Turning **insight** into **action**.

OSIsoft. USERS CONFERENCE 2011

PI System Product Roadmap

Presented by **Ray Verhoeff, Ray Hall, Mark Hughes**

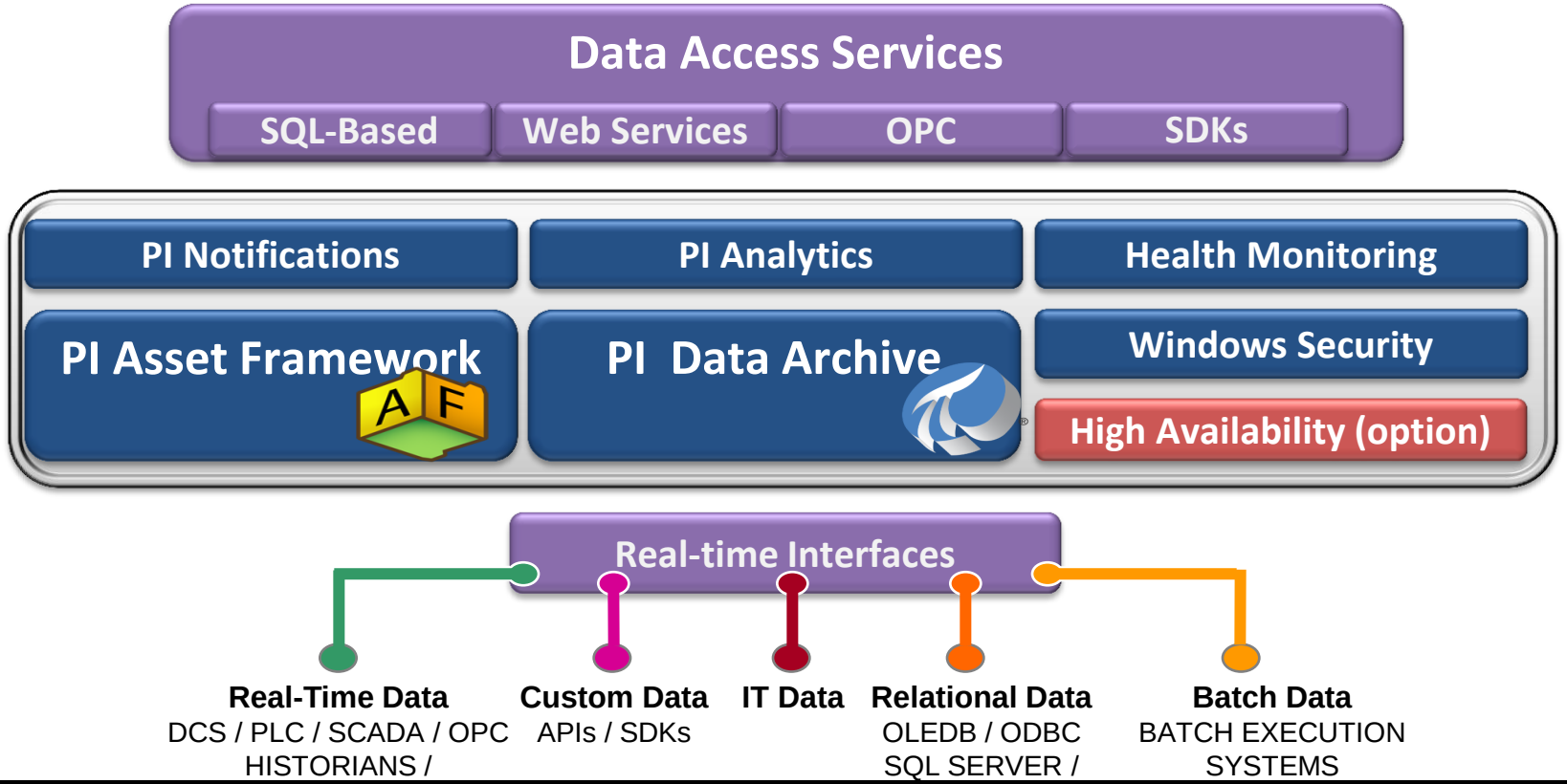
Achievements since Users Conference 2010

- Servers
- Analytics
- Clients
- Data Access

PI 64-Bit Products

- Servers:
  - PI Server 2010
  - PI Notifications 2010 R2(*)
  - PI ACE 2010 R2
  - OSIsoft Utilities Gateway
- Data Access
  - PI SDK
  - PI OLE DB 3.3
  - PI OLE DB Enterprise 2010
  - PI Web Services 2010
- Clients
  - PI WebParts 2010 R2
  - PI DataLink for Excel Services 2010

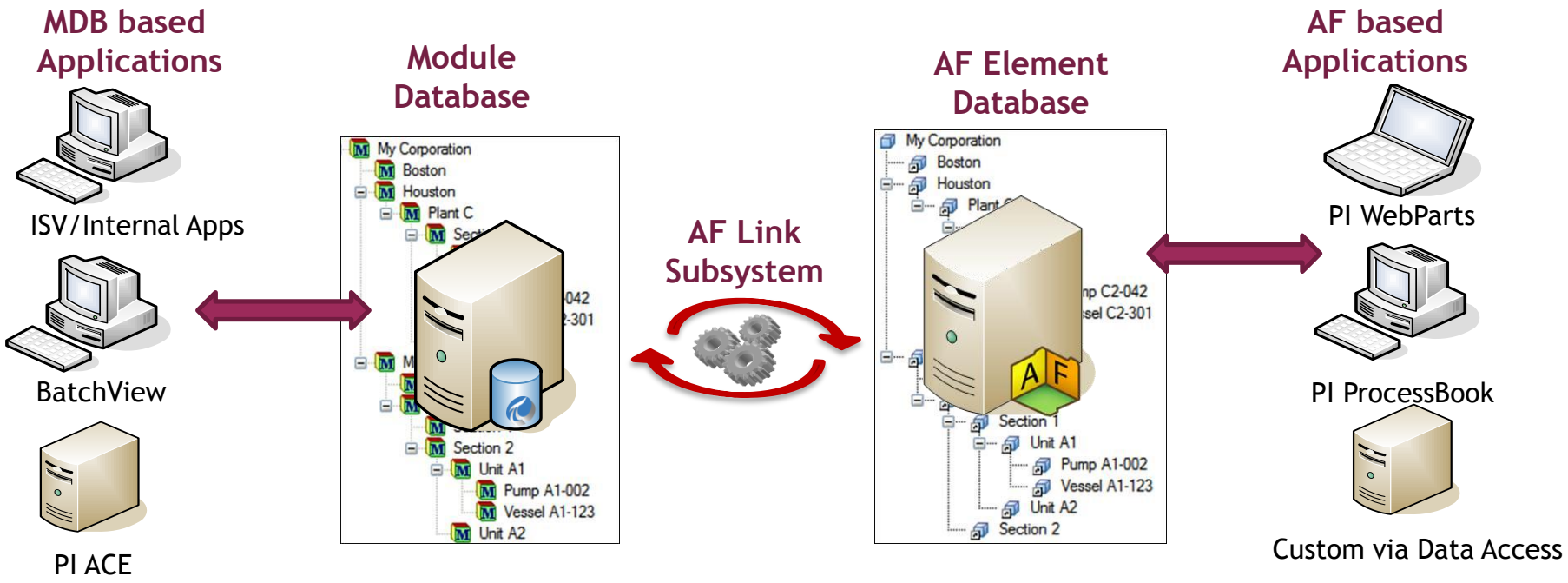
PI Server 2010



PI Server 2010 in 2010

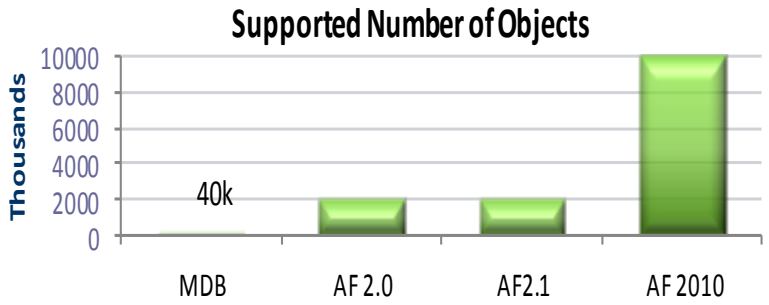
- AF Link Subsystem
- AF Scaling and Performance
- AF Builder

Migrating PI Module DB to PI Asset Framework (AF)

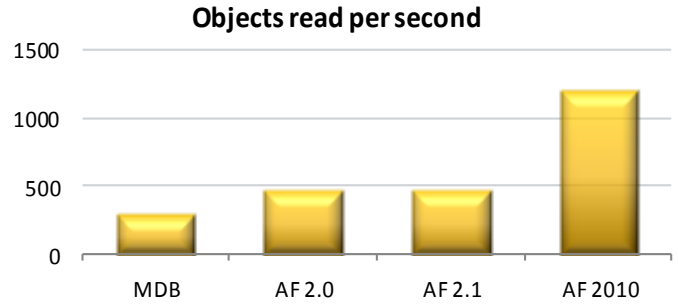


Trends of AF Server Performance

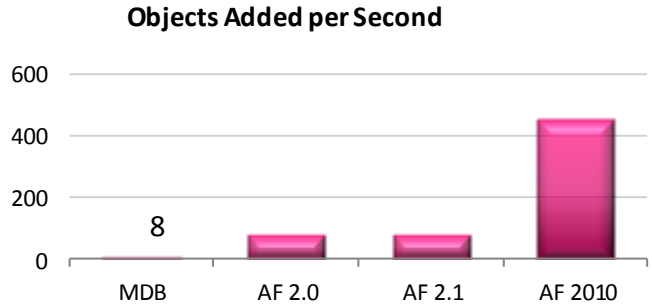
Total Objects



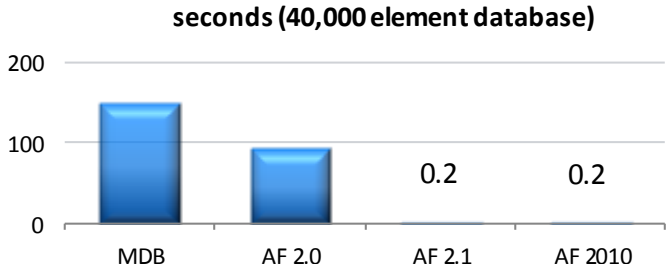
Read Performance



Insert Rate



Search Time



PI Analytics

- PI Notifications 2010 R2
- PI ACE 2010 R2
- PI for StreamInsight

PI Notifications 2010 R2

- Message formatting (pretty slick!)
- Option to control tag usage
- 64-bit!

Go see: PI Notifications – Customizing Content and Delivering Information

PI ACE 2010 R2

- PI ACE Schedulers running on multiple machines
- Higher scale. Faster startup.
- Visual Studio 2005, 2008 & 2010
- Both 32- and 64-bit!

