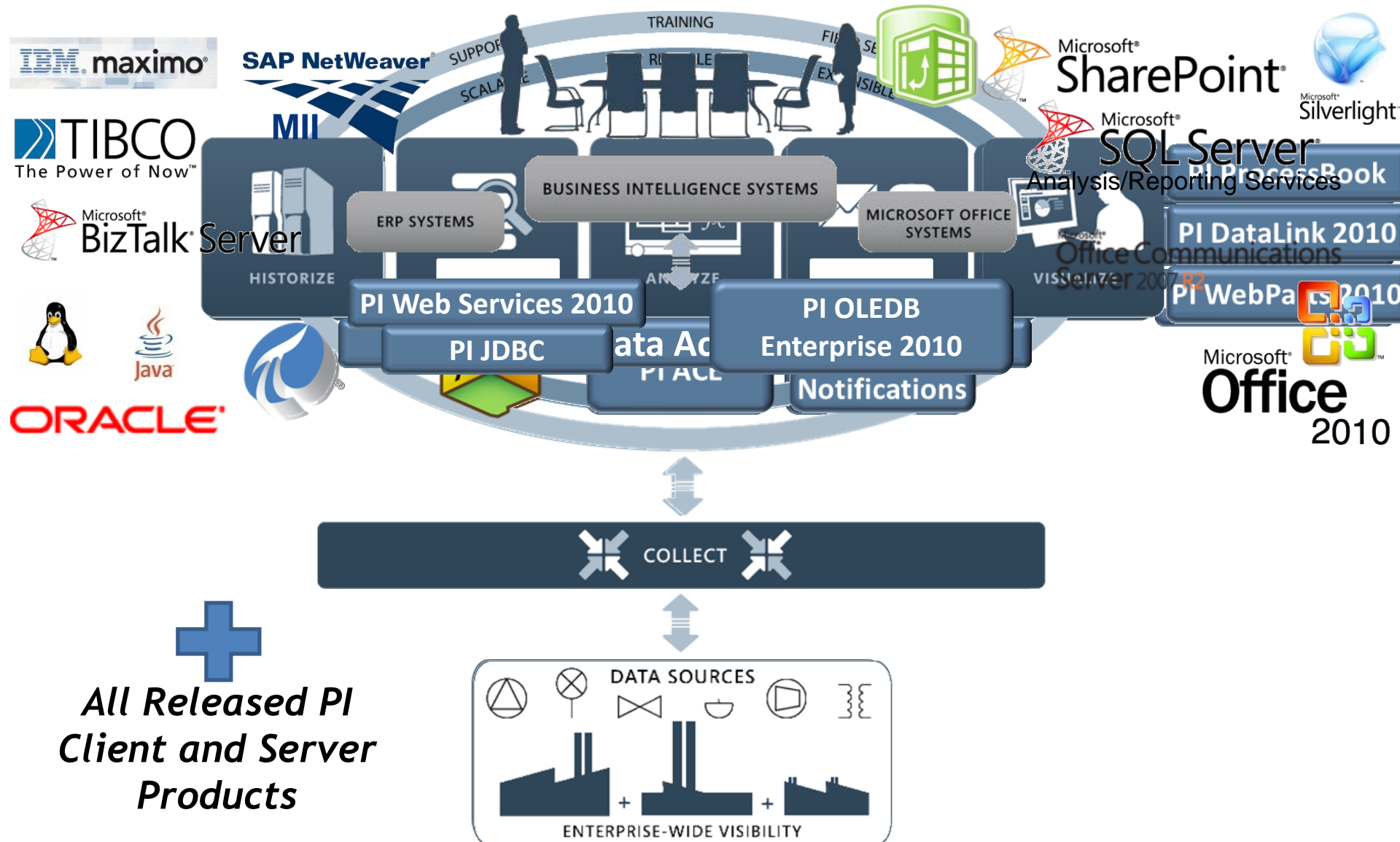


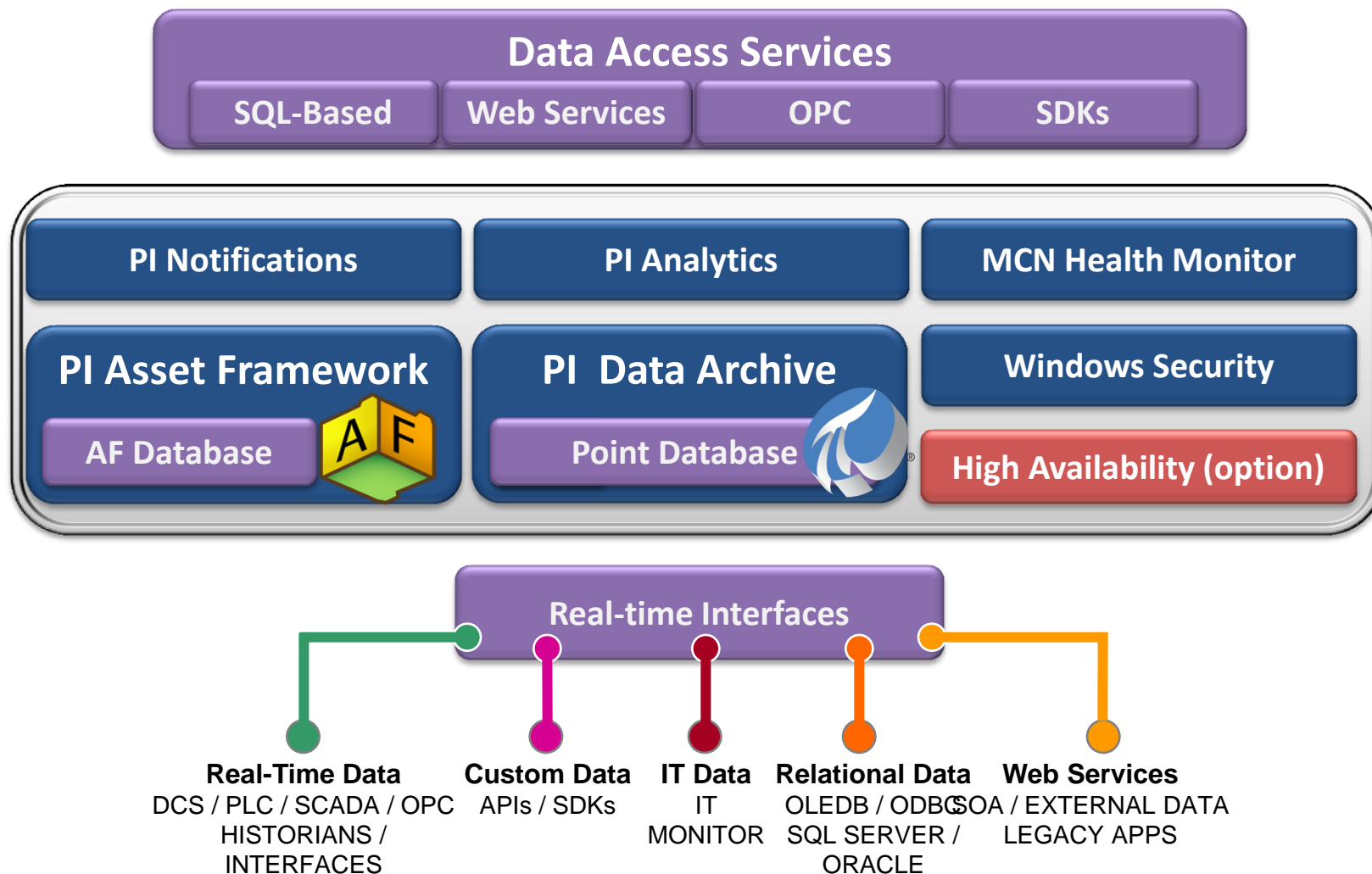
PI Server

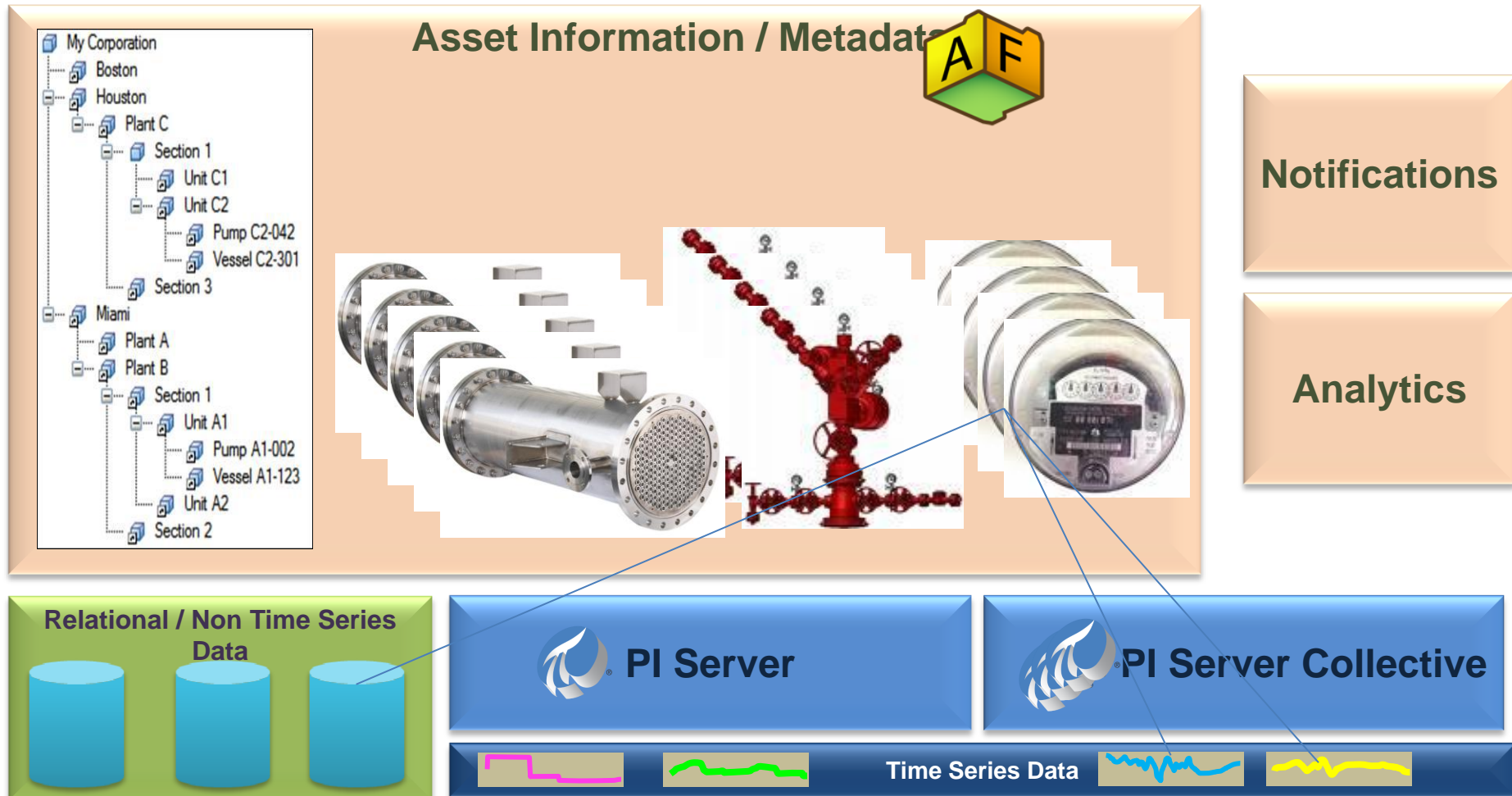
- PI Server 2010
- Assets and Tags

Data Infrastructure and BI Platform

