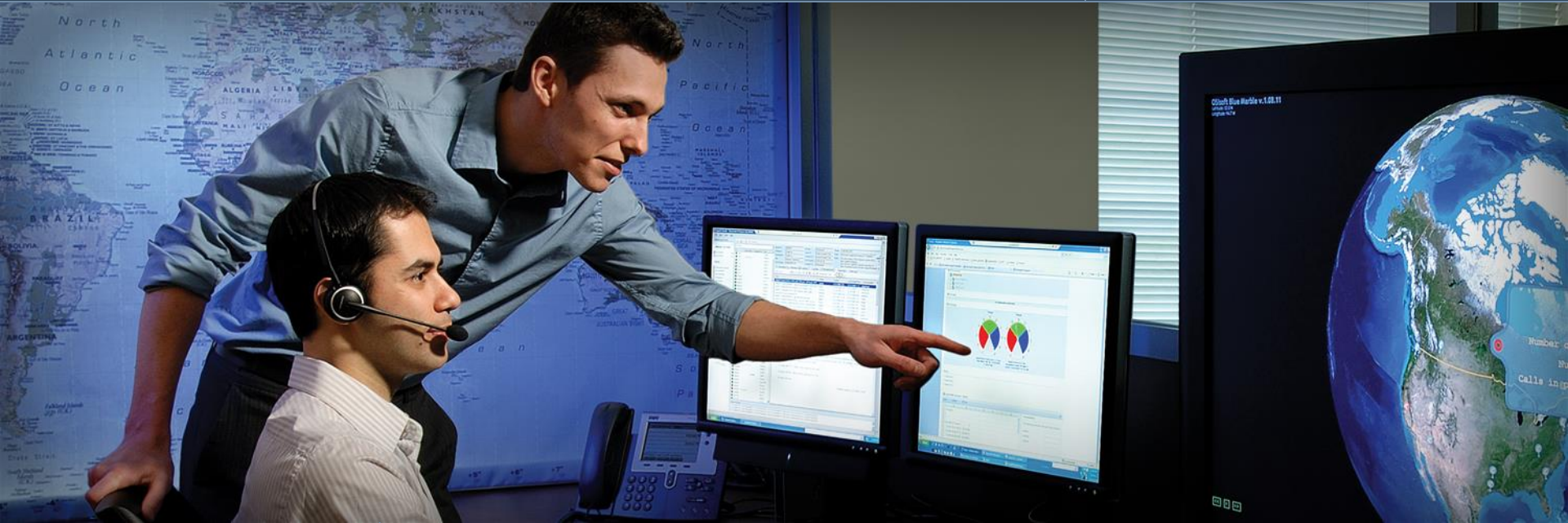




OSIsoft®

Regional Seminar Series



## PI System Roadmap

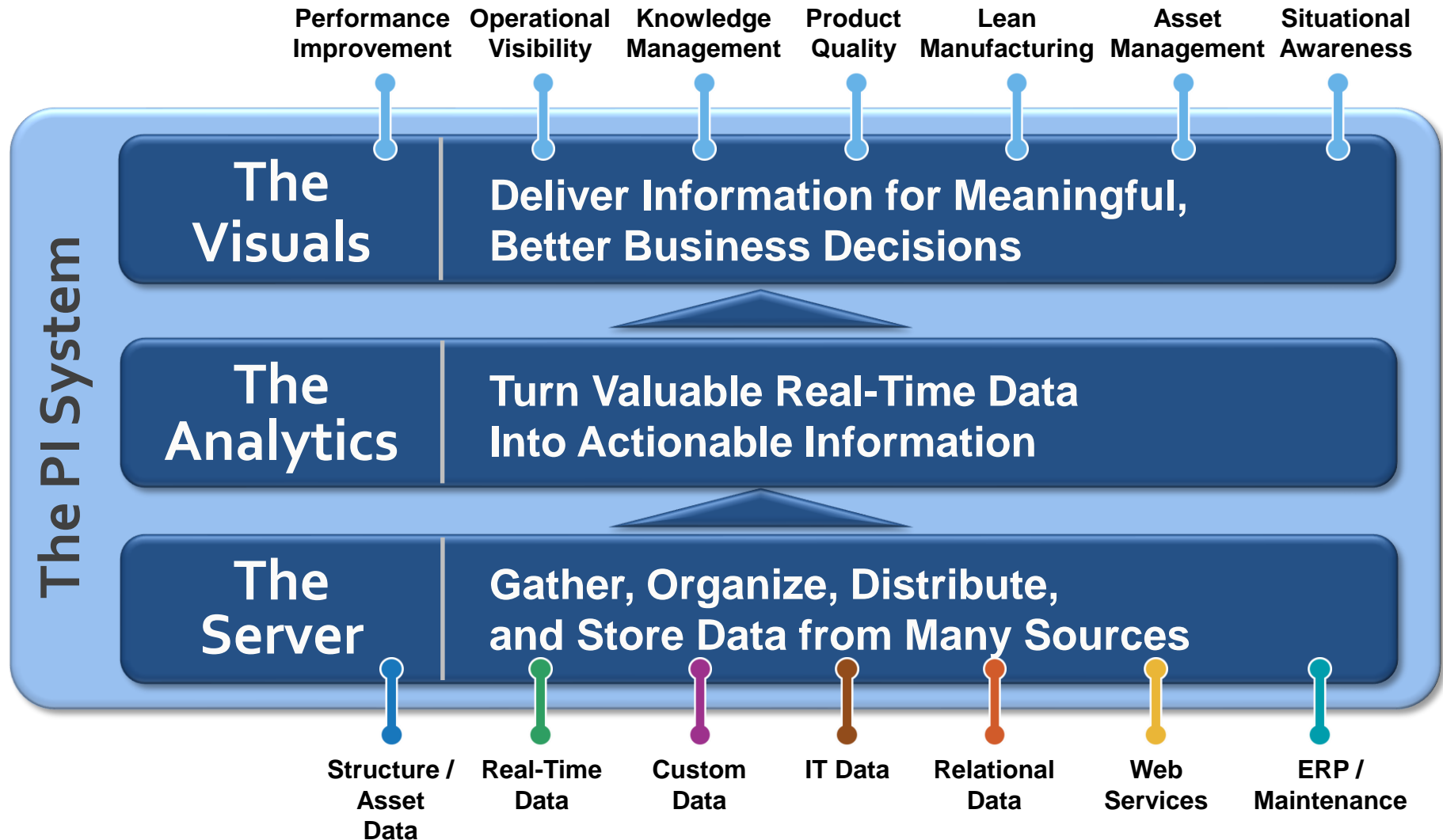
Tom Hosea  
Product Manager  
OSIsoft, Inc.

August 11, 2009

Empowering Business in Real Time.

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# Functional Groups of The PI System



# Aspects of The PI System



## Cross Functional Aspects of the PI System

Scalable

Available

Reliable

Extensible

Secure

Interoperable

**The  
Visuals**

**Deliver Information for Meaningful,  
Better Business Decisions**

**The  
Analytics**

**Turn Valuable Real-Time Data  
Into Actionable Information**

**The  
Server**

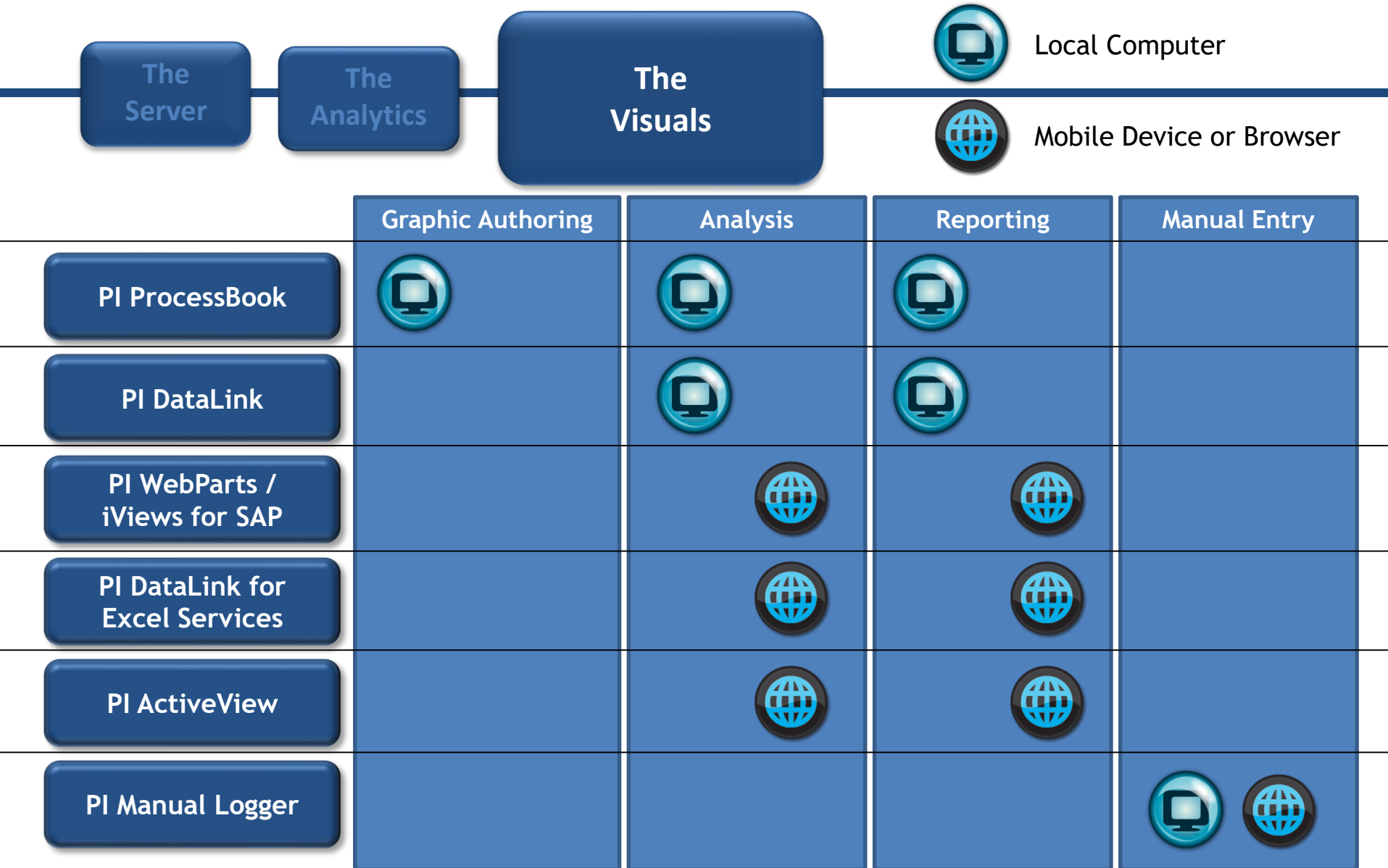
**Gather, Organize, Distribute,  
and Store Data from Many Sources**

