

OSIsoft Product Roadmap 2010

September 28, 2010

Empowering Business in Real Time.

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- The Year in Review 2009
- PI System 2010
- Roadmap for Infrastructure
- Roadmap for Clients

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
- More Secure
 - SSPI*-based Kerberos or NTLM**
 - Server-Side Authentication Control
- More Flexible
 - Unlimited Access Control Lists (ACLs)

* Security Support Provider Interface

** NT LAN Manager



AF-based PI Clients

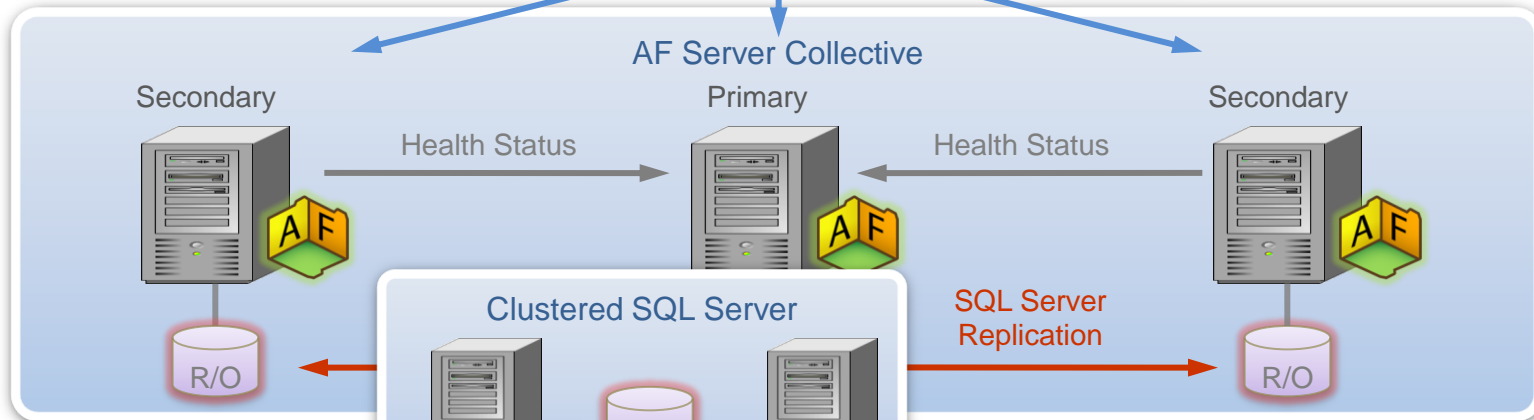
- WebParts
- ProcessBook
- DataLink
- Notifications



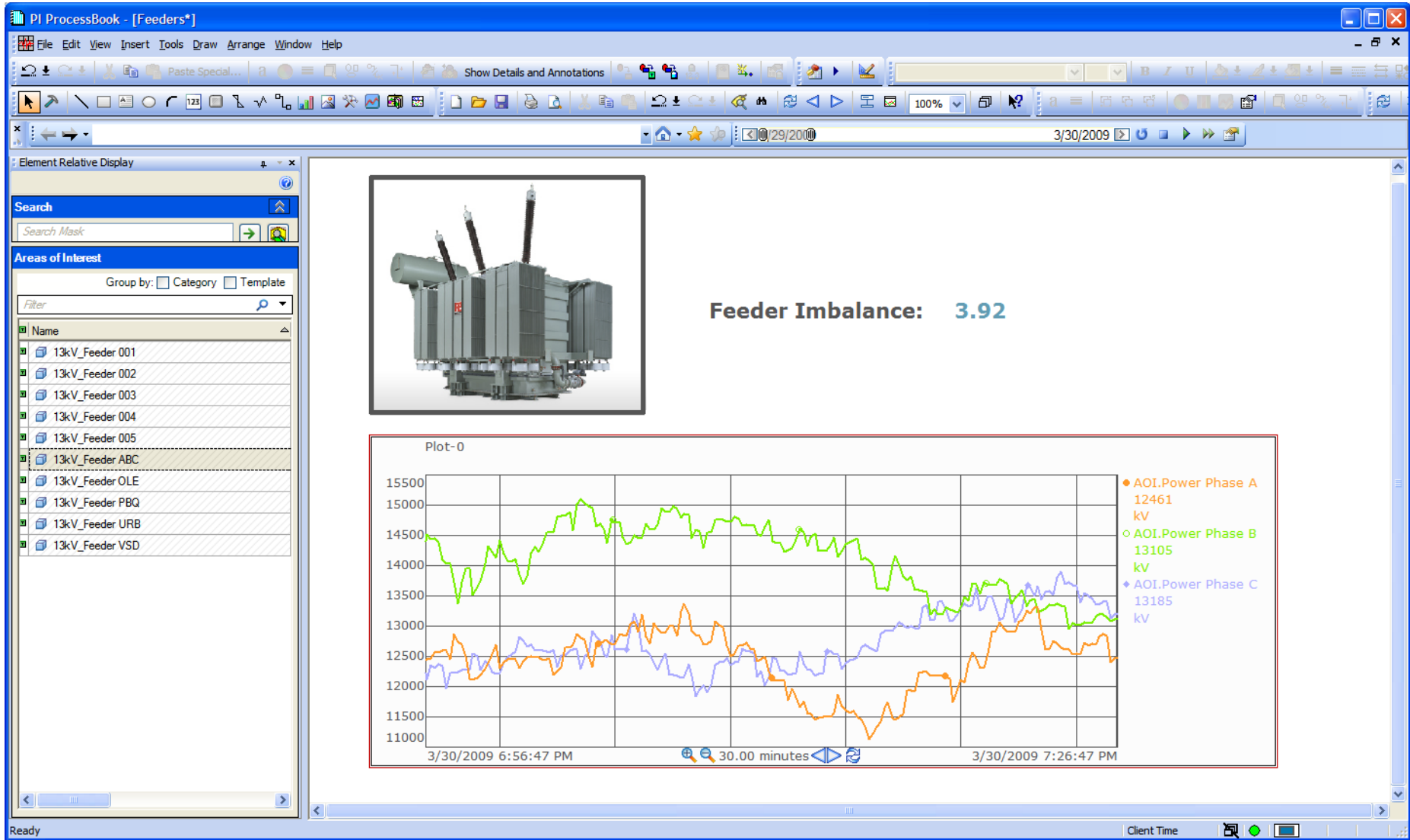
AF SDK Library

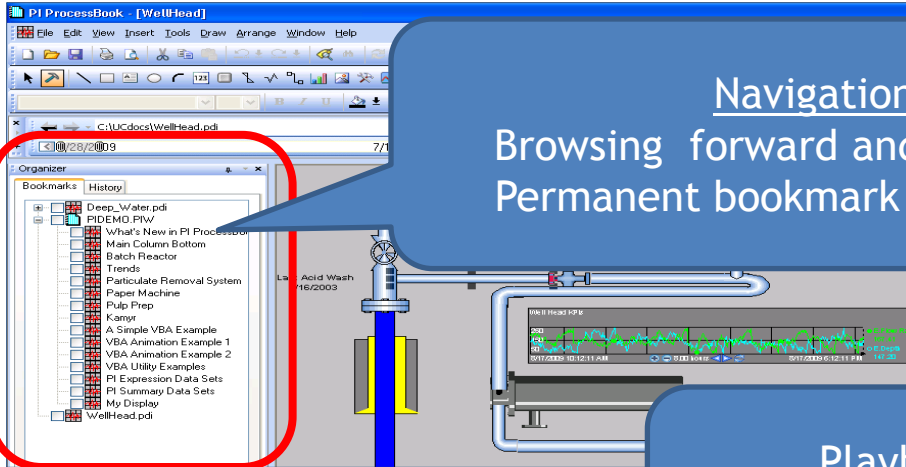


PI System Explorer

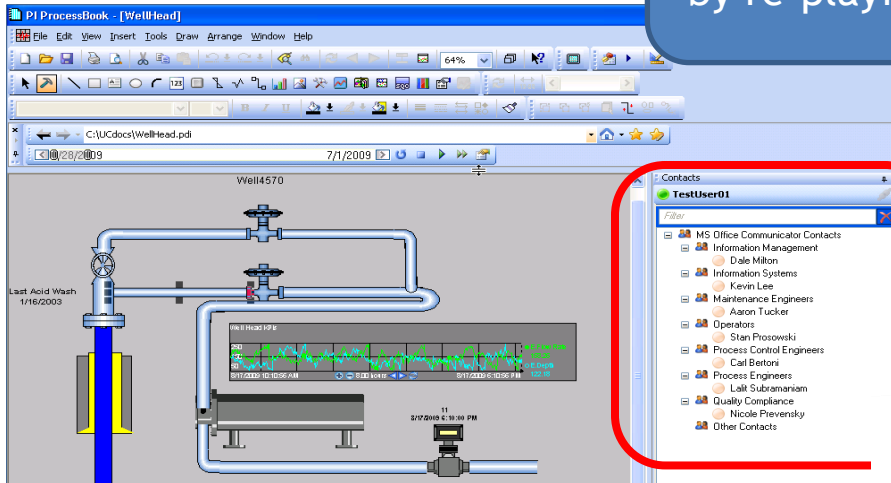


SQL Server (primary)	<input checked="" type="checkbox"/> Express <input checked="" type="checkbox"/> Standard <input checked="" type="checkbox"/> Enterprise	SQL Server (secondary)	<input checked="" type="checkbox"/> Express <input checked="" type="checkbox"/> Standard <input checked="" type="checkbox"/> Enterprise
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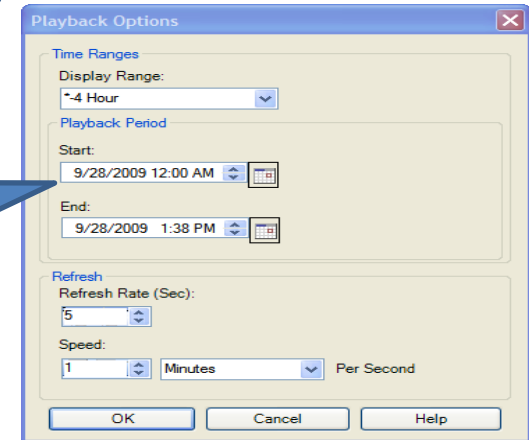