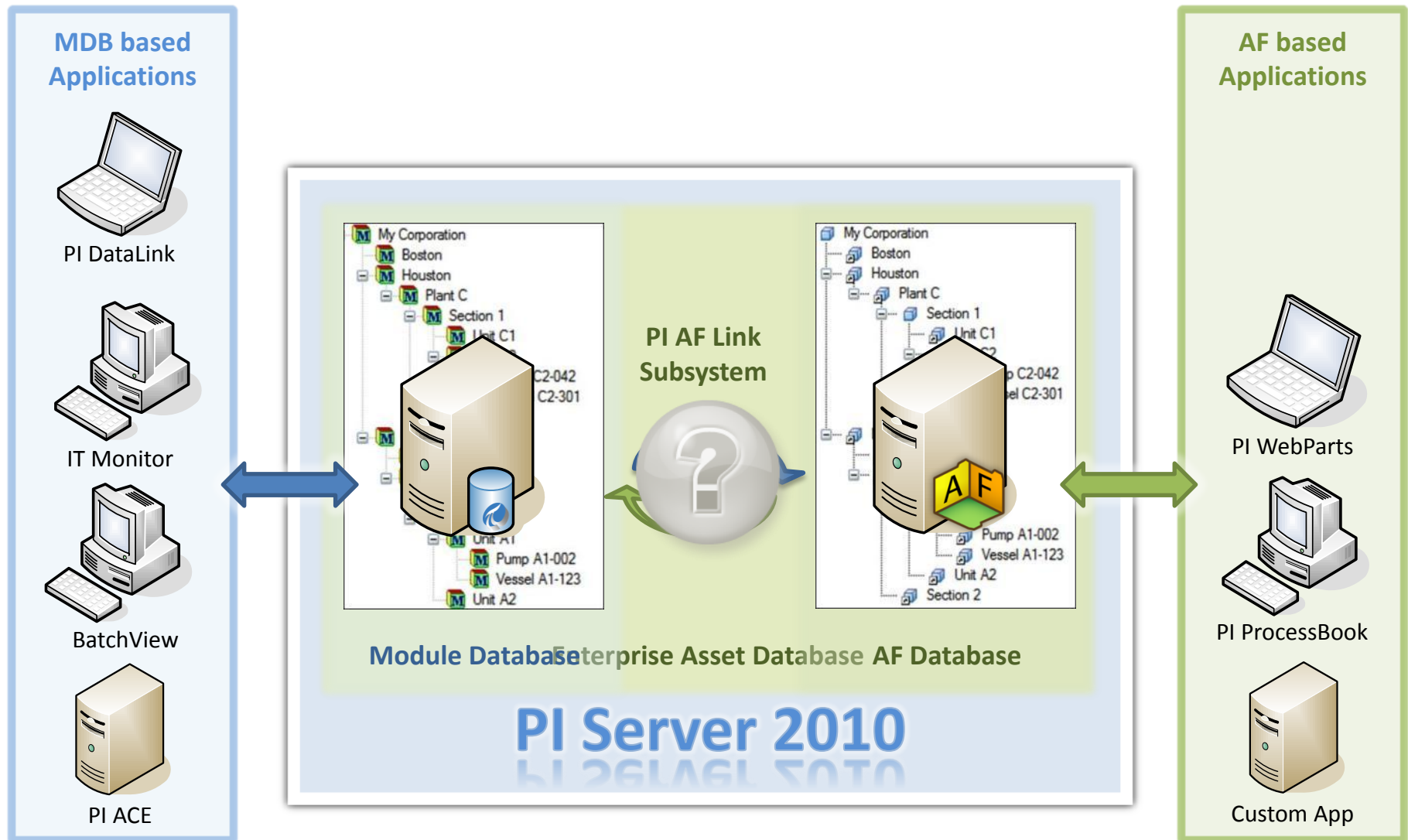




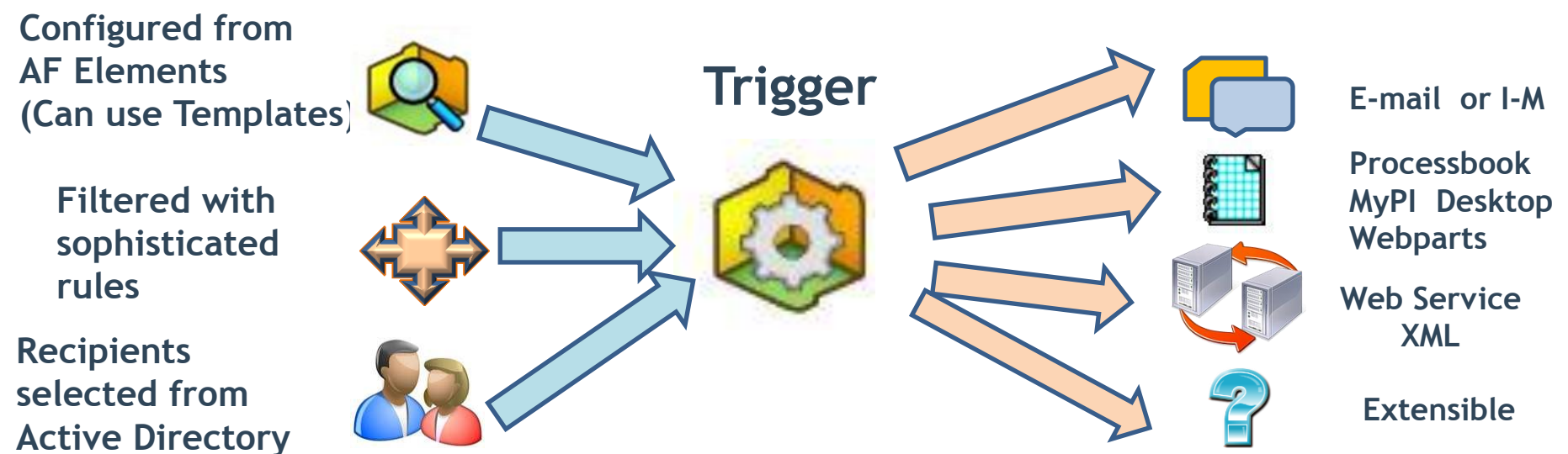




Mixed Applications



PI Notifications: The Power of Templates...



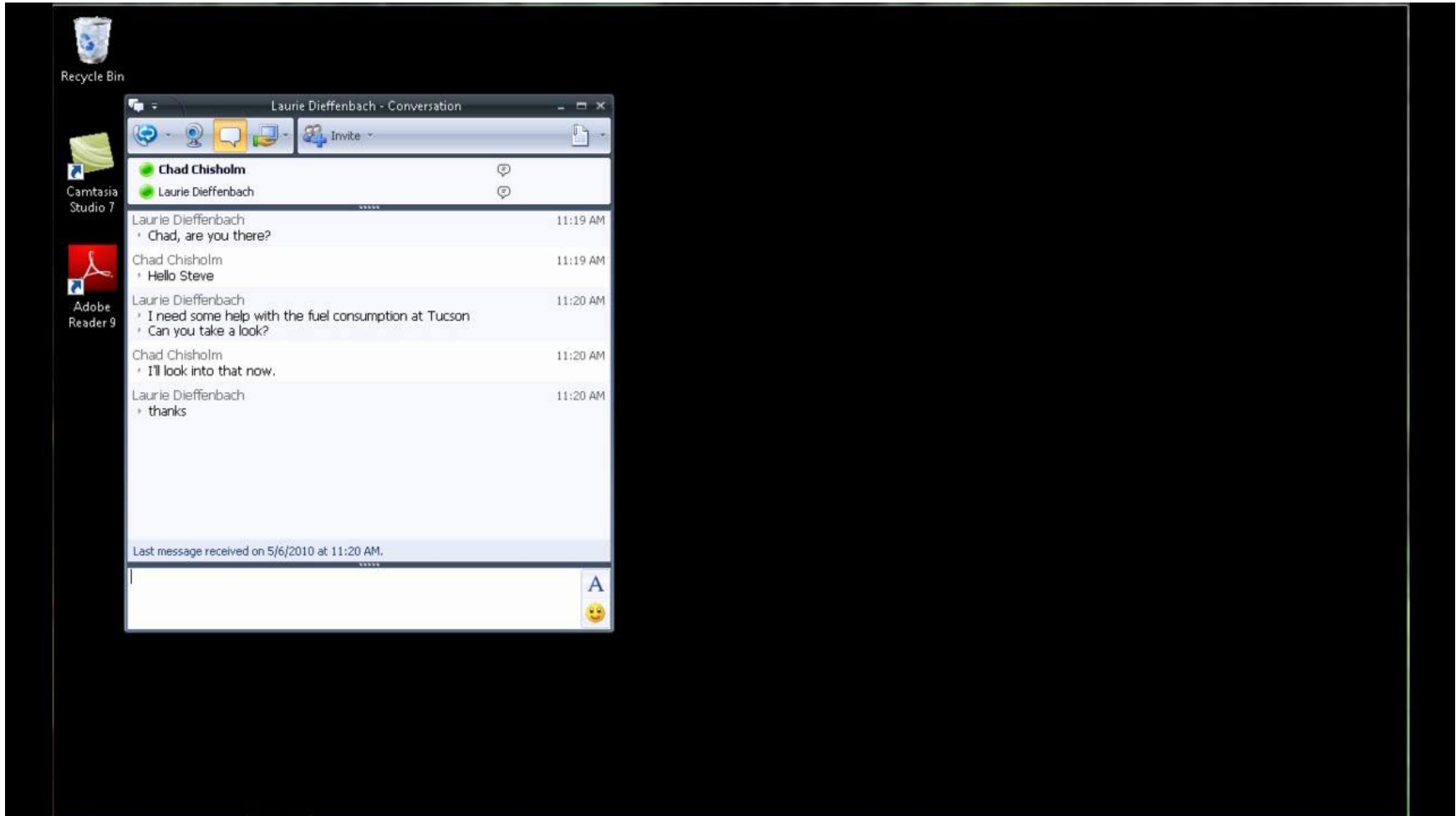
Define information once

- Fewer errors
- Automatically in sync
- Maintenance can scale

Delivery Channels

- User can create their own
- Change time rule
- Define specific content
- Add/modify subscribers