- Security
- Server Scalability
- 64-bit Support
- AF Support for all products

# The Visuals



# The Visuals within the PI System



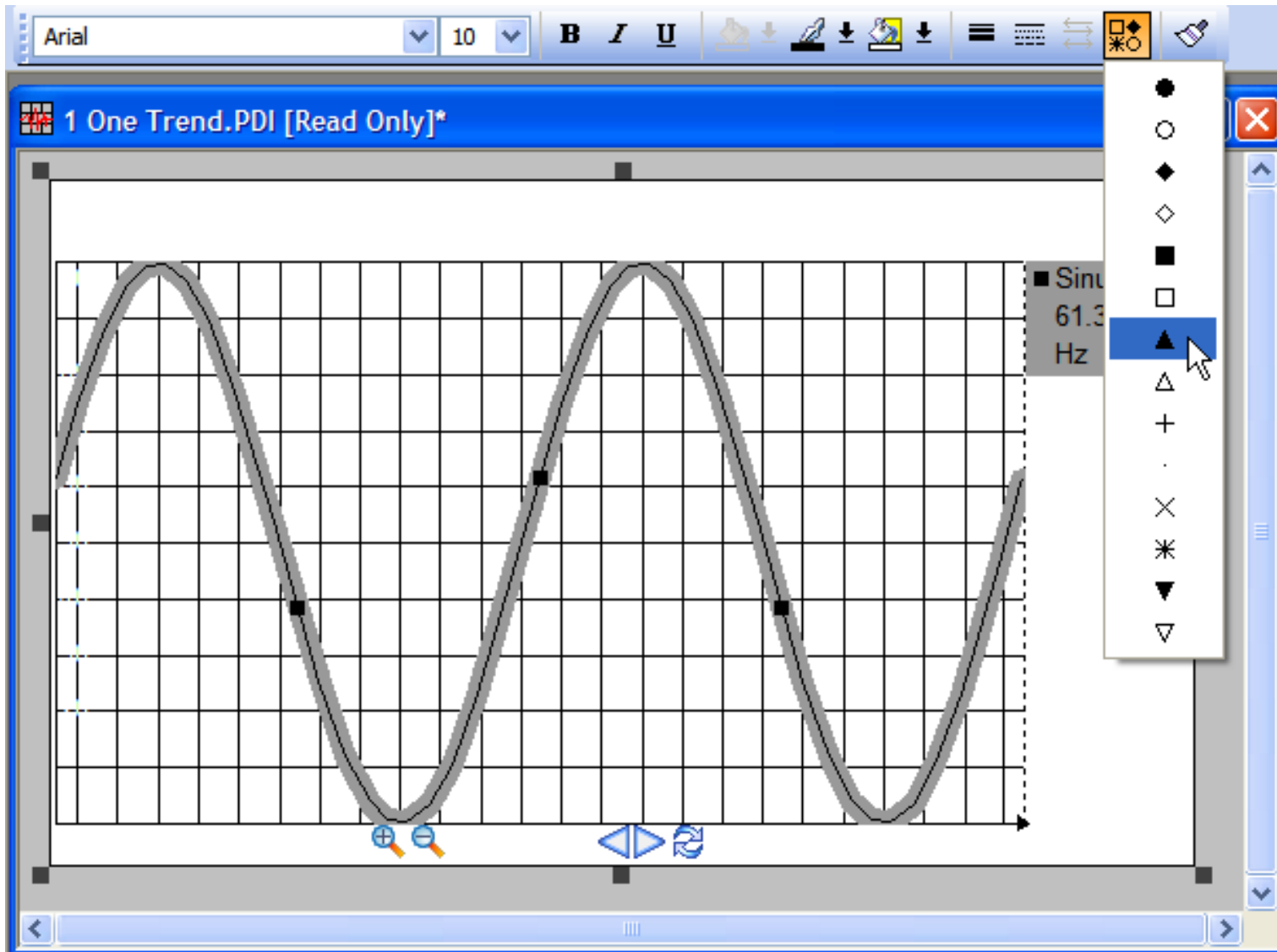
# PI ProcessBook



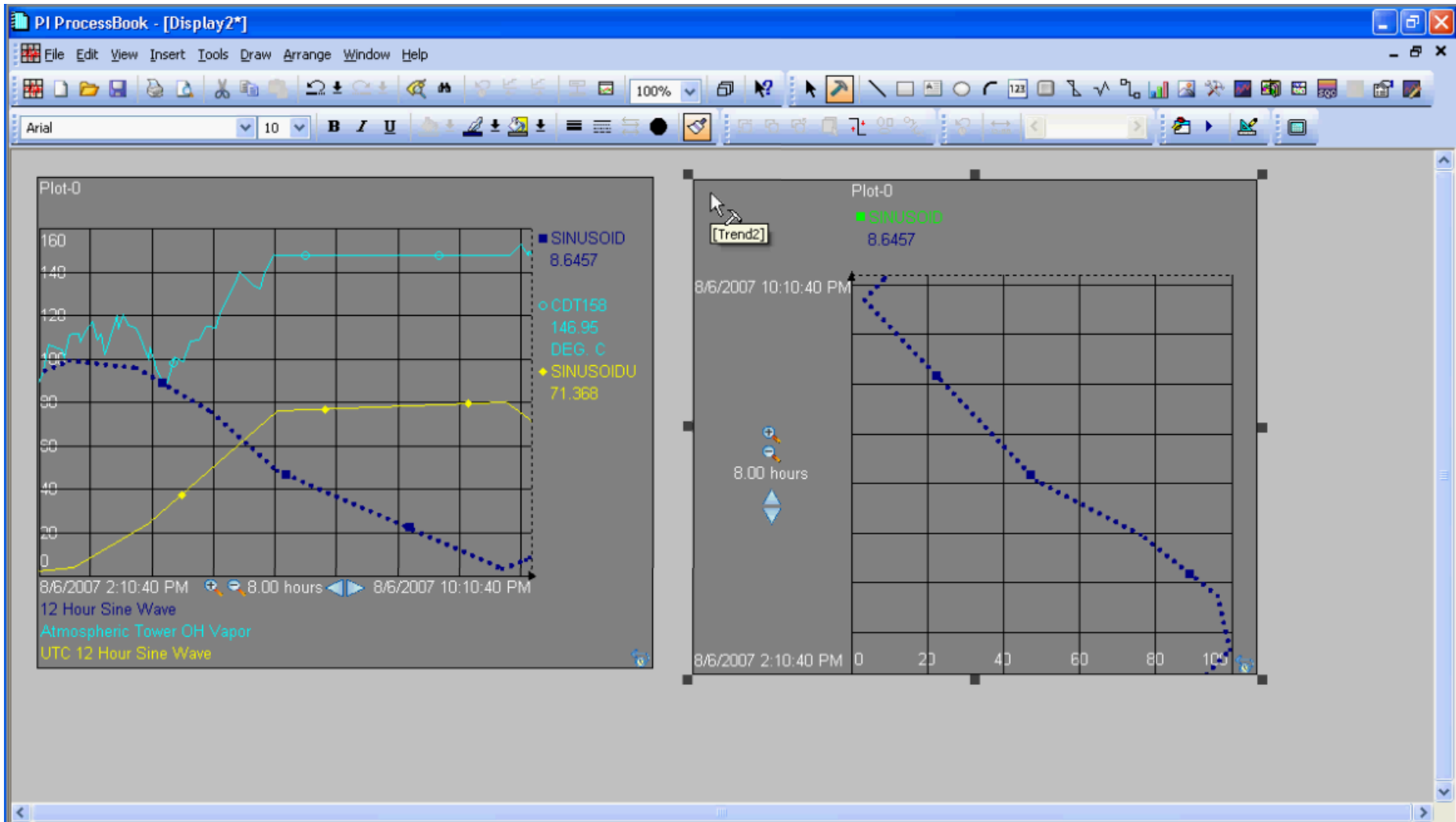
- Easier Symbol Formatting
- Quick Trend Zoom & Pan
- Data Details in a table
- Annotations on PI events
- Vertical Trends available
- Linear Regression Line on trends
- Tooltip Statistics on all dynamic symbols
- Drag and Drop symbol configuration