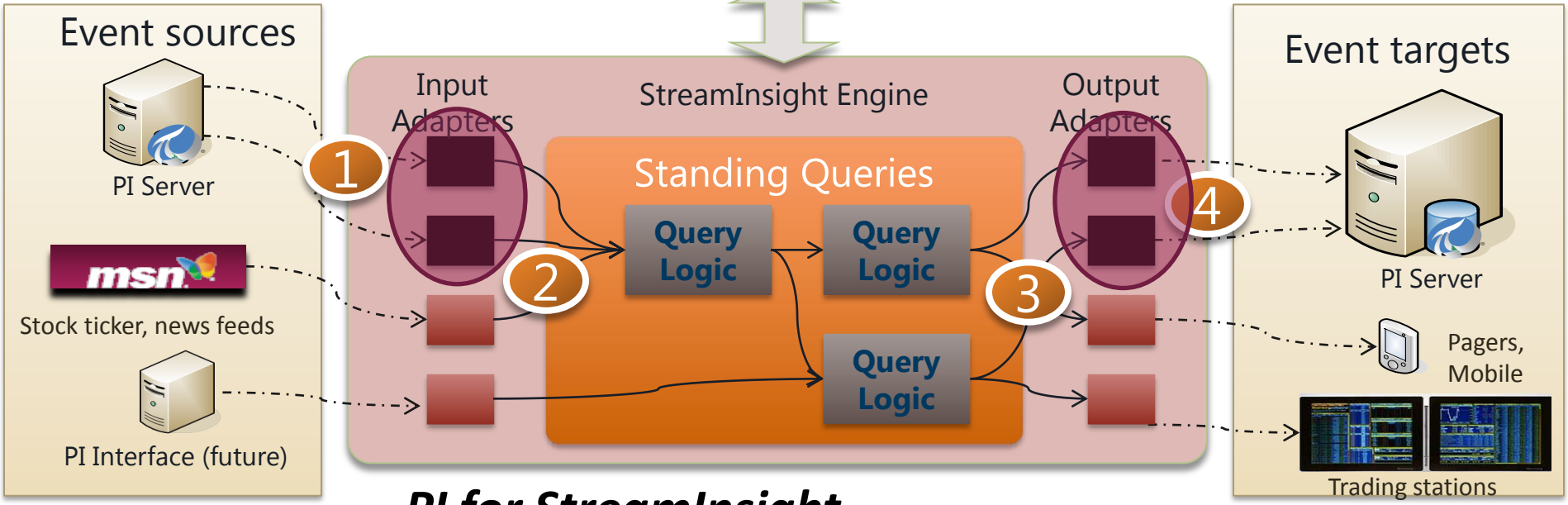
Go see: Creating Calculations to Solve Business Problems - PI ACE 2010 R2

PI System and Microsoft StreamInsight

StreamInsight Application Development

.NET
C#
LINQ

StreamInsight Application at Runtime



PI for StreamInsight

Go see…

- PI for StreamInsight – Applying Microsoft StreamInsight to Real World Problems

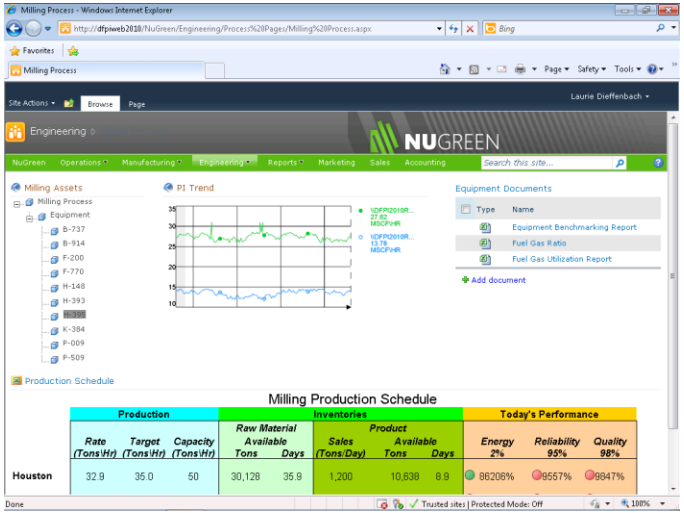
PI Clients

- PI WebParts 2010
- PI DataLink 2010

Go see: PI ProcessBook – What's Here, What's Coming

PI WebParts 2010 (& R2)

- Support for AF Data Reference types
  - All time series data
    - Formula
    - Table Lookup
    - Custom

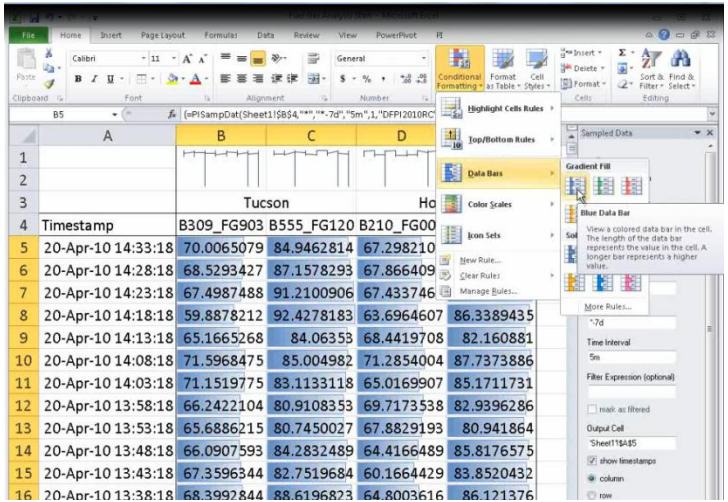


Go see: Asset Based Visualization with PI WebParts

Putting it All Together: Assemble Your PI Reports & Displays into Status Dashboards

PI DataLink 2010

- Support for Microsoft Office 2010
- Fully internationalized
  - 8 languages
- PI DataLink Server 2010
  - Support for SharePoint 2010
  - 64-bit!



Localization in 2010

- PI ActiveView
- PI ProcessBook
- PI WebParts
- PI DataLink

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

PI Data Access

- PI OLE DB Enterprise 2010
- PI JDBC 2010
- PI Web Services 2010

PI OLE DB Enterprise 2010 (& R2)

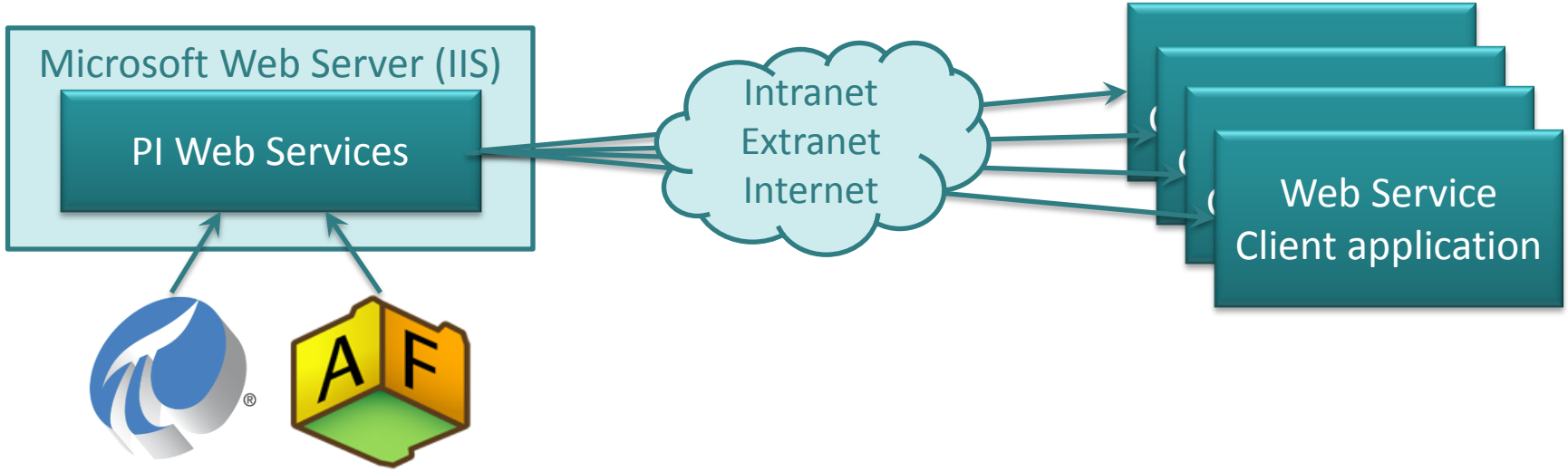
- Access to AF structures
- Data access to AF Attribute data
  - Snapshots, compressed, interpolated
  - With Unit of Measure conversions

PI JDBC 2010 (& R2)

- Access to AF
- Compliant with JDBC 4.0 API
- Bulk insert
- JNDI Directory Service support
  - JDBC 2.0 Optional Package

PI Web Services

- Access to PI System data using standard **web service** technologies



PI Web Services 2010 (& R2)

- Support for PI System time series data:
  - Both PI tag & AF Attribute paths
  - Snapshots, compressed, interpolated, plot, summaries
  - Performance Equations
- Basic PI tag search

PI Interfaces

- 43 Interface Releases in 2010!
- First AMI Interface Released!
- Modbus Serial and Modbus Ethernet Interfaces Completely Rewritten
- *Improvement in message logging*

New Developments in PI Interfaces

- Siemens Spectrum Power TG Interface (Windows)
- Silver Spring Network Interface (AMI)
- ESC StackVision Interface Read/Write
- ESC StackVision Read-Only
- Modbus Serial Interface
- Modbus Ethernet Interface
- Siemens Simatic Batch Interface
- REpowerEvent List Plug-In for OPC DA Interface
- Simca Batch OnLine Interface (64-Bit)
- GE iBatch Interface

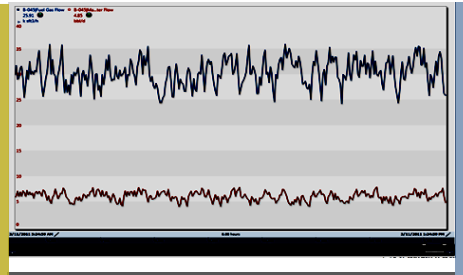
Go See…

- Unlock your Data with PI Data Access
- Using PI System Data and Events in Your Enterprise and Line of Business Systems
- Business Intelligence with the PI System & PowerPivot
- Gaining Actionable Insight from PI Data Using the Microsoft BI Platform

Our current development efforts

2011 Development Efforts

What is OSIsoft working on in 2011 to help you?