Notification



SQL Family

Web Services

OPC Servers

OSIsoft SDKs



Asset Information / Metadata

Notifications

Analytics

Relational / Non Time Series Data



PI Server



PI Server Collective

Time Series Data

- Set of drivers that expose PI System data in a relational database view
 - OLE DB, JDBC, ODBC
- Custom applications or integration scenarios

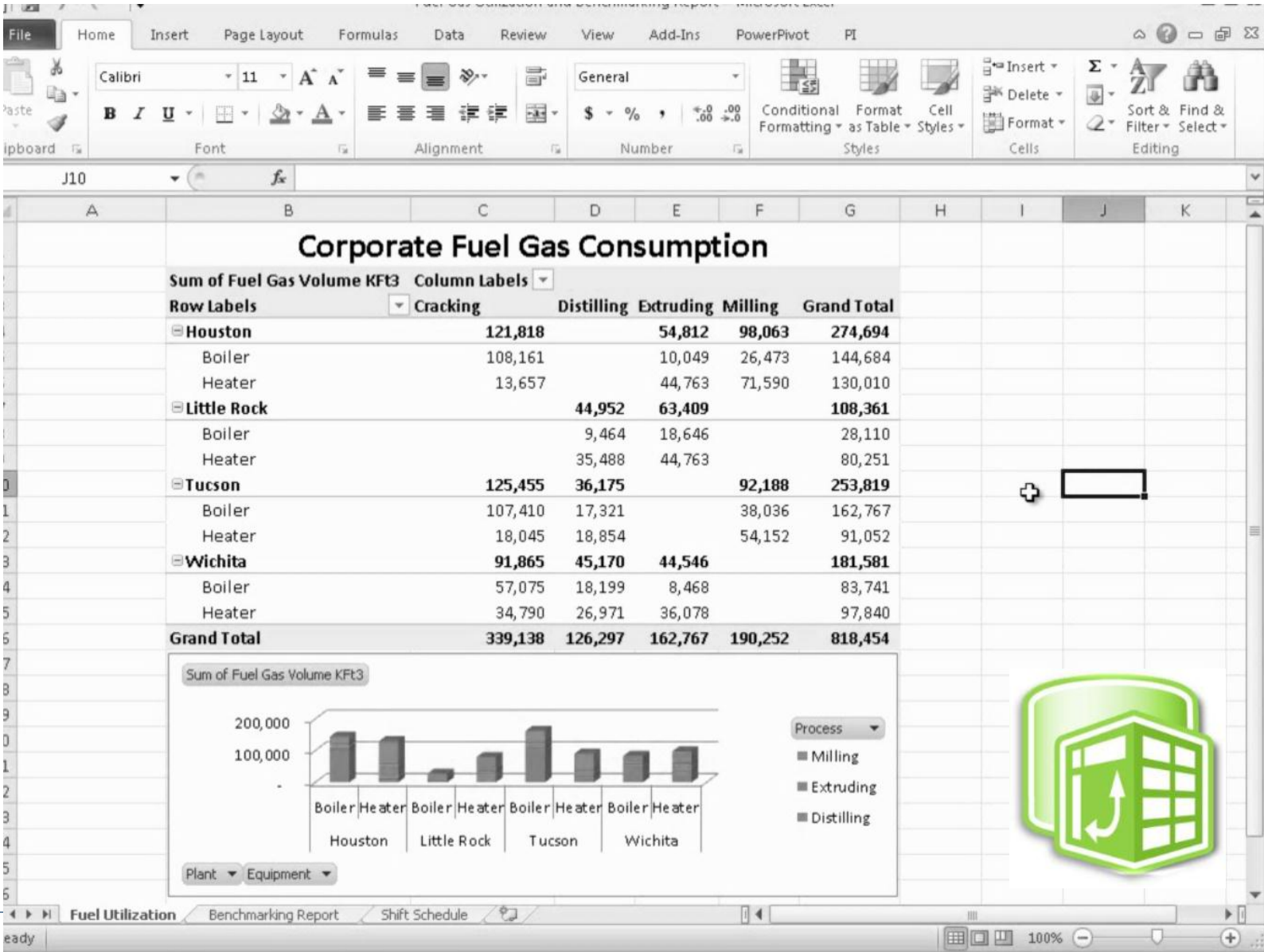


ORACLE

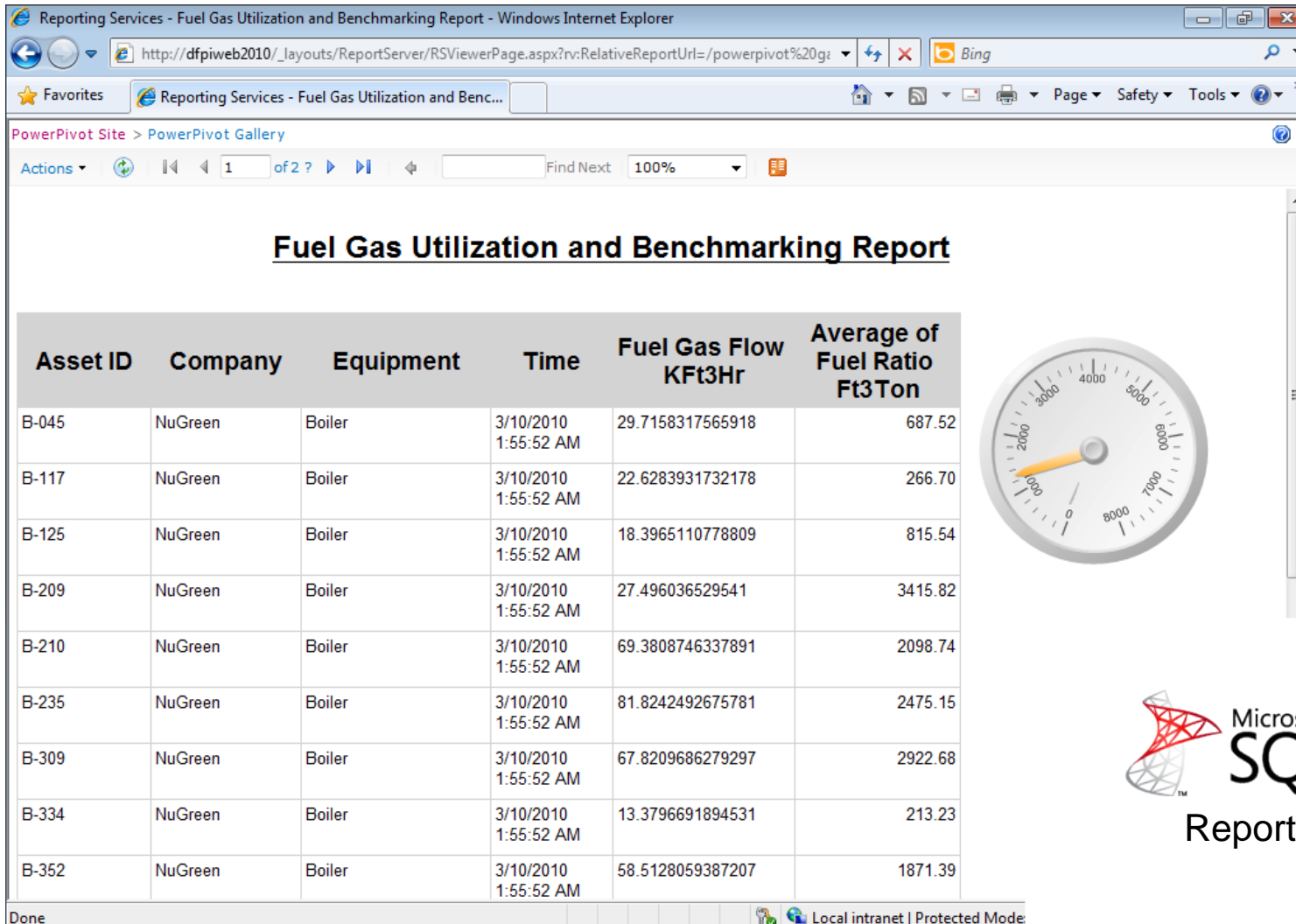


**Custom SQL
Applications**





SQL Server Reporting Services



- Talk to PI Server via well-known, popular standards
- PI OPC DA/HAD Server 2010
 - Certified for Compliance
- Integrates with 100's of existing OPC Clients
 - Process optimization engines
 - Process analysis, calculations
 - Visualization / reporting

- Brand new product
- Provides access to PI System and AF data through standard web services technologies.
 - Many code-free integration scenarios
 - Custom applications
- Facilitates data access over secure and distributed environments.
 - Nothing required on the client machine
 - Services-oriented architecture (SOA)

- Object-oriented SDKs
 - PI Server, AF Server, Notifications
- Custom applications
 - Visualization
 - Configuration
