



# Regional Seminar Series Chicago, IL



## PI System Roadmap

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Director, Product Management  
OSIsoft

12 October, 2010

- 2009 Highlights
- PI System 2010
- PI System capabilities *coming soon*

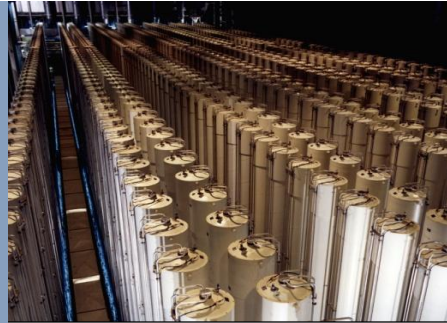
# The Recent Past: 2009 Highlights

## 2009 Themes: What did OSIsoft accomplish in 2009 to help you?



### Security

Critical  
Facilities are  
Safe



### Asset Centric PI

Define Once  
Use Over and  
Over



### Localization

Use  
Worldwide



### Scaling, 64 bit

Use PI for  
more data

- PI AF 2.x uses Windows Security since the first release
- The PI Server 3.4.380 can leverage Windows authentication mechanism
- PI Notifications leverages PI AF and PI Server Security



- True Single Sign-On (SSO)
- Easier to Manage
  - User Accounts in Windows/AD Only
  - Leverage AD Tools and Security Policies
- Upgrade Experience
  - Backward Compatibility
  - Simply Requires PI SDK 1.3.6



# PI Identities for Role Based Security



sinusoid - Point Builder - PI System Management Tools

File View Tools Help

Collectives and Servers

Search

**Servers**

LG380

System Management Tools

Search

- Alarms
- Batch
- Data
- Interfaces
- IT Points
- Operation
- Points
  - Digital States
  - Performance Equations
  - Point Builder
  - Point Classes
  - Point Source Table
  - Totalizers
- Security
  - Database Security
  - Firewall
  - Identities, Users, & Groups
  - Mappings & Trusts
  - Security Settings

Server	Point	Point Security	Data Security
LG380	sinusoid	piadmin: A[r,w]   piadmins: A[r,w]   PIEngineers: A[r]   PIWorld: A[r]	piadmin: A[r,w]   piadmins: A[r,w]   PIOperators: A[r]   PIEng

General Archive Classic Security System

Point Security

- piadmin
- PIWorld
- piadmins
- PIEngineers

Add... Remove

Permissions for piadmin

Permission	Allow
Read	<input checked="" type="checkbox"/>
Write	<input checked="" type="checkbox"/>

Session Record

Data Security

- piadmin
- PIEngineers
- piadmins
- PIWorld
- PIOperators

OSI\lgarrigues | piadmin

Select

Select from server LG380

Type: All

Name	Description
piadmin	The administrative PI User with unrestricted access
piadmins	The administrative PI Group formerly named "piadmin"
pidemo	The generic PI User
PIEngineers	Any individual with engineering duties
<b>PIOperators</b>	<b>Any individual with operational duties</b>
PISupervisors	Any individual with supervisory duties
piusers	The generic PI Group formerly named "piuser"

Add

OK Cancel

Server - My\_PI

- API trusts are disabled
- SDK trusts are disabled
- Explicit login disabled
- Explicit login for piadmin disabled
- Blank password not allowed

Note: This change requires a restart of the PI Base

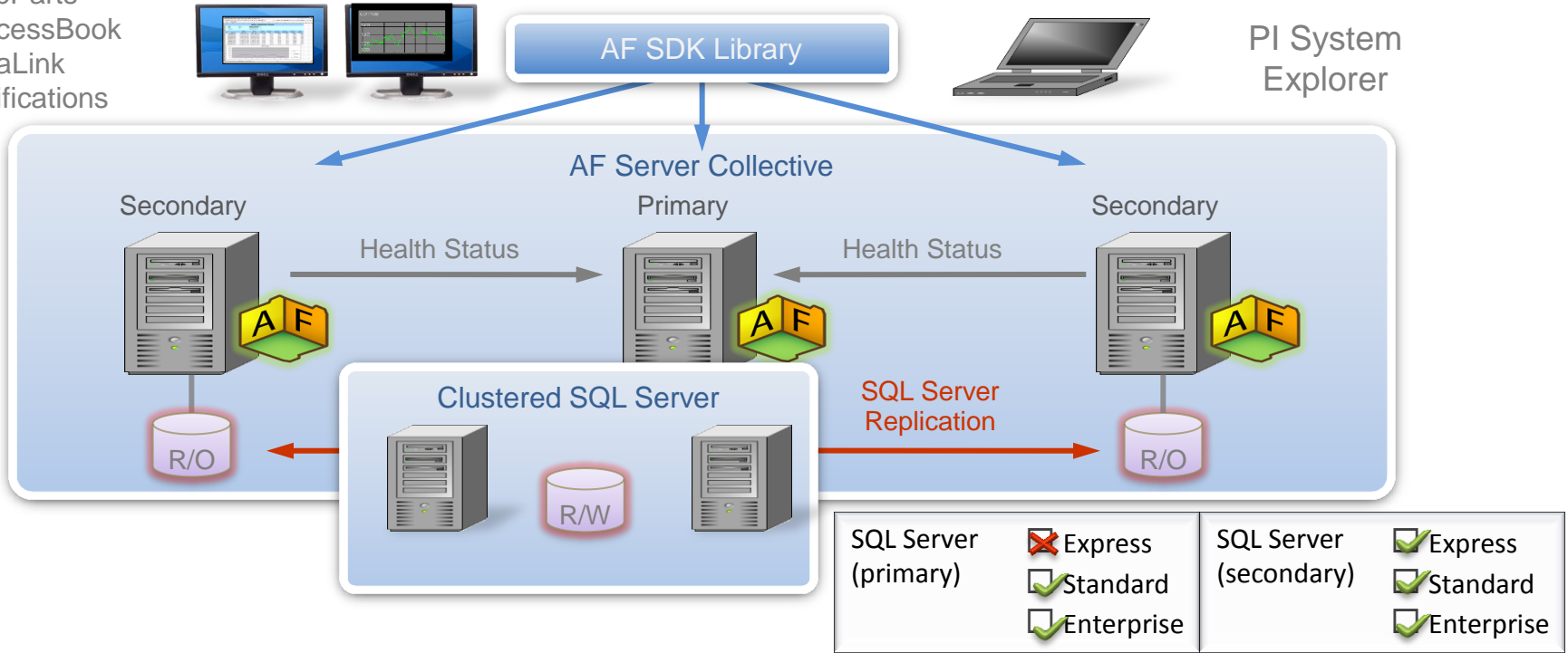
- **OSIsoft Values**
  - Provide reliable data for your business
  - Minimize cyber risk
  - Ease compliance burden
  
- **Proactive Actions**
  - Security Development Lifecycle
  - Enable Built-In Defenses
  - Managed PI and First Responders
  - Dedicated Security Manager
  
- **Verification**
  - 2009 US Army NETCOM - Certificate of Noteworthiness (CoN)
  - 2008 Windows Logo Certification - Server 'Core'
  - 2006 National SCADA Test Bed - Cyber Assessment
  - 2004 EPRI and Utility Partner - Cyber Assessment



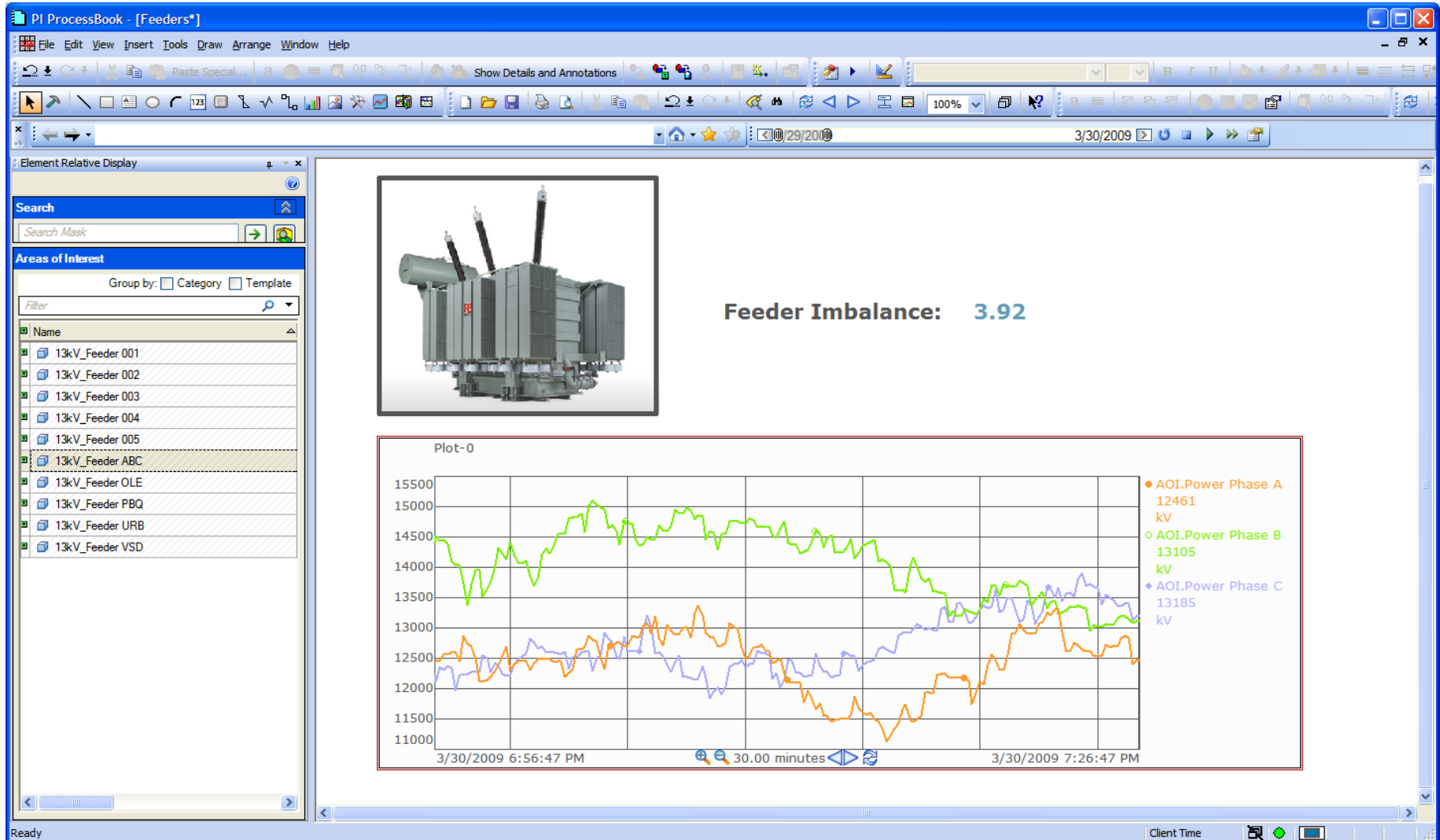
# Asset Centric PI: AF HA



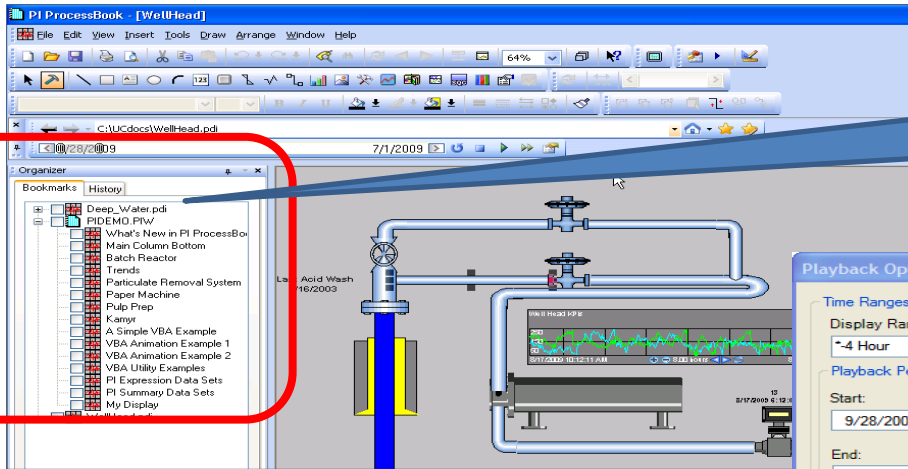
- AF-based PI Clients
- WebParts
  - ProcessBook
  - DataLink
  - Notifications