Visualization

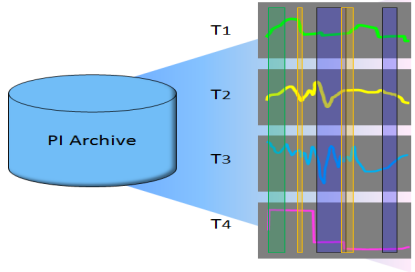
The fastest, easiest way to visualize PI data

Scaling

More data
Faster queries
More robust

Analytics

Manage large numbers of calculations

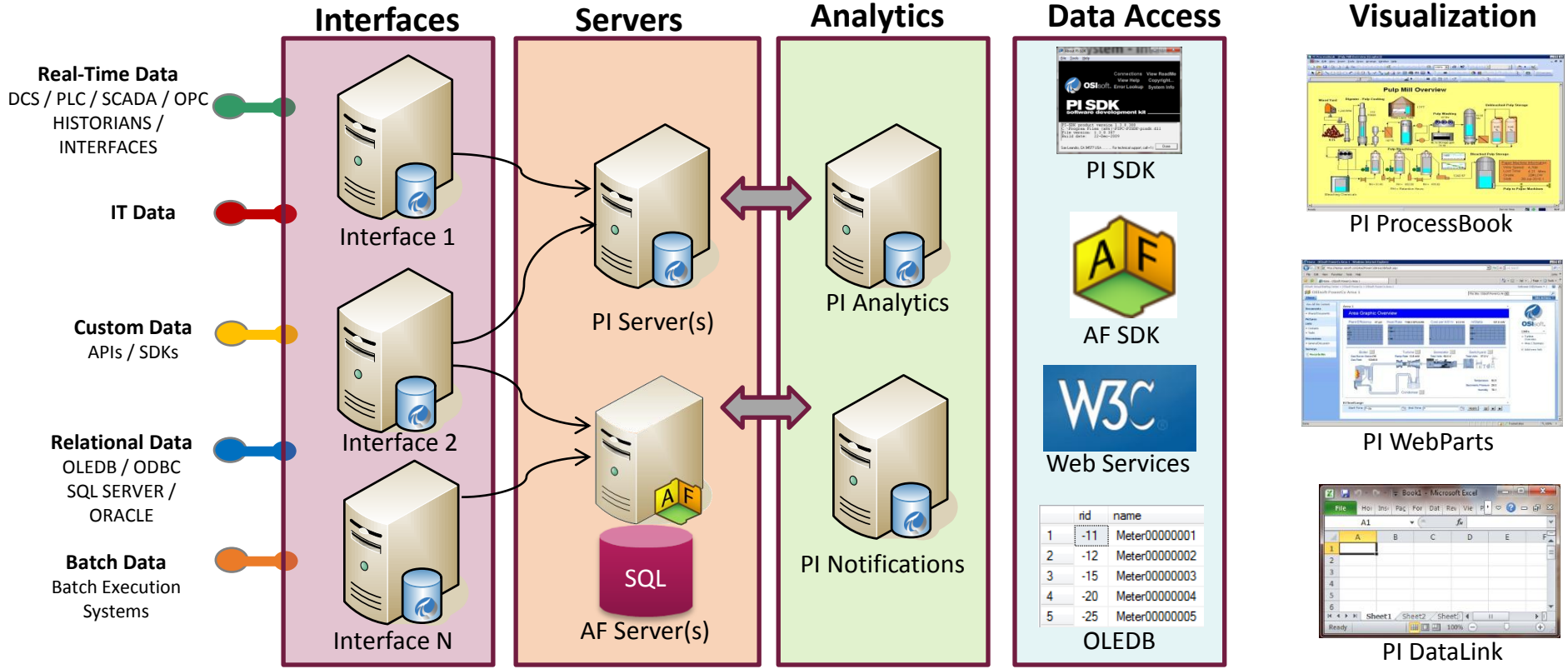


Event Frames

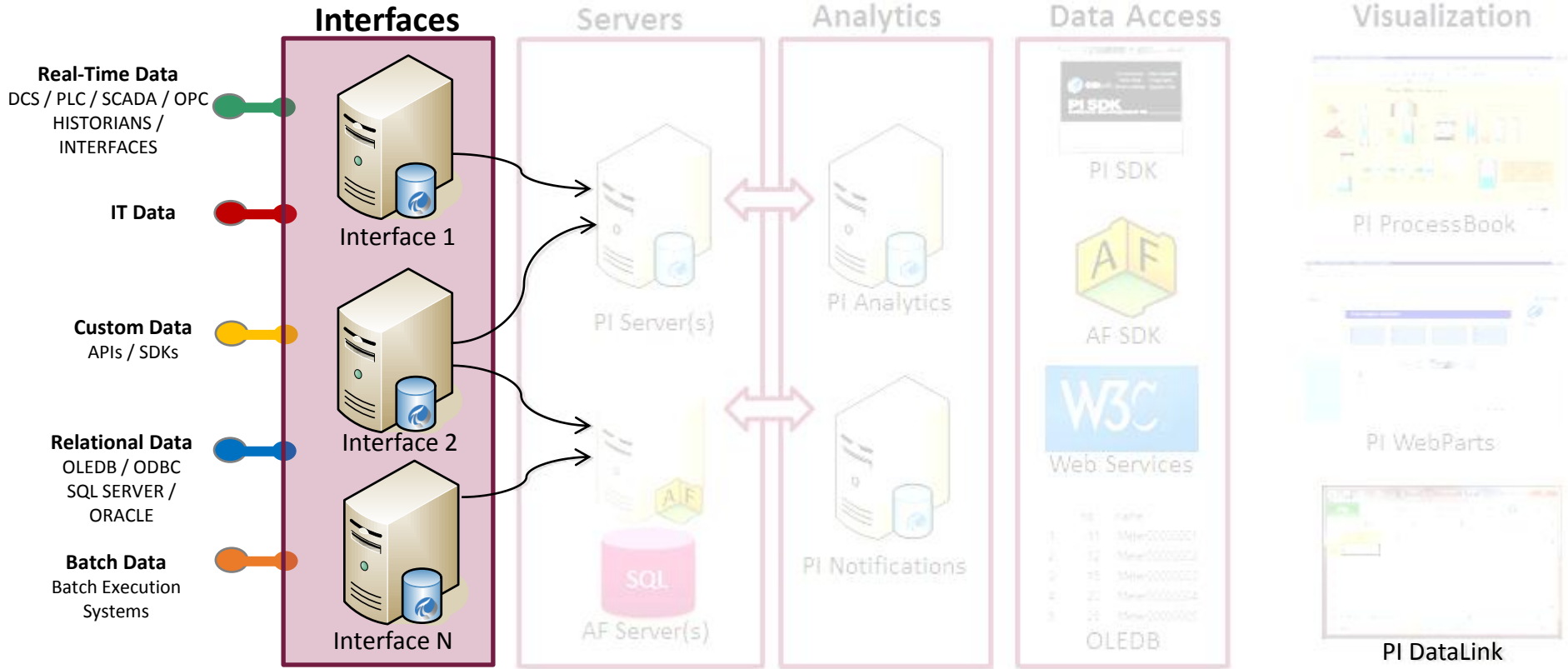
Identify and use important events in your data

Also significant work in Asset-PI, Security, Interfaces, Data Access

A tour through the PI System



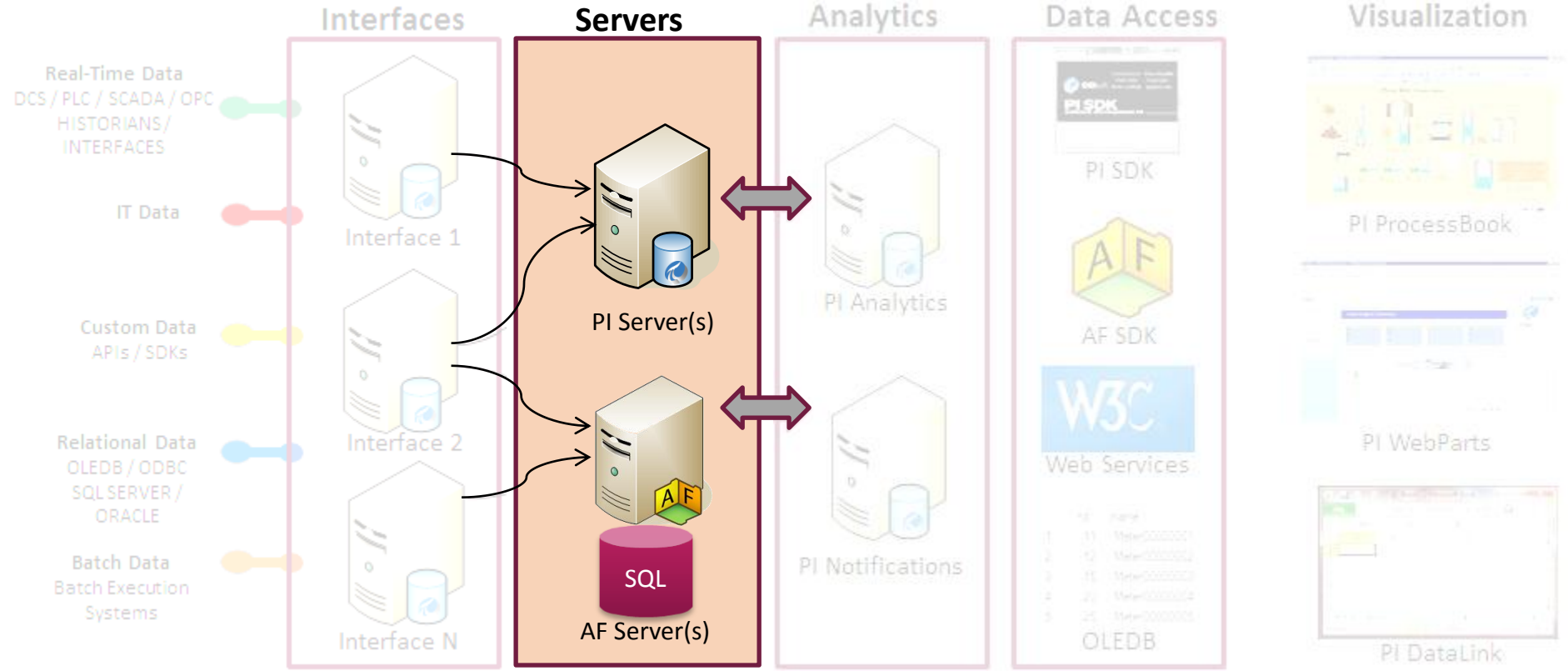
PI System – Interfaces



Interfaces

- OSIsoft commitment:
  - 440 interfaces
  - 22 developers in 6 locations
  - Over 160 effort-years of expertise
- Interface Development
  - IEC 61850
  - OPC .NET
  - Web Services
  - IPMI
  - Modular Mining
  - SAFER Weather Station
  - Thermotron 8800 Controller
- Batch Interfaces
  - Performix xBatch
  - Werum PAS-X
  - Foxboro Batch
- AMI Interface Development
  - Trilliant Unity
  - MultiSpeak
  - Eschelon