 - Calculations
 - Analysis
 - Reports
- Windows Integrated Security
 - PI SDK 1.3.6
- 64-bit
 - PI SDK 1.3.8
 - AF SDK 2.1



- Productivity through familiar and intuitive tools
- End users to create their own BI solutions
- Improve sharing and discovery of insights



- Organizational productivity through dashboards
- Visibility into key team and organizational metrics
- Business user efficiency and collaboration



- Cut costs by leveraging existing IT investments
- Scale-out to support BI for all users
- Familiar and intuitive management tools

Introducing PowerPivot for Excel 2010

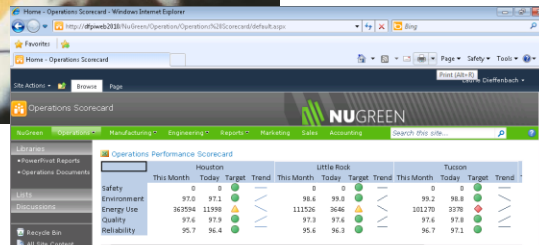
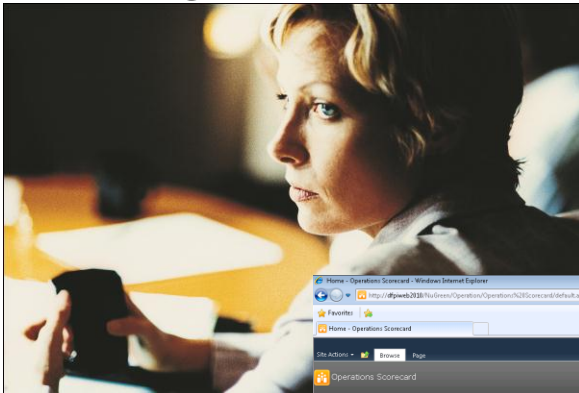
- Enable users to perform self-service analysis and intuitively build their own BI solutions
- Allow users to interactively explore and perform calculations on large data sets
- Integrate data from multiple sources
- Minimize dependence on IT support

[illegible]

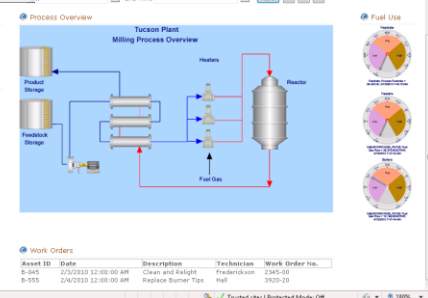
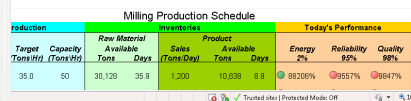
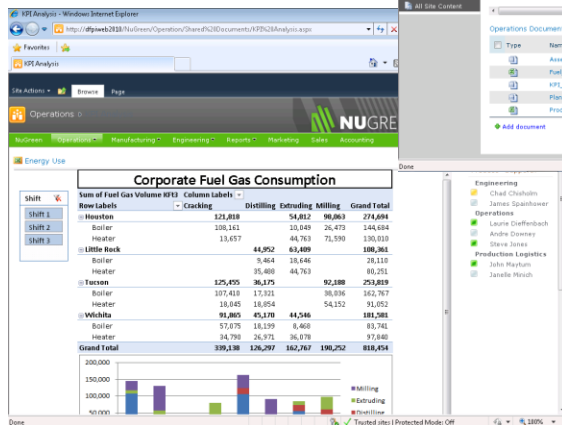
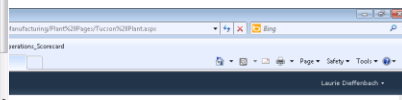
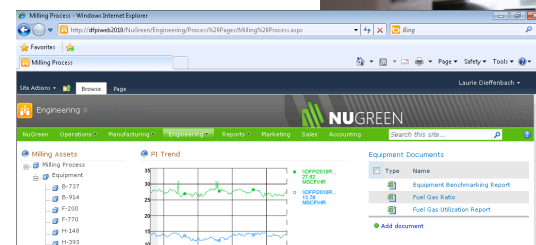
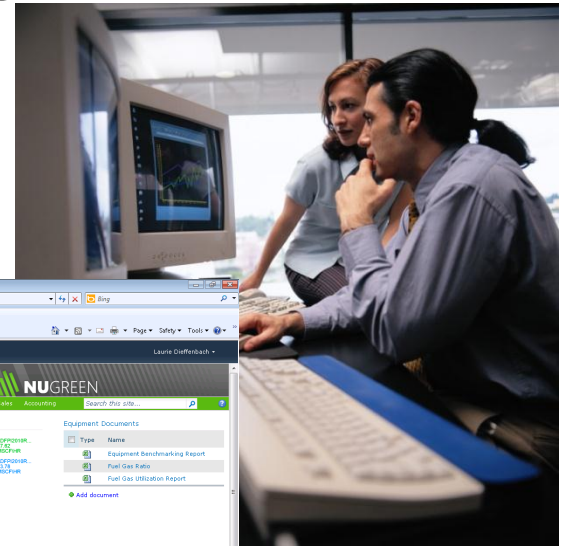
Role-based Dashboarding