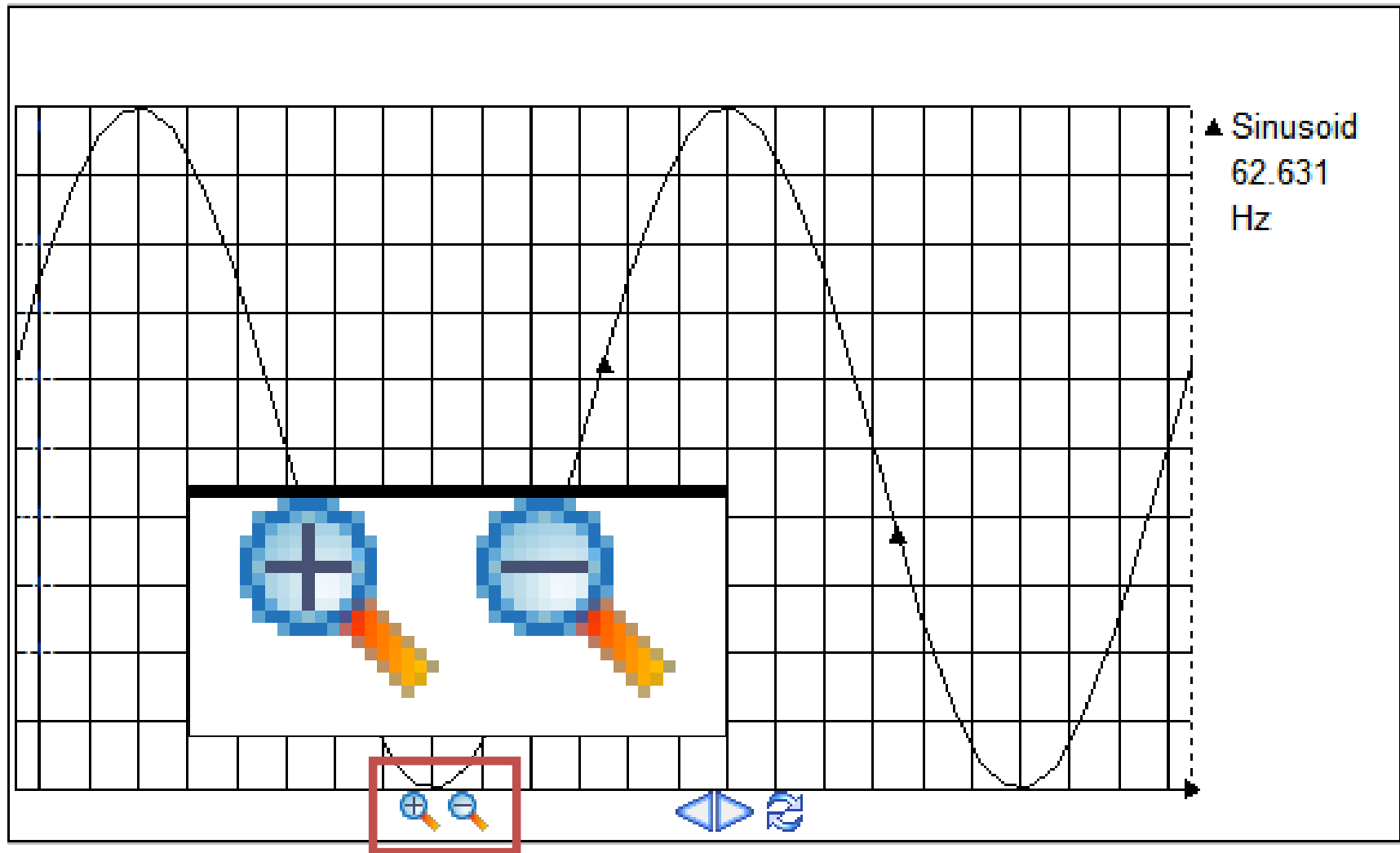


# Symbol Formatting Toolbar

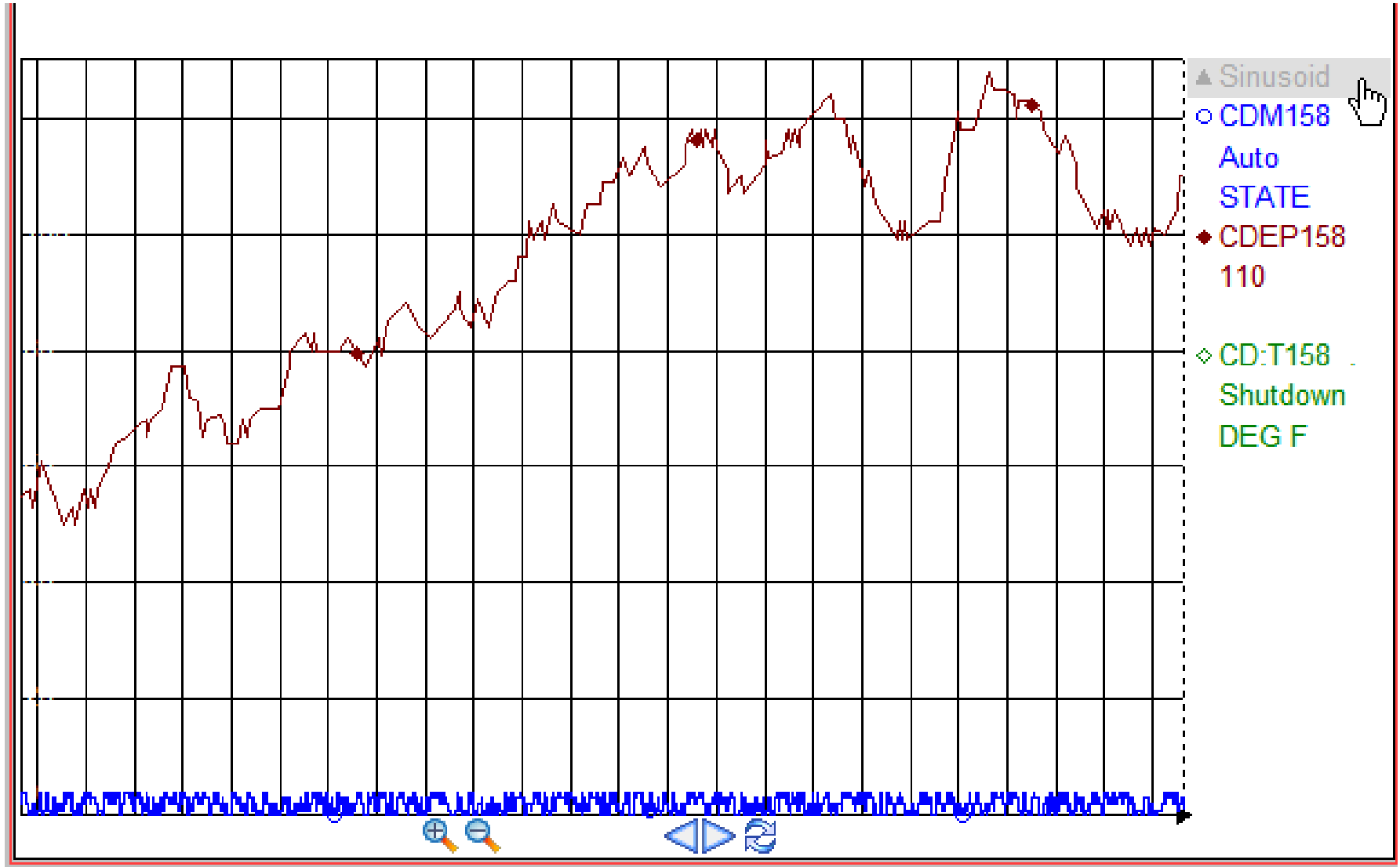


# Format Paintbrush



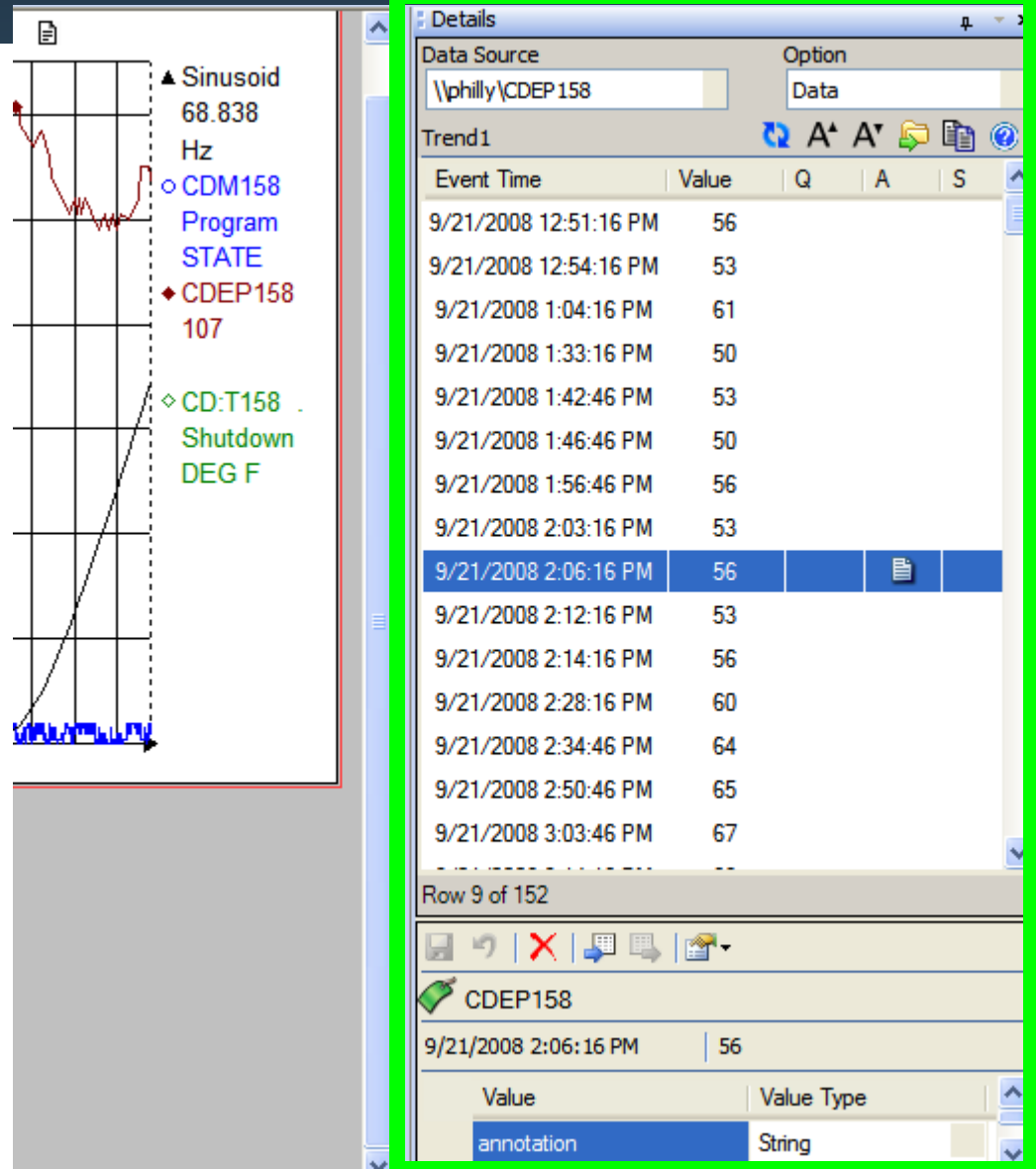


# Hide/Show Individual Traces

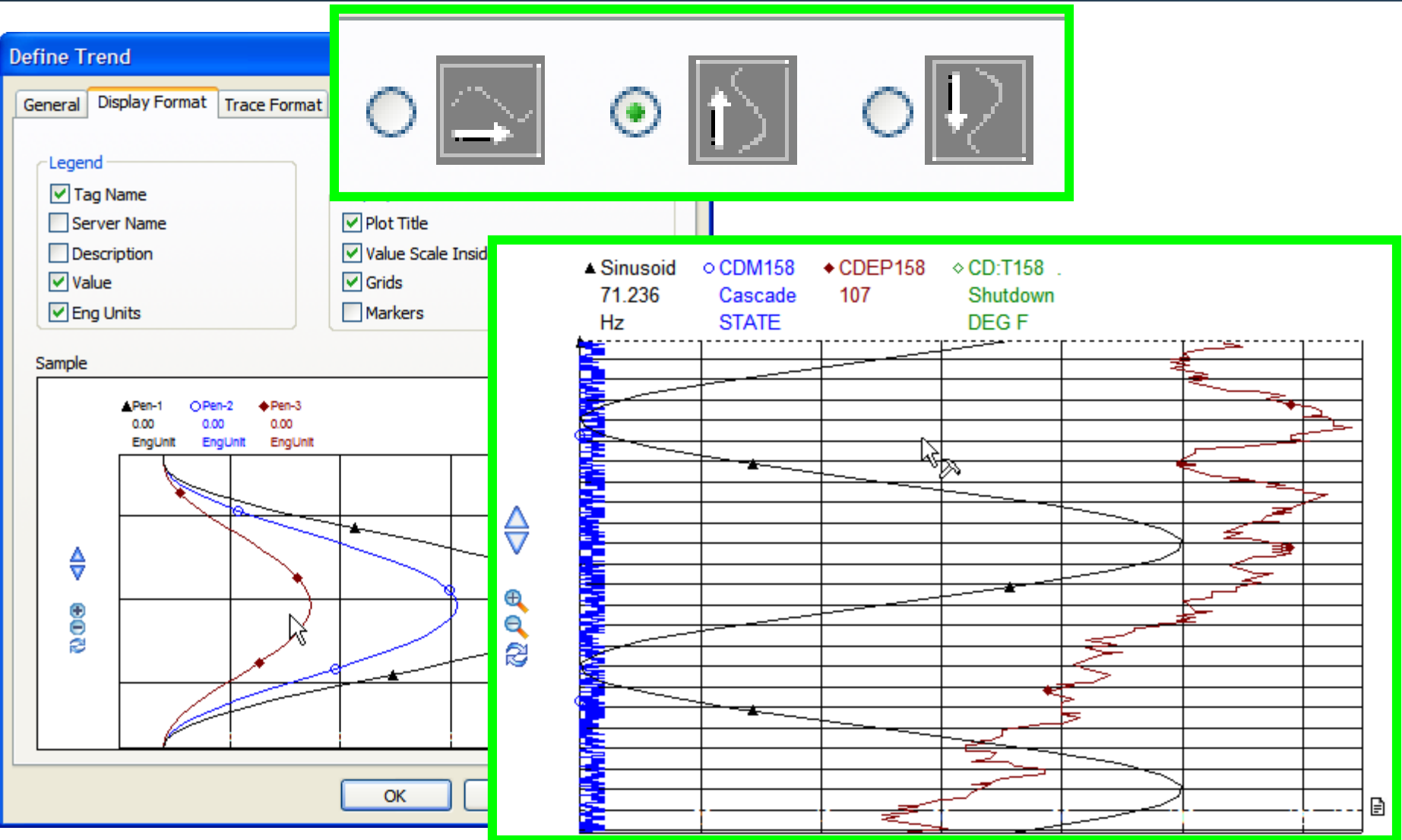


# Details Pane

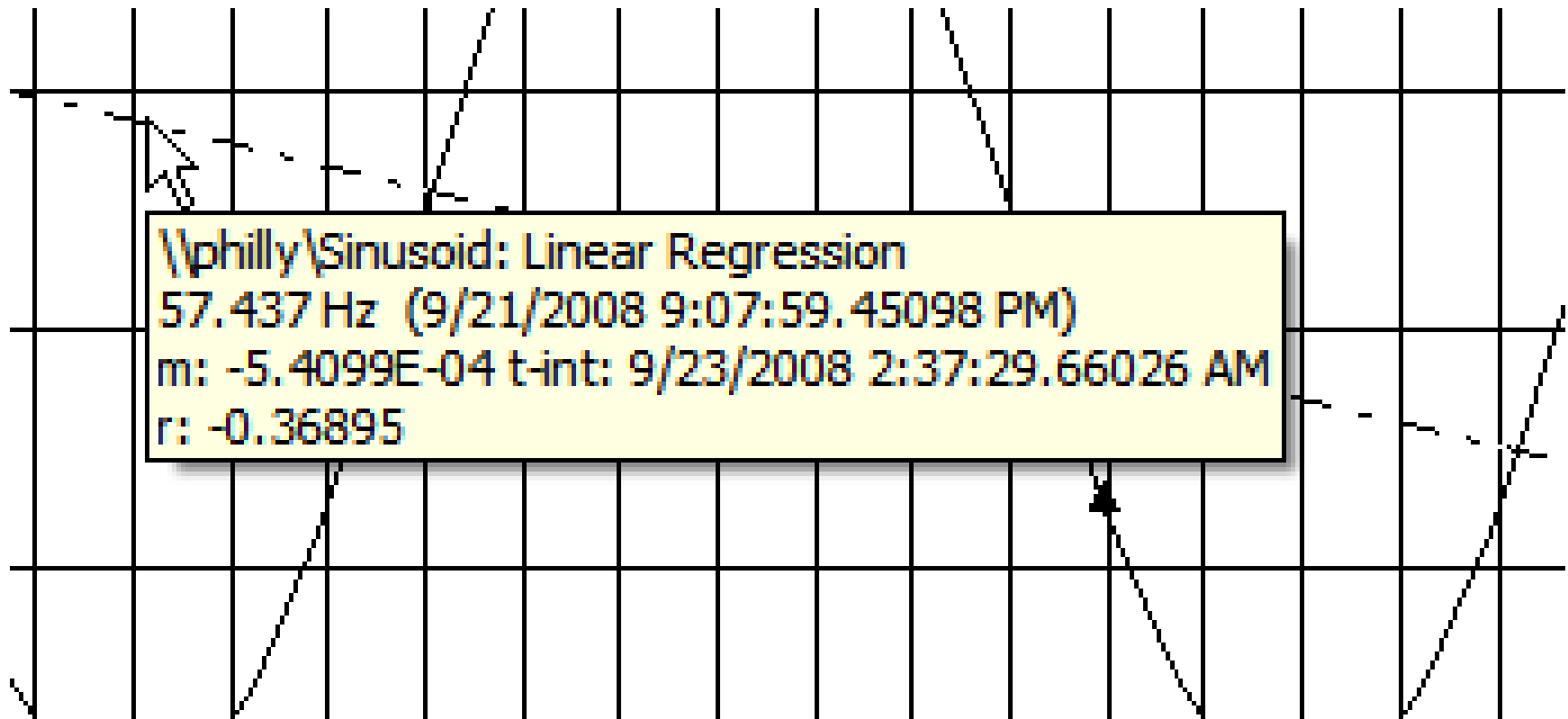
- Events
- Annotations



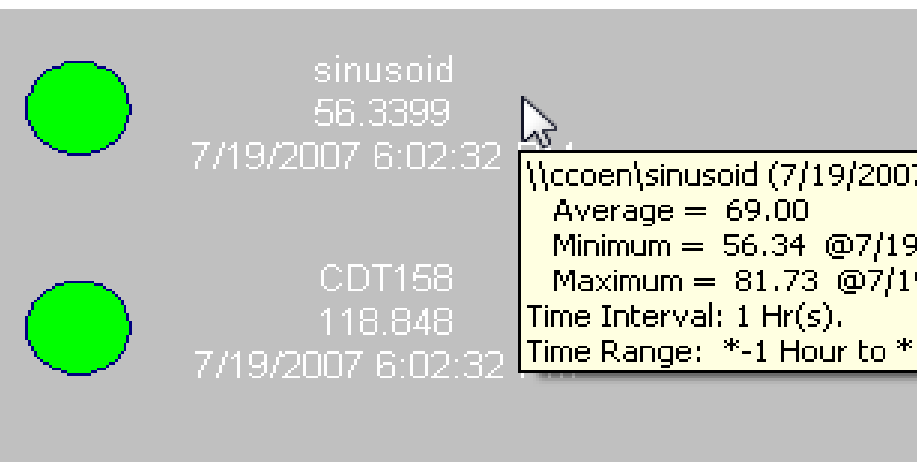
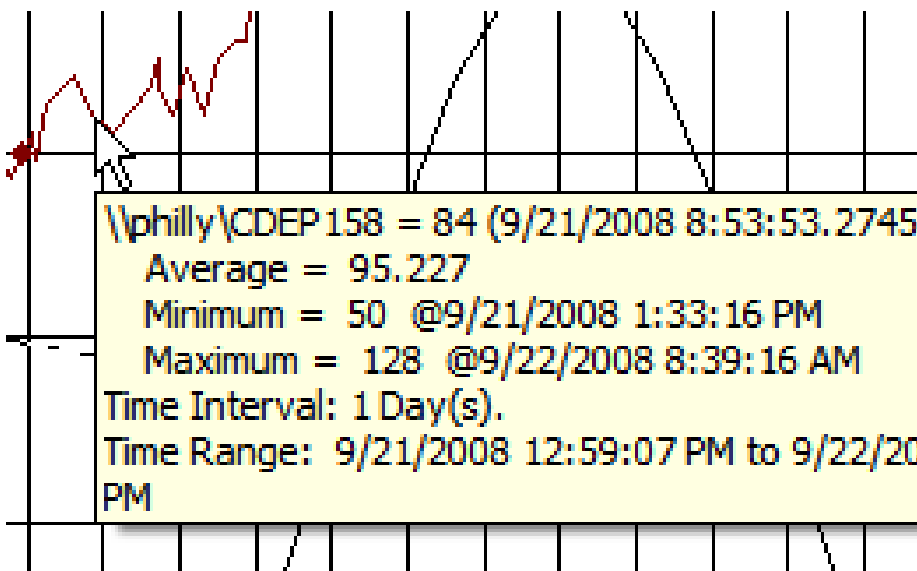
# Vertical Trends



# Trend Regression Line



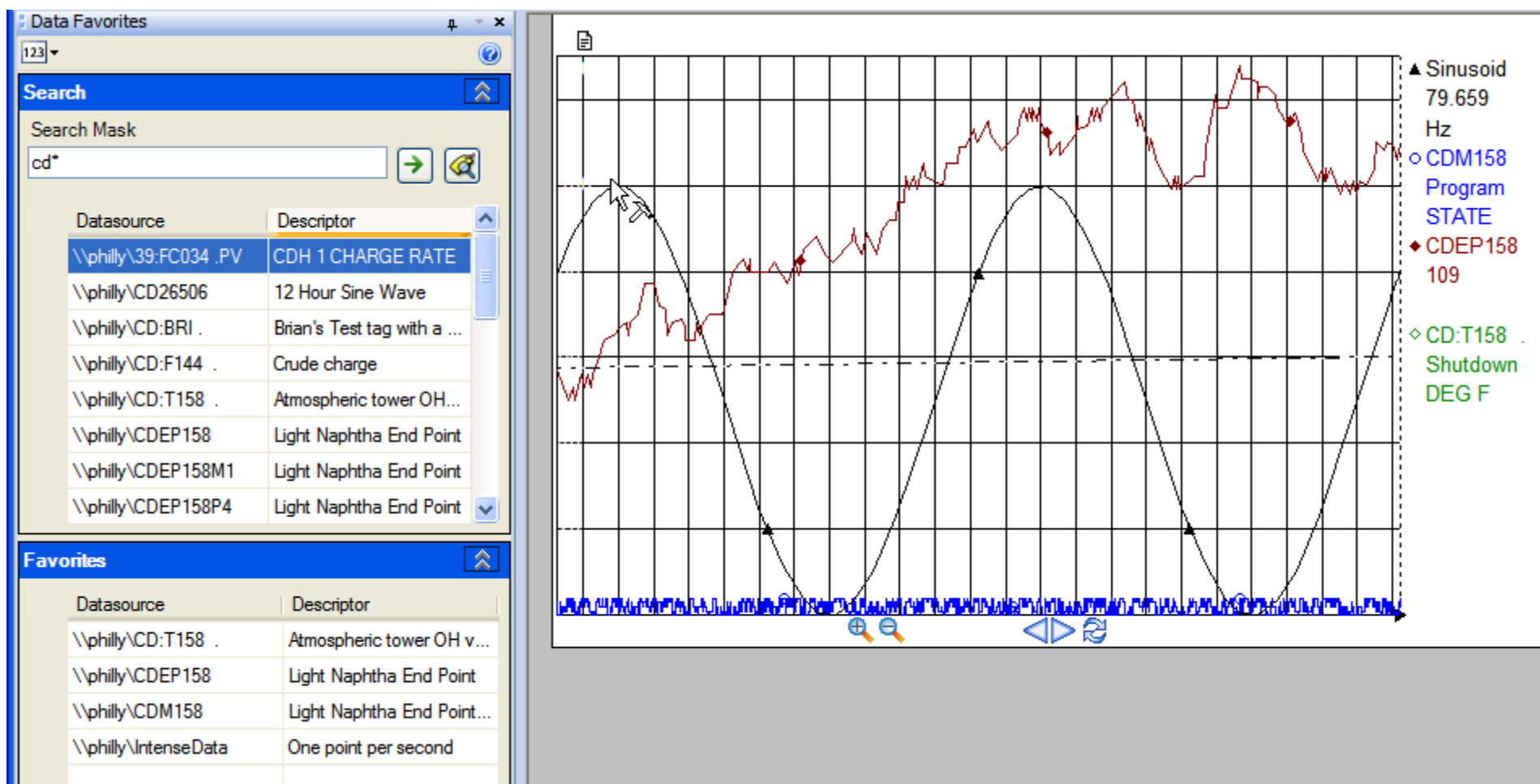
# Statistics: ToolTips and Details



Details		
Data Source		Option
\\philly\CDEP 158		Statistics
Trend1		
Statistics	Value	Timestamp
Data Type	Int 32	
Average	95.302	
Minimum	50	9/21/2008 1:33:16 PM
Maximum	128	9/22/2008 8:39:16 AM
Range	78	
StdDev	20.116	
PStdDev	20.116	
Count	86400	
Time Interval	1 Day	
Time Range	Start Time	9/21/2008 1:01:12 PM
	End Time	9/22/2008 1:01:12 PM