Navigation
Browsing forward and backwards
Permanent bookmark of favorites



Playback
Troubleshoot problems
by re-playing a display



Communicator
IM, Email Contacts
Easily send a PB
screenshot



Configure AF Tree View -- Webpage Dialog

Server: DFP12010RC

Database: Trans DistribuCo

- Trans DistribuCo
 - TransDistribuCo
 - Distribution
 - Assets
 - Eastern District
 - Bighorn Basin
 - Batteries
 - Capacitor
 - Circuit Breaker
 - Load Tap Changer
 - Transformer
 - TR0842
 - TR2003
 - Bushing Degradation
 - DGA Alert
 - Differential Oil Temperature
 - Elevated Oil Temperature
 - Low Nitrogen Pressure
 - LTC2003
 - TR3045
 - TR5620
 - TR9124
 - Gypsy Junction
 - Victory Valley
 - Wolverine
 - Northern District
 - Southern District
 - Western District

Root Node: \\DFP12010RC\Trans DistribuCo\TransDistribuCo

Default Selected Node: \\DFP12010RC\Trans DistribuCo\TransDistribuCo

OK Cancel

Station Detail - Windows Internet Explorer

http://transdistco/SitePages/Station%20Detail.aspx

Station Detail

TransDistribuCo 2010 Portal > Station Detail

Welcome to the TransDistribuCo portal!

Home Stations **Station Detail** Transformer Detail

Search this site...

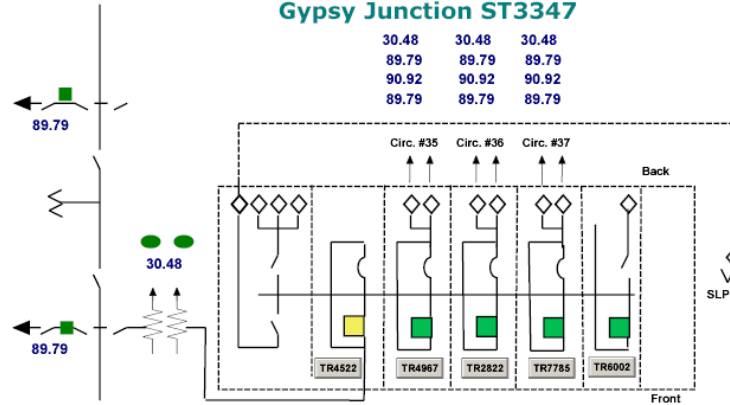
Stations Overview

Eastern District

- Bighorn Basin
- Gypsy Junction**
- Victory Valley
- Wolverine

Gypsy Junction ST3347

30.48	30.48	30.48
89.79	89.79	89.79
90.92	90.92	90.92
89.79	89.79	89.79



Workorders

Date	Equipment ID	Order Number	Task	Task Type	Assigned To
2/2/2010 12:00:00 AM	TR4522	2002-1234	DGA OIL SAMPLE	Other Maintenance	Wiggum, Ralph
7/3/2010 12:00:00 AM	TR4522	2002-1234	N2 SYSTEM REPAIR	Other Maintenance	Wiggum, Ralph
4/13/2010 12:00:00 AM	TR4522	2002-3957	N2 SYSTEM REPAIR	Corrective Maintenance	Wiggum, Ralph
9/5/2010 12:00:00 AM	TR4522	2003-1034	TCG TEST - MAIN TANK	New Installation	Krupp, Benny
7/7/2010 12:00:00 AM	TR4522	2003-1034	DGA OIL SAMPLE	Other Maintenance	Wiggum, Ralph

Showing 1 to 5 of 13

- Available now
 - PI ProcessBook
 - PI ActiveView
 - PI WebParts
 - PI SDK
- In development
 - PI DataLink
- In plan
 - PI System Explorer
 - PI Notifications
 - PI Manual Logger

- French
- German
- Russian
- Spanish
- Korean
- Japanese
- Brazilian Portuguese
- Simplified Chinese

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

Making PI work well on a large scale

- Performance, scalability and throughput for the PI AF and PI Notifications
- New PI SMT 3 plug-ins to manage the PI 3.4.380 security model
- 64 bit support for scale and performance



PI Notifications: The Power of Templates...



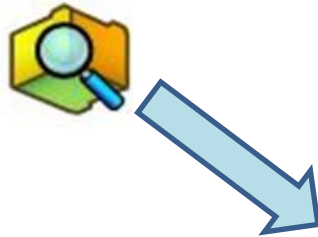
Define information once

- Fewer errors
- Automatically in sync
- Maintenance can scale

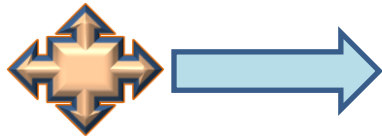
Override where necessary

- Change time rule
- Define specific content
- Add/modify subscribers

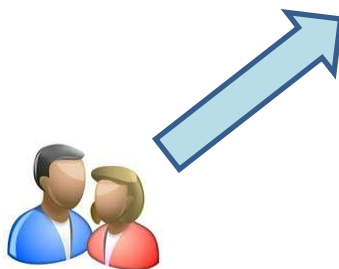
Configured from
AF Elements



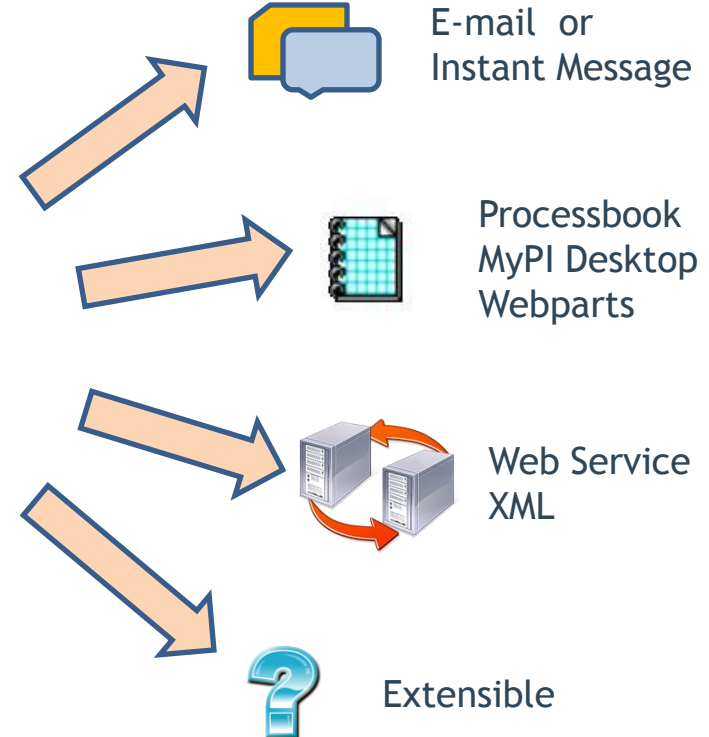
Filtered with
sophisticated
rules



Active Directory



Trigger



- Servers:
 - PI Server 3.4.380
 - PI AF 2.1
 - PI Notifications tested as a 32bits running on 64bit
 - PI Utilities Gateway
- Clients
 - PI Web Parts 3.0
 - PI DataLink for Excel Services 4.1
- Data Access
 - PI SDK
 - PI OLEDB
 - PI OLEDB Enterprise
 - PI Web Services



Why 64-bit Support?