PI System – Servers

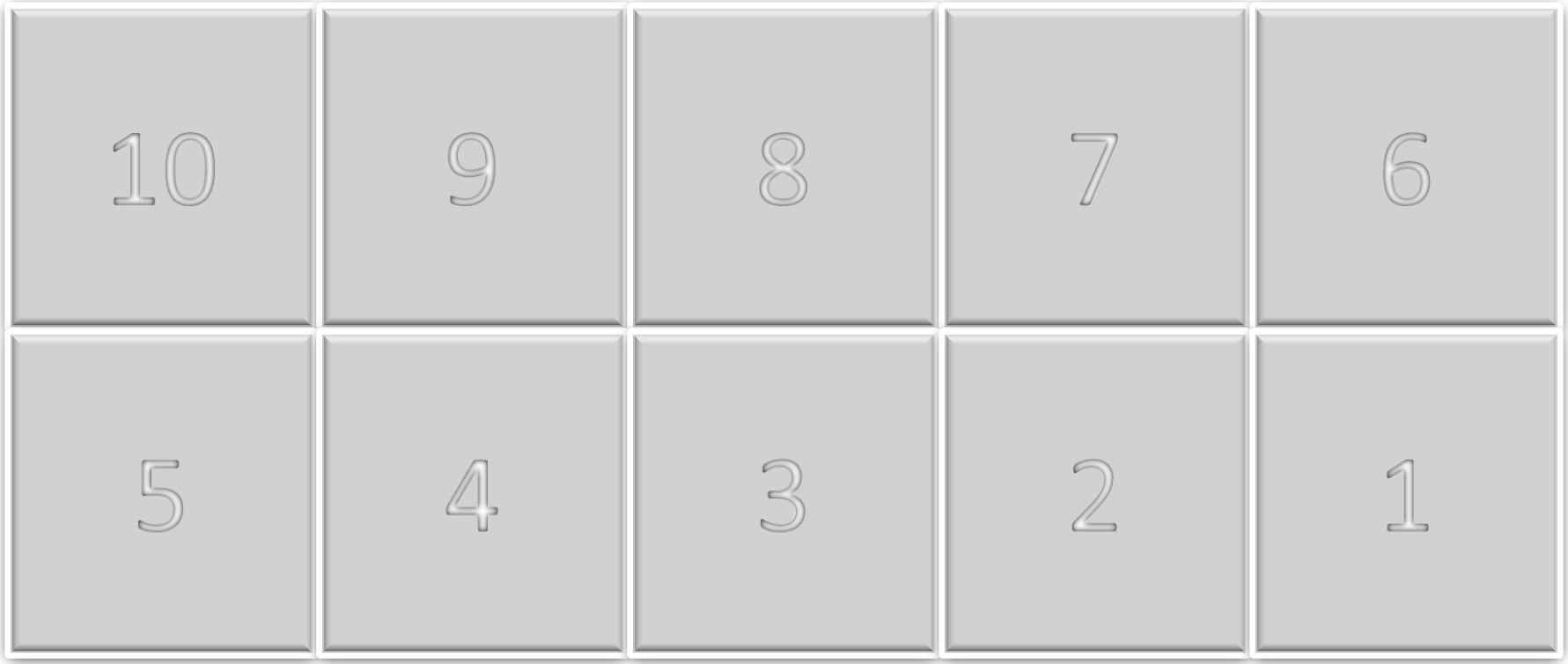


Security

- Goal
  - Your trusted source of real time data
- How
  - Continually improve the PI Infrastructure
  - Dedicated Cyber Security Manager
- Work Underway
  - Engagement with Idaho National Labs
  - Security Reviews with Microsoft
  - Designed-In on new efforts

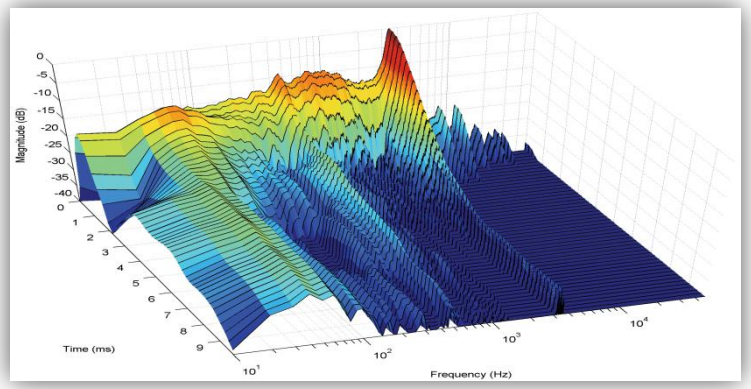
Go see: I Want to be Secure, Best Practices for Securing Your PI System

Some of the World Largest Databases



2007 Article: http://www.focus.com/fyi/operations/10-largest-databases-in-the-world/

Customers want to use more of the PI System



Synchro Phasors

270TB

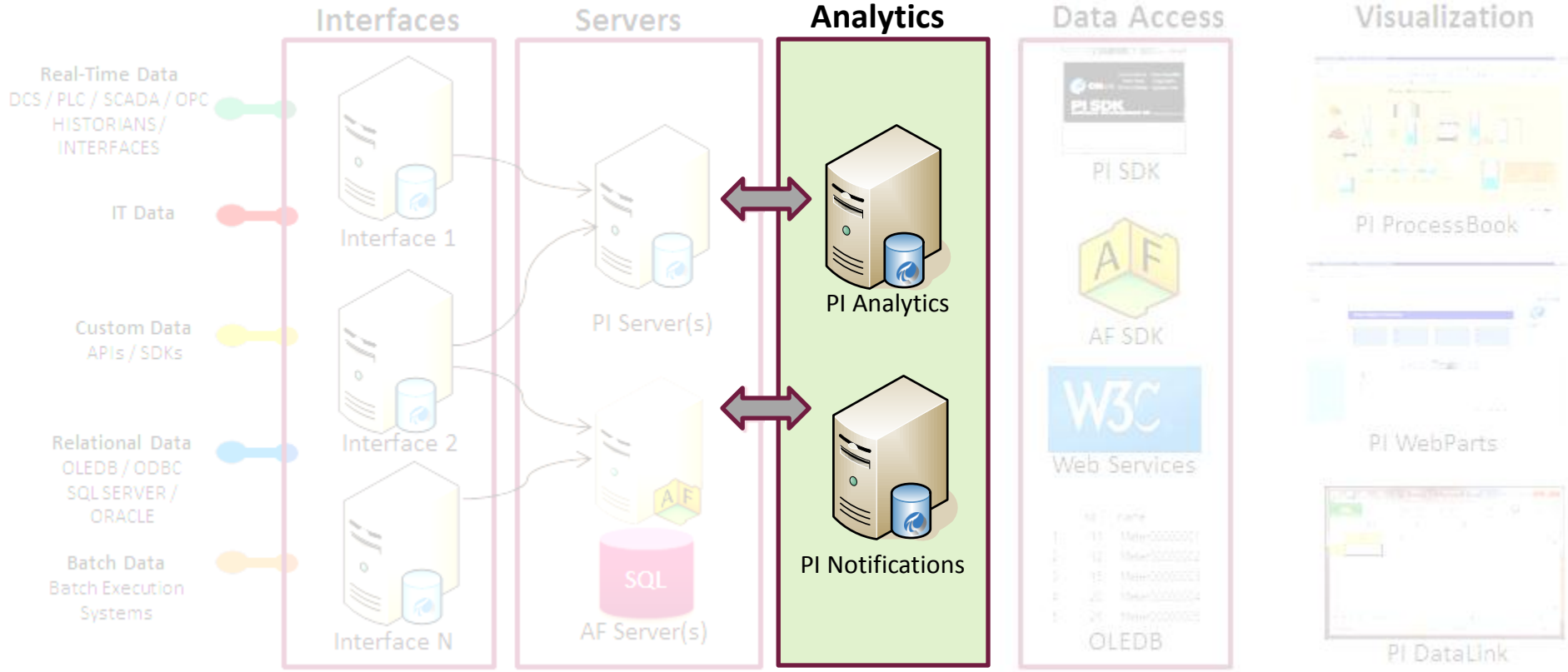
- 4,800 data streams at 60Hz
- 3 years online
- Unique events: 27 Trillion
- Estimated data size: 270TB

Automated Metering

200TB

- 150M data streams, 15 min
- 7 years online
- Unique events: 16 Trillion
- Estimated data size: 200TB

PI System – Analytics



Analytics Product Suite

PI Analytics	
Configuration	**Programming**
Performance Equations **AF Configured Analytics**	**PI Advanced Computing Engine (PI ACE)**
Totalizers	**Microsoft StreamInsight & PI for StreamInsight**
Statistical Quality Control	
PI AF formula data reference	PI AF custom data reference

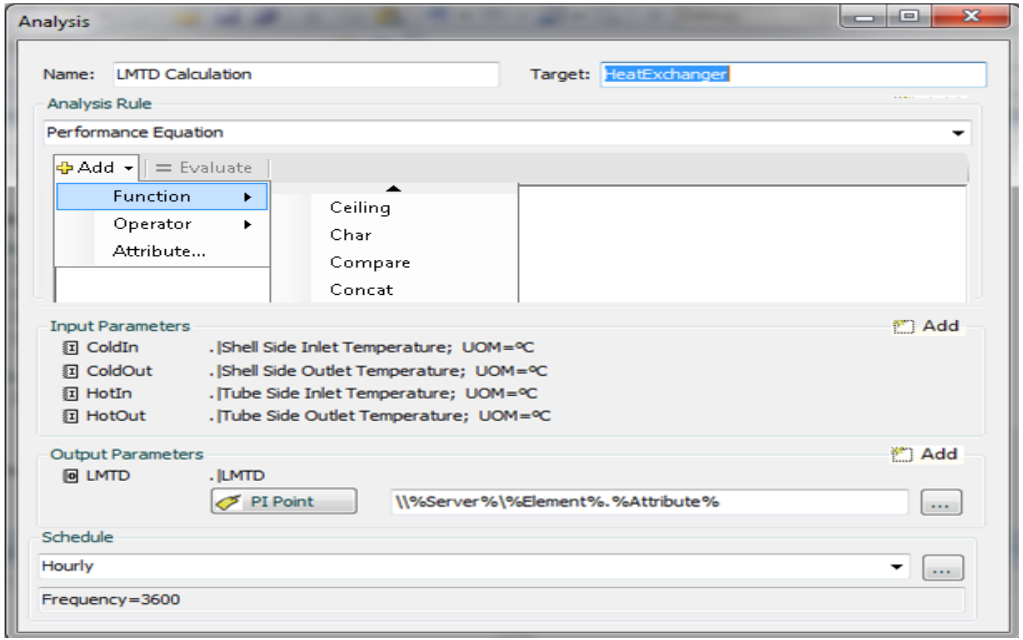
Go see: ***PI for StreamInsight – Applying Microsoft StreamInsight to Real World Problems***
Go see: ***Creating Calculations to Solve Business Problems - PI ACE 2010 R2***