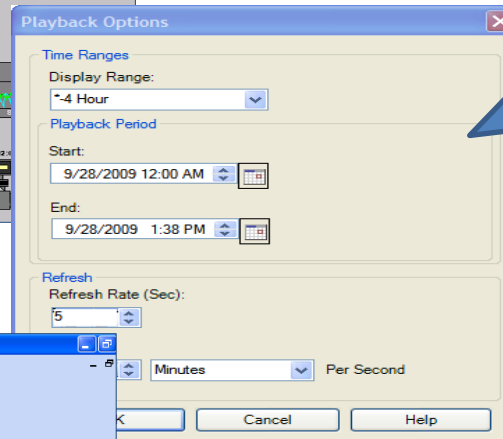
# ProcessBook 3.2: Element Relative Displays



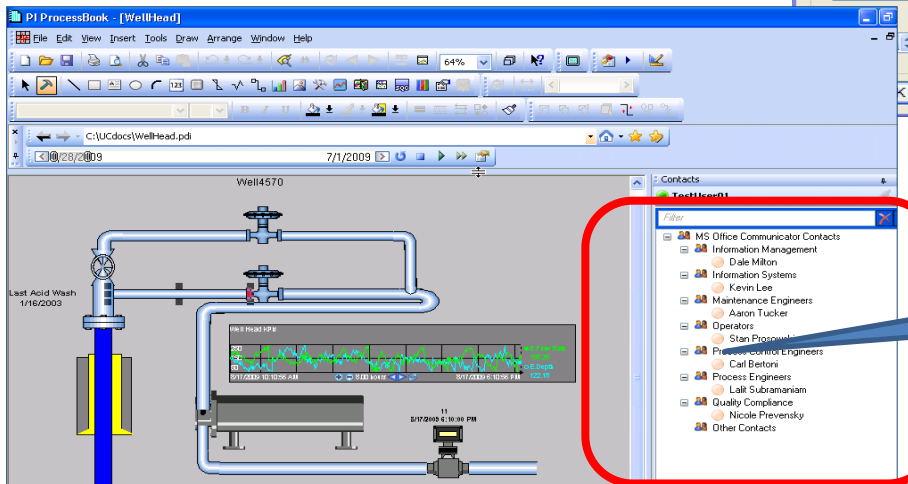
# ProcessBook 3.2: Productivity Enhancements



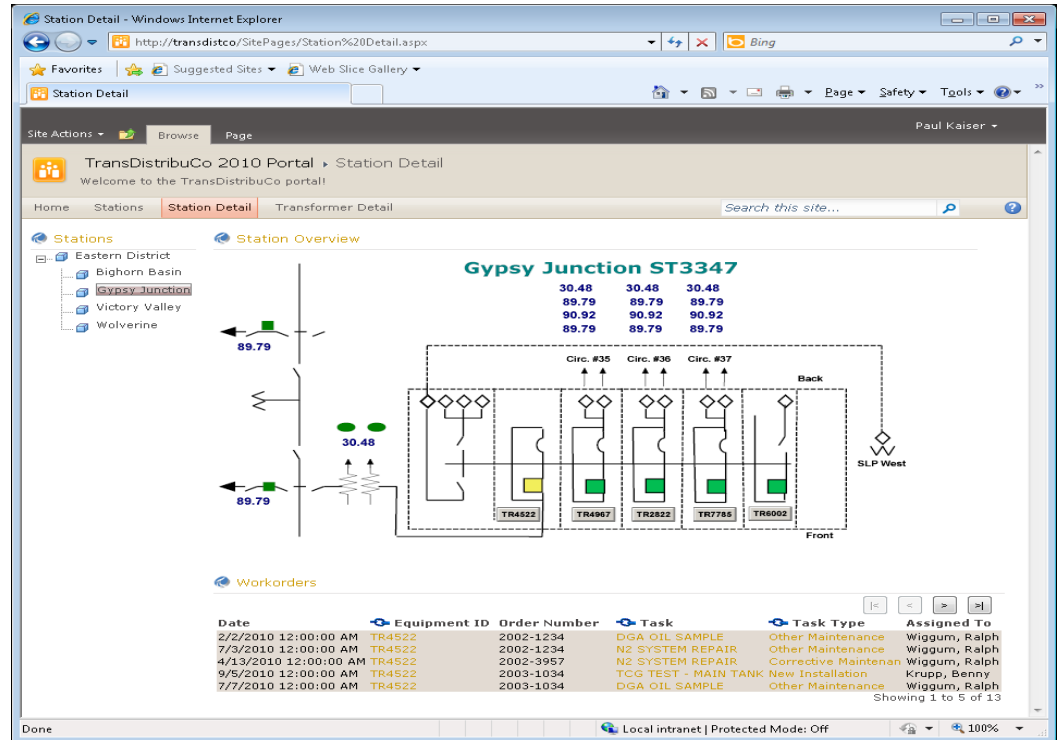
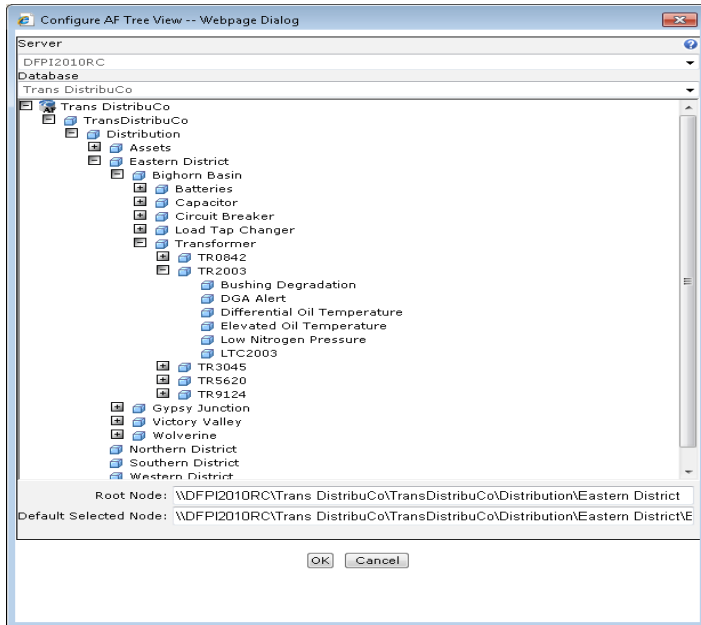
Browsing forward and backwards  
Permanent books mark of favorites



Playback  
Troubleshoot problems  
by re-playing a display



Communicator  
IM, Email Contacts  
Easily send a PB  
screenshot



- Available now
    - PI ProcessBook
    - PI ActiveView
    - PI WebParts
    - PI SDK
    - PI DataLink
  - In plan
    - PI System Explorer
    - PI Notifications
    - PI Manual Logger
- French
  - German
  - Russian
  - Spanish
  - Korean
  - Japanese
  - Brazilian Portuguese
  - Simplified Chinese

**hallo**      *bonjour*  
*¡Hola*      **привет**  
                  *안녕하세요*  
**こんにちは**  
                  *Olá*  
*你好*  
                  *saluton*

- Most server hardware today is 64 bits
- Microsoft aggressively moving to 64 bits
  - Windows Server 2008 R2, SharePoint 2010 are 64 bit only
- Allows full utilization of hardware and cache
- Mostly relevant to OSIsoft servers and customer applications
  - Programmatic interfaces are used by servers

# 2009 Releases



11-Oct-2010

Major release 
 Minor release 
 Service Pack

[◀ older](#)
[newer ▶](#)

Featured Products	Q4 2008	Q1 2009	Q2 2009	Q3 2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011
<b>CLIENT</b> <a href="#">View more</a>	Q4 2008	Q1 2009	Q2 2009	Q3 2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011
PI ProcessBook										
PI ActiveView										
PI DataLink										
PI DataLink Server										
PI Manual Logger										
PI WebParts										
<b>DATA ACCESS</b> <a href="#">View more</a>	Q4 2008	Q1 2009	Q2 2009	Q3 2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011
PI JDBC										
PI ODBC										
PI OLEDB										
PI OLEDB Enterprise										
PI OPC DA/HDA Server										
PI SDK										
PI Web Services										
<b>SERVER</b> <a href="#">View more</a>	Q4 2008	Q1 2009	Q2 2009	Q3 2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011
PI ACE										
PI AF										
PI for StreamInsight										
PI Server										
PI Notifications										
<b>INTERFACES</b> <a href="#">View more</a>   <a href="#">Search</a>	Q4 2008	Q1 2009	Q2 2009	Q3 2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011