- Most server hardware today is 64 bits
- Microsoft aggressively moving to 64 bits
 - Windows 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



- **OSIsoft commitment:**
 - 440 interfaces
 - 20 developers in 6 locations
 - Over 150 person years of development
 - 78 Interface releases during the past year
- **PI3 380 Security for ICU and APS**
- **Support for Vista, 2008 Server, 2008 R2 Server, and Windows 7**
- **New Interfaces** (Modus, ABB 800xA Batch, Wonderware InBatch, Honeywell TotalPlant Batch, GE iBatch, Siemens Spectrum Power TG)
- **AMI Head-End Systems** (Trilliant UnitySuite, Silver Spring Networks UtilityIQ, Grid Net PolicyNet, Elster EnergyAxis)
- **Other Interface Development** (ESC StackVision, BACnet, ACS Prism on Linux, REpower OPC DA, UFL)

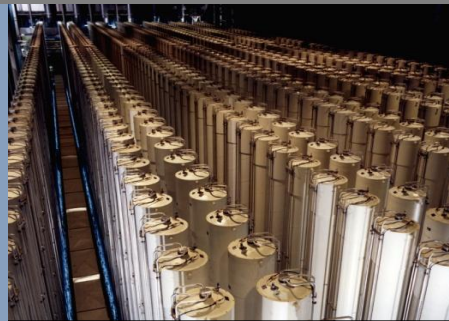
- Servers
 - PI Server 3.4.380
 - PI SMT 3.3.1.3
 - AF 2.1
 - PI Notifications 1.1
 - PI Notifications OCS Delivery Channel
 - MCN Health Monitor 1.3.5.2
- Data Access
 - PI SDK - 64-bit 1.3.8.385
 - PI JDBC 1.0.0
 - PI Data Services 3.0.0
 - PI System OLEDB 1.0.0.11
- Clients
 - ProcessBook 3.2.0
 - Active View 3.2.0
 - PI Web Parts 3.0.0
 - DataLink 4.0.3
 - DataLink for Excel Services 4.0.3
 - DataLink for Excel Services 4.1.1.0
 - RtReports 3.3.0.0
 - PI Manual Logger 2.3.0.160
- Additionally
 - 31 Minor Releases
 - 7 Language Packs

What did OSIsoft accomplish in 2009 to help you?



Security

- ✓ PI 380
- ✓ Deployment



Asset Centric PI

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



Localization

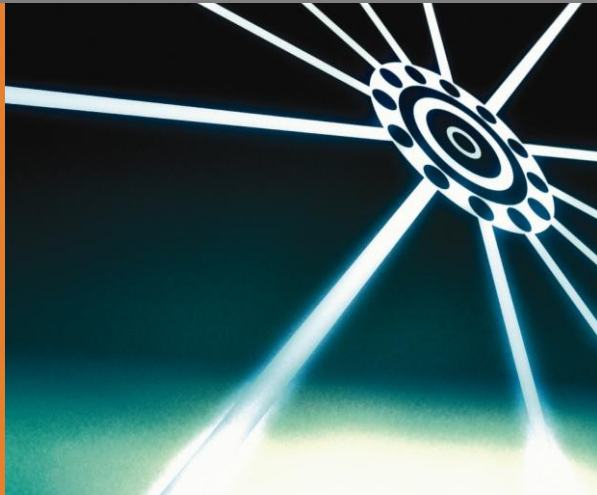
- ✓ 8 languages
- ✓ 5 products
- ✓ 3 planned



Scaling, 64-bit

- ✓ Servers
- ✓ Data Access
- ✓ Web Access

What are the benefits of PI System 2010?



Simple

Easy to get started,
system grows with you



Relevant

Delivers the most
important data to right
people



Collaborative

Everyone has access to
the data, easy to share



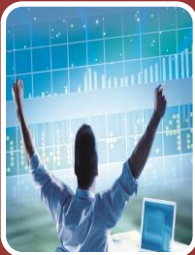
PI Clients

- 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
- PI Analytics for StreamInsight