AF Configured Analytics - Philosophy

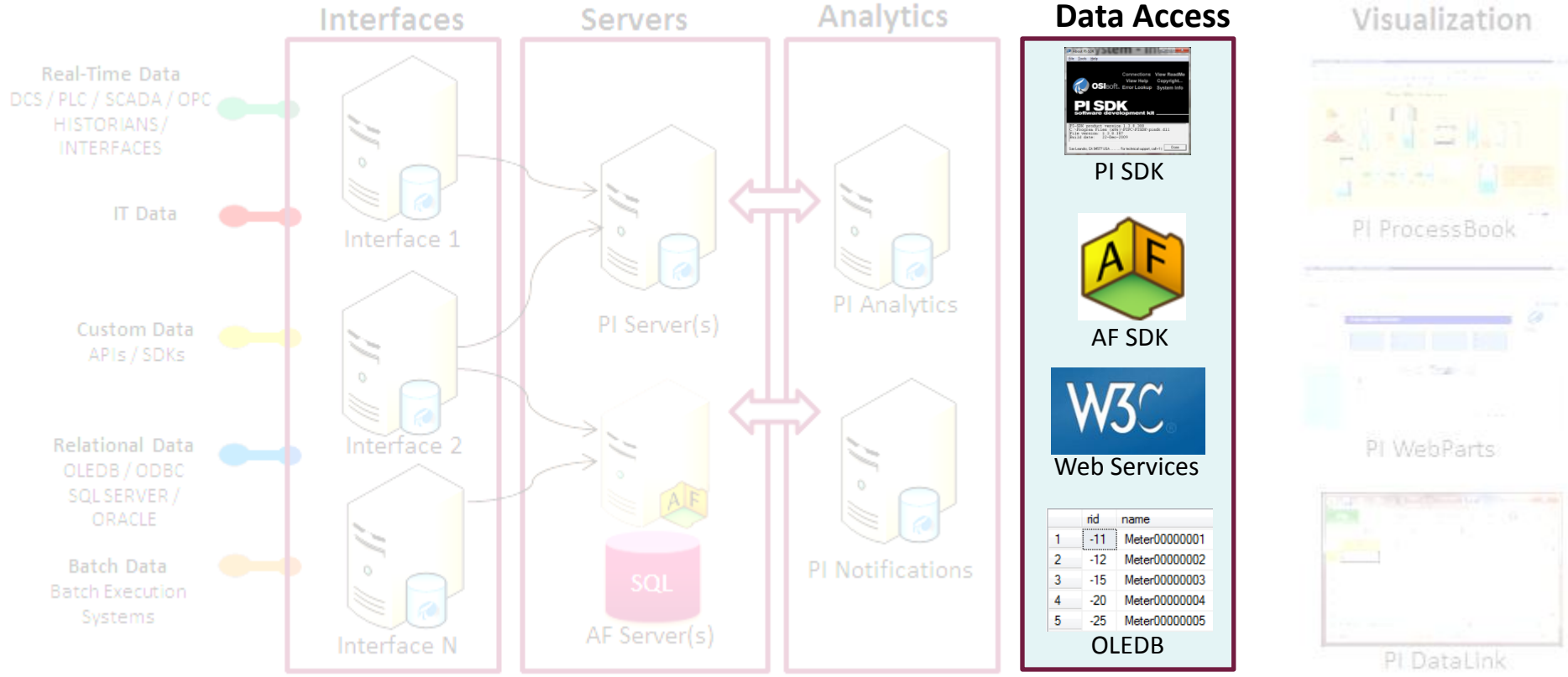
- Rich Configuration in AF
  - Merge of PE and Formula DR syntax
  - Configuring rollup calculations
- OSIsoft takes care of
  - Scheduling
  - Dependencies
  - Writing results to PI
- Very Large Scale
  - Improvements in data access
  - OSIsoft managed scale-out

Analytics – Simple Configuration

- Equation defined on an attribute or a template

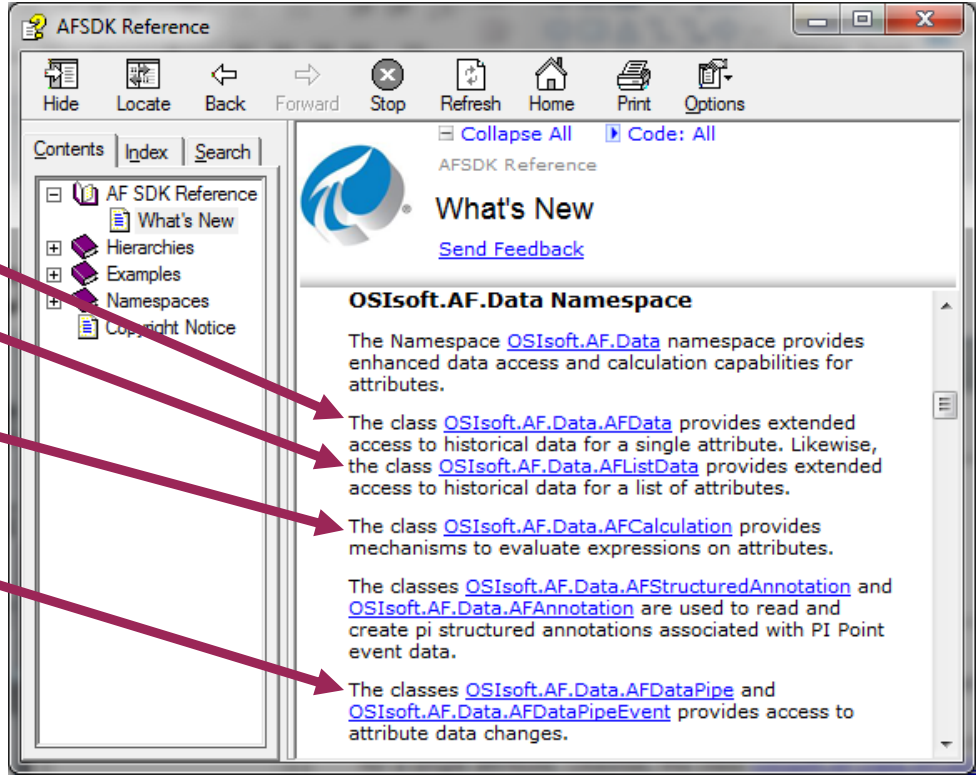


PI System – Data Access



Data Access – AF SDK

- Rich Data Access
  - Full featured
  - Bulk operations
  - Calculations
  - Updates
- .NET exposure
- PI Points



Data Access

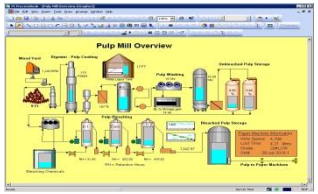
- PI Web Services
  - Data by exception
  - Event Frames
- PI OLEDB Enterprise & PI JDBC
  - Event Frames
- PI SDK
  - Buffering of new data and edits
  - Fanning to all members of an HA Collective
  - Windows Security

Go see: *What's New with High Availability in the PI System*

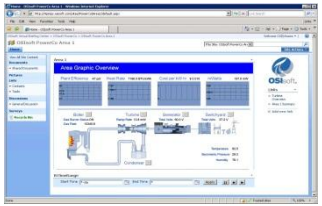
Go see: *Unlock your Data with PI Data Access*

PI System – Visualization

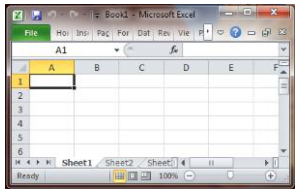
Visualization



PI ProcessBook



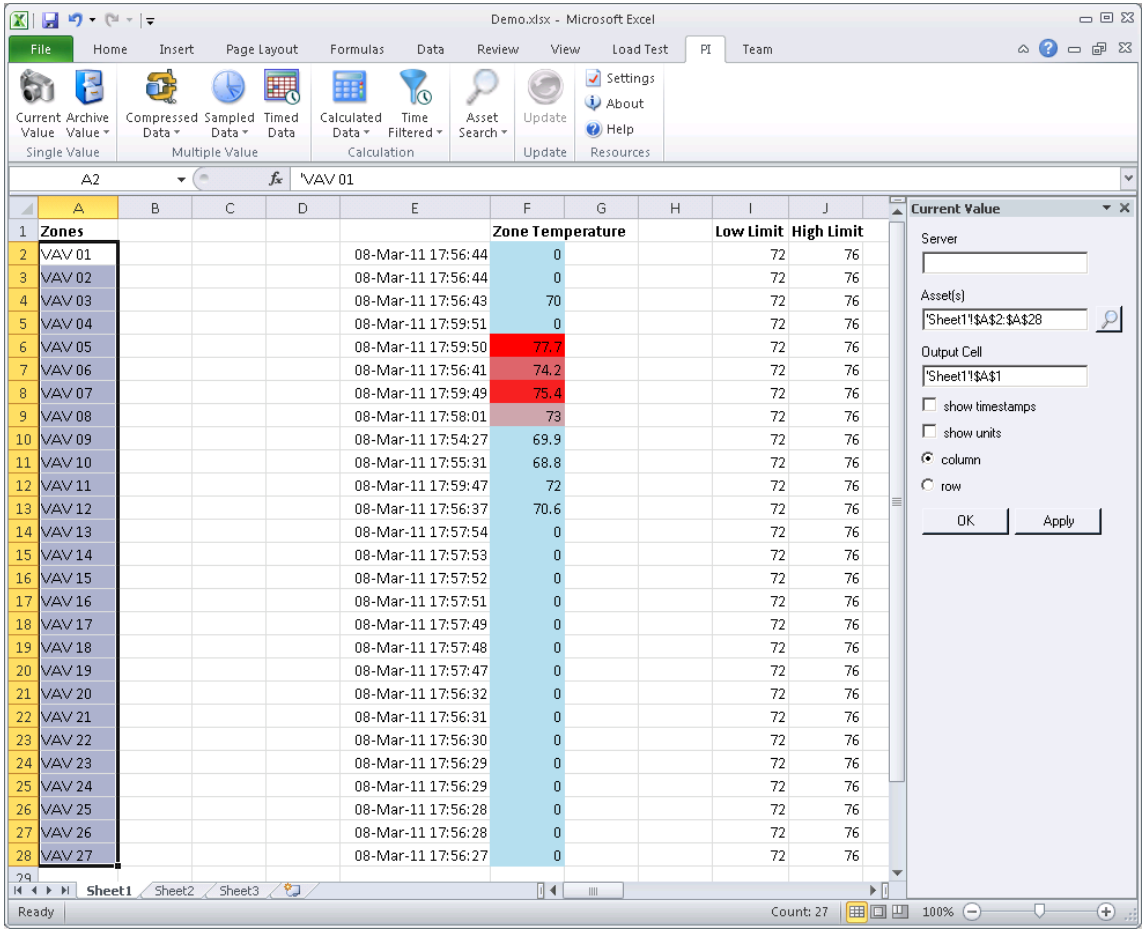
PI WebParts



PI DataLink

PI DataLink

- AF attribute paths
- PI tag paths
- Search
- Units of Measure
- 64-bit Excel Support