ProcessBook  
ERDs  
Playback

PI SDK  
64-Bit

PI OLEDB  
64-Bit

PI AF  
HA and  
Scalability

PI Server  
Windows  
Security

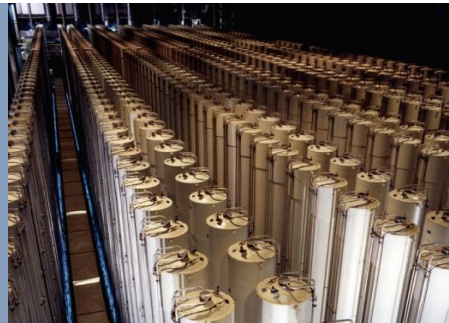
PI  
Notifications  
Templates

## 2009 Themes: What did OSIsoft accomplish in 2009 to help you?



### Security

- ✓PI 380
- ✓Deployment



### Asset Centric PI

- ✓ProcessBook
- ✓WebParts
- ✓Notifications
- ✓AF HA



### Localization

- ✓8 languages
- ✓5 products
- ✓3 planned



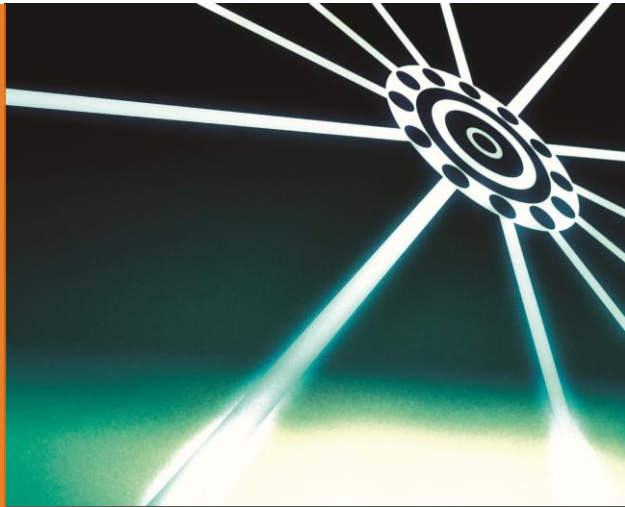
### Scaling, 64-bit

- ✓ Servers
- ✓ Data Access
- ✓ Web Clients



# The Present: PI System 2010

## 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



## PI Data Access

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



## PI Server

- PI Server 2010
- Assets and Tags

## Business User Experience



## Business Collaboration Platform

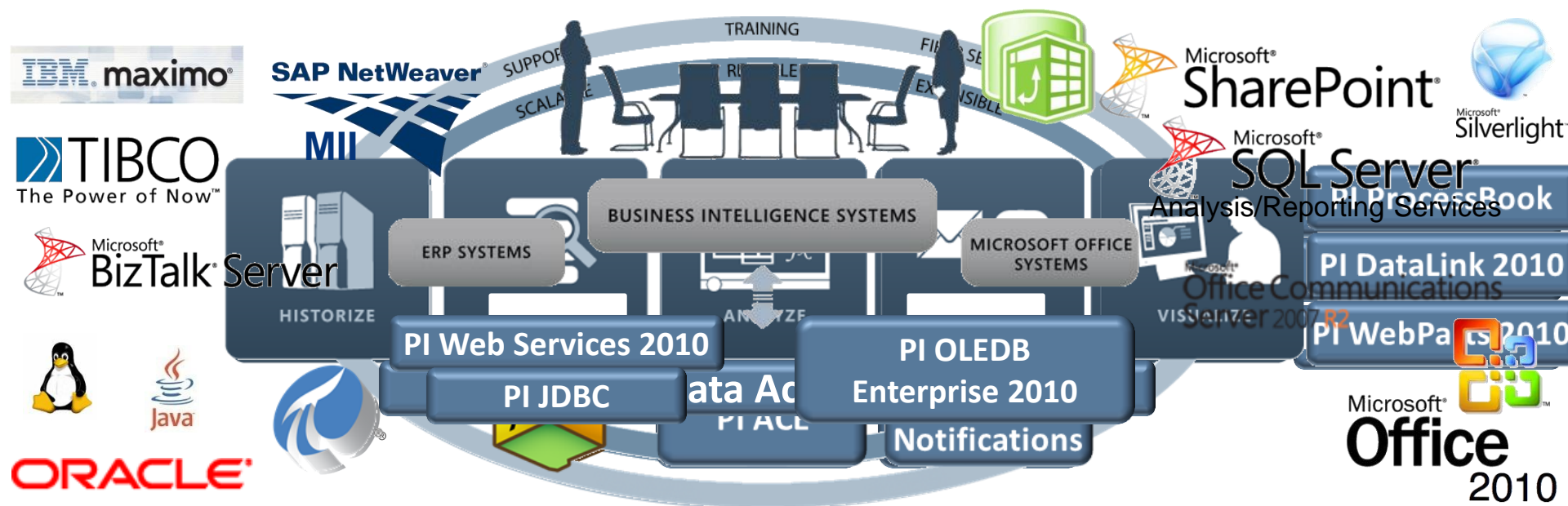


## Data Infrastructure and BI Platform

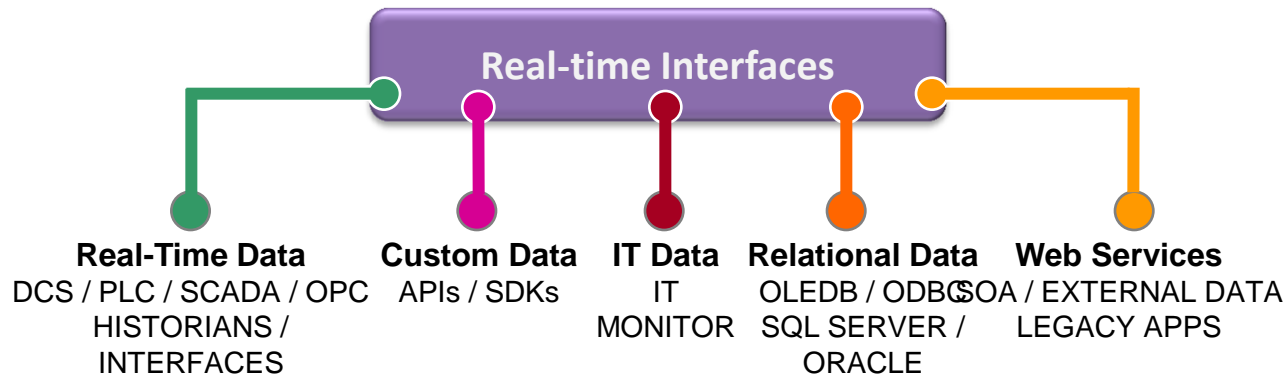
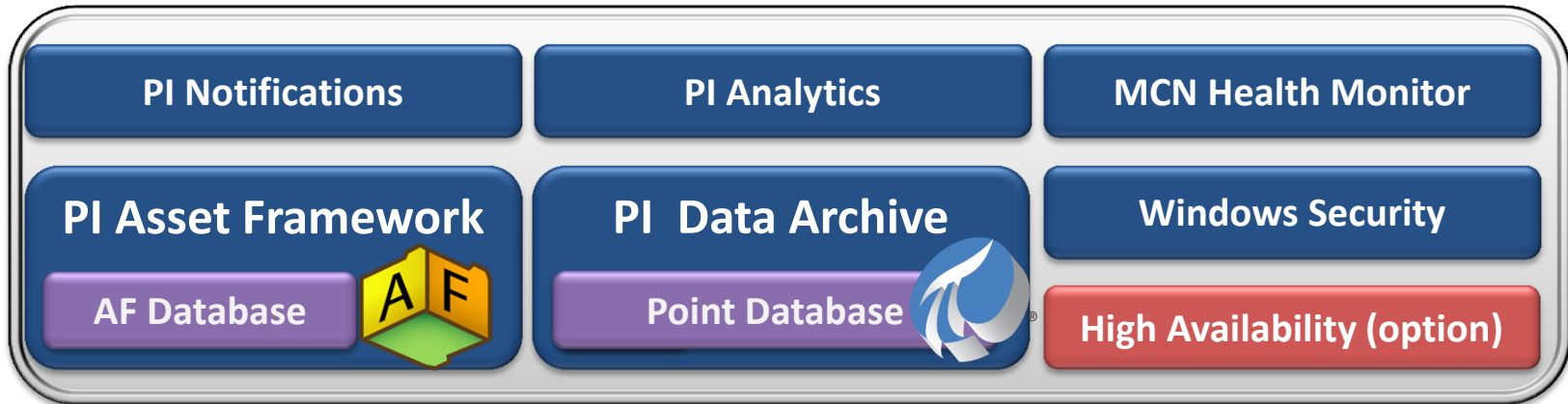


# Experience





**+**  
*All Released PI  
 Client and Server  
 Products*

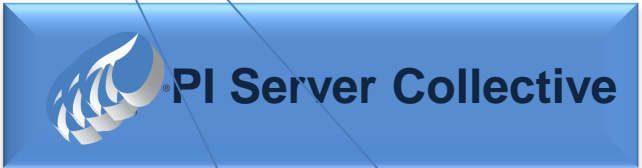
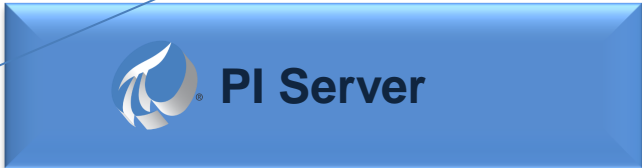
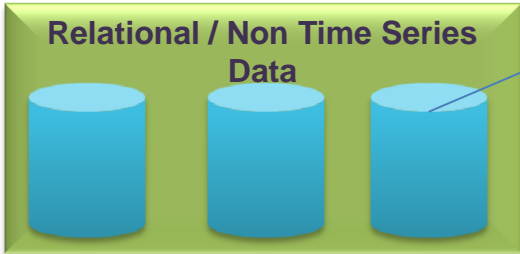