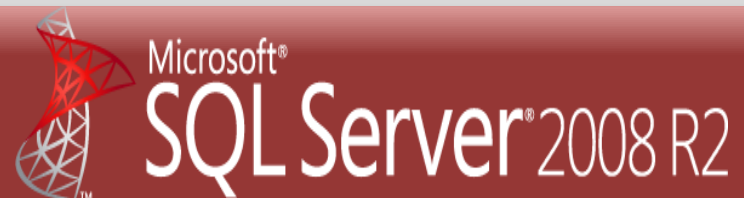
Business User Experience

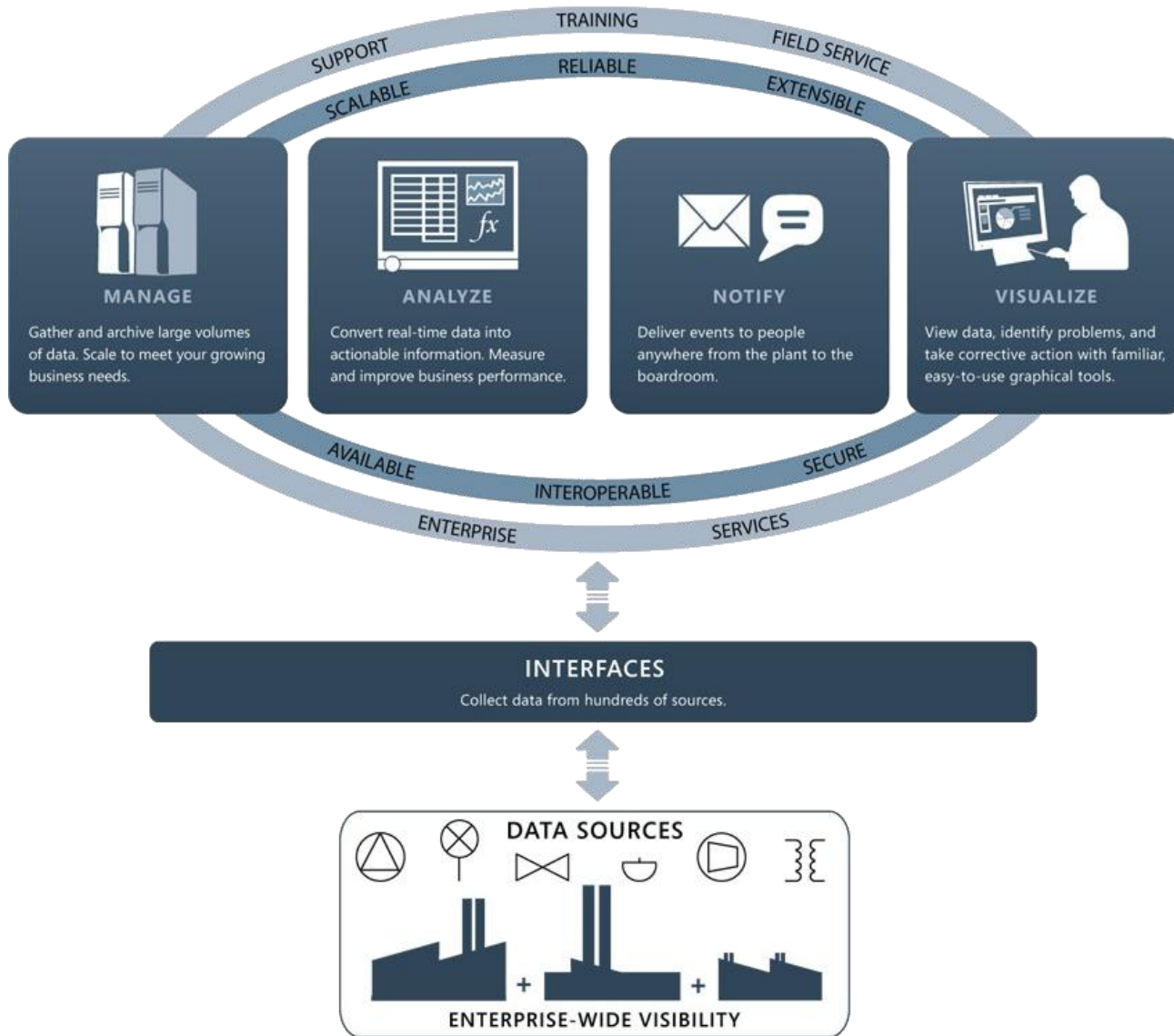


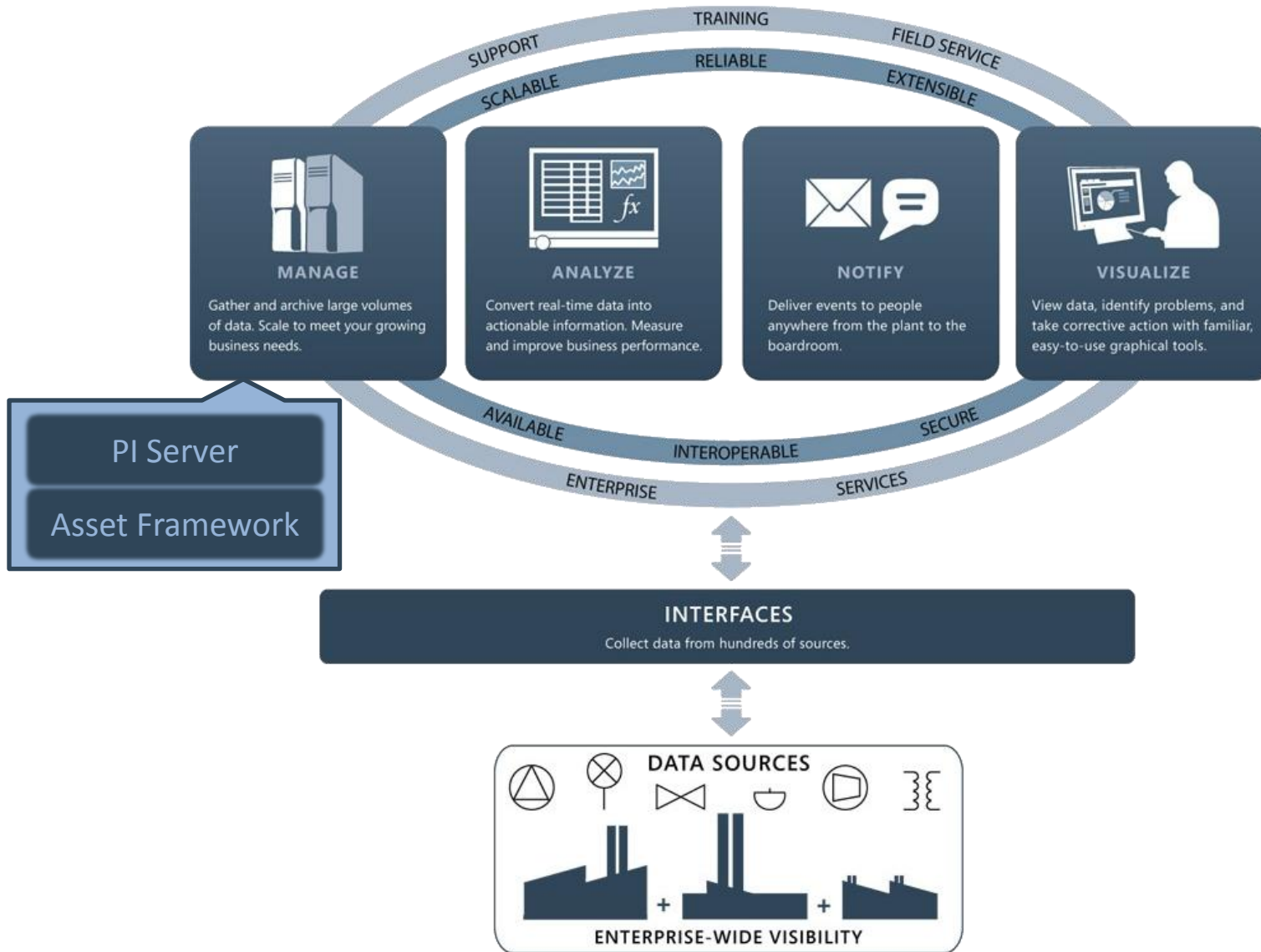
Business Collaboration Platform

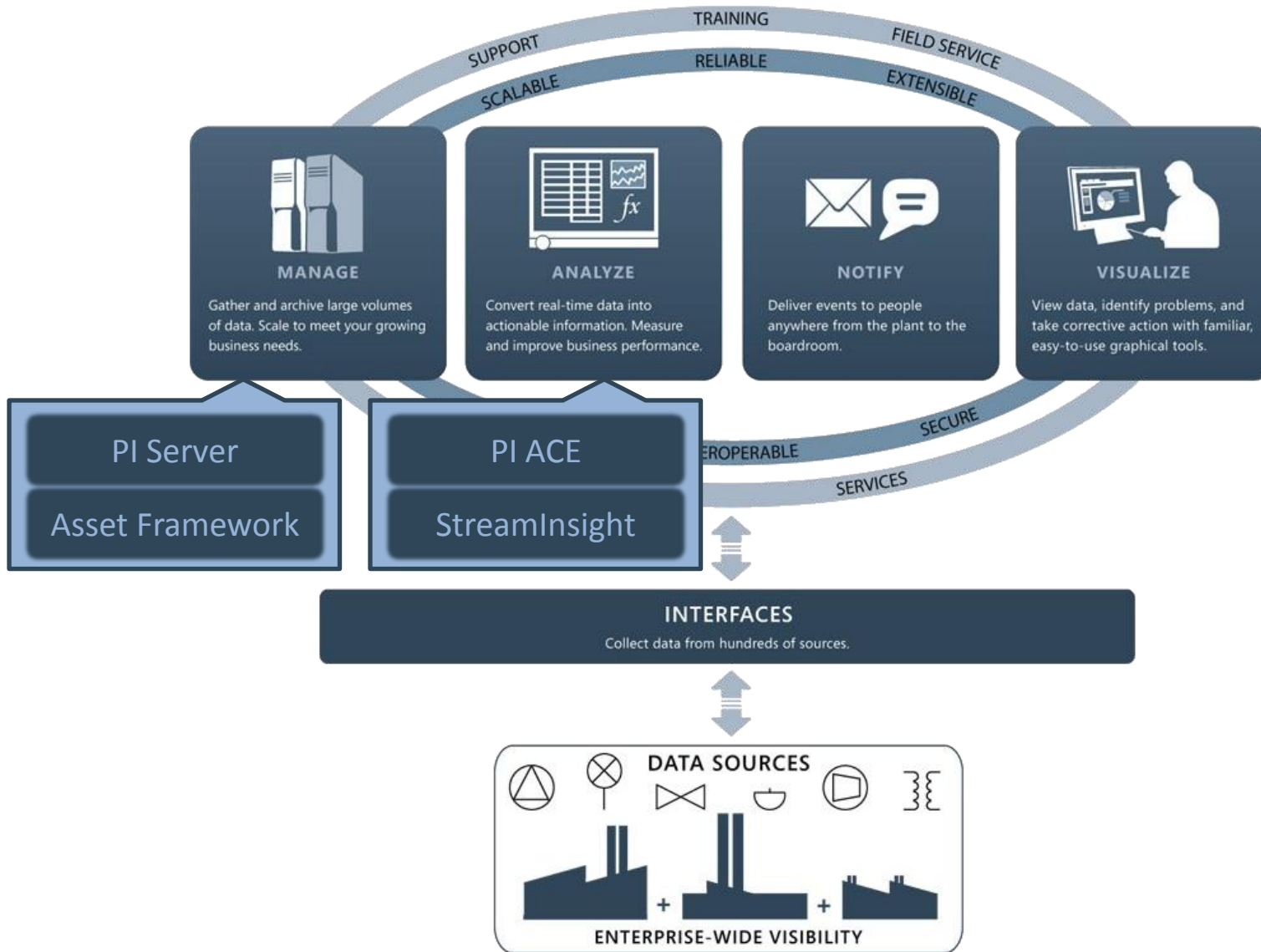


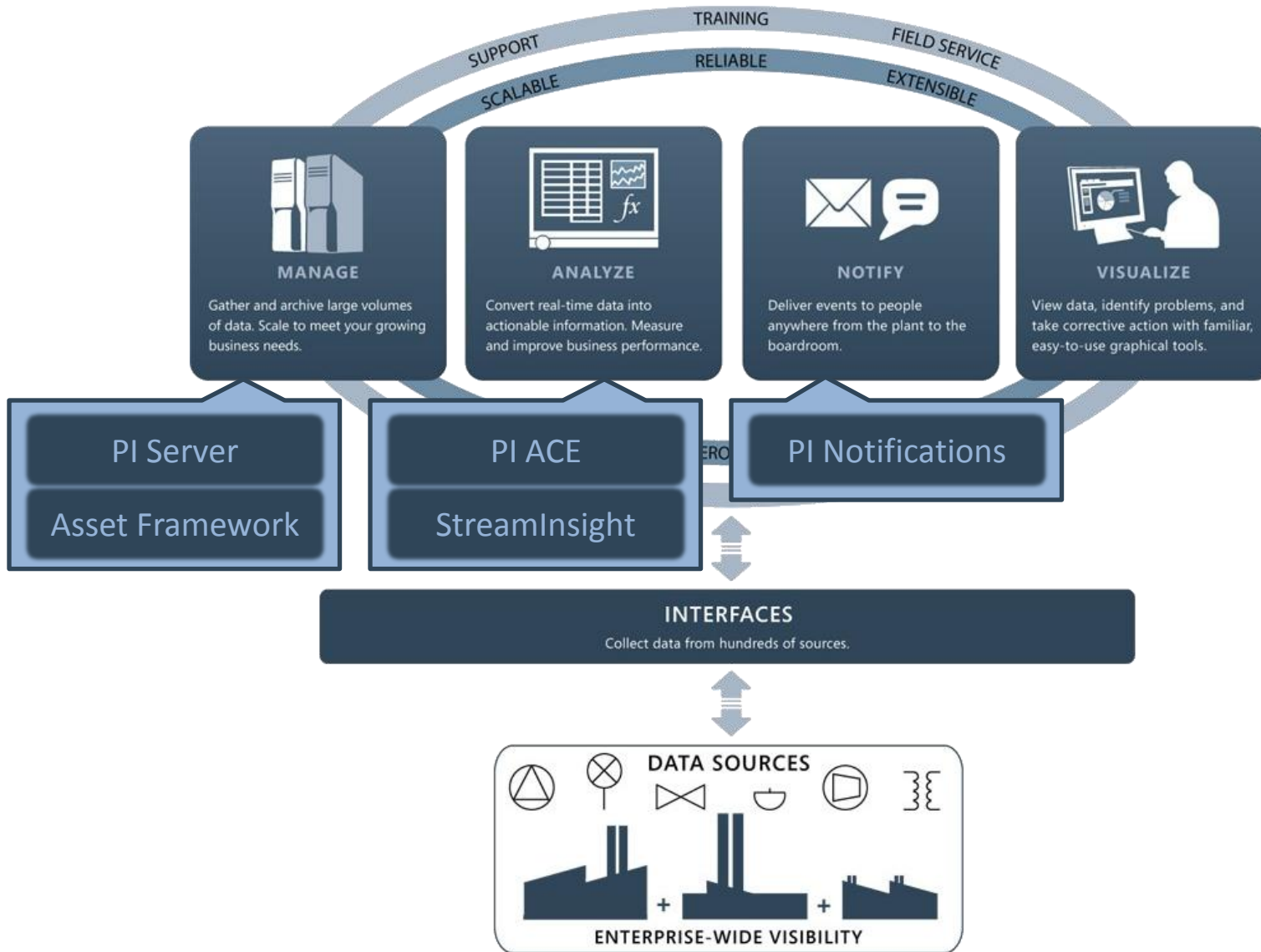
Data Infrastructure and BI Platform

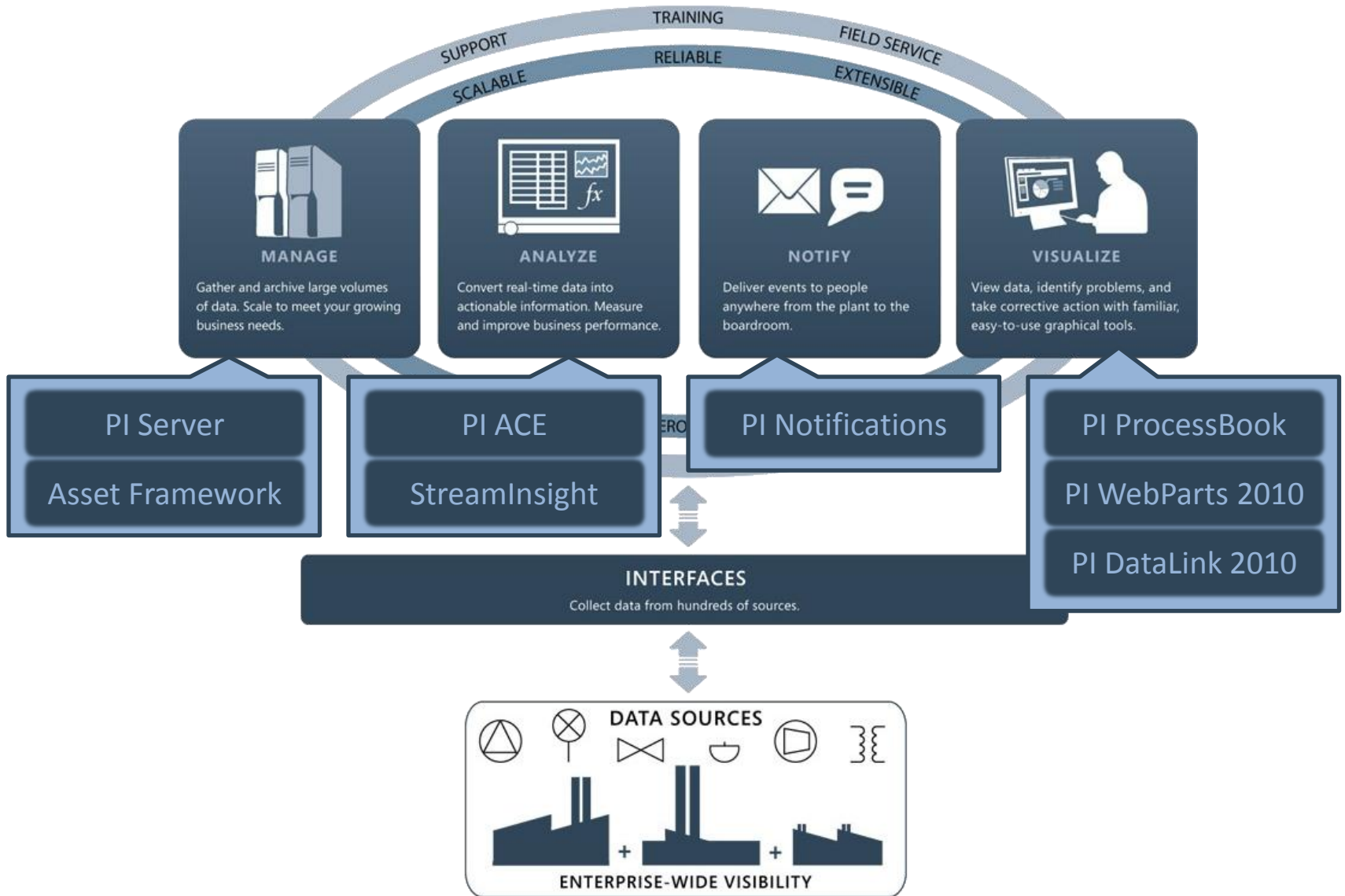


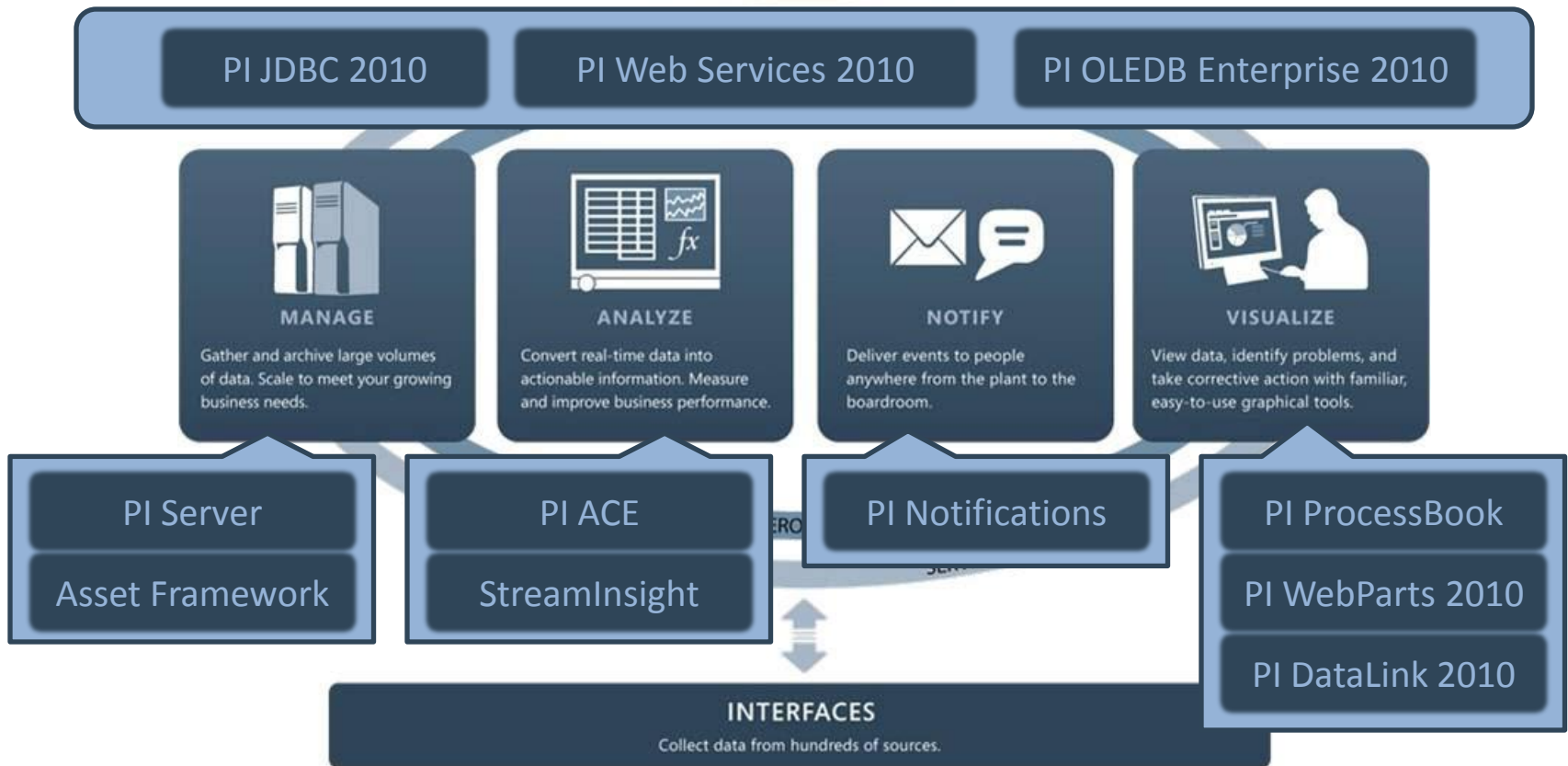


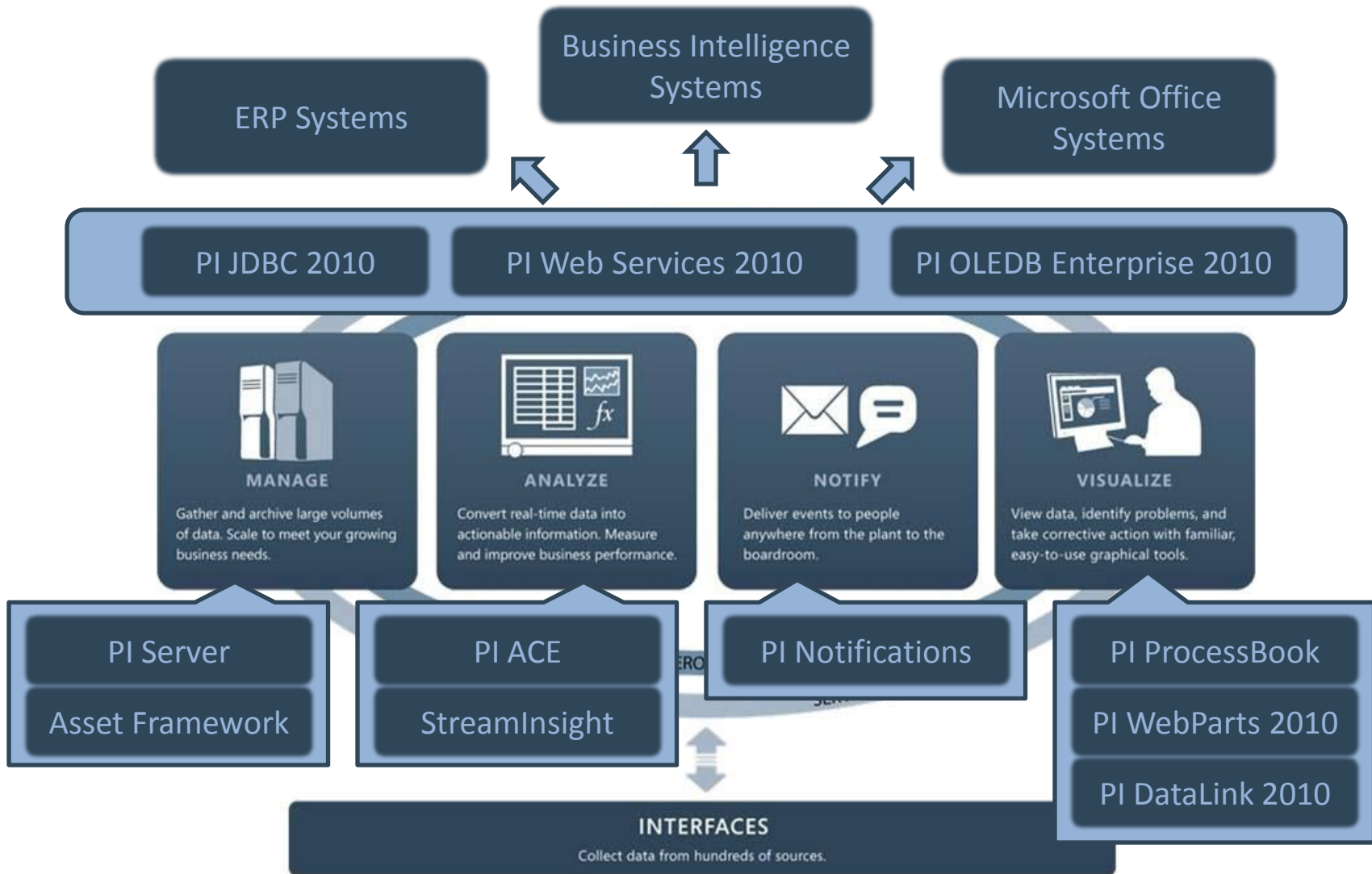


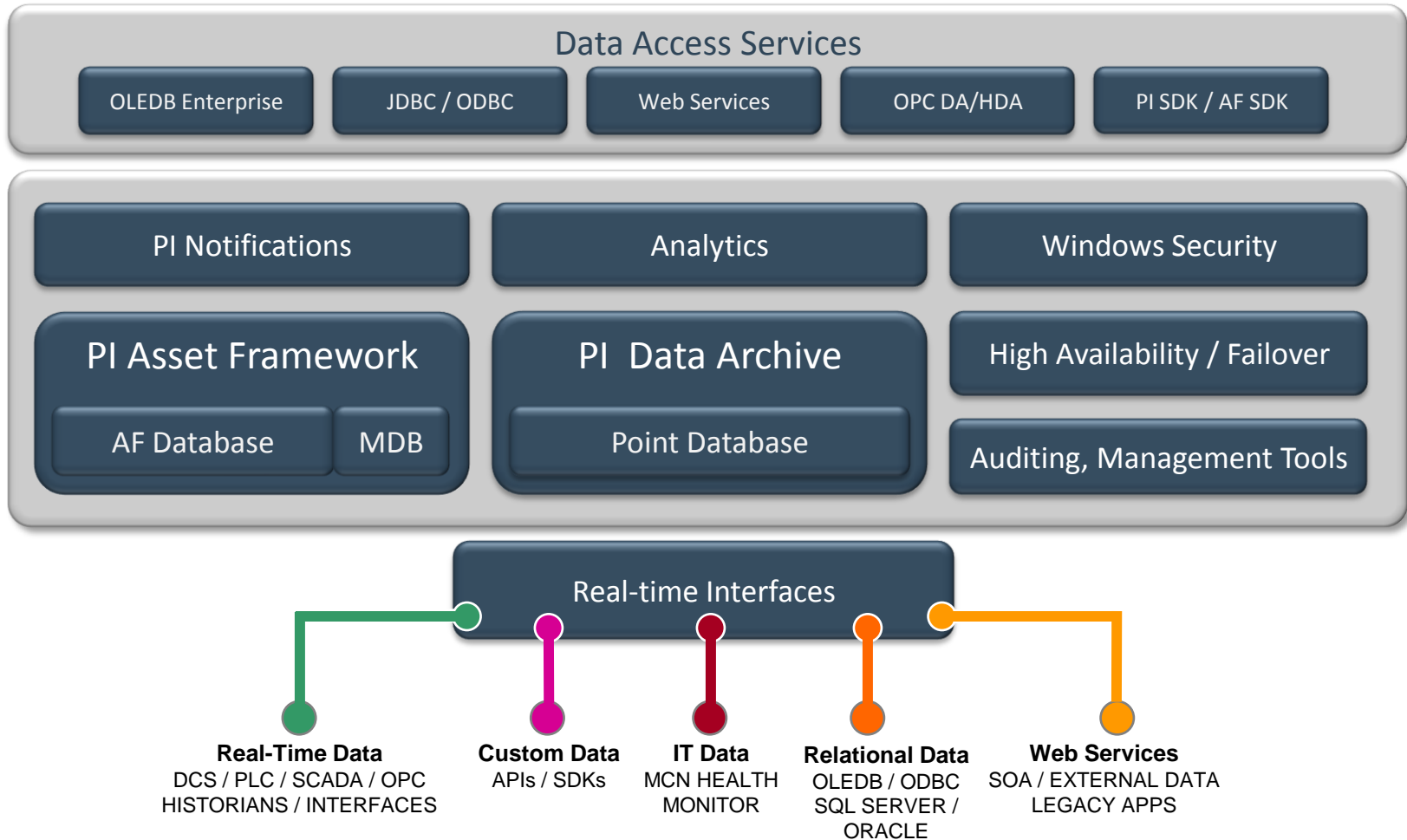


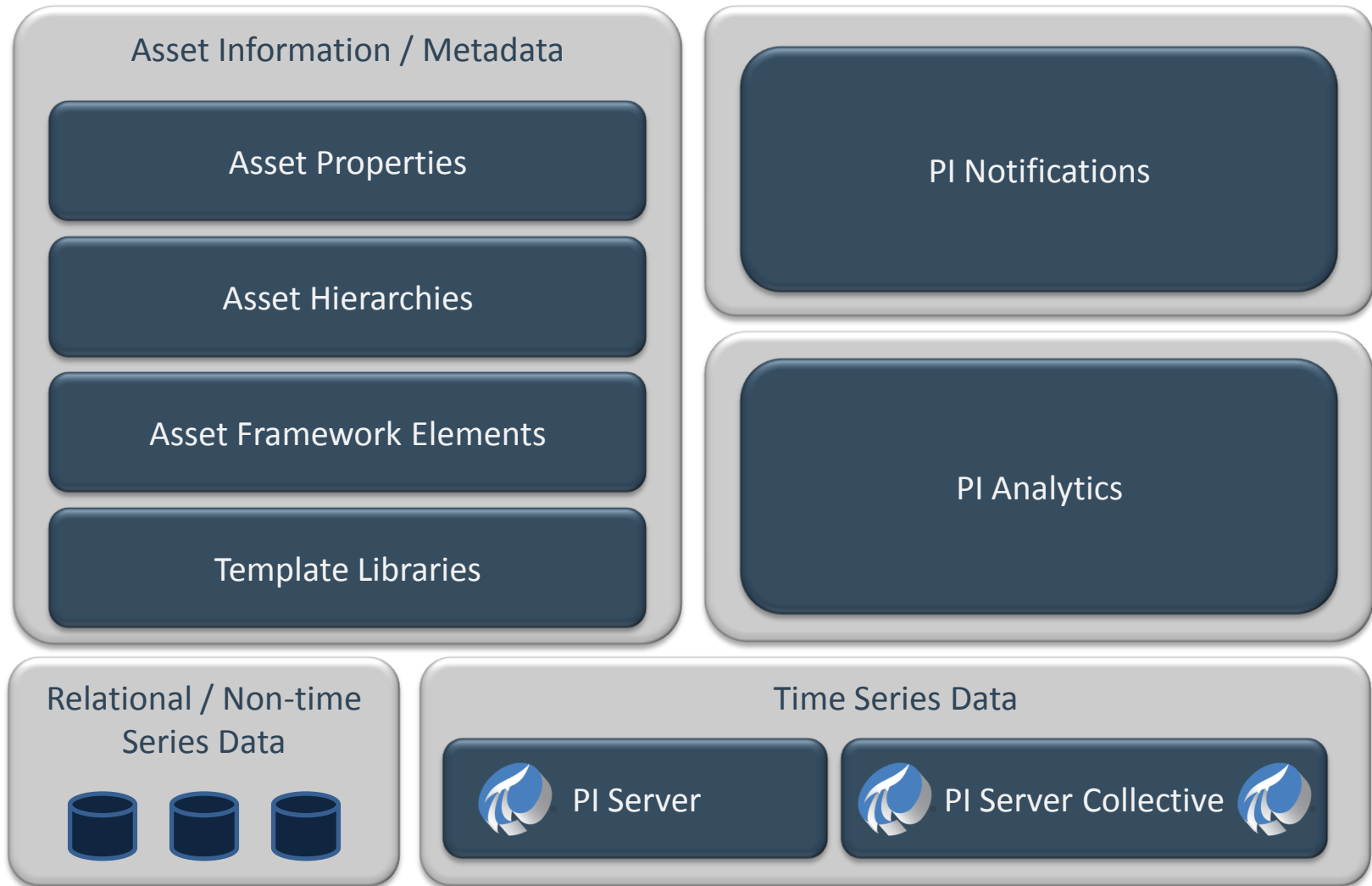