	A	B	C	D	E	F	G	H	I	J
1	Zones					Zone Temperature			Low Limit	High Limit
2	VAV 01				08-Mar-11 17:56:44	0			72	76
3	VAV 02				08-Mar-11 17:56:44	0			72	76
4	VAV 03				08-Mar-11 17:56:43	70			72	76
5	VAV 04				08-Mar-11 17:59:51	0			72	76
6	VAV 05				08-Mar-11 17:59:50	77.7			72	76
7	VAV 06				08-Mar-11 17:56:41	74.2			72	76
8	VAV 07				08-Mar-11 17:59:49	75.4			72	76
9	VAV 08				08-Mar-11 17:58:01	73			72	76
10	VAV 09				08-Mar-11 17:54:27	69.9			72	76
11	VAV 10				08-Mar-11 17:55:31	68.8			72	76
12	VAV 11				08-Mar-11 17:59:47	72			72	76
13	VAV 12				08-Mar-11 17:56:37	70.6			72	76
14	VAV 13				08-Mar-11 17:57:54	0			72	76
15	VAV 14				08-Mar-11 17:57:53	0			72	76
16	VAV 15				08-Mar-11 17:57:52	0			72	76
17	VAV 16				08-Mar-11 17:57:51	0			72	76
18	VAV 17				08-Mar-11 17:57:49	0			72	76
19	VAV 18				08-Mar-11 17:57:48	0			72	76
20	VAV 19				08-Mar-11 17:57:47	0			72	76
21	VAV 20				08-Mar-11 17:56:32	0			72	76
22	VAV 21				08-Mar-11 17:56:31	0			72	76
23	VAV 22				08-Mar-11 17:56:30	0			72	76
24	VAV 23				08-Mar-11 17:56:29	0			72	76
25	VAV 24				08-Mar-11 17:56:29	0			72	76
26	VAV 25				08-Mar-11 17:56:28	0			72	76
27	VAV 26				08-Mar-11 17:56:28	0			72	76
28	VAV 27				08-Mar-11 17:56:27	0			72	76
29										

Go see: ***Asset Centric PI DataLink - PI DataLink meets PI AF***

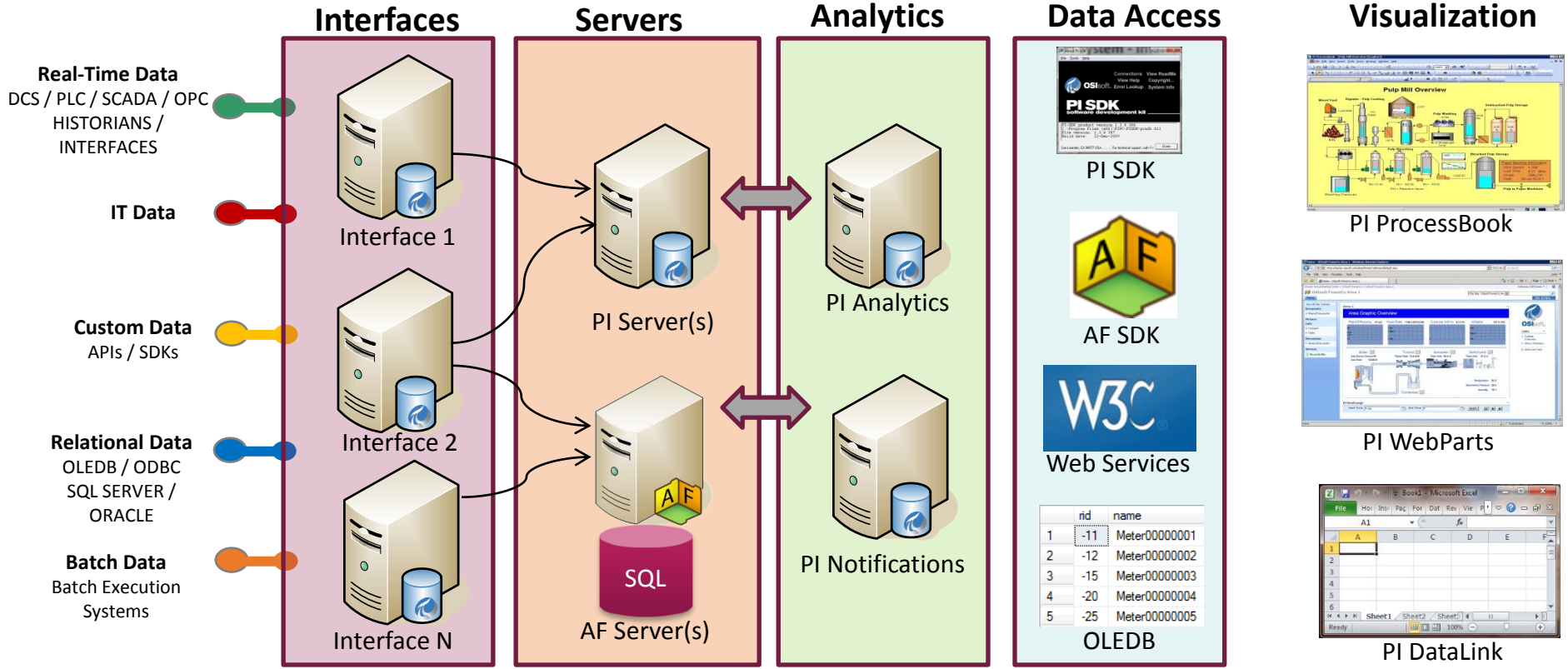
Visualization

- The fastest, easiest way to visualize PI System data!

Stay and see: ***Turning Insight Into Action***

Go see: ***Introducing the Fastest, Easiest Way to Visualize Your PI System Data***

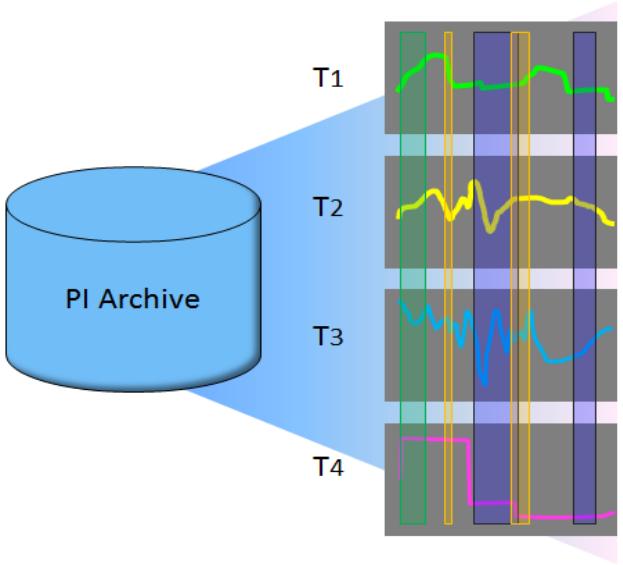
PI System – Event Frames



What can you do with Event Frames?

- Any event in your process
  - Such as a downtime or incident
- Automatically identify important events
  - Based upon patterns in your PI data
- Search these events
- Visualize and analyze them
  - To improve your process

- *Imagine:*
  - A simple downtime tracking tool
  - Configuration, no programming



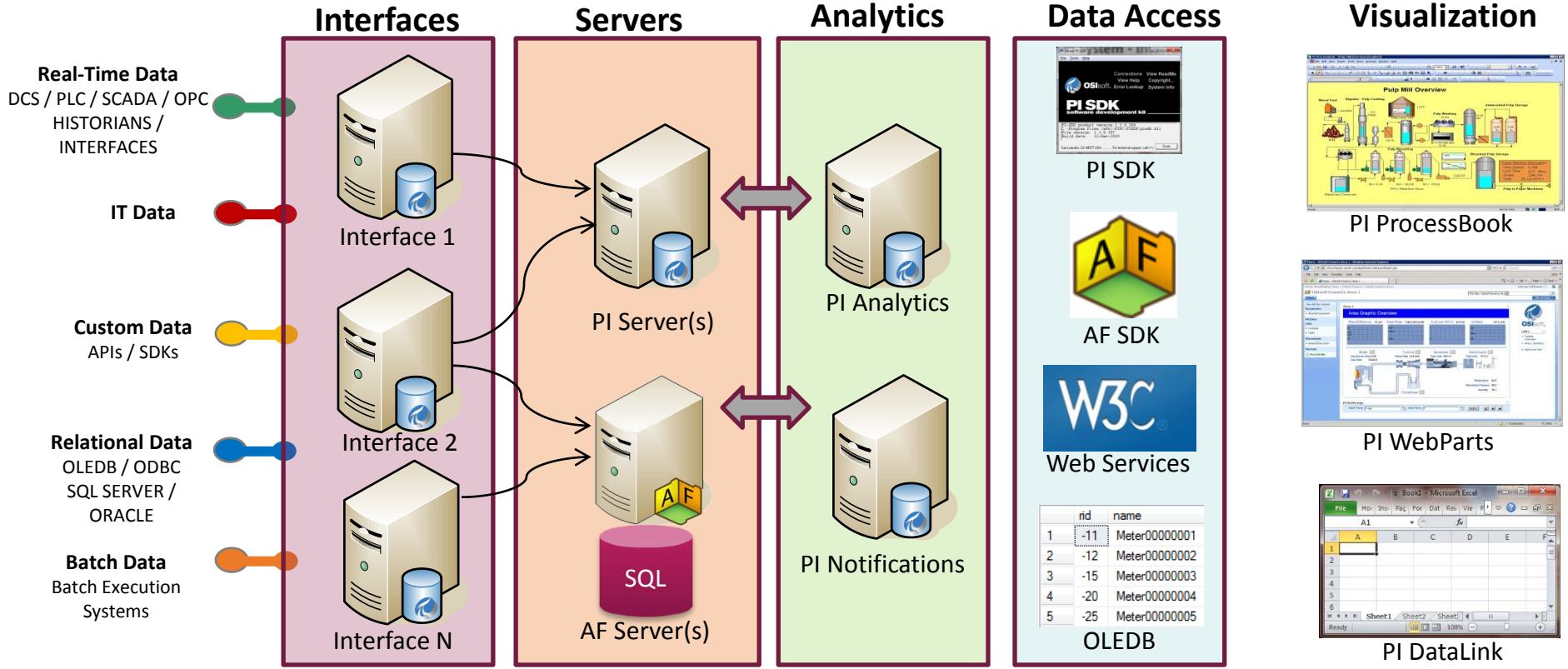
Go see: ***PI Event Frames - Infrastructure to Find Data Relevant to Your Events***