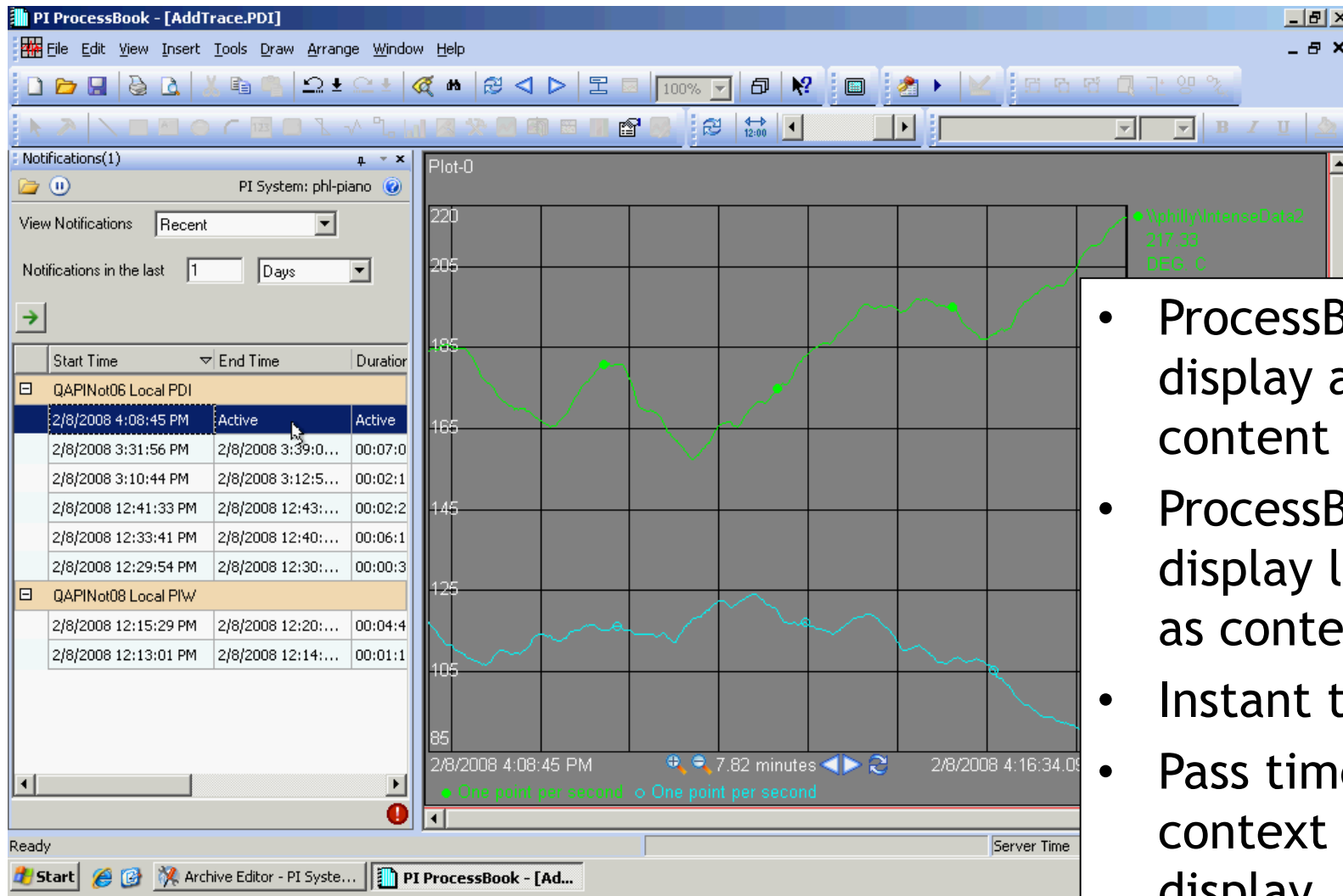


# Data Favorites



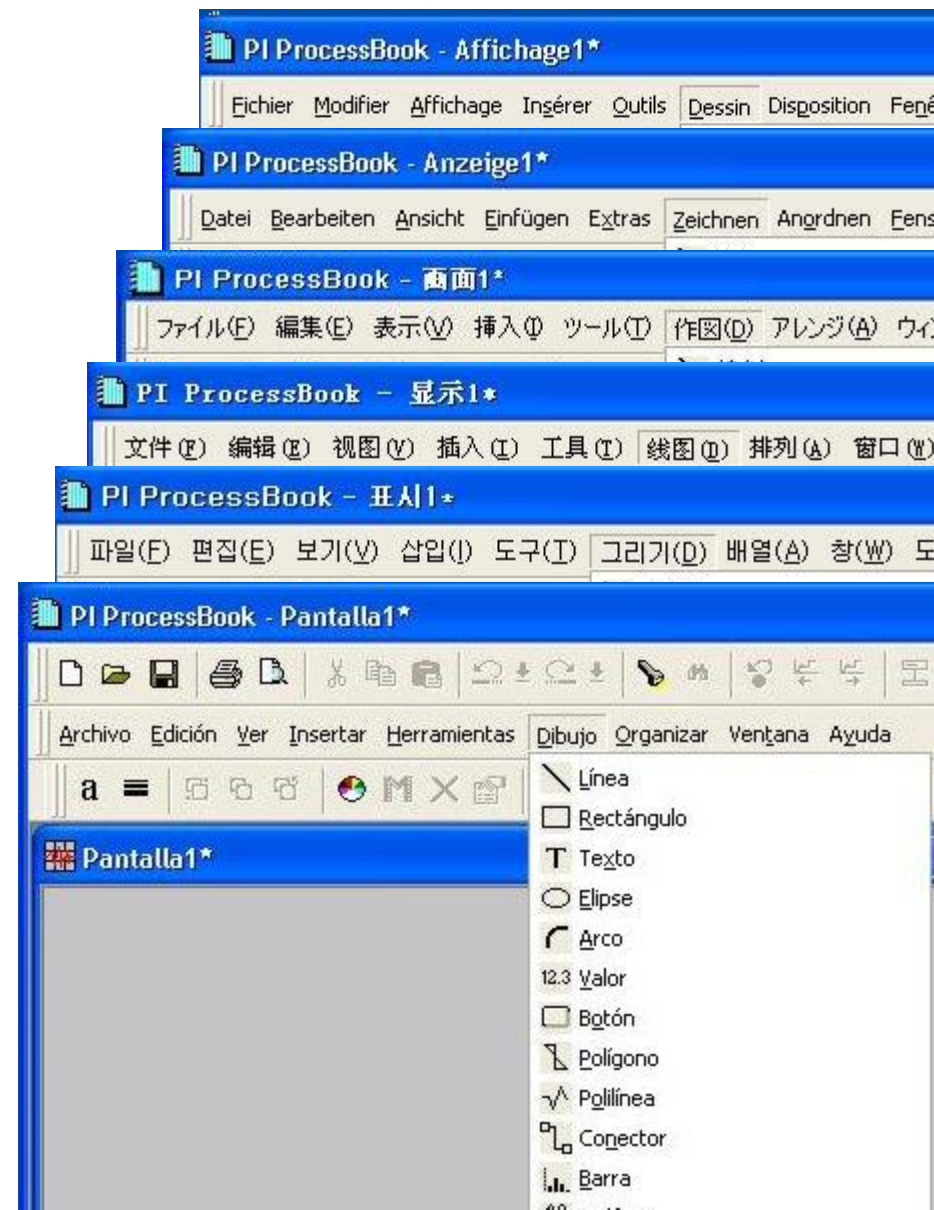
- From Favorites list
- From Search results
- From other applications (e.g., Excel)
- Add to existing trends
- Create new symbols (Trend, XY plot, Bar, Value)
  
- Build mode only
- Data Favorites window

# PI Notifications



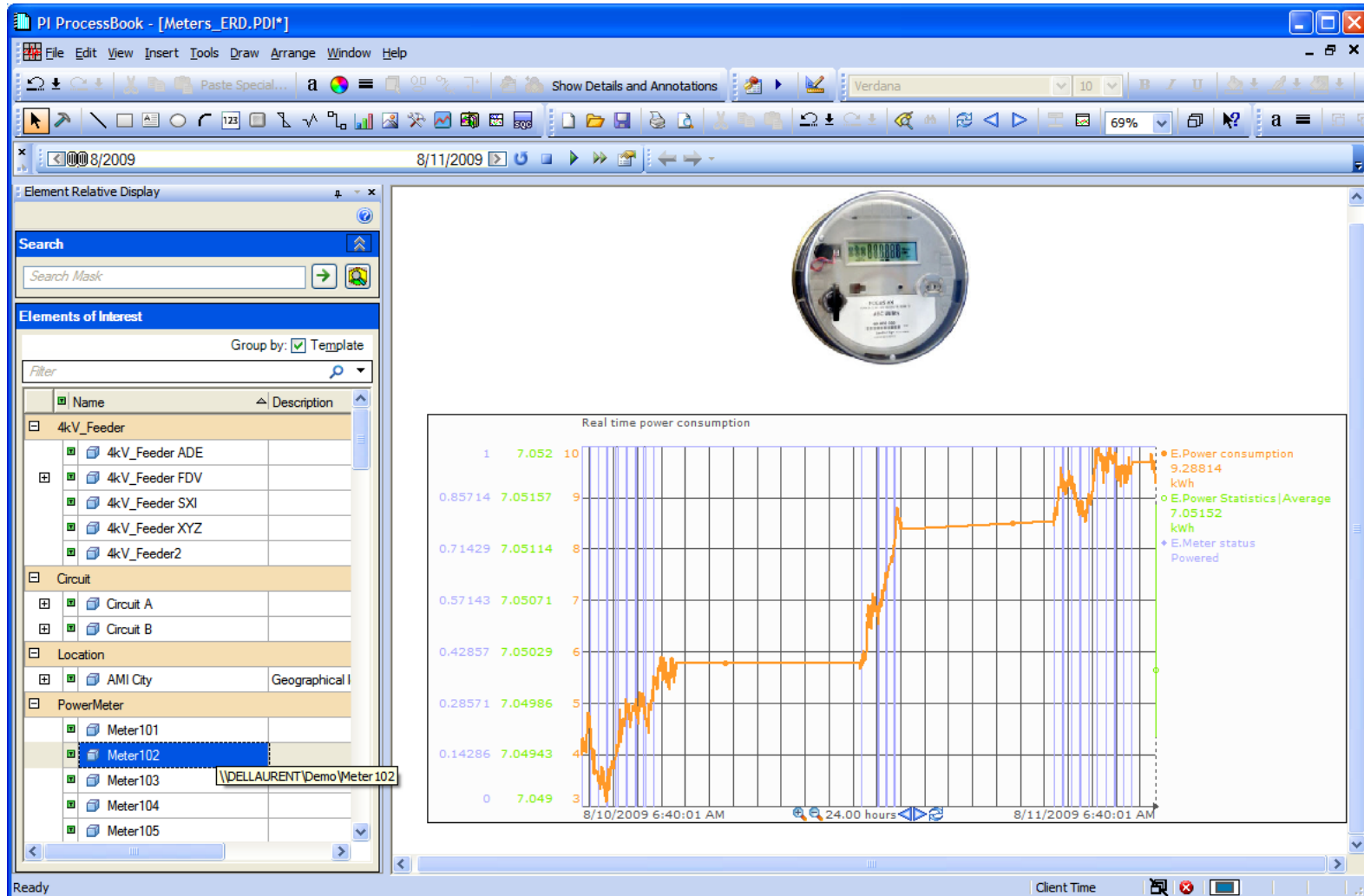
- ProcessBook display as content
- ProcessBook display linked as content
- Instant trend
- Pass time context to display

- ProcessBook and ActiveView
  - English
  - French
  - German
  - Spanish
  - Simplified Chinese
  - Japanese
  - Korean
  - Russian (*coming soon*)
  - Brazilian Portuguese (*coming soon*)
- BatchView
  - Japanese



- ProcessBook 3.1 (October 2008)
  - Windows security integration
  - PI Notifications integration
  - Trending enhancements
- ProcessBook 3.2 (September 2009)
  - AF Element Relative Displays and Module Relative Displays
  - Display Playback
  - Display Browsing and Bookmarking
  - Office Communicator collaboration integration
  - Statistical Quality Control (SQC) symbol now included

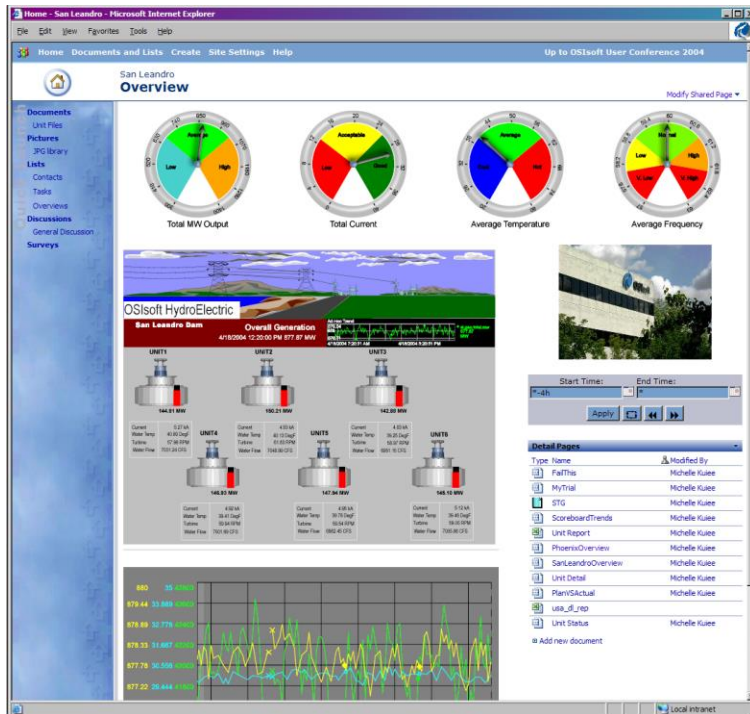
# PI ProcessBook 3.2 Element Relative Displays