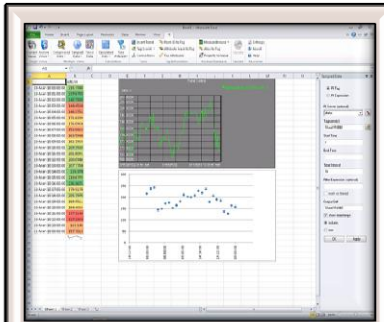
Management



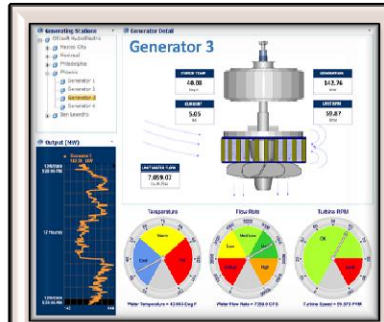
Knowledge Worker



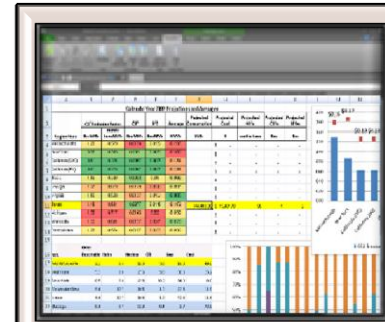
Content Creator



PI DataLink for Excel
2010



PI WebParts for
SharePoint 2010



PI DataLink
Server 2010

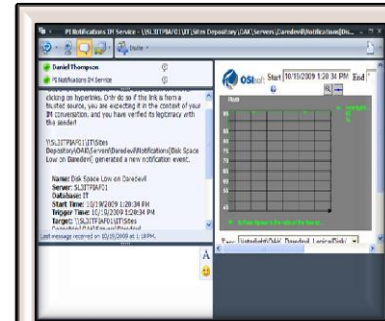


PI and PowerPivot
for 2010

PI OLEDB
Enterprise 2010

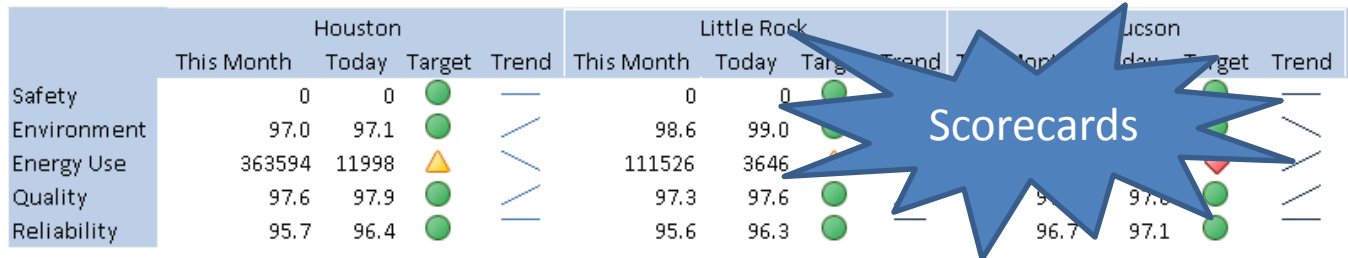
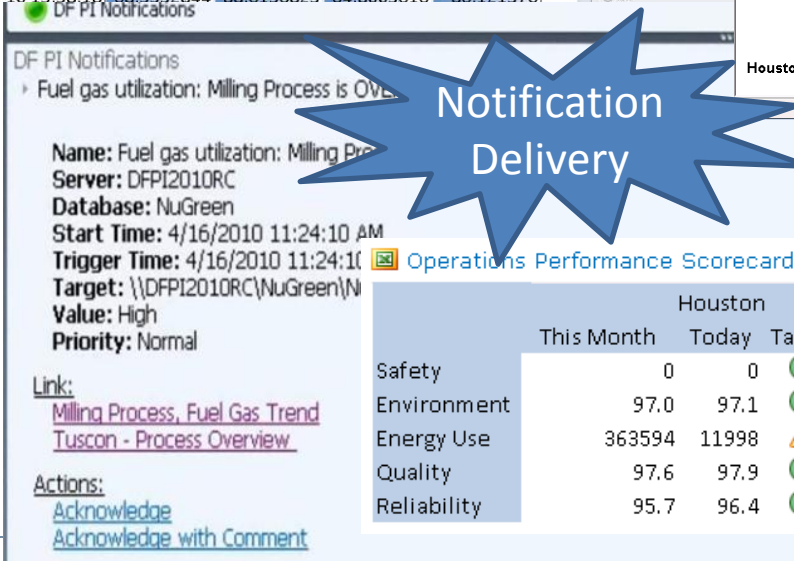
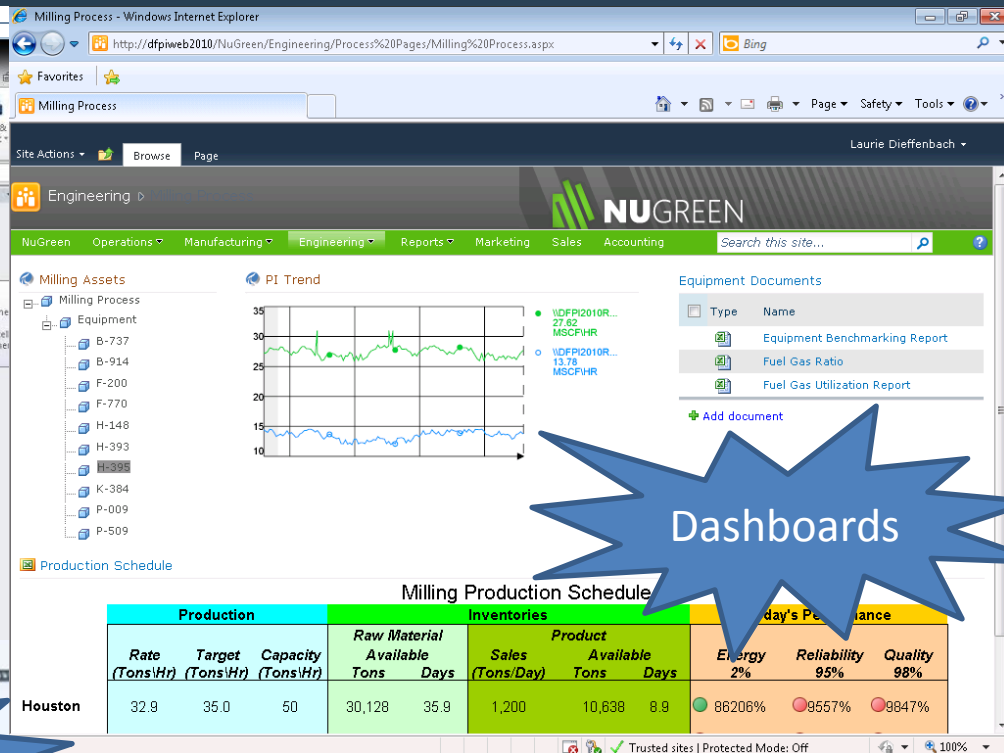
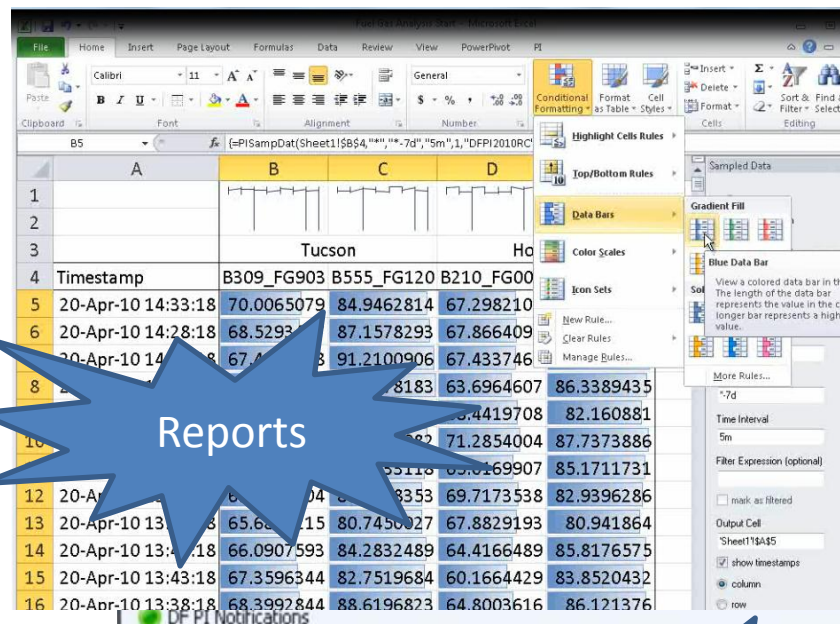
PI Web Services
2010

PI Data Access
Technologies



PI Notifications
Office Communicator
Delivery

What's New with Visualization in PI System 2010?