**Notifications**

**Analytics**

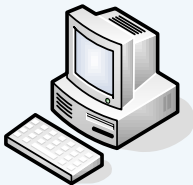


# Mixed Applications

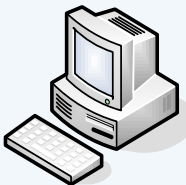
## MDB based Applications



PI DataLink



IT Monitor



BatchView

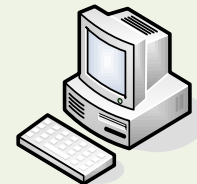


PI ACE

## AF based Applications



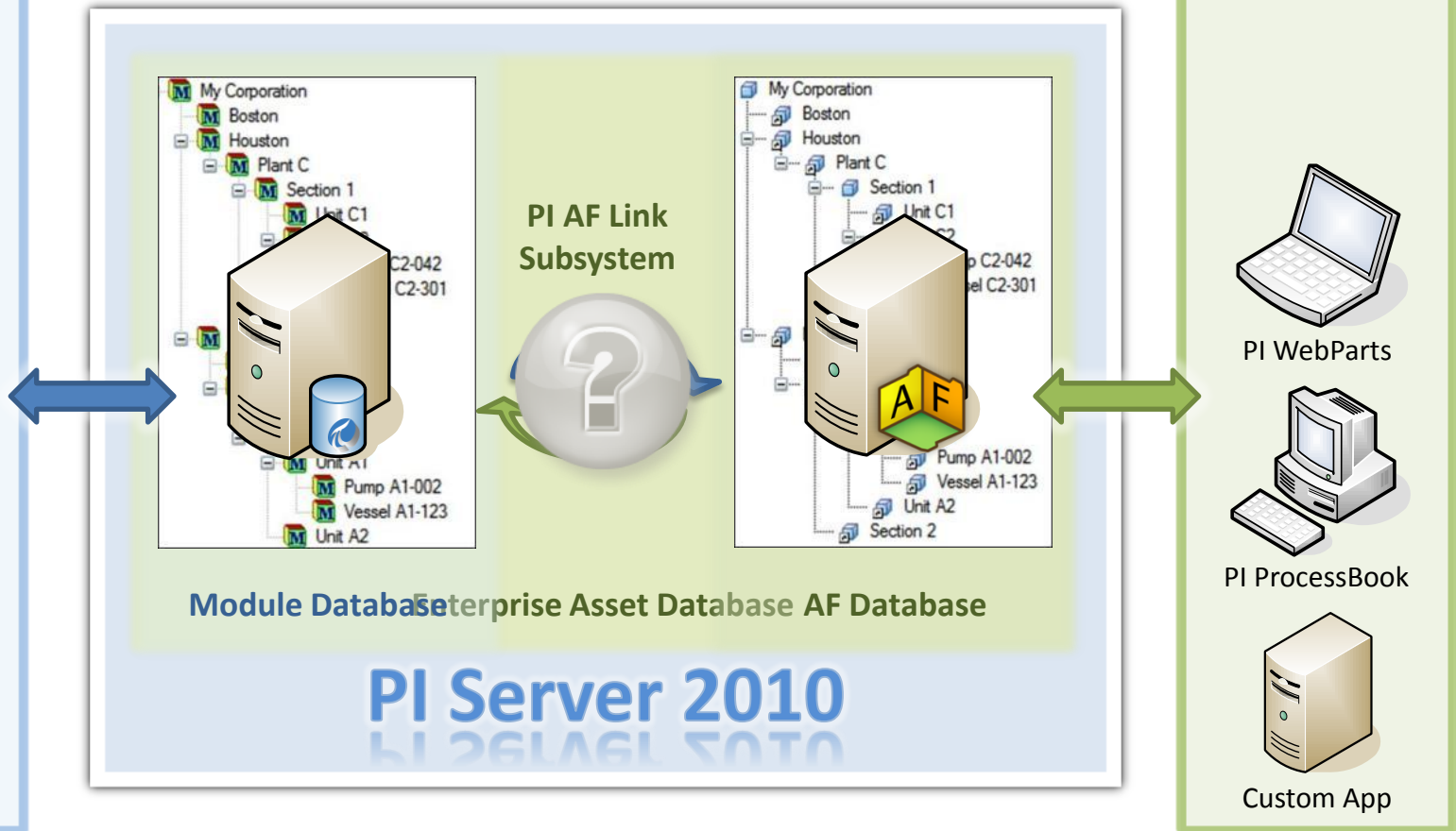
PI WebParts



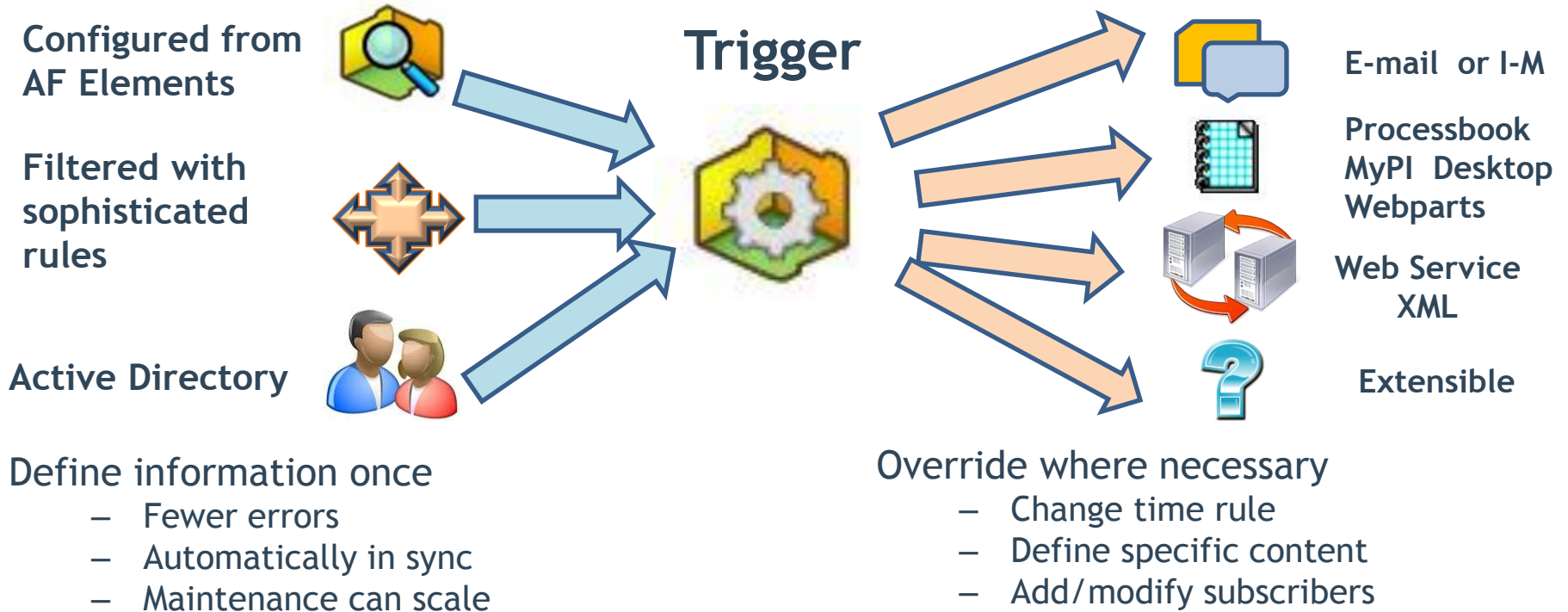
PI ProcessBook



Custom App







# PI Data Access: The Products



SQL Family

Web Services

OPC Servers


OSIsoft SDKs


 Asset Information / Metadata

Notifications  
Analytics

Relational / Non Time Series Data



 PI Server

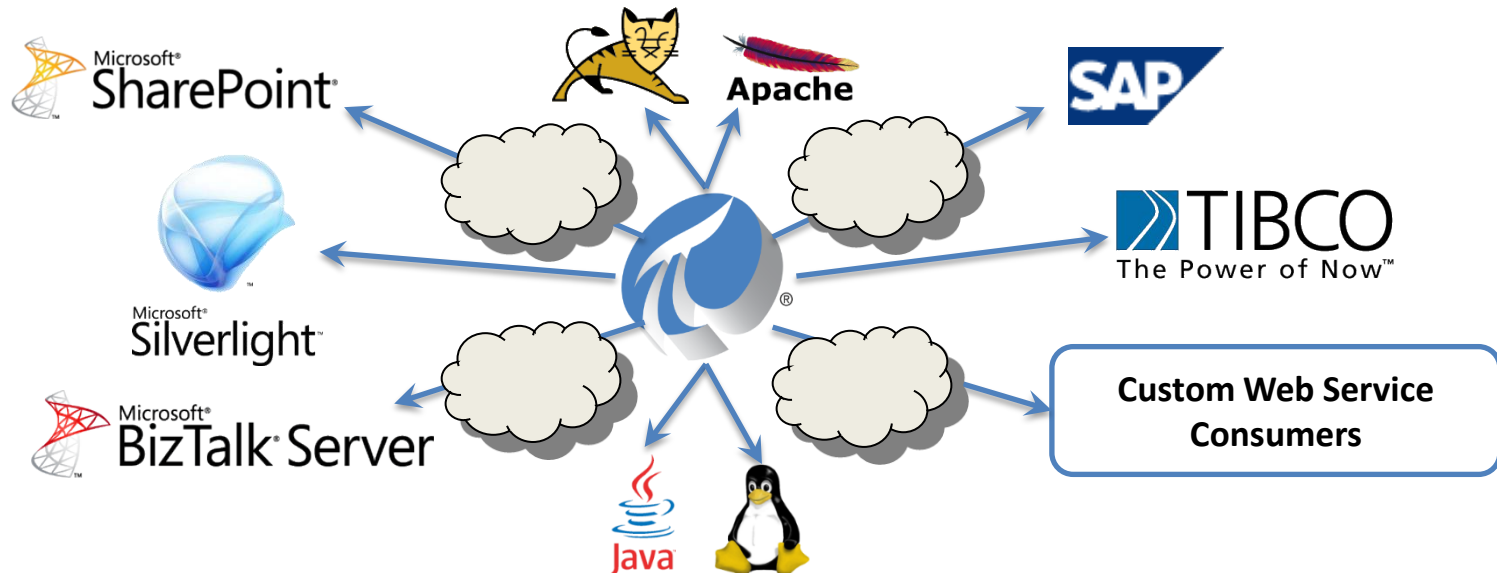
 PI Server Collective

Time Series Data

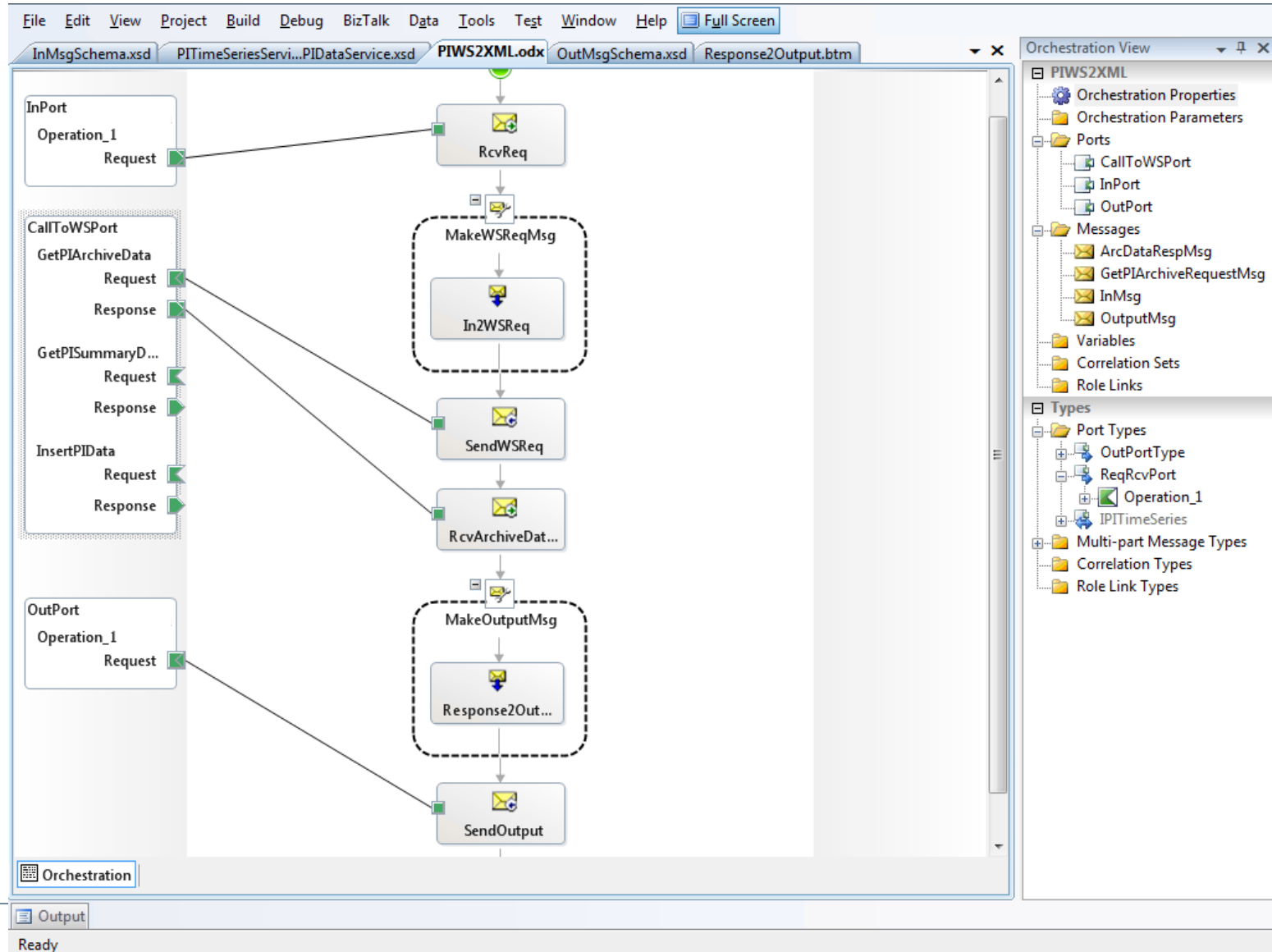
- Provides access to **PI and AF** data through standard **web service** technologies
  - Many code-free integration scenarios
  - Any application, any language, any OS
  
- Facilitates data access over **secure and distributed** environments
  - Nothing required on the client machine
  - Lightweight and firewall-friendly

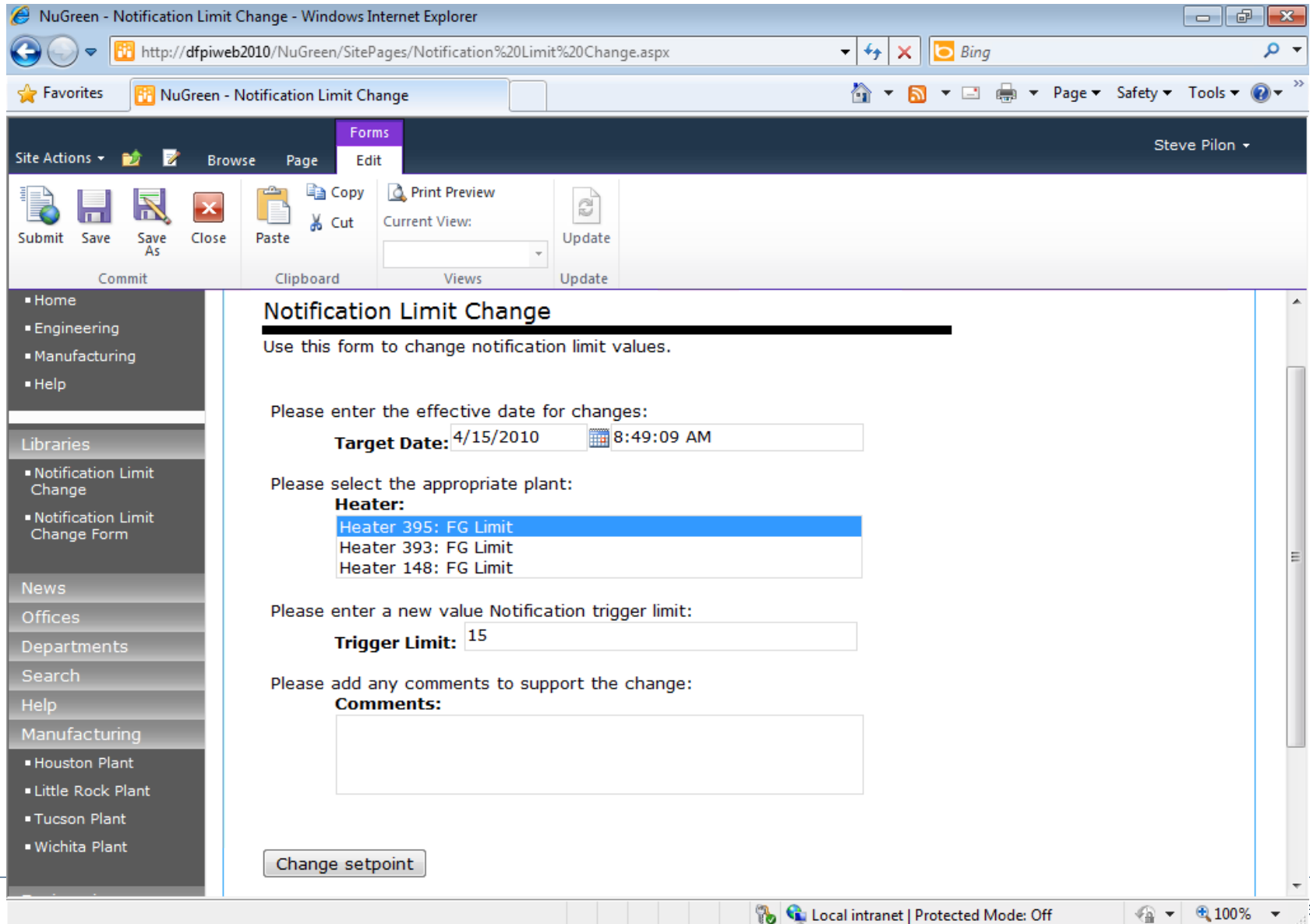


- Web-based visualization
- Integration scenarios
  - Line-of-Business (LoB) systems
  - Message buses
- Non-Windows environments



# PI Web Services in Microsoft BizTalk





NuGreen - Notification Limit Change - Windows Internet Explorer

http://dfpiweb2010/NuGreen/SitePages/Notification%20Limit%20Change.aspx

Site Actions | Browse | Page | Edit | Steve Pilon

Submit | Save | Save As | Close | Paste | Copy | Cut | Print Preview | Current View: | Update | Update

Commit | Clipboard | Views | Update

### Notification Limit Change

Use this form to change notification limit values.