Event Frames – Infrastructure changes

- Interfaces
  - Batch Interfaces
- Servers
  - **Events Frames stored in AF Server**
  - Batch to EF transition
- Analytics
  - Generating Event Frame on patterns
- Data Access
  - **AF SDK**
  - **PI Web Services**
  - **PI OLEDB Enterprise & PI JDBC**
- Clients
  - PI DataLink
  - PI WebParts
  - PI ProcessBook
  - New Visualization

Targeted by 2012 Users Conference

PI System – Summary



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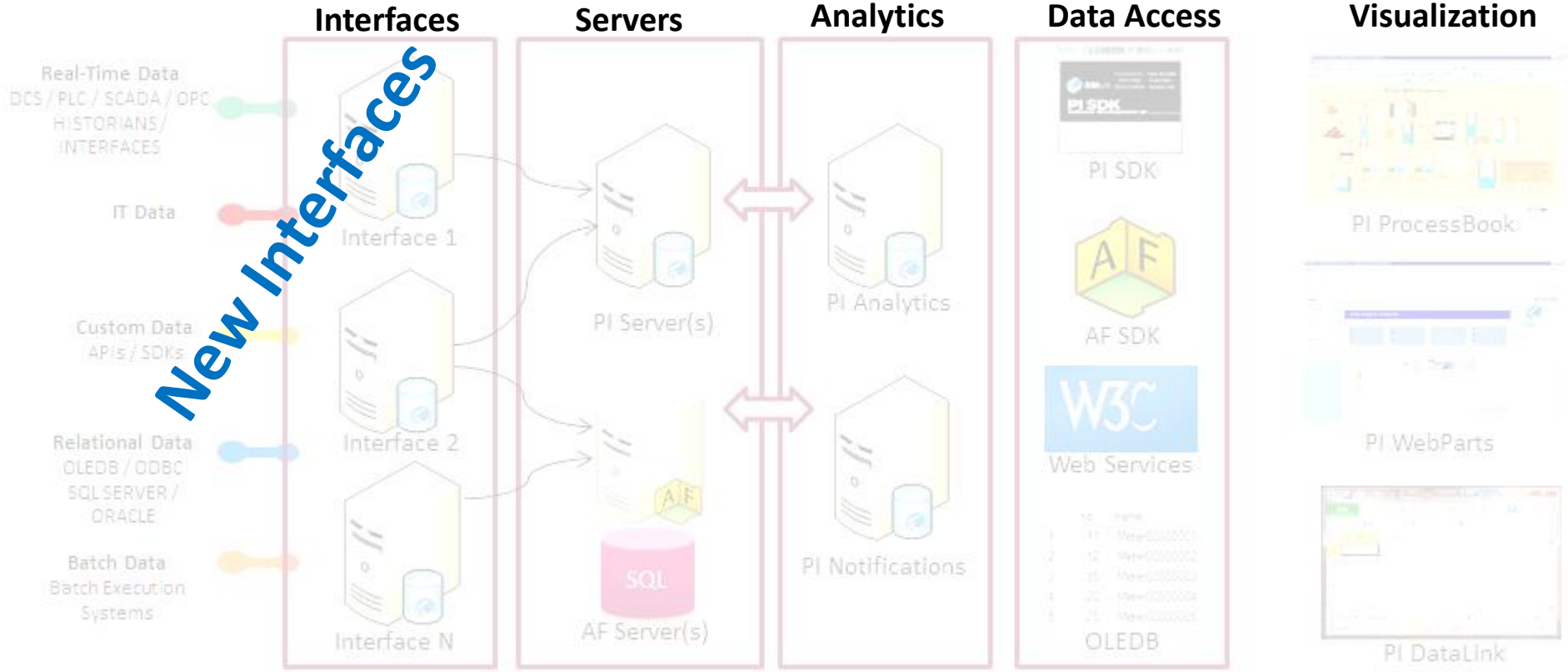

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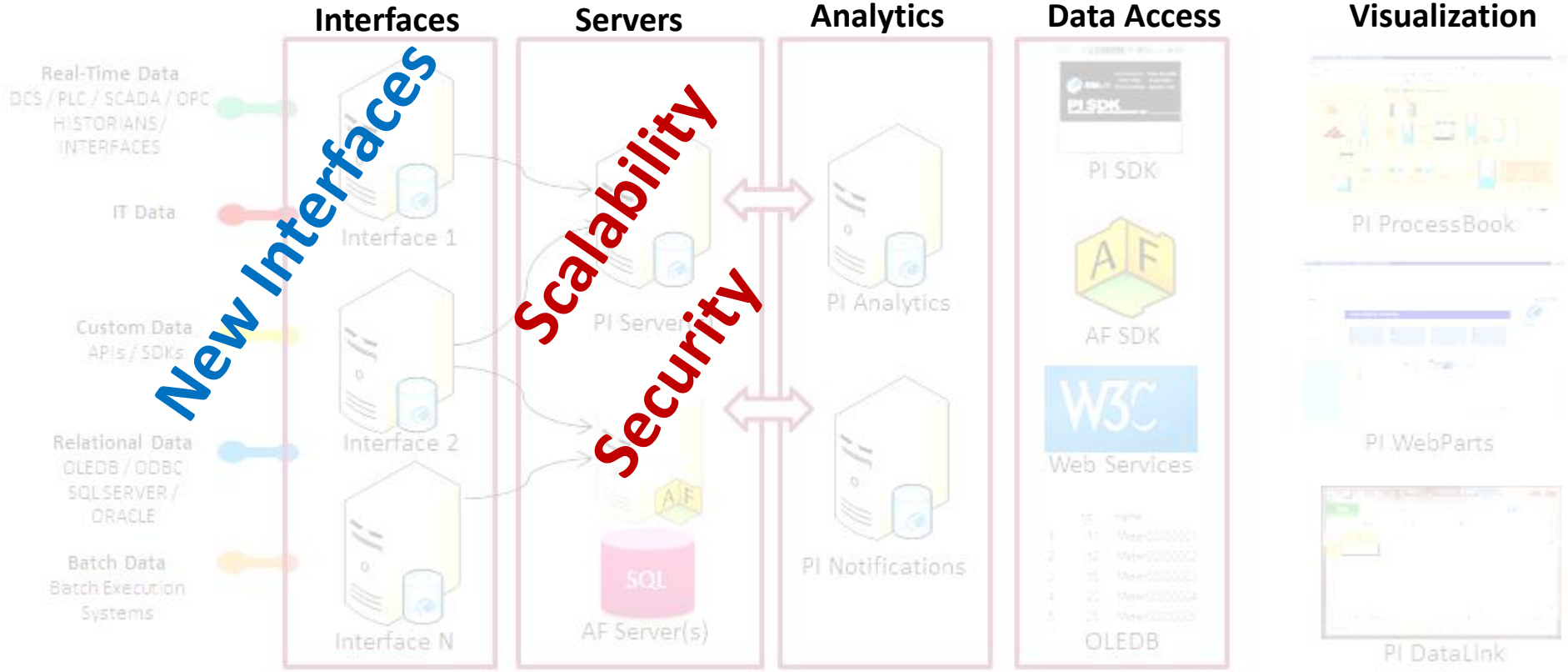

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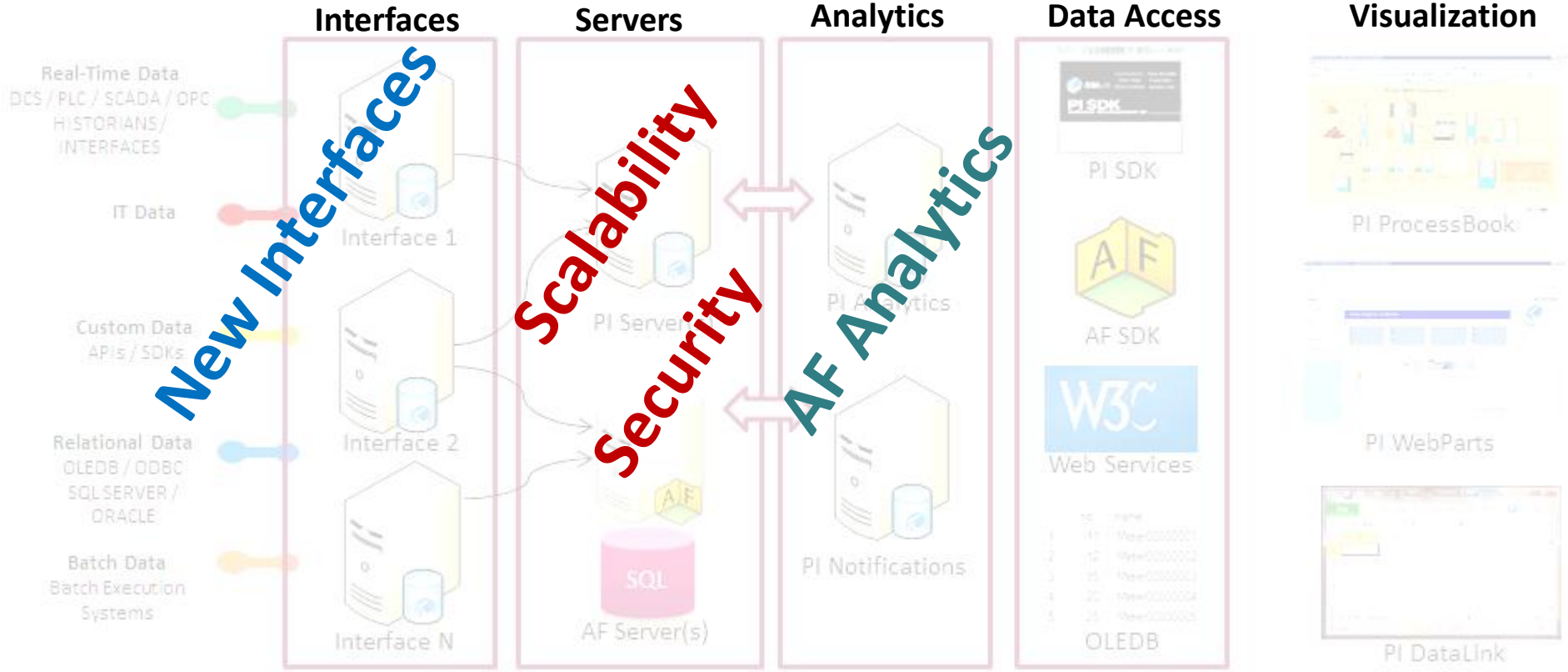