What's New in PI DataLink 2010



- PI DataLink 2010:
 - Supports Microsoft Office 2010 (32-bit)
 - Office 2007 and Office 2003 as well
- PI DataLink Server 2010
 - Supports SharePoint 2010 (64-bit)
 - Office SharePoint Server 2007 as well
- Both PI DataLink 2010 and PI Data Link Server 2010 support Internationalization and Localization

English, French, German, Spanish, Portuguese, Russian,
Simplified Chinese, Japanese, Korean

PI System 2010 - Simple, Relevant, Collaborative



Simple

- ➔ Simple naming and versioning
- ➔ Single PI Server package
- ➔ Aligned release schedule

Relevant

- ➔ Organize PI data around assets
- ➔ Migration of existing asset definitions
- ➔ Integration of PI with business systems
- ➔ New ways to analyze data

Collaborative

- ➔ Use the tools you already know
- ➔ Business Intelligence for the masses
- ➔ Easily share insights with others

Enhancements to Asset Meta-Data using PI AF

- AF Builder - part of PI AF 2010 R2 release
 - Allows you to build or edit AF structure in bulk
 - Uses MS Excel
- Complete AF Attribute Access
 - PI WebParts 2010 R2
 - PI Web Services 2010 R2
- AF Support
 - PI JDBC 2010 R2 (uses PI OLEDB Enterprise)
- PI Notifications 2010
 - String Formatting for Message Body
 - Native 64-Bit support
 - Microsoft Lync Support (new name for Office Communicator)

AFBuilder - Build AF Hierarchy in Bulk



Book2 - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Add-Ins PI AF Builder Team

Current AF Connection
 PISystem: SKWANE6400
 Database: AF Demo

Database
 (x) Select All
 () Deselect All

Delete Export
 Library Elements Event Frames

Errors
 About Help

Connection Export to AF Import from AF Resources

A2	A	B	C	D	E	F	G	H	I
	Selected(x)	Parent	Name	ObjectType	Template	Description	Categories	AttributeDataReference	AttributeDefaultUOM
2	x		Power Plant #1	Element	Plant	Combined cycle power plant			
3	x	Power Plant #1	Train1	Element	Train	Combined Cycle Power Plant Train			
4	x	Power Plant #1\Train1	Plant1	Element	Plant	Combined cycle power plant			
5	x	Power Plant #1\Train1\Plant1	Gas Turbine1	Element	Gas Turbine	Gas Turbine			
6	x	Power Plant #1\Train1\Plant1\Gas Turbine1	Exit Flow	Attribute		Gas Turbine Exit Flow	PI Point		klb/hr
7	x	Power Plant #1\Train1\Plant1\Gas Turbine1	Exit Temperature	Attribute		Gas Turbine Exit Temperature	PI Point		°C
8	x	Power Plant #1\Train1\Plant1\Gas Turbine1	Fuel Gas Flow	Attribute		Gas Turbine Fuel Flow	PI Point		klb/hr
9	x	Power Plant #1\Train1\Plant1\Gas Turbine1	Inlet Flow	Attribute		Gas Turbine Inlet flow	PI Point		klb/hr
10	x	Power Plant #1\Train1\Plant1\Gas Turbine1	Inlet Temperature	Attribute		Gas Turbine Inlet Temperature	PI Point		°C
11	x	Power Plant #1\Train1\Plant1\Gas Turbine1	Power Output	Attribute		Gas Turbine MW Output	PI Point		MW
12	x	Power Plant #1\Train1\Plant1\Gas Turbine1	Serial Number	Attribute		Gas Turbine Serial Number			
13	x	Power Plant #1\Train1\Plant1\Gas Turbine1	Pump Type A1	Element	Pump Type A	Pump Type A Template	Pumps;		
14	x	Power Plant #1\Train1\Plant1\Gas Turbine1\Pump Type A1	Pump Casing Temperature	Attribute		Temperature of the pump casing	PI Point		°F
15	x	Power Plant #1\Train1\Plant1\Gas Turbine1\Pump Type A1	Pump Serial Number	Attribute		Serial Number for the pump			
16	x	Power Plant #1\Train1\Plant1\Gas Turbine1	Pump Type A2	Element	Pump Type A	Pump Type A Template	Pumps;		
17	x	Power Plant #1\Train1\Plant1\Gas Turbine1\Pump Type A2	Pump Casing Temperature	Attribute		Temperature of the pump casing	PI Point		°F
18	x	Power Plant #1\Train1\Plant1\Gas Turbine1\Pump Type A2	Pump Serial Number	Attribute		Serial Number for the pump			
19	x	Power Plant #1\Train1\Plant1	Gas Turbine2	Element	Gas Turbine	Gas Turbine			
20	x	Power Plant #1\Train1\Plant1\Gas Turbine2	Exit Flow	Attribute		Gas Turbine Exit Flow	PI Point		klb/hr
21	x	Power Plant #1\Train1\Plant1\Gas Turbine2	Exit Temperature	Attribute		Gas Turbine Exit Temperature	PI Point		°C
22	x	Power Plant #1\Train1\Plant1\Gas Turbine2	Fuel Gas Flow	Attribute		Gas Turbine Fuel Flow	PI Point		klb/hr
23	x	Power Plant #1\Train1\Plant1\Gas Turbine2	Inlet Flow	Attribute		Gas Turbine Inlet flow	PI Point		klb/hr
24	x	Power Plant #1\Train1\Plant1\Gas Turbine2	Inlet Temperature	Attribute		Gas Turbine Inlet Temperature	PI Point		°C
25	x	Power Plant #1\Train1\Plant1\Gas Turbine2	Power Output	Attribute		Gas Turbine MW Output	PI Point		MW
26	x	Power Plant #1\Train1\Plant1\Gas Turbine2	Serial Number	Attribute		Gas Turbine Serial Number			
27	x	Power Plant #1\Train1\Plant1\Gas Turbine2	Pump Type A1	Element	Pump Type A	Pump Type A Template	Pumps;		
28	x	Power Plant #1\Train1\Plant1\Gas Turbine2\Pump Type A1	Pump Casing Temperature	Attribute		Temperature of the pump casing	PI Point		°F
29	x	Power Plant #1\Train1\Plant1\Gas Turbine2\Pump Type A1	Pump Serial Number	Attribute		Serial Number for the pump			
30	x	Power Plant #1\Train1\Plant1\Gas Turbine2	Pump Type A2	Element	Pump Type A	Pump Type A Template	Pumps;		
31	x	Power Plant #1\Train1\Plant1\Gas Turbine2\Pump Type A2	Pump Casing Temperature	Attribute		Temperature of the pump casing	PI Point		°F
32	x	Power Plant #1\Train1\Plant1\Gas Turbine2\Pump Type A2	Pump Serial Number	Attribute		Serial Number for the pump			