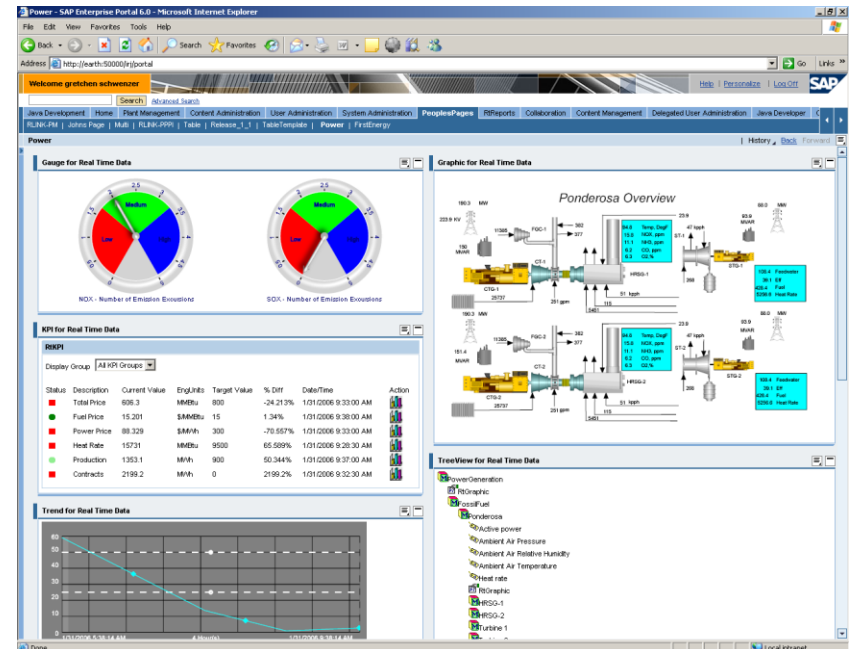
## PI WebParts / iViews



- Integration and Collaboration
- Access to Process Information
- Analysis and Reporting



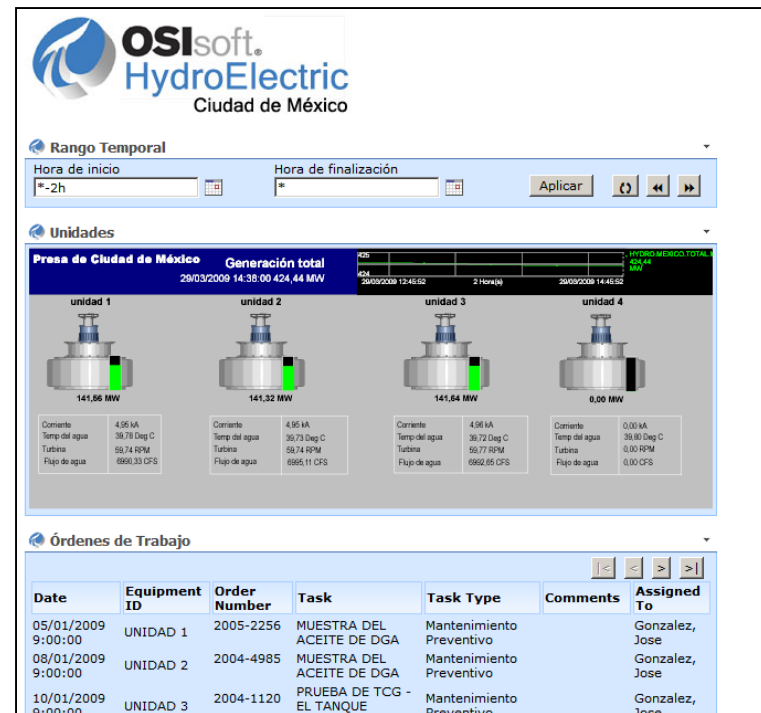
PI WebParts example



iViews example



- RtWebParts 2.2 (September 2008)
- 8 Language Packs (March 2009)
  - Japanese
  - Simplified Chinese
  - Korean
  - French
  - Brazilian Portuguese
  - German
  - Spanish
  - Russian



- PI WebParts 3.0 (Q4 2009)
  - Product will be officially rebranded PI WebParts
  - Support for 64-bit operating systems
  - Support for AF
- PI WebParts 4.0 (2010)
  - Support for Microsoft Silverlight
  - Support for Sharepoint 2010

## PI DataLink

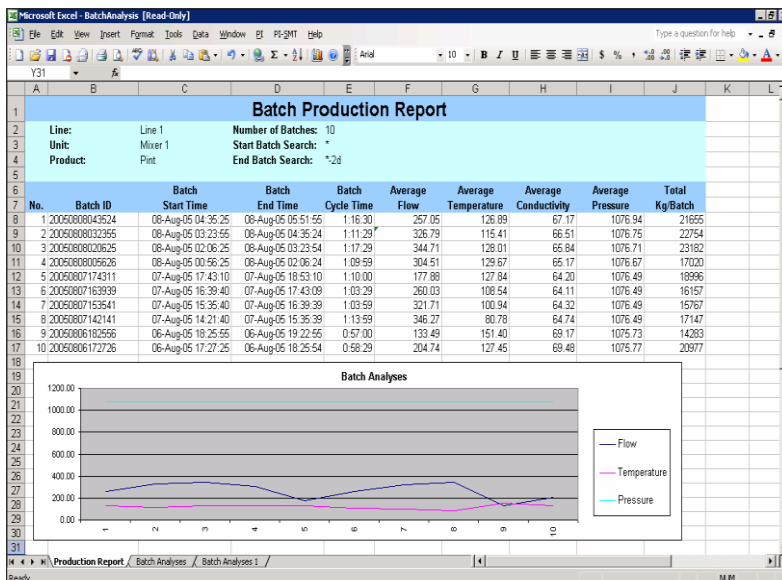


## PI DataLink:

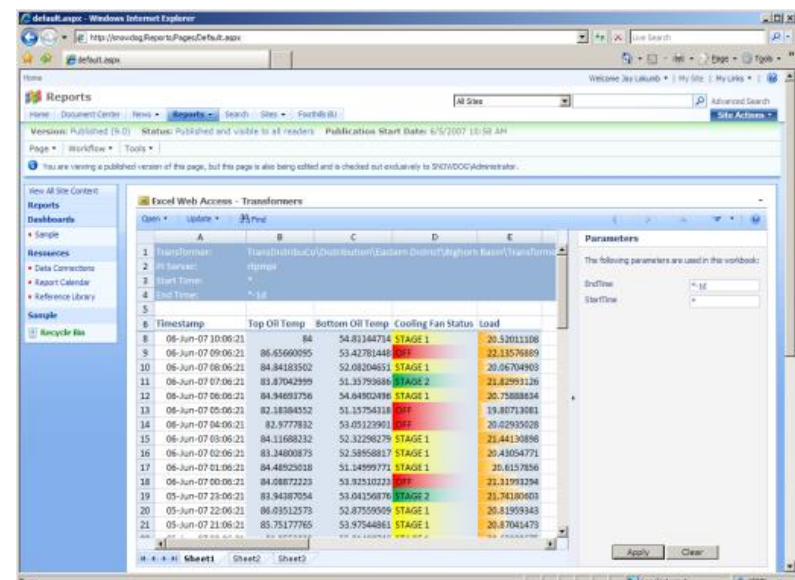
- Excel add-in for access to real-time and historical PI data

## PI DataLink for Excel Services (DLES):

- DataLink spreadsheets on the Web



**DataLink**



**DataLink for Excel Services**

- DataLink 4.1 (Current)
  - Support for automatic updating
- DataLink for Excel Services 4.1 (Q4 2009)
  - Support for 64-bit SharePoint 2007
- See “OSIsoft Products and Office 2007 Compatibility FAQ” on Tech Support site

# OSIsoft Product Roadmap

- Major Release
- ▲ Minor Release

Jul Aug Sep Oct Nov Dec Q1 '10 Q2 '10

## Client

### Desktop

ProcessBook (3.2)

SQC Add-in (3.1.0.1)

BatchView (3.1.4)

Datasheet Control (2.0.1)

DataLink (4.1.0)

Manual Logger (2.2.1.134)

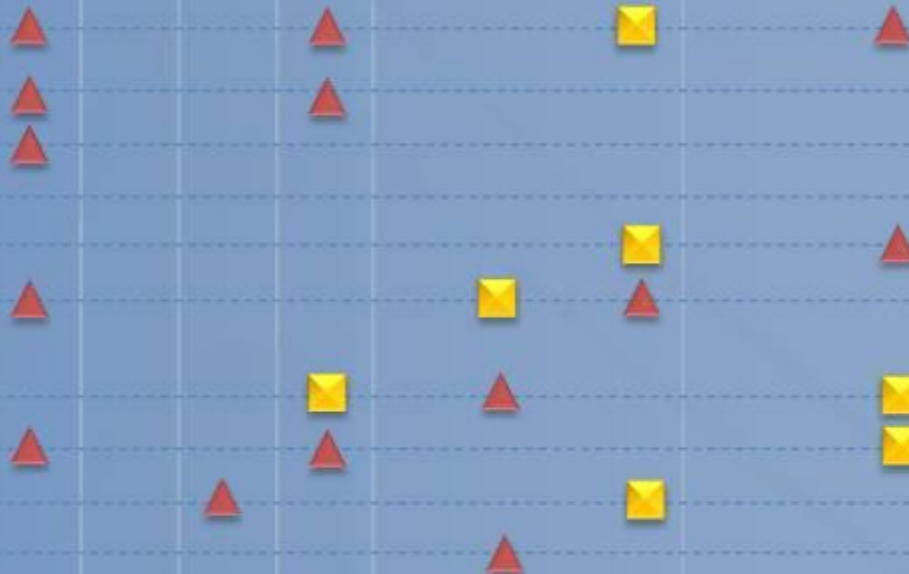
### Web

PI WebParts (3.0)

ActiveView (3.1.0.2)

DataLink Excel Services (4.0.3)

RtPM Business Pkg (70.1.0)



# PI Analytics



# The Analytics within the PI System



The  
Server

The  
Analytics

The  
Visuals

**Advanced Computing Engine (ACE)**

**PI Notifications**

**RtReports**

**Enterprise Services**

**PI Analytics**

(PI Performance Equations, PI Totalizers, PI Alarms, PI RTSQC)



Configuration		Programming
Specific Content	PI Tags PI PE, PI Totalizers, PI Alarms, PI RT SQC	PI ACE, PI SDK (Custom applications)
Generic Content	PI Module DB   None	PI ACE, PI SDK (Custom applications)
	PI AF	Custom AF Data References Custom AF Analysis Rules Custom applications (AF SDK)

# The Analytics Landscape



Configuration			Goal
Configuration			Programming
Specific Content	PI Tags	PI PE, PI Totalizers, PI Alarms, PI RT SQC	PI ACE, PI SDK (Custom applications)
Generic Content	PI Module DB	None	PI ACE, PI SDK (Custom applications)
	PI AF	AF Analysis Rules <ul style="list-style-type: none"> <li>• PE syntax</li> <li>• AF formula DR syntax</li> <li>• Additional ARs (roll-up etc.)</li> </ul> Clock & Event based scheduling Export results to PI tags	Custom AF Data References Custom AF Analysis Rules Custom applications (AF SDK)

# PI Notifications

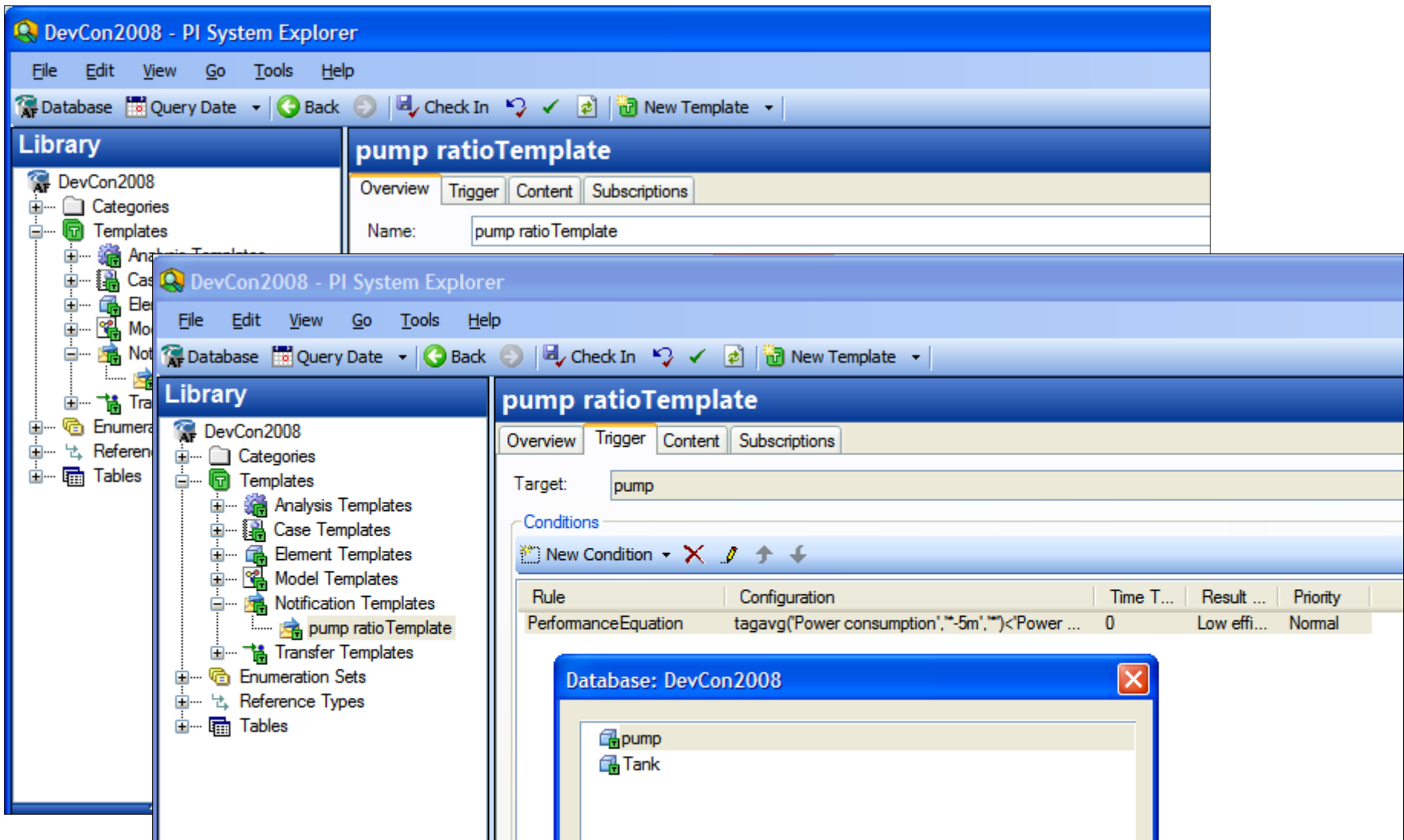


# What's coming with PI Notifications 1.1?



- Performance improvements
  - Up to 10,000 Notifications with multiple rules
  - Up to 60,000 events/minute
- Notification templates
- Release candidate for August 2009
  
- Native Office Communication Server (OCS) delivery channel
  - Scheduled for release in August 2009
  - Shipped as a new plug-in for v1.1