Please enter the effective date for changes:  
**Target Date:** 4/15/2010 8:49:09 AM

Please select the appropriate plant:  
**Heater:**  
Heater 395: FG Limit  
Heater 393: FG Limit  
Heater 148: FG Limit

Please enter a new value Notification trigger limit:  
**Trigger Limit:** 15

Please add any comments to support the change:  
**Comments:**

Change setpoint

# PI Web Services in Silverlight



Windows Internet Explorer window showing the PIDataServicesSL application. The address bar displays `http://localhost:52644/Default.aspx`. The page content includes a table of data points and a corresponding bar chart.

Last response at 4/19/2010 6:22:47 PM, 34 total

Path	Time	Value	DisplayValue	LocalTime	FillColor
sinusoid	4/20/2010 1:20:27 AM	41.1247062683105	41.125	4/20/2010 1:20:27 AM	DarkBlue
cdt158	4/20/2010 1:20:27 AM	84.9165878295898	84.917	4/20/2010 1:20:27 AM	DarkBlue
cdep158	4/20/2010 1:14:27 AM	14	14	4/20/2010 1:14:27 AM	DarkBlue
BA:CONC.1	4/20/2010 1:22:27 AM	26.0399227142334	26.04	4/20/2010 1:22:27 AM	Green
BA:TEMP.1	4/20/2010 1:22:27 AM	38.2618522644043	38.262	4/20/2010 1:22:27 AM	Green
BadTag	1/1/0001 12:00:00 AM	NaN	PIPoint not found. \\dfpi2010RC\BadTag	1/1/0001 12:00:00 AM	Red

The bar chart displays the values for each data point. The y-axis represents the value, and the x-axis represents the data point name. The bars are colored according to the 'FillColor' column in the table above.

Done Local intranet | Protected Mode: Off 100%

FR 6:22 PM 4/19/2010

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



**ORACLE**

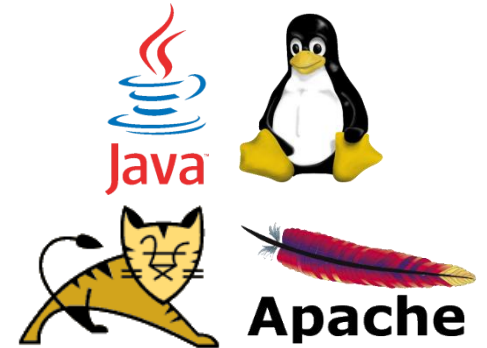


**Custom SQL  
Applications**





- Display data in an Apache Tomcat portal
- Integrate PI System data in a Line-of-Business (LoB) System (LIMS, PM)
- Business Intelligence (BI) engines (PowerPivot, Cognos, SAS, SAP BO)
- Analysis/Reporting Services

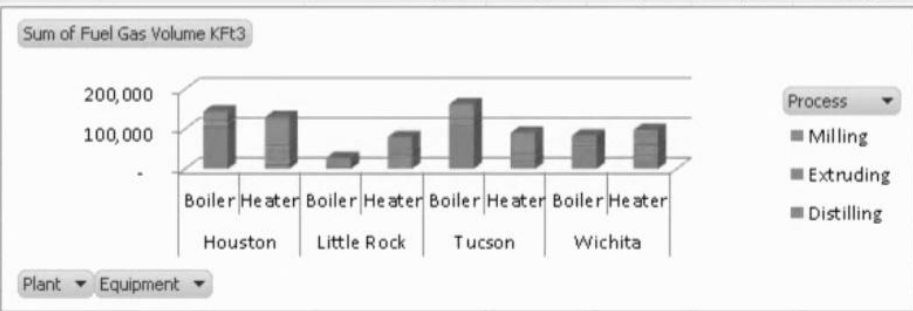


Microsoft Excel interface showing the PowerPivot tab and a PivotTable for Corporate Fuel Gas Consumption. The PivotTable is filtered by Cracking process and displays fuel gas volume in Kft3 for various plants and equipment.

Row Labels	Cracking	Distilling	Extruding	Milling	Grand Total
<b>Houston</b>	121,818		54,812	98,063	274,694
Boiler	108,161		10,049	26,473	144,684
Heater	13,657		44,763	71,590	130,010
<b>Little Rock</b>		44,952	63,409		108,361
Boiler		9,464	18,646		28,110
Heater		35,488	44,763		80,251
<b>Tucson</b>	125,455	36,175		92,188	253,819
Boiler	107,410	17,321		38,036	162,767
Heater	18,045	18,854		54,152	91,052
<b>Wichita</b>	91,865	45,170	44,546		181,581
Boiler	57,075	18,199	8,468		83,741
Heater	34,790	26,971	36,078		97,840
<b>Grand Total</b>	<b>339,138</b>	<b>126,297</b>	<b>162,767</b>	<b>190,252</b>	<b>818,454</b>

Below the PivotTable is a 3D bar chart titled "Sum of Fuel Gas Volume Kft3". The chart displays fuel gas volume for different equipment (Boiler and Heater) across four plants (Houston, Little Rock, Tucson, Wichita). The Y-axis ranges from 0 to 200,000 Kft3. The legend indicates that the bars represent the Distilling process.





Reporting Services - Fuel Gas Utilization and Benchmarking Report - Windows Internet Explorer

http://dfpiweb2010/\_layouts/ReportServer/RSViewerPage.aspx?rv:RelativeReportUrl=/powerpivot%20g: ...

PowerPivot Site > PowerPivot Gallery

## Fuel Gas Utilization and Benchmarking Report

Asset ID	Company	Equipment	Time	Fuel Gas Flow Kft3Hr	Average of Fuel Ratio Ft3Ton
B-045	NuGreen	Boiler	3/10/2010 1:55:52 AM	29.7158317565918	687.52
B-117	NuGreen	Boiler	3/10/2010 1:55:52 AM	22.6283931732178	266.70
B-125	NuGreen	Boiler	3/10/2010 1:55:52 AM	18.3965110778809	815.54
B-209	NuGreen	Boiler	3/10/2010 1:55:52 AM	27.496036529541	3415.82
B-210	NuGreen	Boiler	3/10/2010 1:55:52 AM	69.3808746337891	2098.74
B-235	NuGreen	Boiler	3/10/2010 1:55:52 AM	81.8242492675781	2475.15
B-309	NuGreen	Boiler	3/10/2010 1:55:52 AM	67.8209686279297	2922.68
B-334	NuGreen	Boiler	3/10/2010 1:55:52 AM	13.3796691894531	213.23
B-352	NuGreen	Boiler	3/10/2010 1:55:52 AM	58.5128059387207	1871.39



Microsoft® SQL Server® Reporting Services

Done Local intranet | Protected Mode

## Business User Experience



### Familiar User Experience

1. Self-service Business Insight
2. Data Exploration and Analysis
3. Data and Contextual Visualization

## Business Collaboration Platform



### Integrated Content and Collaboration

1. Dashboards and Composites
2. Enterprise Search
3. Content Management

## Data Infrastructure and BI Platform



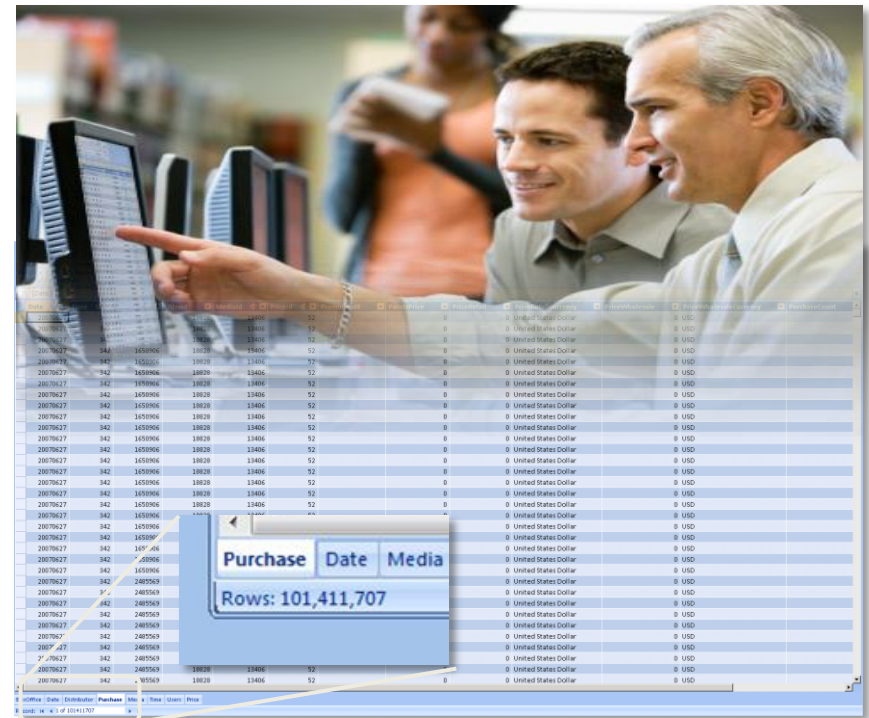
### Data Infrastructure and BI Platform

1. Analyze, Integrate, Manage
2. Master Data
3. Data Mining and Data Warehousing

Microsoft  
Excel 2010

## 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





# What's New with Visualization in PI System 2010?



Microsoft Excel screenshot showing a data table with columns A, B, C, D and rows 1-16. The data includes timestamps and numerical values. A blue starburst labeled 'Reports' is overlaid on the table.

Windows Internet Explorer screenshot showing the 'Milling Process' dashboard for 'NUGREEN'. The dashboard includes a 'PI Trend' chart, a 'Milling Assets' tree, and a 'Milling Production Schedule' table. A blue starburst labeled 'Dashboards' is overlaid on the right side.

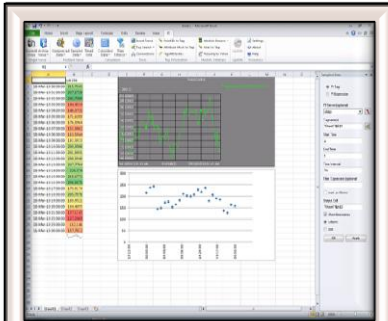
	Production			Inventories				Today's Performance			
	Rate (Tons/Hr)	Target (Tons/Hr)	Capacity (Tons/Hr)	Raw Material Available Tons	Days	Product Sales (Tons/Day)	Available Tons	Days	Energy %	Reliability %	Quality %
Houston	32.9	35.0	50	30,128	35.9	1,200	10,638	8.9	88206%	9557%	9847%

DF PI Notifications screenshot showing a notification for 'Fuel gas utilization: Milling Process is Over'. It includes details like Name, Server, Database, Start Time, Trigger Time, Target, Value, and Priority. A blue starburst labeled 'Notification Delivery' is overlaid on the notification text.

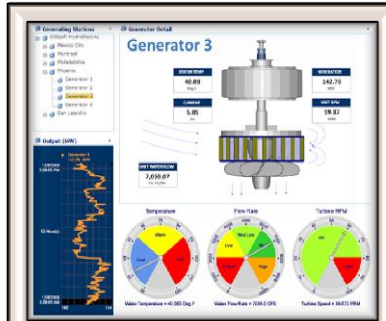
Operations Performance Scorecard

	Houston				Little Rock				Tucson			
	This Month	Today	Target	Trend	This Month	Today	Target	Trend	This Month	Today	Target	Trend
Safety	0	0		—	0	0		—	0	0		—
Environment	97.0	97.1		—	98.6	99.0		—	97.0	97.0		—
Energy Use	363594	11998		—	111526	3646		—	97.0	97.0		—
Quality	97.6	97.9		—	97.3	97.6		—	97.0	97.0		—
Reliability	95.7	96.4		—	95.6	96.3		—	96.7	97.1		—

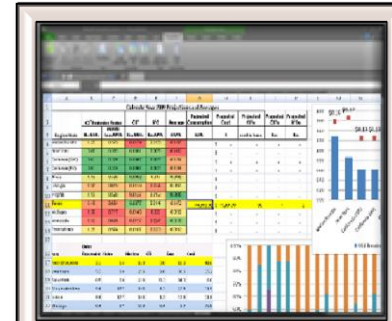
Operations Performance Scorecard (continued) showing performance metrics for Houston, Little Rock, and Tucson. A blue starburst labeled 'Scorecards' is overlaid on the table.