Sheet1 Sheet2 Sheet3

Ready 100%

AFBuilder - Configure AF Attributes in Bulk



Book2 - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Add-Ins PI PI AF Builder Team

Current AF Connection
PISystem: SKWANE6400
Database: AF Demo

Database
Headers
(x) Select All
() Deselect All
Delete Export
Library Elements Event Frames
Import from AF
Errors
About
Help
Resources

Parent

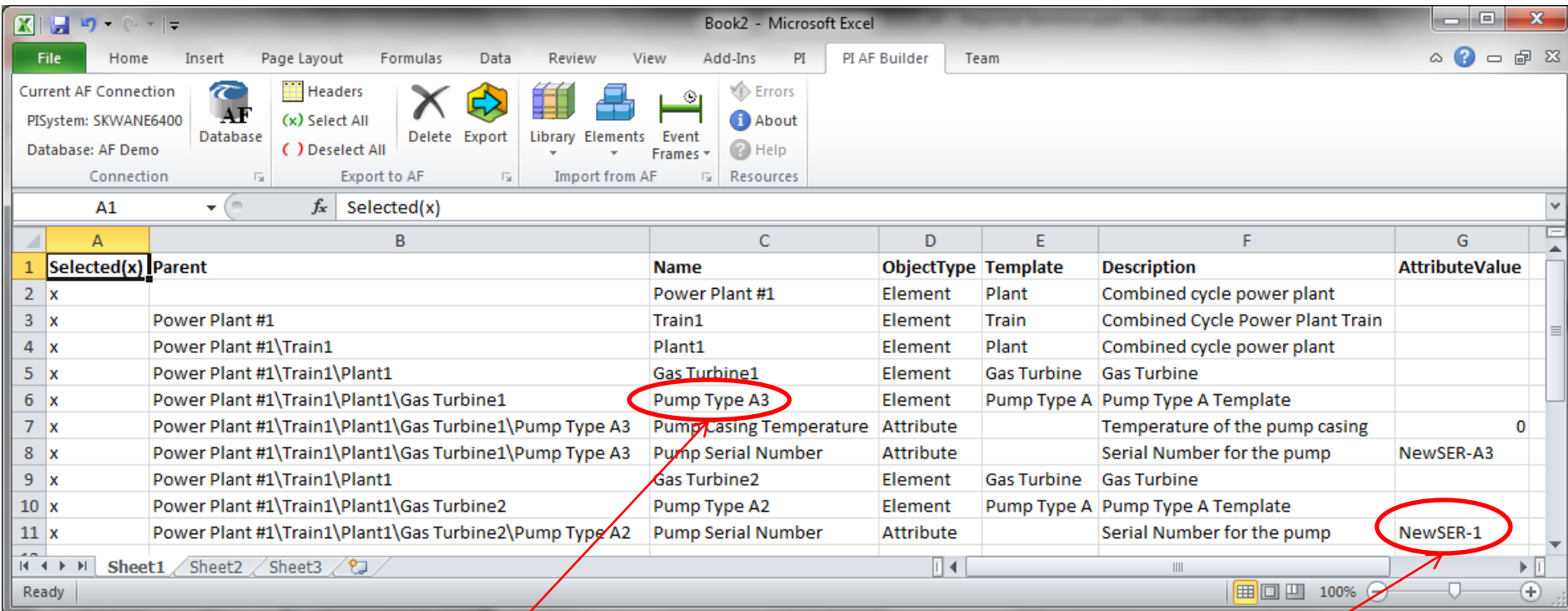
	A	B	C	D	E	F	G	H	I
	Selected(x)	Parent	Name	ObjectType	Template	Description	Categories	Serial Number	Pump Serial Number
2	x		Power Plant #1	Element	Plant	Combined cycle power plant			
3	x		Train1	Element	Train	Combined Cycle Power Plant Train			
4	x	Power Plant #1\Train1	Plant1	Element	Plant	Combined cycle power plant			
5	x	Power Plant #1\Train1\Plant1	Gas Turbine1	Element	Gas Turbine	Gas Turbine		GT505-A	
6	x	Power Plant #1\Train1\Plant1\Gas Turbine1	Pump Type A1	Element	Pump Type A	Pump Type A Template	Pumps;		T1-197
7	x	Power Plant #1\Train1\Plant1\Gas Turbine1	Pump Type A2	Element	Pump Type A	Pump Type A Template	Pumps;		T1-198
8	x	Power Plant #1\Train1\Plant1	Gas Turbine2	Element	Gas Turbine	Gas Turbine		GT505-B	
9	x	Power Plant #1\Train1\Plant1\Gas Turbine2	Pump Type A1	Element	Pump Type A	Pump Type A Template	Pumps;		T1-199
10	x	Power Plant #1\Train1\Plant1\Gas Turbine2	Pump Type A2	Element	Pump Type A	Pump Type A Template	Pumps;		T1-200
11									
12									

Sheet1 Sheet2 Sheet3

Ready

100%

- Do you need to add an asset to AF?
- Did you replace an asset due to maintenance?



Book2 - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Add-Ins PI AF Builder Team

Current AF Connection
PISystem: SKWANE6400
Database: AF Demo

Connection Database Headers (x) Select All (x) Deselect All Delete Export Library Elements Event Frames Errors About Help Resources

Export to AF Import from AF

A1	Selected(x)					
	A	B	C	D	E	F
1	Selected(x)	Parent	Name	ObjectType	Template	Description
2	x		Power Plant #1	Element	Plant	Combined cycle power plant
3	x	Power Plant #1	Train1	Element	Train	Combined Cycle Power Plant Train
4	x	Power Plant #1\Train1	Plant1	Element	Plant	Combined cycle power plant
5	x	Power Plant #1\Train1\Plant1	Gas Turbine1	Element	Gas Turbine	Gas Turbine
6	x	Power Plant #1\Train1\Plant1\Gas Turbine1	Pump Type A3	Element	Pump Type A	Pump Type A Template
7	x	Power Plant #1\Train1\Plant1\Gas Turbine1\Pump Type A3	Pump Casing Temperature	Attribute		Temperature of the pump casing
8	x	Power Plant #1\Train1\Plant1\Gas Turbine1\Pump Type A3	Pump Serial Number	Attribute		Serial Number for the pump
9	x	Power Plant #1\Train1\Plant1	Gas Turbine2	Element	Gas Turbine	Gas Turbine
10	x	Power Plant #1\Train1\Plant1\Gas Turbine2	Pump Type A2	Element	Pump Type A	Pump Type A Template
11	x	Power Plant #1\Train1\Plant1\Gas Turbine2\Pump Type A2	Pump Serial Number	Attribute		Serial Number for the pump

Sheet1 Sheet2 Sheet3

Ready

Adding a new pump

Changing an attribute value

For more information on PI System 2010 don't forget to:

- Visit www.osisoft.com
- Contact your local sales representative



Thank you

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