# PI Notifications templates



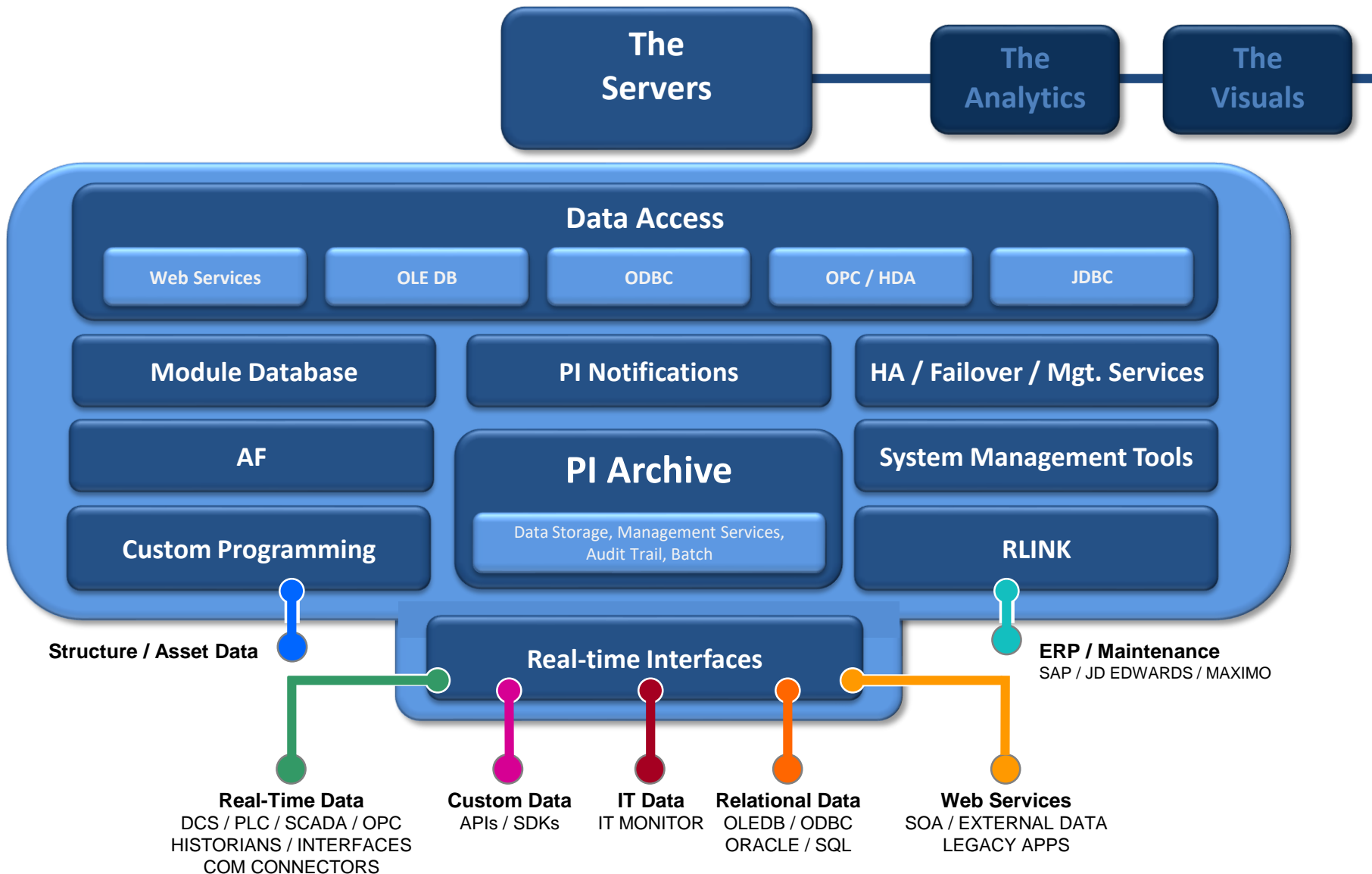
The screenshot displays the DevCon2008 - PI System Explorer interface. The main window shows the 'pump ratioTemplate' configuration. The left pane lists the 'Library' structure, including 'DevCon2008', 'Categories', 'Templates', 'Analysis Templates', 'Case Templates', 'Element Templates', 'Model Templates', 'Notification Templates', 'Transfer Templates', 'Enumeration Sets', 'Reference Types', and 'Tables'. The 'pump ratioTemplate' is selected under 'Notification Templates'. The right pane shows the 'Overview' tab for the template, with the 'Name' field set to 'pump ratioTemplate'. Below this, the 'Target' is set to 'pump'. The 'Conditions' section shows a table with one condition:

Rule	Configuration	Time T...	Result ...	Priority
PerformanceEquation	tagavg('Power consumption',*-5m',**)<'Power ...	0	Low effi...	Normal

A small dialog box titled 'Database: DevCon2008' is open, showing a list of objects: 'pump' and 'Tank'.

# The Servers





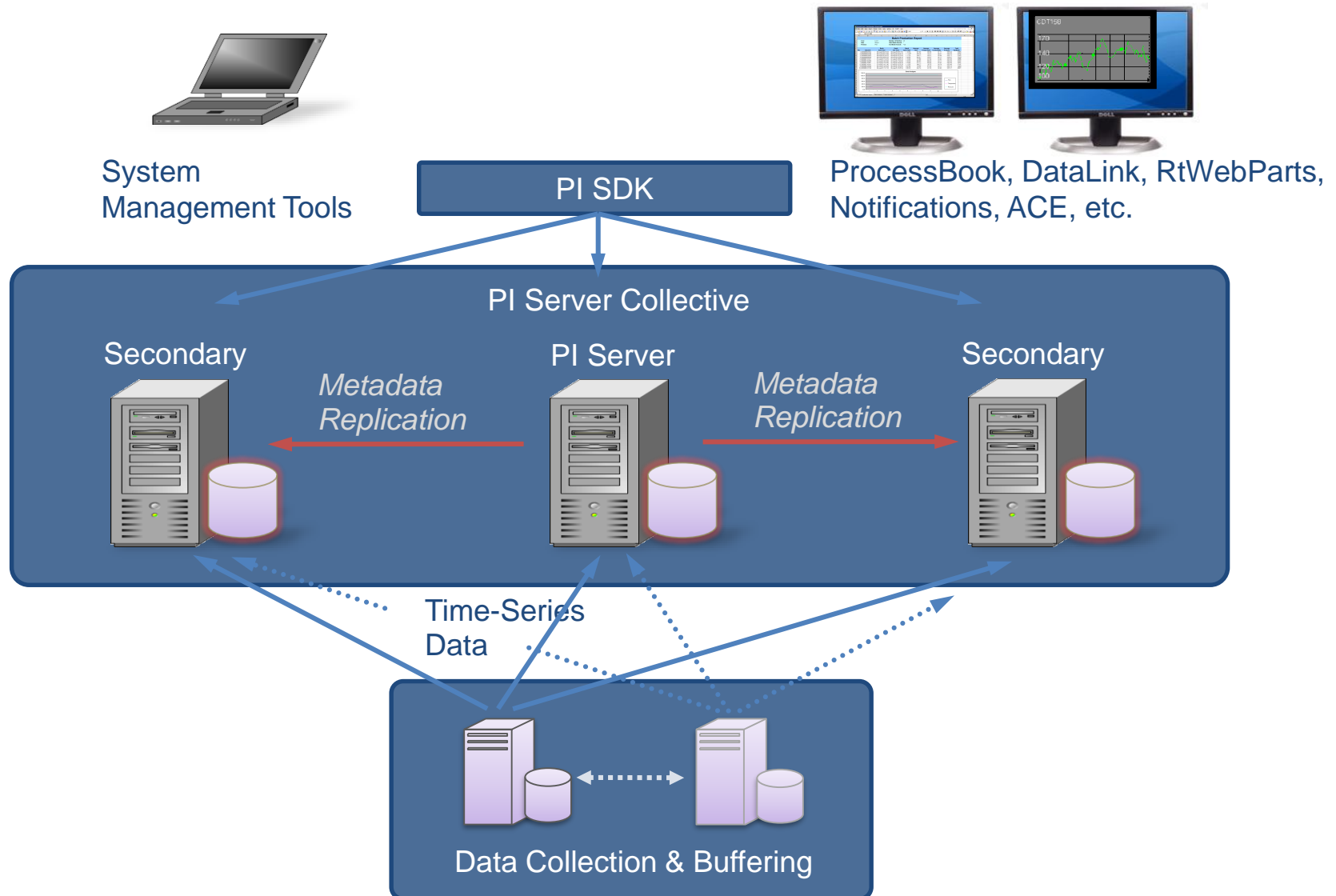
# The PI Server



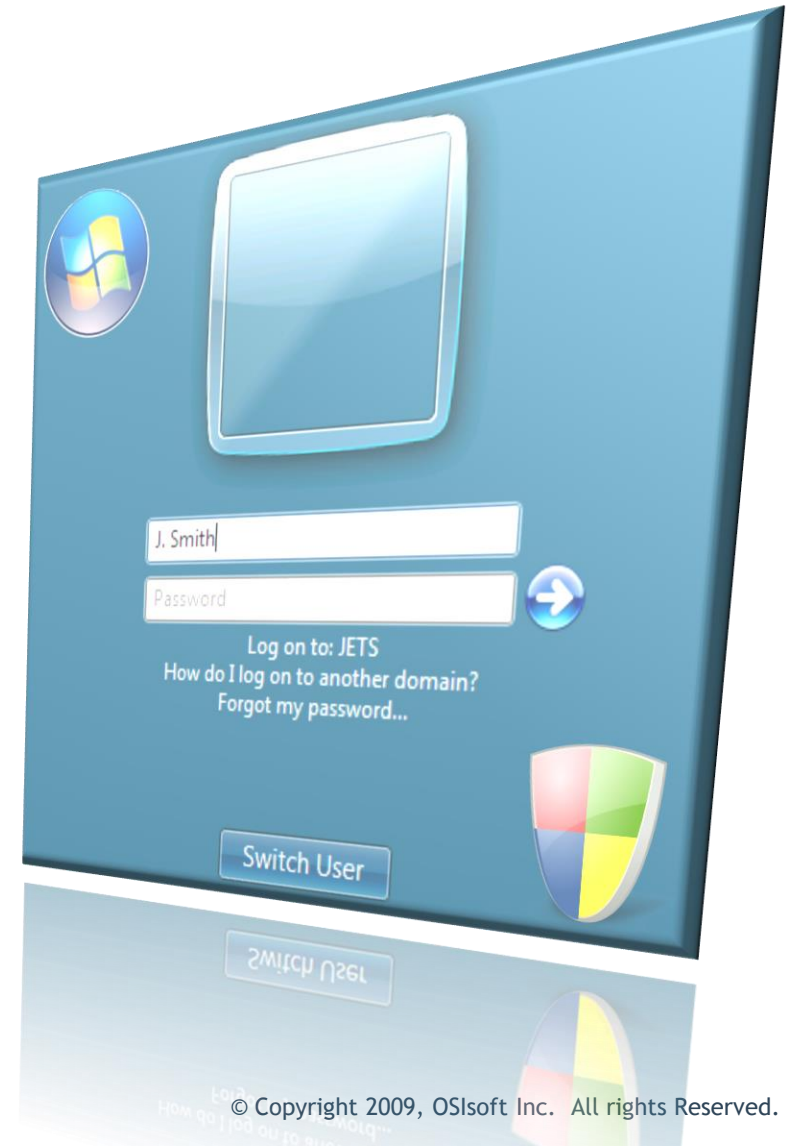


- Network Failure
- Administrative/User Failure
- Upgrades and Migrations
  - Hardware
  - Operating System Software (Patches)
  - Applications Software

# PI High Availability Architecture



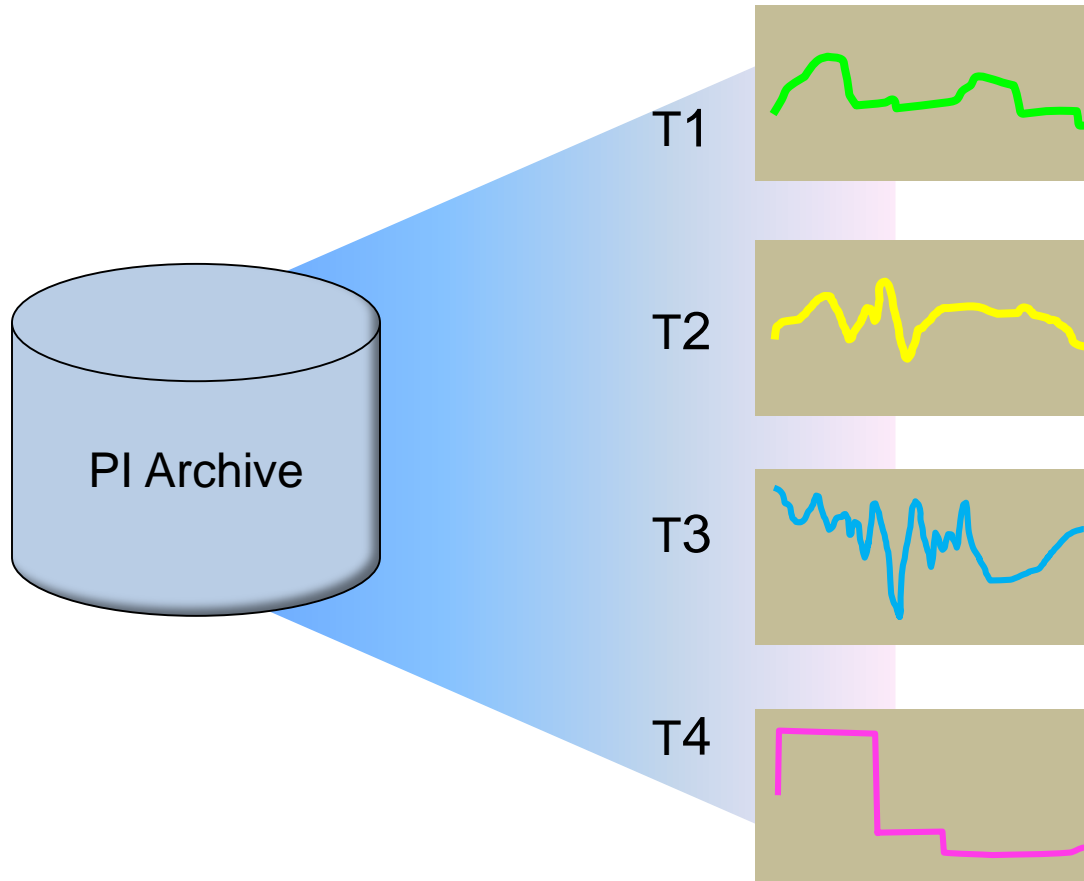
- Easier to manage
  - Windows Integrated Security
- More secure
  - Authentication from the OS
- More flexible
  - Combine users/groups
- Backwards compatible
  - Smooth transition
- Consistent with AF security