Migrating Module DB to Asset Framework (AF)



MDB based Applications



PI DataLink



IT Monitor

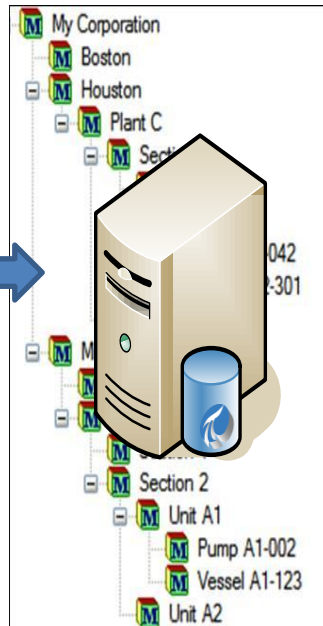


BatchView



PI ACE

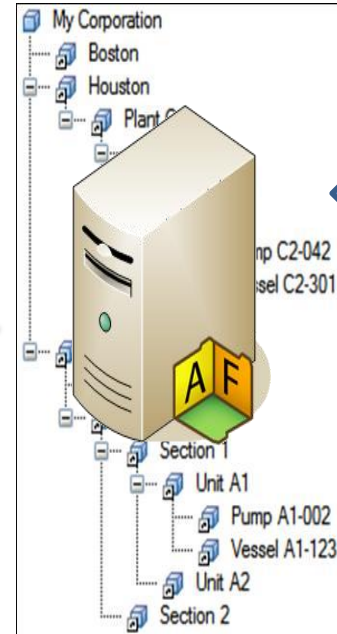
Module Database



PI Asset Link Subsystem



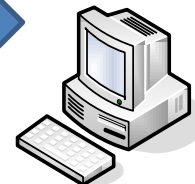
AF Element Database



AF based Applications



PI WebParts



PI ProcessBook



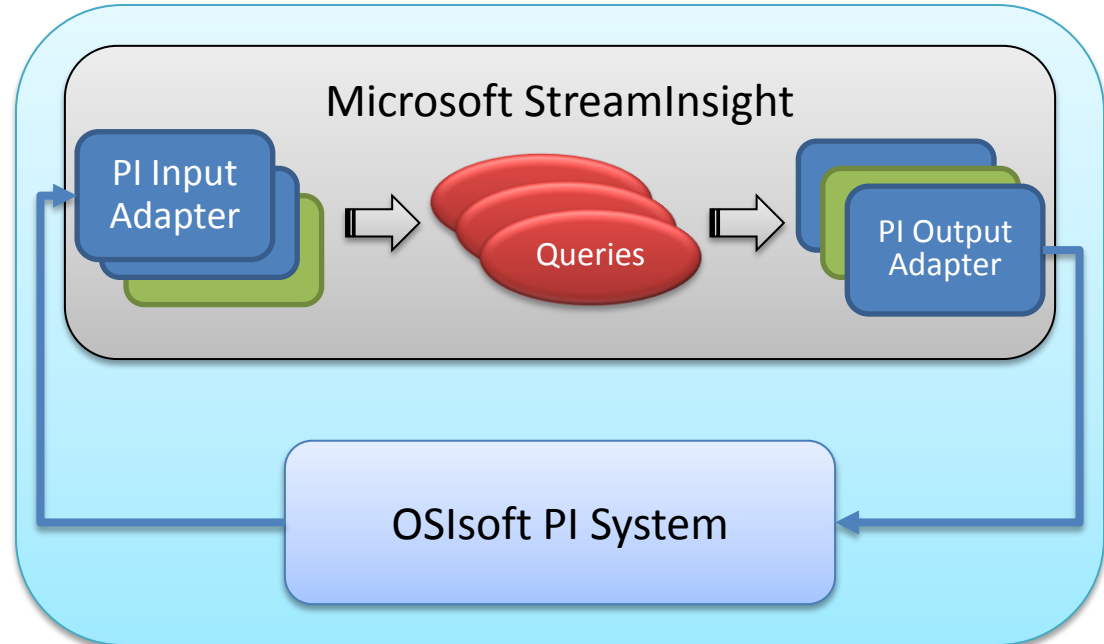
Custom via Data Access

- Upcoming PI AF features in PI AF 2010 R2:
 - AF Builder 1.0 - Excel Add-In for Configuration
- Upcoming PI AF features in PI AF 2011
 - Event Frames
 - Configured Analytics
 - PE functions as a Data Reference

Analytics need to be calculated in real time

	Database Applications	Event-driven Applications
Methodology	Request - Response	Event - Notification
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 and temporal analytics

- Data Access to the PI System for Microsoft StreamInsight
- Developers can create applications with StreamInsight using PI data
- Natural query language (LINQ)



- StreamInsight is the Microsoft implementation of Complex Event Processing (CEP)
- What is CEP?
 - CEP is all about the ability to compute interesting patterns for events over multiple data sources
- How does StreamInsight work?
 - Developer creates queries based on business requirements
 - Queries are loaded by StreamInsight
 - Queries are executed based on time windows
 - Queries are applied to the data stream received during that period