PI DataLink for Excel 2010



PI WebParts for SharePoint 2010



PI DataLink Server 2010

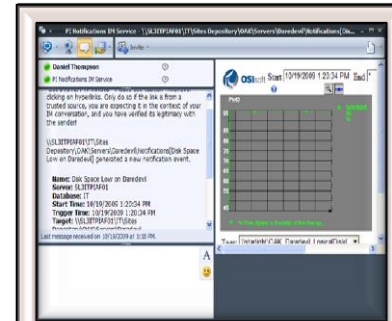


PI and PowerPivot for 2010

PI OLEDB Enterprise 2010

PI Web Services 2010

PI Data Access Technologies

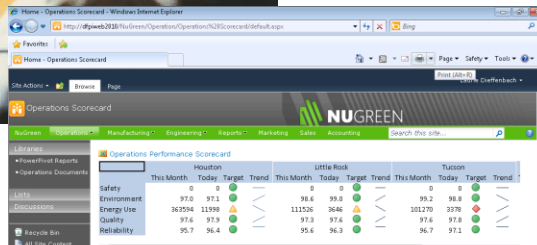
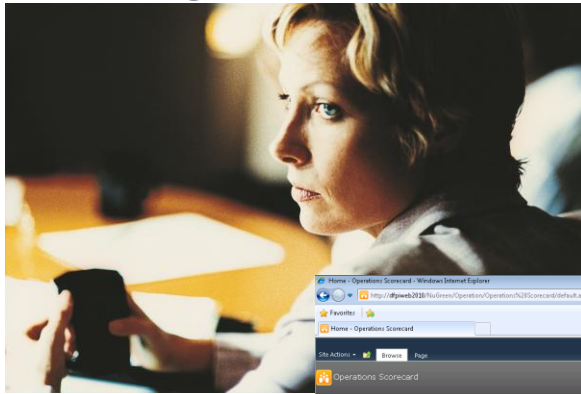


PI Notifications Office Communicator Delivery

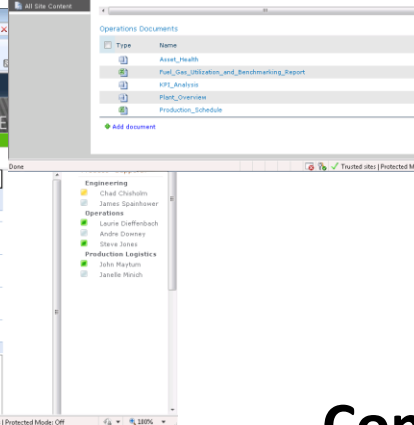
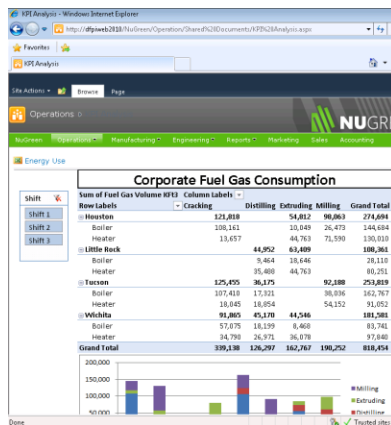
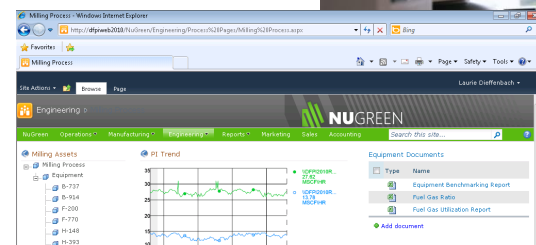
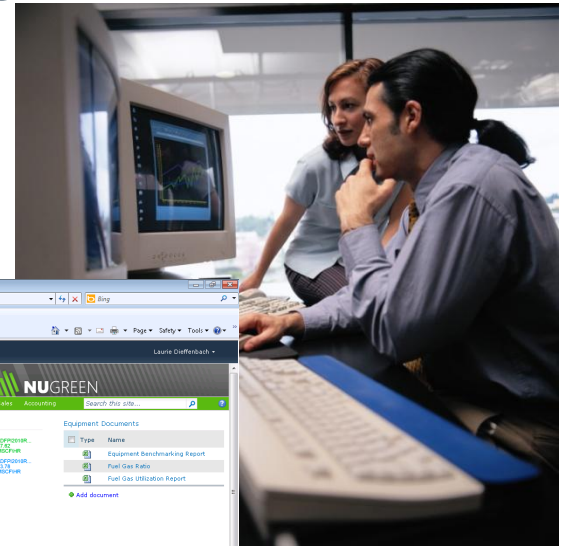
# Role-based Dashboarding



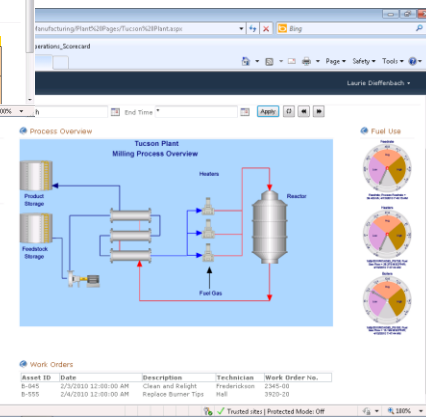
## Management



## Knowledge Worker



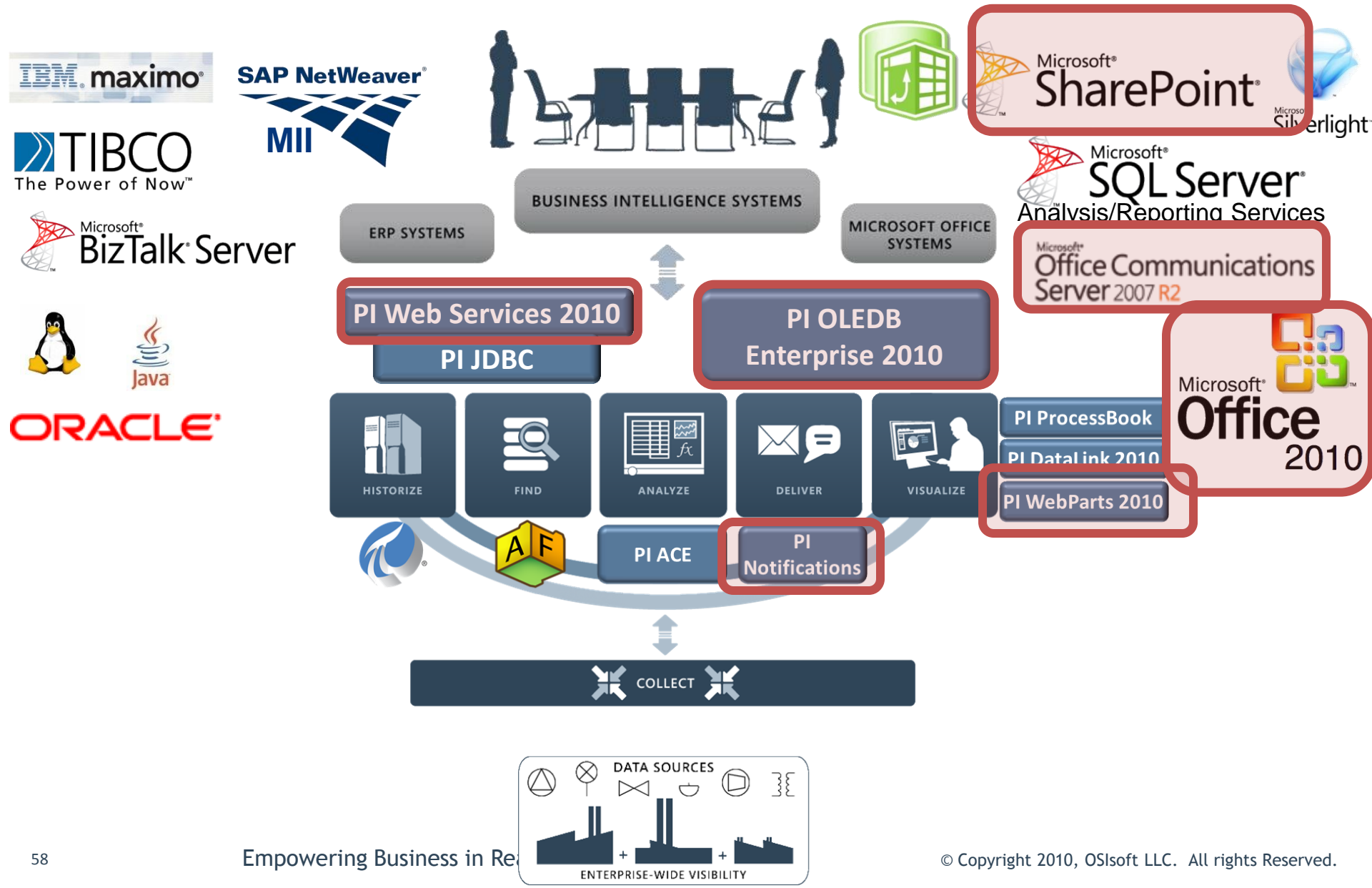
Reduction	Capacity	Raw Material Available	Inventories	Product Sales	Product Available	Today's Performance				
Target (Tons/Hr)	35.0	60	30,128	35.9	1,200	10,638	8.8	88.200%	95.57%	98.47%



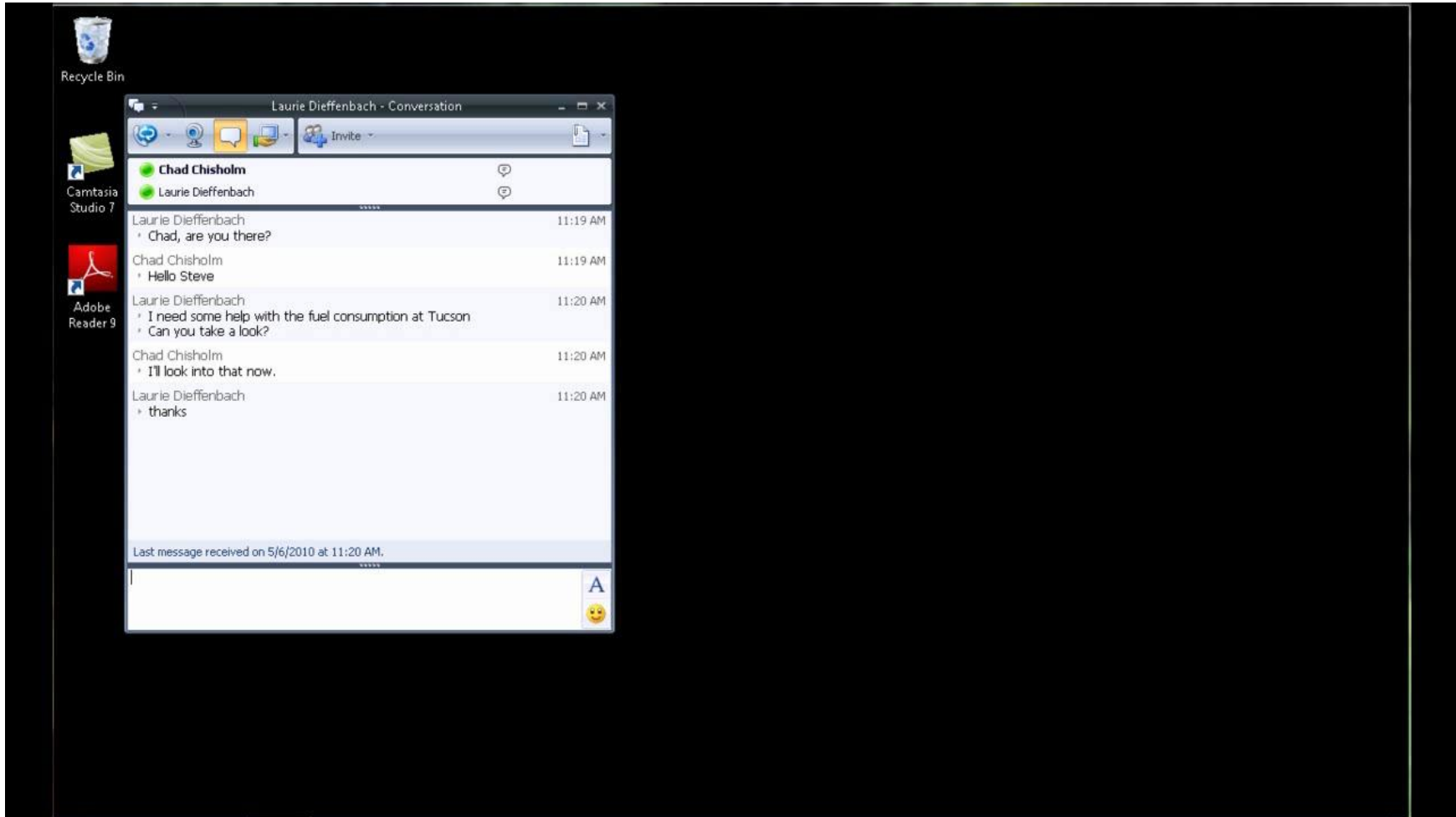
## Content Creator



# Respond to an Alert



# Notification





- 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



# PI System 2010 Releases



11-Oct-2010

Major release 
 Minor release 
 Service Pack

[◀ older](#)
[newer ▶](#)