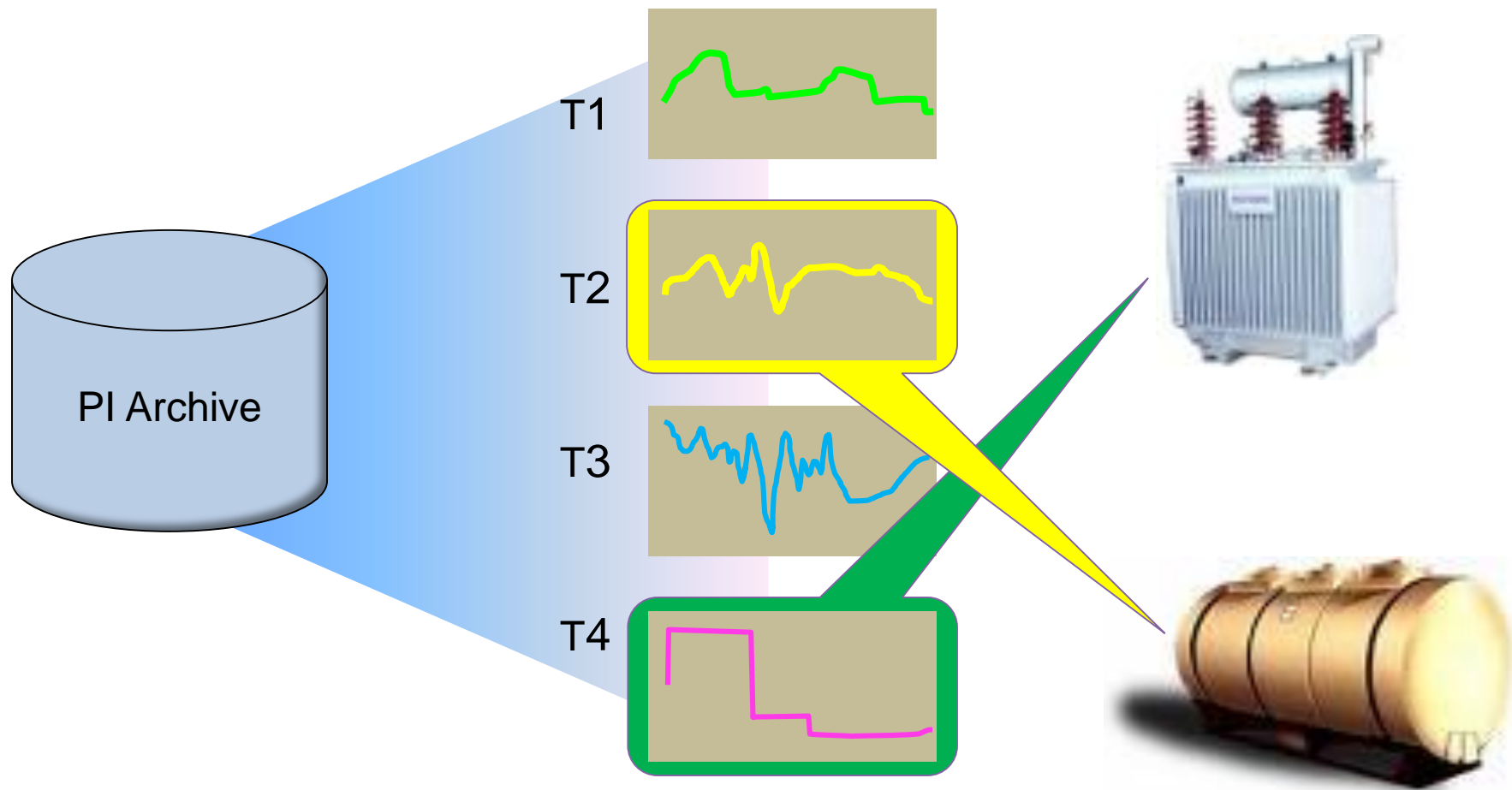
# The PI AF Server



# PI is about time series ... and tags!



# But Tags mostly relate to assets



# Who is using AF today?



## **Oil & Gas**

- Shell, Chevron, TOTAL



## **Power Generation, T&D**

- AMI, Xcel Energy, AEP, DTE, KCPL, Hydro-Quebec



## **Pulp & Papers**

- Appleton, International Paper, Tembec



## **Data Centers**

- Microsoft, HP, Cornell

- High Availability
  - Conceptually Very similar to HA for the PI Server
  - Automatic Failover for clients
  - SQL replication for the AF database
- Notifications support
  - New Notifications template object
- 64 bit support
- Ready for Localization support



- Performance improvements
- Indexed attributes for faster searches
- AF Tables automatic refresh
- Enhanced Table Lookup Data References
  - Interpolation/Extrapolation
  - Summaries
- XML Import/Export command line tool
  - Supports editing and deleting

## From PI MDB to PI AF

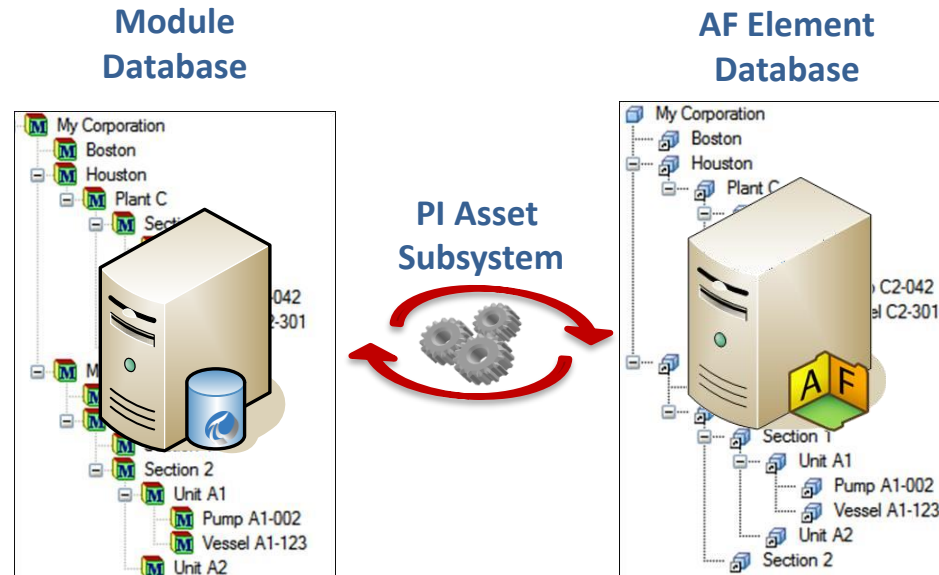


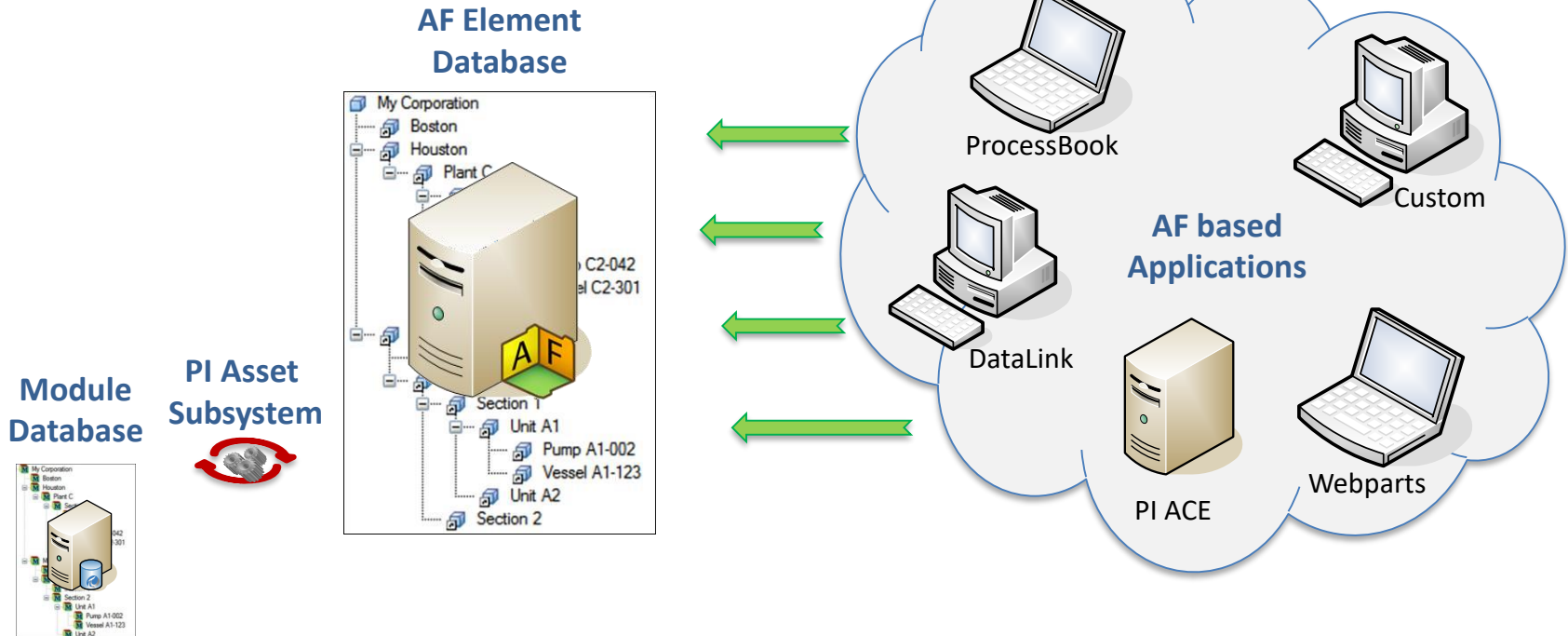
## Moves you forward

- AF is the future for PI applications
- AF is richer, more scalable and more flexible

## Protects your investment

- No customer left behind policy
  - MDB based solutions keep working
- Gradual upgrade process from MDB to AF
  - The back-end first, and then the applications





PI Server version 3.5 delivers the MDB to AF subsystem

- Migration
- Synchronization

Requirements:

- AF Server 2.1 must be installed
- PI Server Upgrade only from 3.4.380
  - MDB uses PI security
  - AF uses Windows security
  - 3.4.380 supports Windows security

# Data Access



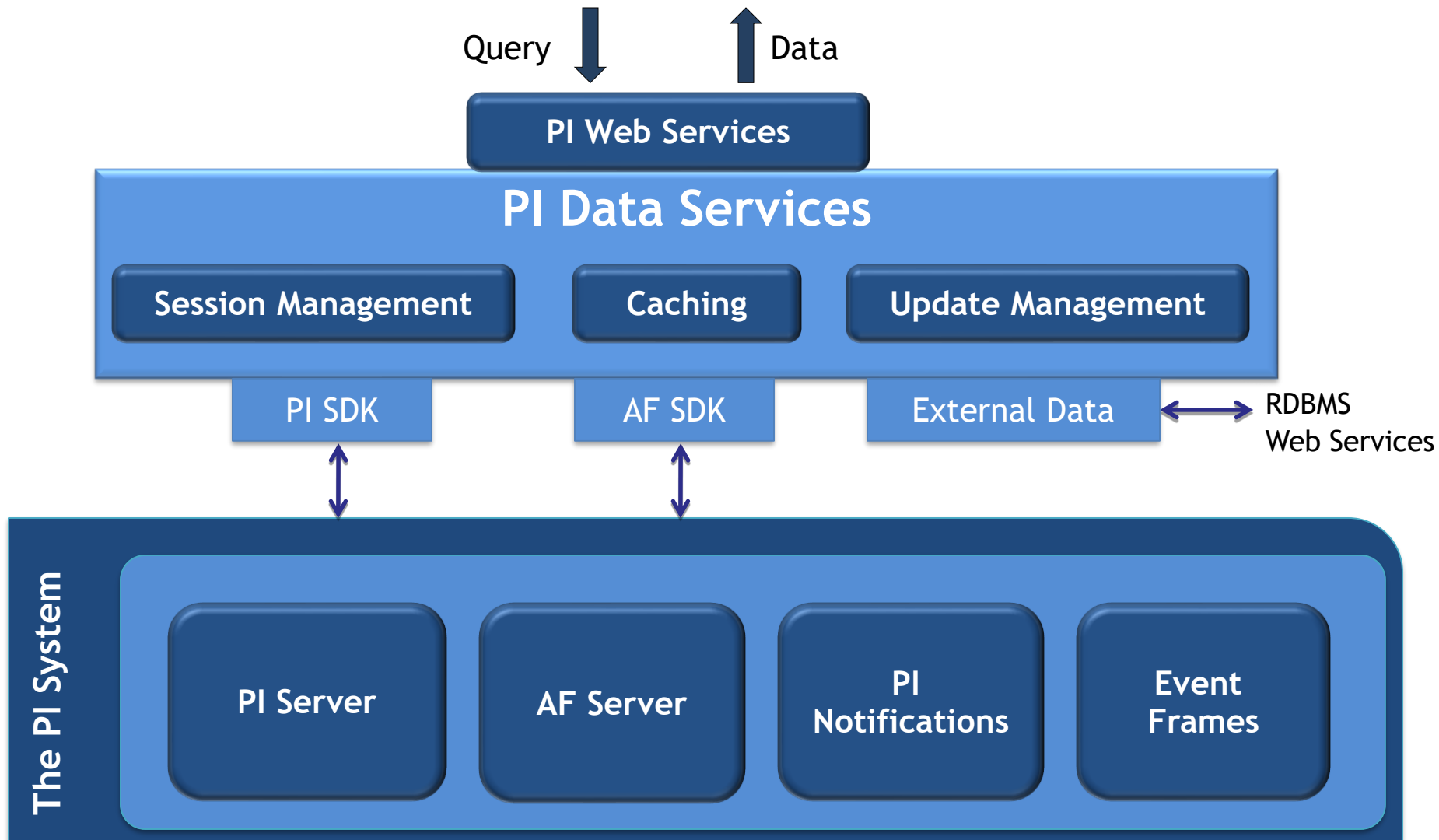
Collection of all products that offer programmatic data access to all or part of the PI System

- SQL tools
  - PI OLEDB Provider
  - PI JDBC Driver
  - PI ODBC Client
- Web Services
  - PI Web Services
- OPC
  - OPC DA/HDA Server
  - OPC UA Server
- SDKs (for partners/developers)
  - PI SDK
  - AF SDK



- Integrate with 3rd party products (SQL, Office, SAP)
- Create reports (SQL Reporting Services, Crystal Reports, Cognos, etc)
- Share PI data on the Web (SharePoint, ASP.NET, etc)
- Enterprise Application Integration - EAI (BizTalk, Tibco, etc)
- Extract, Transform and Load PI data - ETL (SQL, SAP BusinessObjects, etc)
- Combine PI with data in other systems (SQL, Oracle, etc)
- Online Analytical Processing - OLAP (SQL)
- Visualize with HMI (OPC clients)
- Develop custom interfaces to PI system
- Manage PI systems

Support virtually any custom application in any programming language on any platform!