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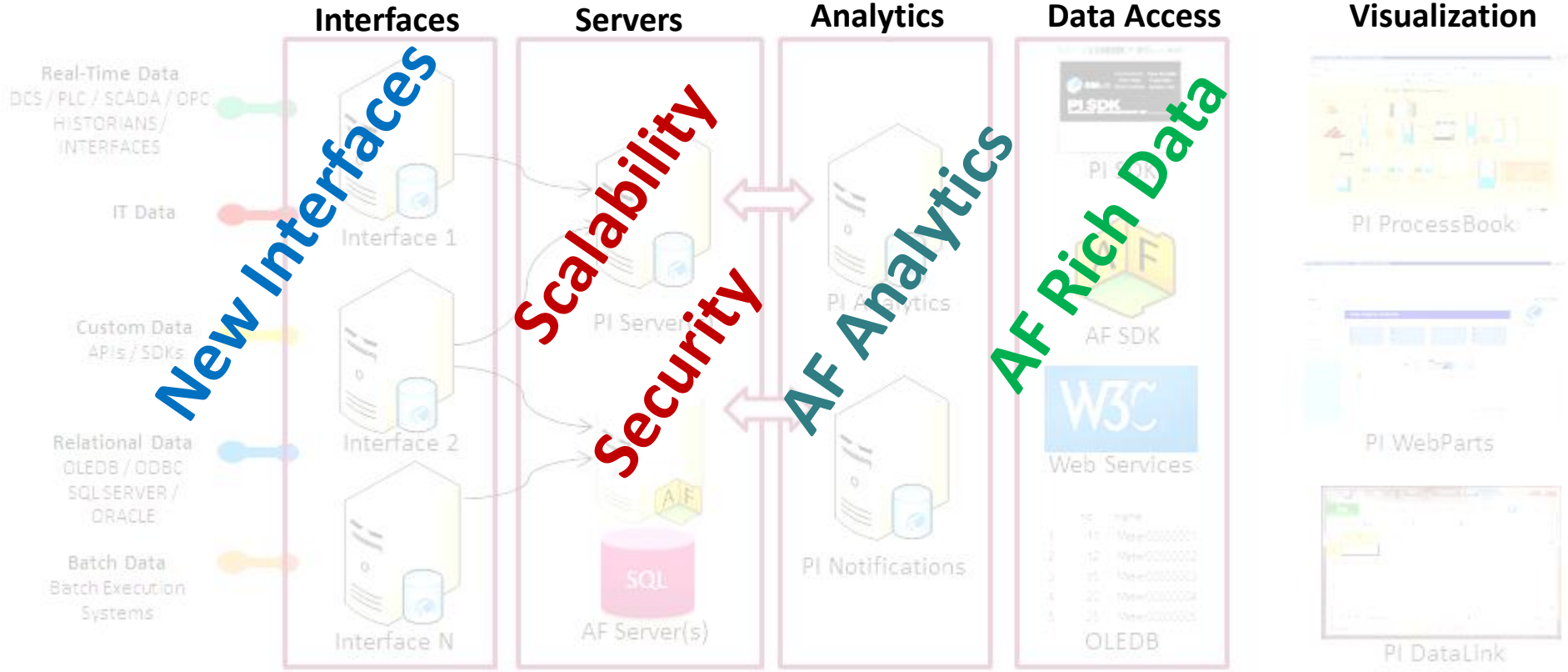
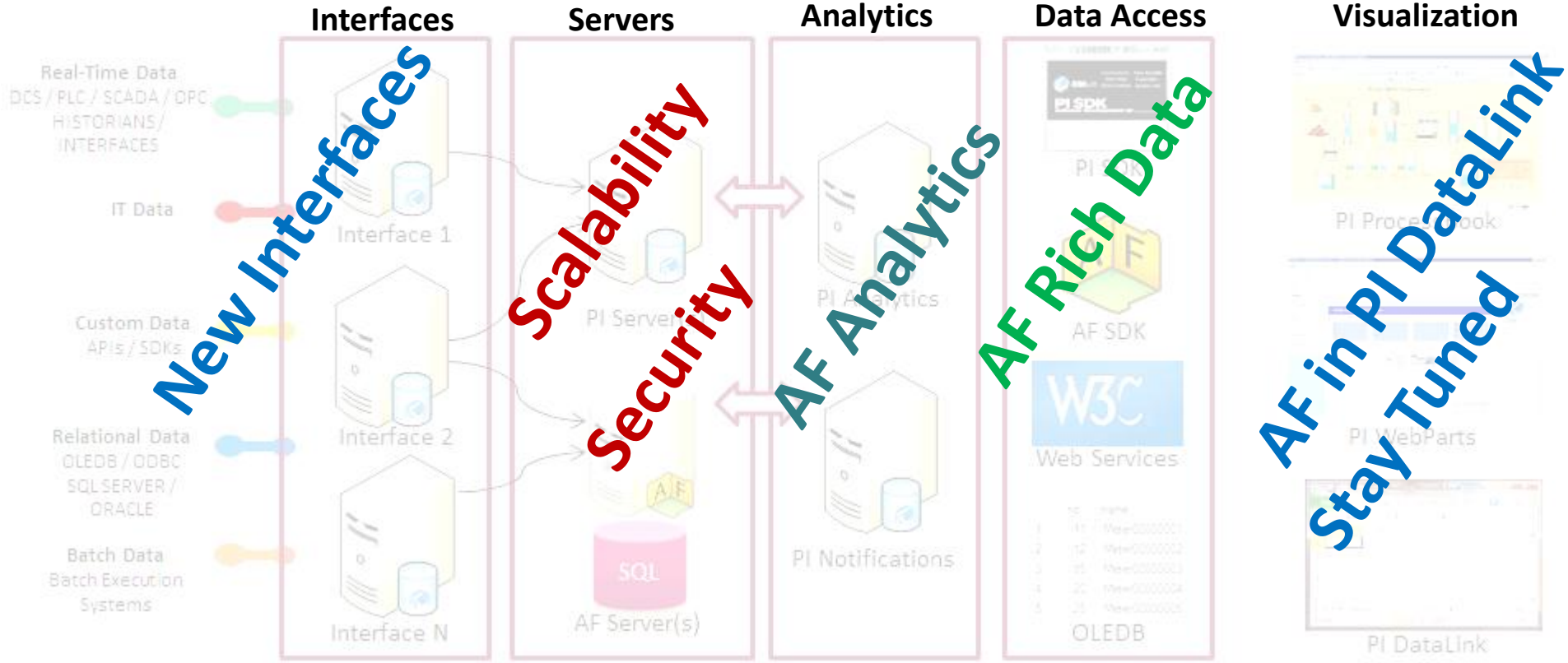


PI System – Summary



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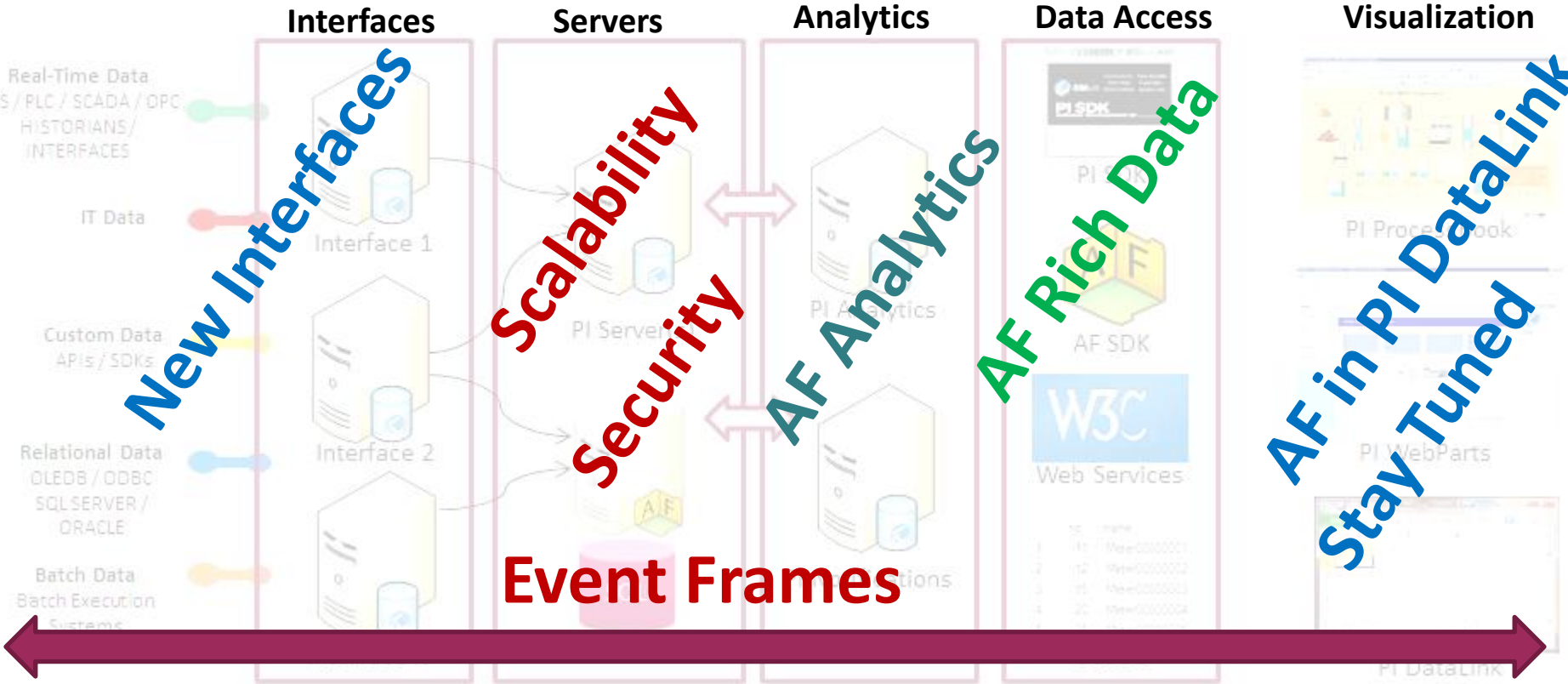

PI System Future Development

“A committee is a cul-de-sac down which ideas are lured and then quietly strangled.”

Sir Barnett Cocks (1907-1989)

“Prediction is very difficult, especially about the future.”

Niels Bohr (1885-1962)

“Doubt is not a pleasant condition, but certainty is absurd.”

Voltaire (1694 - 1778)

“The future, according to some scientists, will be exactly like the past, only far more expensive.”

John Sledak (1937-2000)

“When you can't solve the problem, manage it.”

Robert H. Schuller (1926-)

“O Marvelous! what new configuration will come next? I am bewildered with multiplicity.”

William Williams (1883-1963)

“If there are no stupid questions, then what kind of questions do stupid people ask? Do they get smart just in time to ask questions?”

Scott Adams (1957-)

“Everything that is beautiful and noble is the product of reason and calculation.”

Charles Baudelaire (1821-1867)

“I do not fear computers. I fear the lack of them.”

Isaac Asimov (1920-1992)

“The future is here. It's just not widely distributed yet.”

William Gibson (1948-)

“Make sure you have finished speaking before your audience has finished listening.”

Dorothy Sarnoff (1914-2008)

“Go ahead, show my e-mail address up there.”

Richard Beeson

Teresa Dixon, Business Lead
teresa@osisoft.com

Richard Beeson, Lead Architect
richard@osisoft.com

Mark Hughes
mark@osisoft.com

Thank you

Turning **insight** into **action**.