PI Data Access: The 2010 Wave



Data Access Services

JDBC 2010

PI Web Services 2010

PI OLEDB Enterprise 2010

OPC DA/HDA Server 2010

OSIsoft SDK's

Asset Information / Metadata

PI Asset Framework

Event Data

Analytics / Notifications

Relational / Non-time Series Data



Time Series Data

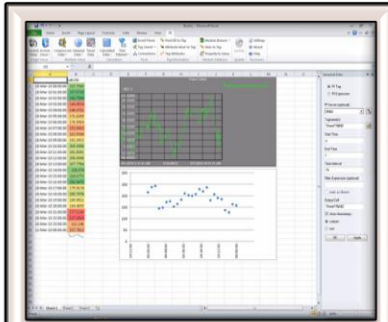


PI Server

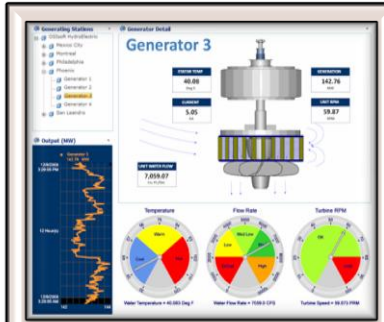


PI Server Collective

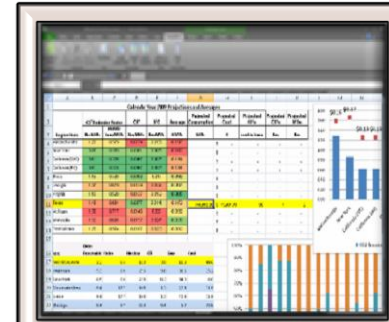




PI DataLink for Excel
2010



PI WebParts for
SharePoint 2010



PI DataLink
Server 2010

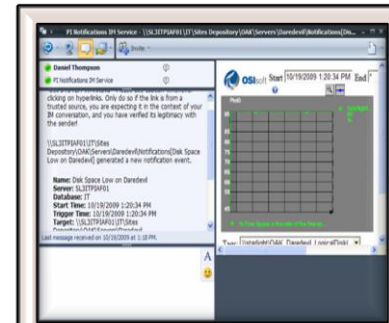


PI and PowerPivot
for 2010

PI OLEDB
Enterprise 2010

PI Web Services
2010

PI Data Access
Technologies

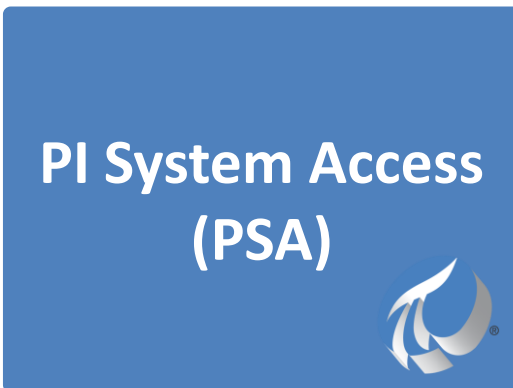


PI System Access
License



```
ATimeRange tr = new ATimeRange(new ATime(tex  
AFValues vals = _afDB.Elements["Pump123"].Attri
```

```
lstValues.Items.Clear();  
foreach(AFValue val in vals)  
{  
    lstValues.Items.Add(val.Value.ToString() +  
}
```



- New licensing model / new part on price list
- Provides **runtime license** for end-users to run data access products
 - Custom applications
 - Integration scenarios
- 1 PSA is valid for **1 named user**, for all PI and AF data within the organization



- OSIsoft SDKs
 - PI SDK
 - AF SDK (includes AN/EF SDK)
- SQL Family
 - PI OLEDB + PI OLEDB Enterprise
 - PI JDBC
 - PI ODBC
- PI OPC DA/HDA Server
- PI Web Services
- PI API

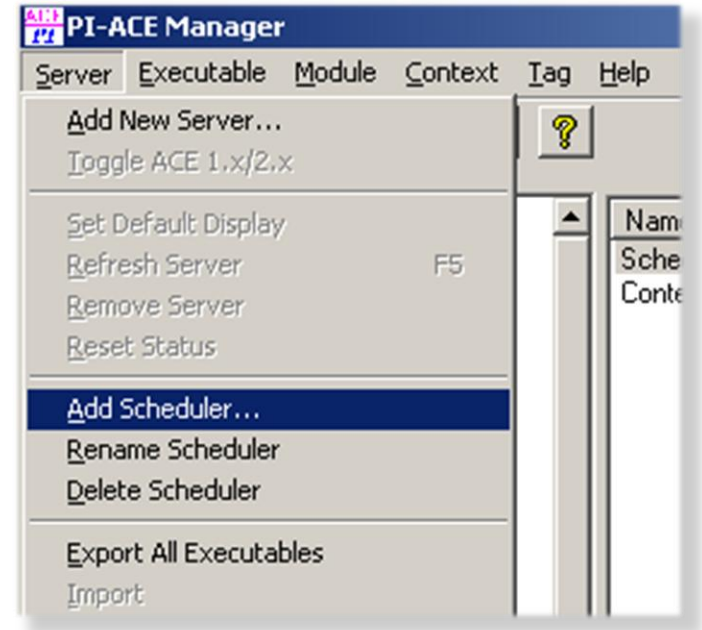


- Scalability/Manageability/Performance
 - PI Server
 - PI Notifications
 - PI AF
- User Experience
 - PI System Search
- Analytics
 - PI ACE Performance
 - AF Analytics
 - Edge Processing

- PI Server point database
 - Faster point creation and editing
 - Faster startup time
 - Even larger point counts
- PI Update Manager
 - More connections
 - More sign-ups
 - Faster sign-ups
- AF 2.2
 - Faster insert speed
 - Ability to traverse huge hierarchies

- Native support for 64-bit Windows *
- Upgrade to .NET code base
- Support for Visual Studio 2010
- Startup optimization *
- Cache enhancements *
- PI ACE Schedulers on multiple machines against a single PI Server

* *Performance enhancement*



- Event Frames Database & SDK available
 - CTP (Community Technology Preview)
- Significant partner and customer interest
- Partners now developing
 - Downtime tracking
 - OEE (overall equipment effectiveness)



OSIsoft.

VIRTUAL CAMPUS

- Data-by-Exception
- Non-timeseries data
- PI System Search
- Bring AF forward
 - Full Manipulations on AF
 - Create
 - Read
 - Update
 - Delete

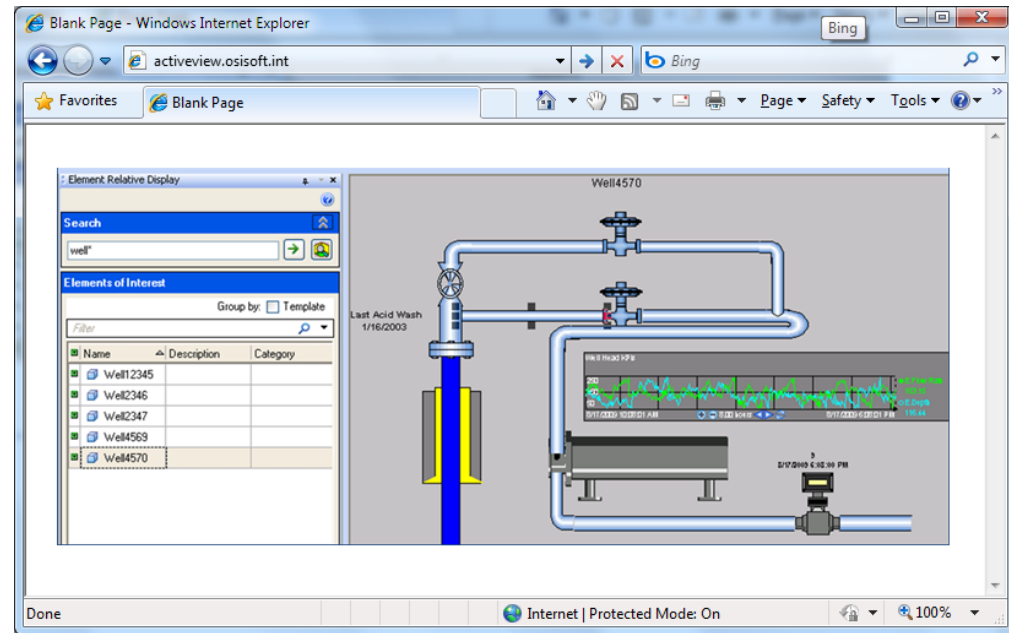
Data Buffering

- Important Use Cases
 - Custom Interfaces
 - Applications that write data to PI
 - SQL Applications, writing data to PI OLEDB
- Support for HA
 - Buffering in case of disconnection
 - “Fanning” to a Collective

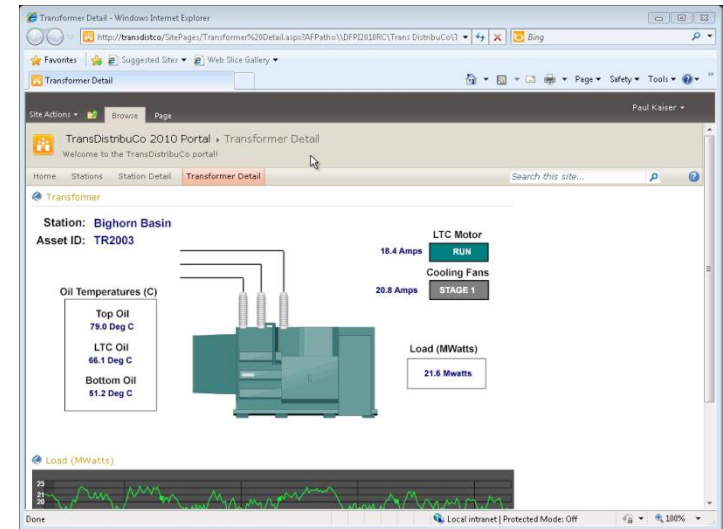
- Asset view of data
- PI System Search
- Better analysis via PowerPivot and BI tools
- Report building
- Publishing for others using Excel Services



- PI System search
- Docking Windows in ActiveView
- Time Management
- Multi-Language improvements
- Performance



- Improved access to asset data
- PI System Search
- Deployment architecture
 - Performance, Scale, Manageability
- Improve User Interaction





Thank you

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