- PI Data Services (Baseline Services) (Q4 2009)
  - Support both 32-bit and 64-bit providers
- PI Web Services Technical Preview (Current)
  - OSIsoft vCampus online, hosted environment
- PI OLEDB 3.3 (Current)
  - Support both 32-bit and 64-bit providers
- PI JDBC 1.0 (Q3 2009)
  - JDBC-OLEDB Bridge for Windows and Linux
- PI System OLEDB 1.0 (Q4 2009)
  - AF data access

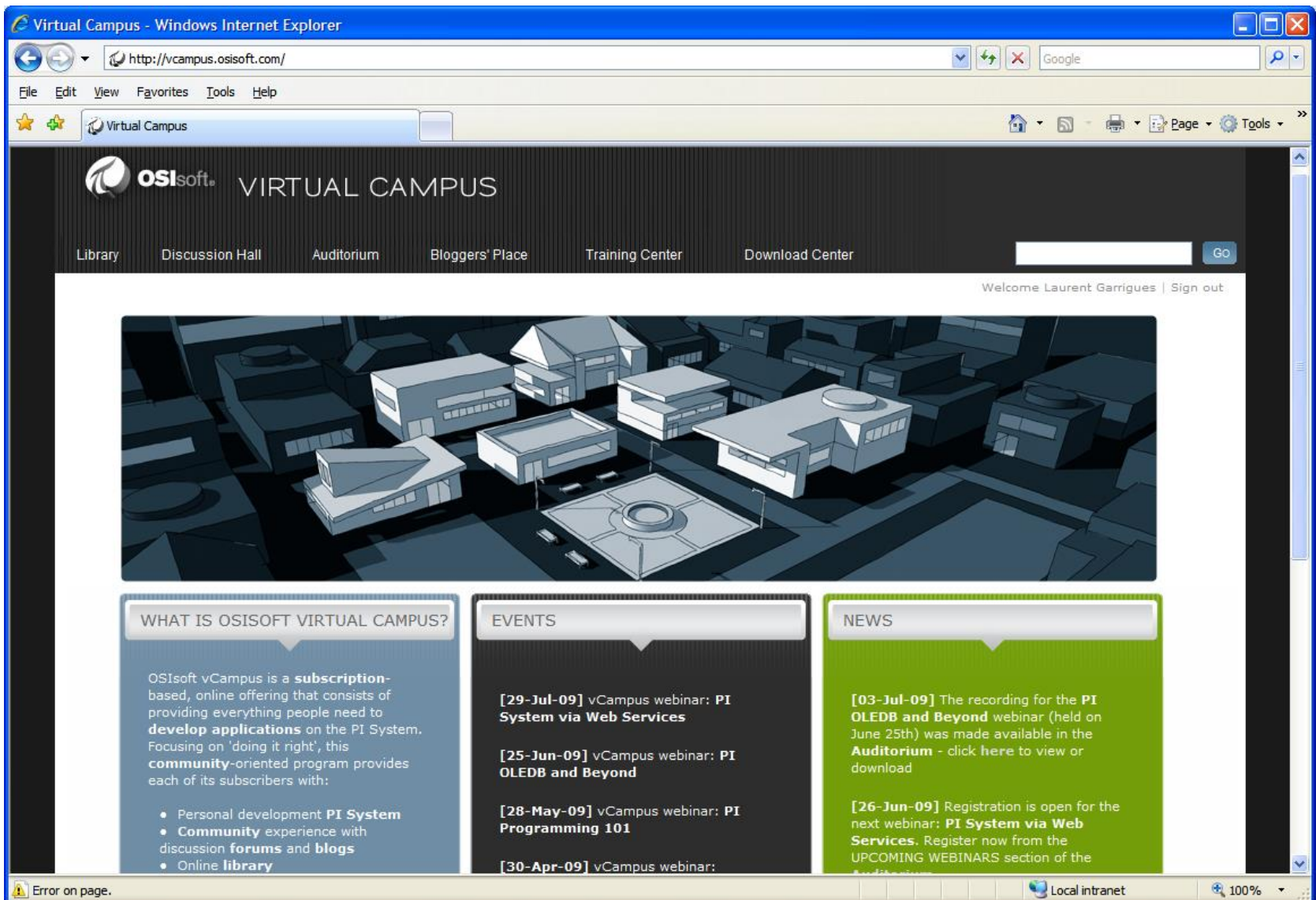
- OPC DA/HDA Server 1.2.6 (Current)
  - Achieved OPC Foundation Self-Certification Logo
- PI OPC UA Server Technical Preview (August)
  - OSIsoft vCampus online, hosted environment
- PI SDK 1.3.8 (Current)
  - Support both 32-bit and 64-bit providers
- AF SDK 2.1 (August)
  - Support both 32-bit and 64-bit providers
- PI SDK 1.4.0 (Q4 2009)
  - Client-side buffering for manually entered data, ACE calculations writing to PI, and custom SDK-based interfaces

- Support for:
  - Standards
  - Multiple programming languages
  - Multiple hardware and operating system platforms
  - Updates and asynchronous calls for better performance and scalability
- Simplifies buffering for data writes to ensure no data loss
- Provides low-level access to all PI system data (including metadata)

# OSIsoft vCampus



- Includes access to all PI System programmatic interfaces:
  - PI SDK
  - PI AF/PI AN SDK
  - PI OLEDB/ODBC
  - OPC DA/HDA/UA Server
- Development license for programmatic interfaces
- Runtime client access licensing (CAL)
- Programming examples and documentation
- Community collaboration site
  - Forums
  - Blogs





- Major Release
- ▲ Minor Release

# OSIsoft Product Roadmap

Jul Aug Sep Oct Nov Dec Q1 '10 Q2 '10

## Server

PI Server (3.4.380)

AF (2.1)

Notifications (1.1)

System Management Tools (3.2.4.2)

MS Platform for CEP (1.0)

OCS Delivery Channel (1.1)

## Data Access

PI SDK

PI OLEDB

PI System OLEDB

PI Data Services

PI JDBC

OPC UA Server

Web Services

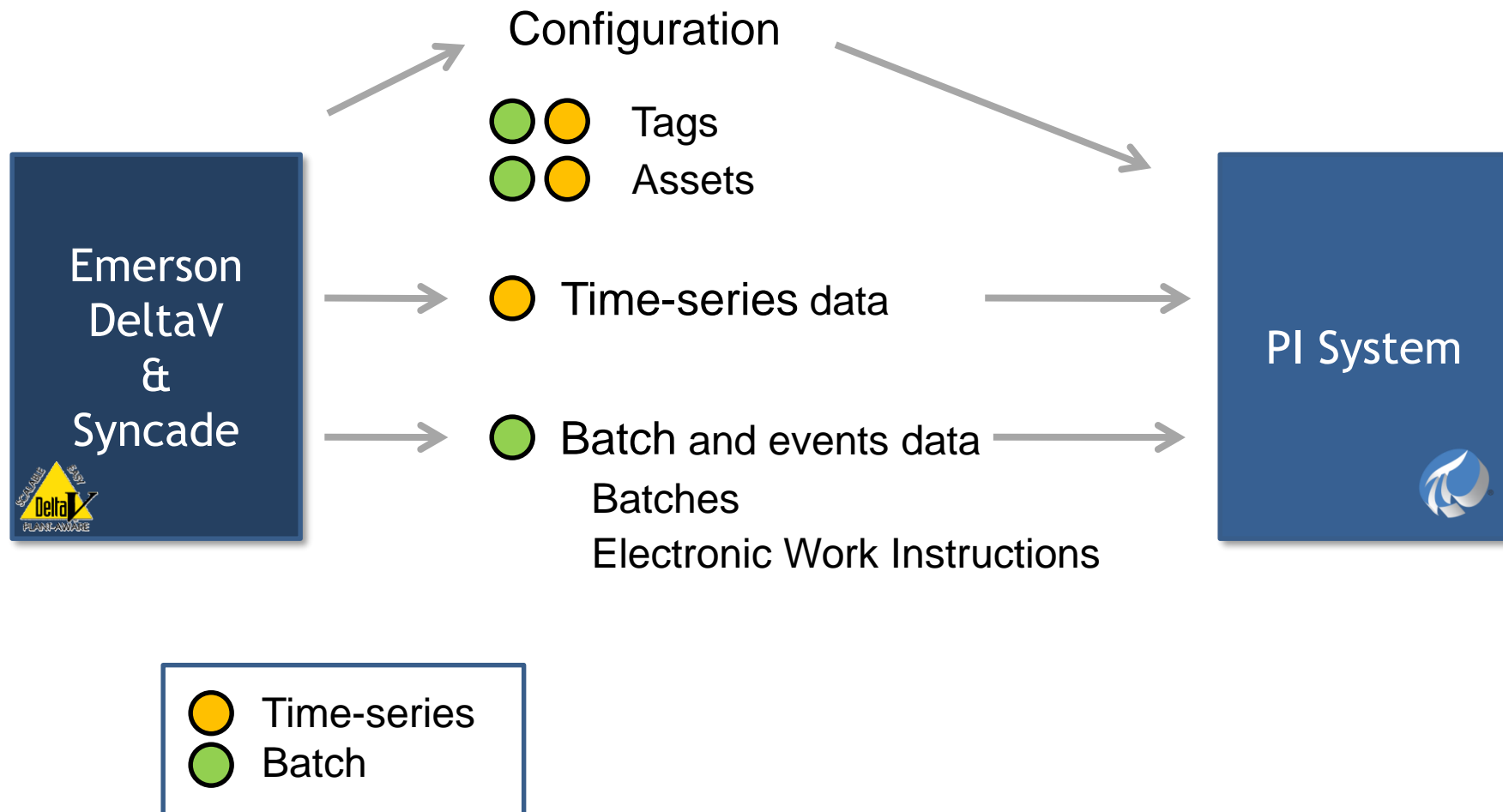
PI ICU

TBD

TBD

## PI Interfaces





# OSIsoft Product Roadmap – Interfaces

- Major Release
- Minor Release

Jul Aug Sep Oct Nov Dec Q1 '10 Q2 '10

## General Interfaces

AutoPointSync

PI UFL

RDBMS

WITSML

IT Monitor

Power Meter

TBD

## OPC Interfaces

PI OPC UA Interface

PI OPC Interface

TBD

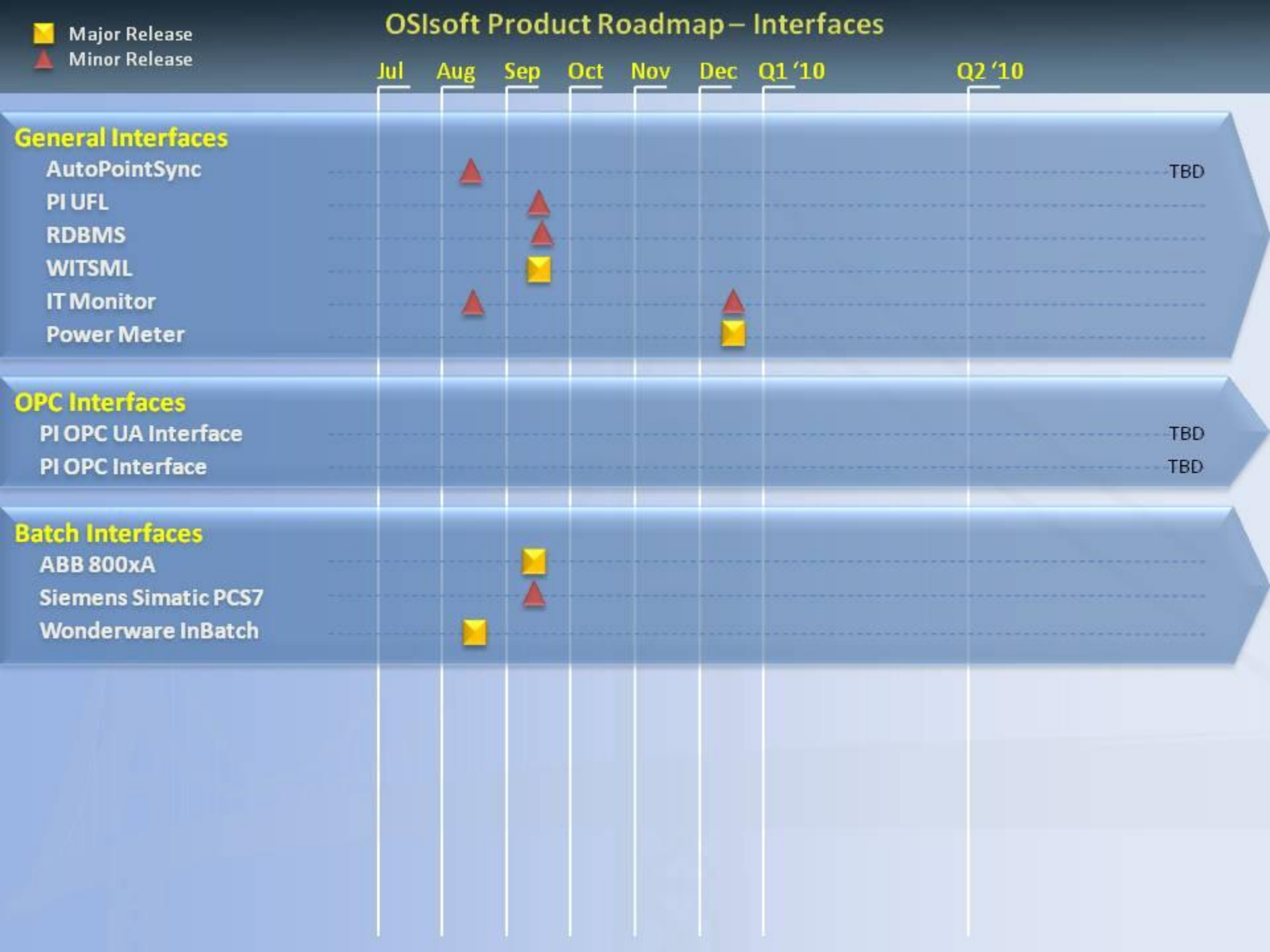
TBD

## Batch Interfaces

ABB 800xA

Siemens Simatic PCS7

Wonderware InBatch



# OSIsoft Product Roadmap – Vendor Specific Interfaces 1

■ Major Release  
▲ Minor Release

Jul Aug Sep Oct Nov Dec Q1 '10 Q2 '10

## Vendor Specific Interfaces

BACNet



ACS Prism



DNP3



Bailey Infi90



Bailey System 6



Yokogawa FAST/Tools



Foxboro



Foxboro SCADA



GE Cimplicity



Max1000



Modbus



Modbus Ethernet





## OSIsoft Product Roadmap – Vendor Specific Interfaces 2

- Major Release
- ▲ Minor Release

Jul Aug Sep Oct Nov Dec Q1 '10 Q2 '10

### Vendor Specific Interfaces

XML

IPMI

ABB Advant

Areva (ESCA) HabConnect SOE

Cal ISO Dispatch

Hartman & Braun ConlinkX

Siemens Power TG

NRC Emergency Response

PI to NRCERDS

SAFER Weather Station

Thermotron 8800 Controller



## Server:

- PI AF 2.1 - August 2009 (64-bit, HA)
- PI Notifications 1.1 - September 2009 (OCS, Templates)
- PI Server 3.4.380 - September 2009 (Security)
- PI Data Services - December 2009 (64-bit)
- PI Server 3.5 - 4Q 2009 (MDB to AF)

## Client:

- PI ProcessBook 3.2 - September 2009 (AF relative displays)
- PI WebParts 3.0 - 4Q 2009 (64-bit)



# Thank you

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