Featured Product	Q3 2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011 - Q3 2011
CLIENT <a href="#">View more</a>	Q3 2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011 - Q3 2011
PI DataLink 2010 <i>Office 2010</i>								
PI ProcessBook								
PI ActiveView								
PI DL Server 2010 <i>SharePoint 2010</i>								
PI DataLink								
PI DataLink Server								
PI Manual Logger								
PI WebParts								
DATA ACCESS <a href="#">View more</a>	2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010		
PI JDBC								
PI JDBC 2010 <i>1st Release</i>								
PI ODBC								
PI OLEDB								
PI OLEDB Enterprise								
PI OLEDB Enterprise 2010 <i>1st Release</i>								
PI OPC DA/HDA Server								
PI OPC Server <i>OPC Compliance Tested</i>								
PI SDK								
PI Web Services								
PI Web Services 2010 <i>1st Release</i>								
SERVER <a href="#">View more</a>	Q2 2009	Q3 2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011
PI ACE								
PI AF								
PI for StreamInsight								
PI Server <i>Assets and Tags, Scalability, Packaging</i>								
PI Notifications								
INTERFACES <a href="#">View more</a>   <a href="#">Search</a>	Q2 2009	Q3 2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011

# 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

# Coming Soon: Enhancements in 4Q2010

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 AF  
 (x) Select All  
 ( ) Deselect All

Delete Export  
 Library Elements Event Frames

Errors  
 About  
 Help  
 Resources

Connection Export to AF Import from AF

A	B	C	D	E	F	G	H	I
Selected(x)	Parent	Name	ObjectType	Template	Description	Categories	AttributeDataReference	AttributeDefaultUOM
x		Power Plant #1	Element	Plant	Combined cycle power plant			
x	Power Plant #1	Train1	Element	Train	Combined Cycle Power Plant Train			
x	Power Plant #1\Train1	Plant1	Element	Plant	Combined cycle power plant			
x	Power Plant #1\Train1\Plant1	Gas Turbine1	Element	Gas Turbine	Gas Turbine			
x	Power Plant #1\Train1\Plant1\Gas Turbine1	Exit Flow	Attribute		Gas Turbine Exit Flow		PI Point	klb/hr
x	Power Plant #1\Train1\Plant1\Gas Turbine1	Exit Temperature	Attribute		Gas Turbine Exit Temperature		PI Point	°C
x	Power Plant #1\Train1\Plant1\Gas Turbine1	Fuel Gas Flow	Attribute		Gas Turbine Fuel Flow		PI Point	klb/hr
x	Power Plant #1\Train1\Plant1\Gas Turbine1	Inlet Flow	Attribute		Gas Turbine Inlet flow		PI Point	klb/hr
x	Power Plant #1\Train1\Plant1\Gas Turbine1	Inlet Temperature	Attribute		Gas Turbine Inlet Temperature		PI Point	°C
x	Power Plant #1\Train1\Plant1\Gas Turbine1	Power Output	Attribute		Gas Turbine MW Output		PI Point	MW
x	Power Plant #1\Train1\Plant1\Gas Turbine1	Serial Number	Attribute		Gas Turbine Serial Number			
x	Power Plant #1\Train1\Plant1\Gas Turbine1	Pump Type A1	Element	Pump Type A	Pump Type A Template	Pumps;		
x	Power Plant #1\Train1\Plant1\Gas Turbine1\Pump Type A1	Pump Casing Temperature	Attribute		Temperature of the pump casing		PI Point	°F
x	Power Plant #1\Train1\Plant1\Gas Turbine1\Pump Type A1	Pump Serial Number	Attribute		Serial Number for the pump			
x	Power Plant #1\Train1\Plant1\Gas Turbine1	Pump Type A2	Element	Pump Type A	Pump Type A Template	Pumps;		
x	Power Plant #1\Train1\Plant1\Gas Turbine1\Pump Type A2	Pump Casing Temperature	Attribute		Temperature of the pump casing		PI Point	°F
x	Power Plant #1\Train1\Plant1\Gas Turbine1\Pump Type A2	Pump Serial Number	Attribute		Serial Number for the pump			
x	Power Plant #1\Train1\Plant1	Gas Turbine2	Element	Gas Turbine	Gas Turbine			
x	Power Plant #1\Train1\Plant1\Gas Turbine2	Exit Flow	Attribute		Gas Turbine Exit Flow		PI Point	klb/hr
x	Power Plant #1\Train1\Plant1\Gas Turbine2	Exit Temperature	Attribute		Gas Turbine Exit Temperature		PI Point	°C
x	Power Plant #1\Train1\Plant1\Gas Turbine2	Fuel Gas Flow	Attribute		Gas Turbine Fuel Flow		PI Point	klb/hr
x	Power Plant #1\Train1\Plant1\Gas Turbine2	Inlet Flow	Attribute		Gas Turbine Inlet flow		PI Point	klb/hr
x	Power Plant #1\Train1\Plant1\Gas Turbine2	Inlet Temperature	Attribute		Gas Turbine Inlet Temperature		PI Point	°C
x	Power Plant #1\Train1\Plant1\Gas Turbine2	Power Output	Attribute		Gas Turbine MW Output		PI Point	MW
x	Power Plant #1\Train1\Plant1\Gas Turbine2	Serial Number	Attribute		Gas Turbine Serial Number			
x	Power Plant #1\Train1\Plant1\Gas Turbine2	Pump Type A1	Element	Pump Type A	Pump Type A Template	Pumps;		
x	Power Plant #1\Train1\Plant1\Gas Turbine2\Pump Type A1	Pump Casing Temperature	Attribute		Temperature of the pump casing		PI Point	°F
x	Power Plant #1\Train1\Plant1\Gas Turbine2\Pump Type A1	Pump Serial Number	Attribute		Serial Number for the pump			
x	Power Plant #1\Train1\Plant1\Gas Turbine2	Pump Type A2	Element	Pump Type A	Pump Type A Template	Pumps;		
x	Power Plant #1\Train1\Plant1\Gas Turbine2\Pump Type A2	Pump Casing Temperature	Attribute		Temperature of the pump casing		PI Point	°F
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: AF Demo

Connection Export to AF Import from AF

Headers: Select All, Deselect All

Delete, Export, Library, Elements, Event Frames

Errors, About, Help, Resources

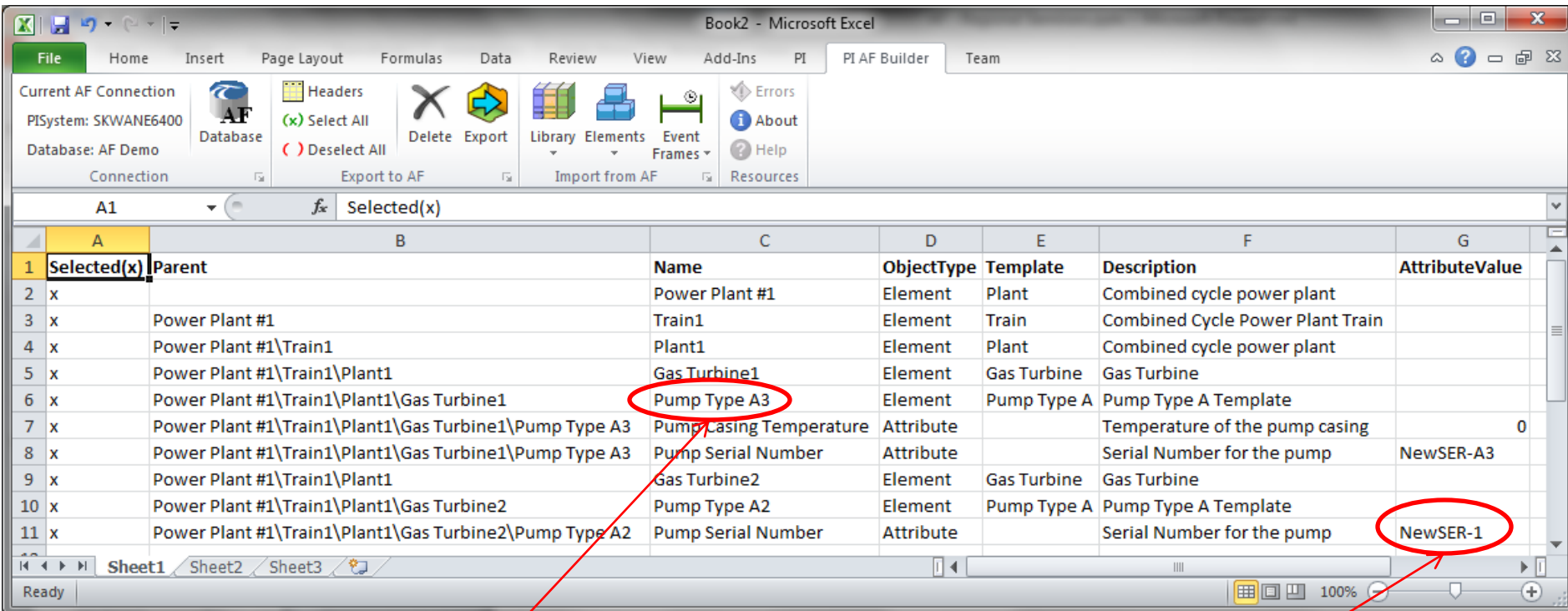
Parent

	A	B	C	D	E	F	G	H	I
1	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	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		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?



	A	B	C	D	E	F	G
1	Selected(x)	Parent	Name	ObjectType	Template	Description	AttributeValue
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	0
8	x	Power Plant #1\Train1\Plant1\Gas Turbine1\Pump Type A3	Pump Serial Number	Attribute		Serial Number for the pump	NewSER-A3
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	NewSER-1

Adding a new pump

Changing an attribute value



Recycle Bin



11:23 AM  
9/24/2010

# PI System Roadmap - AF Wave



11-Oct-2010

Major release 
 Minor release 
 Service Pack

[older](#)
[newer](#)

Featured Products	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011 - Q3 2011	Q4 2011 - Q1 2012
<b>CLIENT</b> <a href="#">View more</a>			Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011 - Q3 2011	Q4 2011 - Q1 2012
PI ProcessBook								
PI ActiveView								
PI DataLink								
PI DataLink Server								
PI Manual Logger								
PI WebParts								
<b>DATA ACCESS</b> <a href="#">View more</a>			Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011 - Q3 2011	Q4 2011 - Q1 2012
PI JDBC								
PI ODBC								
PI OLEDB								
PI OLEDB Enterprise								
PI OPC DA/HDA Server								
PI SDK								
PI Web Services								
<b>SERVER</b> <a href="#">View more</a>			Q3 2010	Q4 2010	Q1 2011	Q2 2011 - Q3 2011	Q4 2011 - Q1 2012	
PI ACE								
PI AF								
PI for StreamInsight								
PI Server								
PI Notifications								
<b>INTERFACES</b> <a href="#">View more</a>   <a href="#">Search</a>	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011 - Q3 2011	Q4 2011 - Q1 2012

PI WebParts 2010 R2  
Complete AF  
Attribute Access

PI JDBC 2010 R2  
Full Asset (AF) Support

PI Web Services 2010 R2  
Complete AF Attribute  
Access

PI AF 2010 R2  
AF Builder

PI Notifications 2010  
Message Formatting,  
64-Bit, MS Lync

# Coming Soon: Enhancements in 1H 2011

## Improved Analytics

# PI Analytics - Components and Functionality



calculations



event based



PI data

- Performance Equations



- Totalizers



Sche User Configuration

- Alarms/Statistical Quality Control



- Advanced Computing Engine



- PI for StreamInsight\*



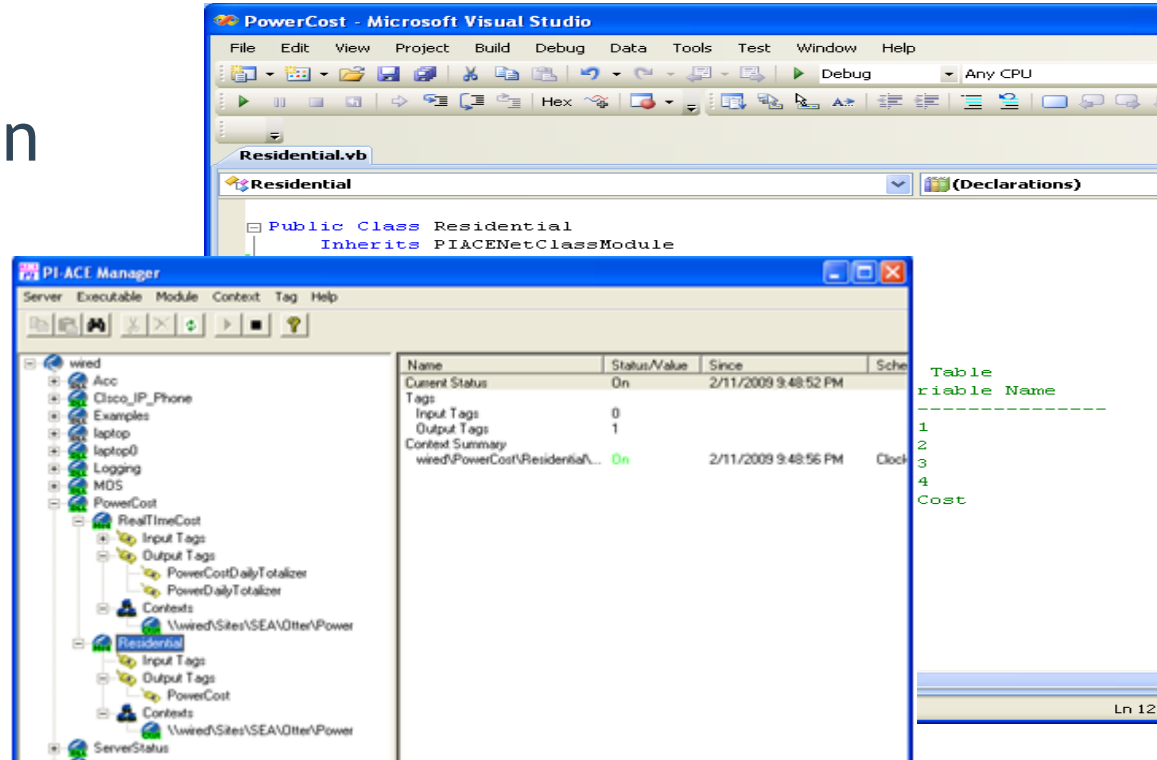
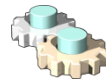
Programme Non-PI data

- Asset Framework supported Analytics\*



\* Future products

- Visual Studio add-in  
- develop
- Manager client
  - configure
- Scheduler
  - execute



The image shows two overlapping windows. The top window is Microsoft Visual Studio, displaying a Visual Basic file named 'Residential.vb'. The code defines a 'Public Class Residential' that inherits from 'PIACENetClassModule'. The bottom window is the PI-ACE Manager, showing a tree view on the left with 'Residential' selected under 'PowerCost'. The main pane shows a table of data:

Name	Status/Value	Since	Sche
Current Status	On	2/11/2009 9:48:52 PM	
Tags			
Input Tags	0		
Output Tags	1		
Context Summary			
wired\PowerCost\ResidentialA...	On	2/11/2009 9:48:56 PM	Clod

On the right side of the PI-ACE Manager window, there is a code editor showing a table definition:

```
Table  
-----  
Variable Name  
-----  
1  
2  
3  
4  
Cost
```

- Scheduled to be released early 2011

- Multiple Schedulers



ACE Scheduler 1



ACE Scheduler N

- Performance Improvements
  - Components re-written in .NET



- Visual Studio 2010 support



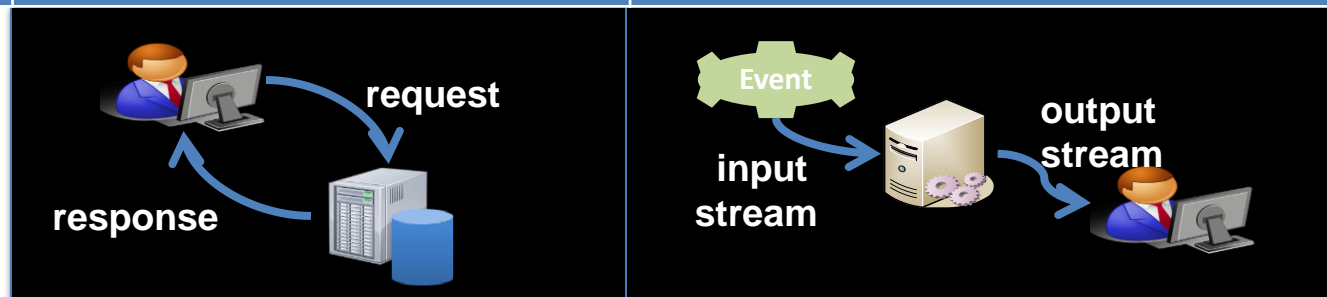
- Native 64-bit operating system support





## Analytics need to be calculated in real time

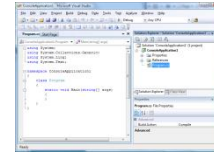
	Database Applications	Event-driven Applications
Query Paradigm	Ad-hoc queries or requests	Continuous standing queries
Latency	Seconds, hours, days	Milliseconds or less
Data Rate	Hundreds of events/sec	Tens of thousands of events/sec or more
Query Semantics	Declarative relational analytics	Declarative relational <i>and temporal</i> analytics



# PI System and StreamInsight Platform

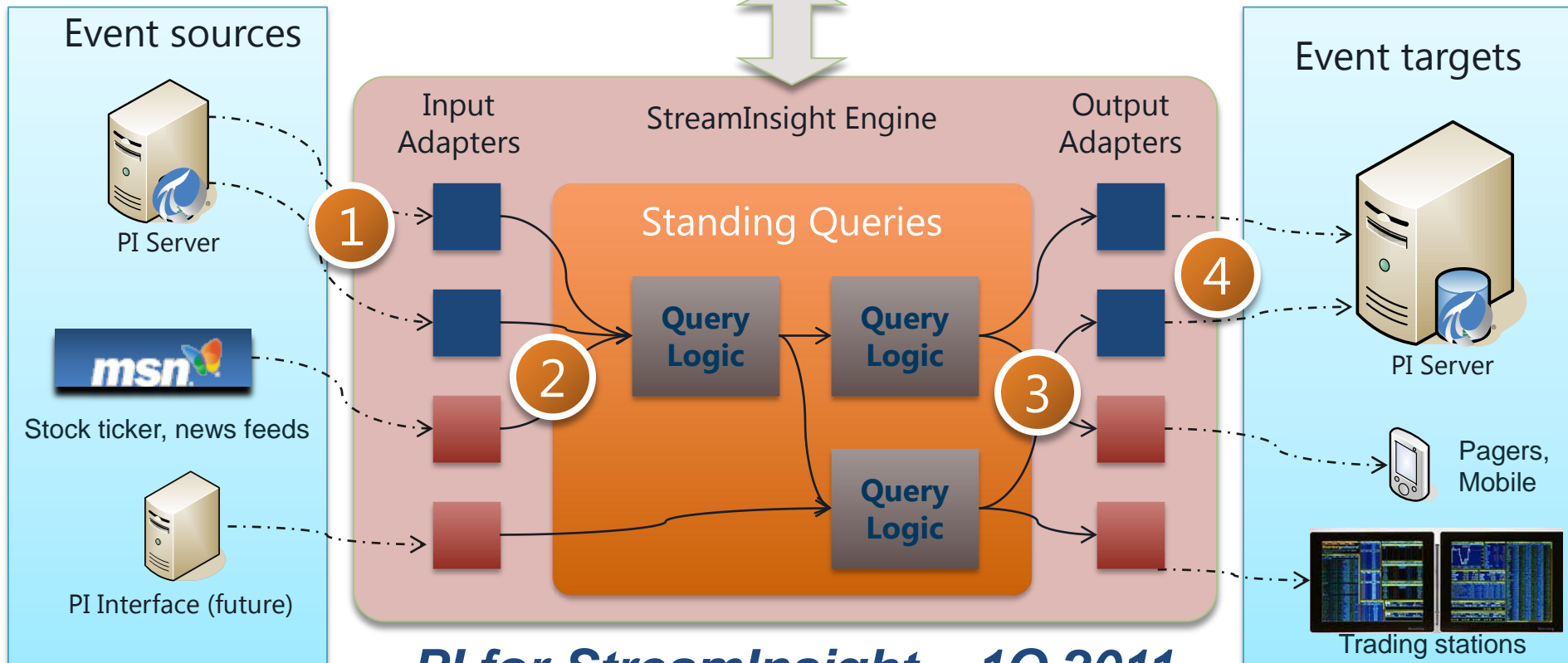
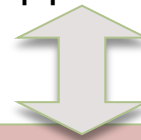


StreamInsight Application Development



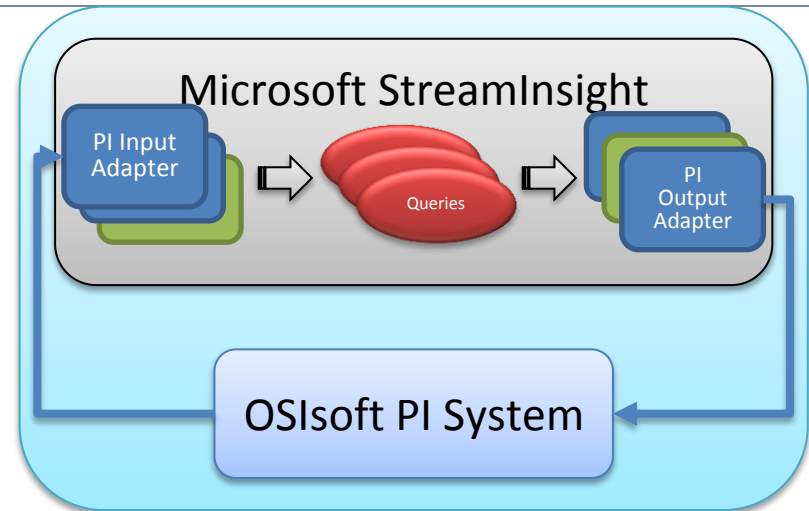
.NET  
C#  
LINQ

StreamInsight Application at Runtime



**PI for StreamInsight – 1Q 2011**

- Key functionality
  - Provide Adapters for data access to and from the PI System
- OSIsoft and StreamInsight Benefits
  - StreamInsight analytics access to PI data from hundreds of data sources
  - Data store to serve and store real-time, historical data and analysis
  - Enable rich and expressive querying of PI data using time window processing
- OSIsoft vCampus Community Technology Previews
  - February 2010
  - July 2010
  - Release 1Q 2011



# PI System Roadmap - upcoming releases



11-Oct-2010

Major release 
 Minor release 
 Service Pack

[older](#)
[newer](#)

Featured Products	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011 - Q3 2011	Q4 2011 - Q1 2012
<b>CLIENT</b> <a href="#">View more</a>	Q4 2009				Q4 2010	Q1 2011	Q2 2011 - Q3 2011	Q4 2011 - Q1 2012
PI ProcessBook								
PI ActiveView								
PI DataLink								
PI DataLink Server								
PI Manual Logger								
PI WebParts								
<b>DATA ACCESS</b> <a href="#">View more</a>	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011 - Q3 2011	Q4 2011 - Q1 2012
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PI ODBC								
PI OLEDB								
PI OLEDB Enterprise								
PI OPC DA/HDA Server								
PI SDK								
PI Web Services								
<b>SERVER</b> <a href="#">View more</a>	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011		
PI ACE								
PI AF								
PI for StreamInsight								
PI Server								
PI Notifications								
<b>INTERFACES</b> <a href="#">View more</a>   <a href="#">Search</a>	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011 - Q3 2011	Q4 2011 - Q1 2012

**PI ProcessBook 2011**  
*Improved AF Support, Time manipulation*

**PI DataLink 2011**  
*Full Asset (AF) Support*

**PI WebParts 2011**  
*Silverlight (no Adobe SVG), AF Search*

**PI SDK 2011**  
*Enhanced HA Support*

**PI ACE 2011**  
*Scalability, Performance, 64-bit*

**PI for StreamInsight 2011**  
*1<sup>st</sup> Release*



Thank you

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