



# PI System Roadmap – Evolving the PI System

Presented by **Jonathan Silvestre – Center of Excellence Engineer**

# Agenda and Expectations

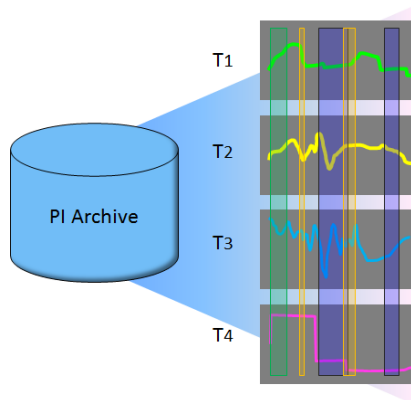
- This talk assumes:
  - You know the PI System basics
  - You have heard about the PI System 2012 wave of products
  - You want to hear about what is coming to the PI System in the 6-18 month horizon
- Very few specific dates
- All information is subject to change
- We want your feedback and suggestions!

# PI System Themes - Future



## Asset-Centric PI

Manage data via  
Asset context –  
Reuse many times



## Event Frames

Identify and use  
important events  
and related data



## Mobile

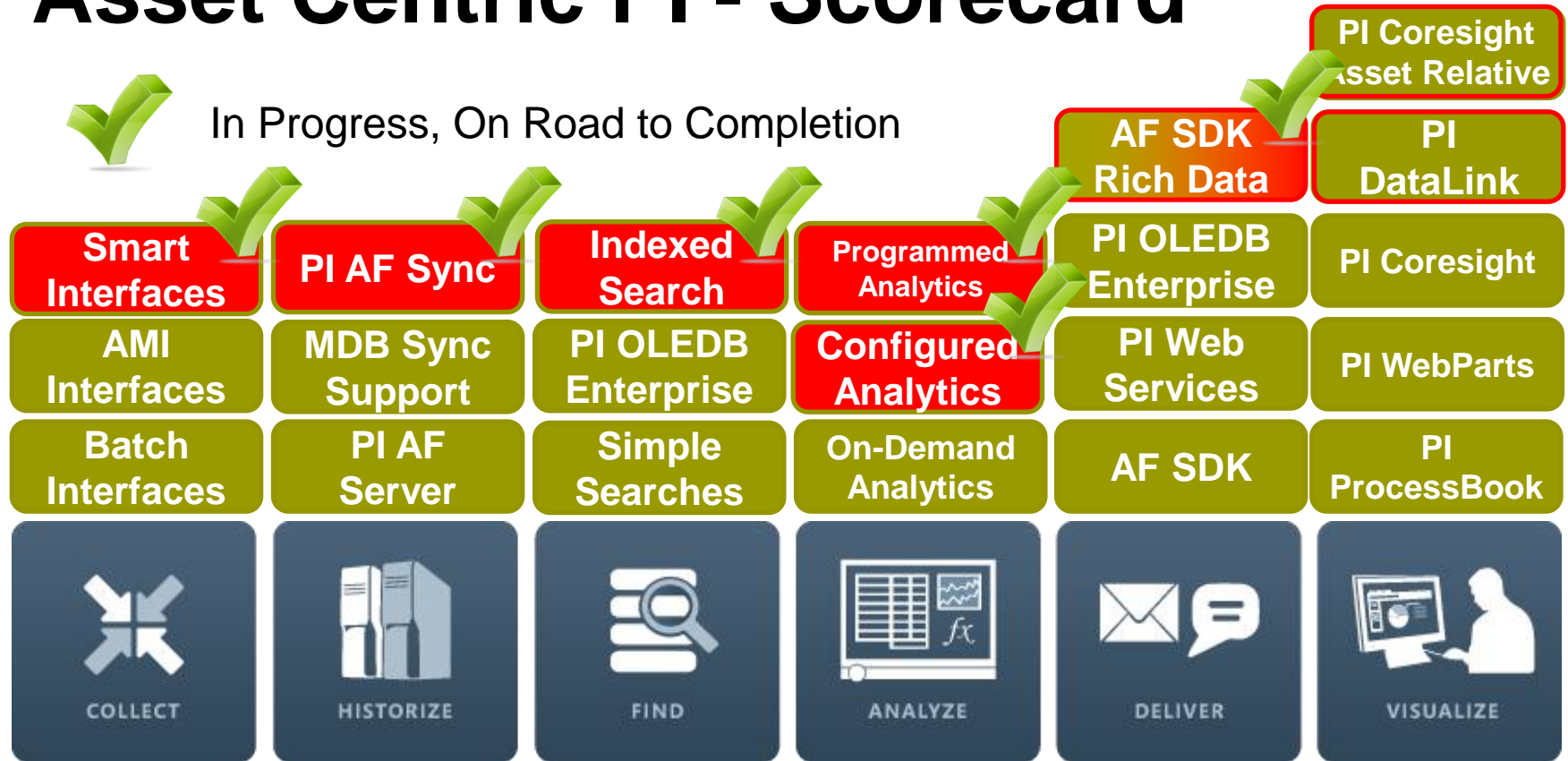
Many Devices  
Touch Centric  
Role Focused



## Cloud

More Data  
Access Anywhere  
Trans-Enterprise

# Asset Centric PI - Scorecard





# Project Abacus

Configured and Programmed  
Calculations for PI AF

# Project Abacus Use Case

## Extruding Process

Boiler Efficiency =  $\text{AVG}(\text{B1}..\text{Bn})$

Boiler1

Flow Out

Fuel Flow Rate

Efficiency =  $(\text{Flow Out} / \text{Fuel Flow Rate} * 3.14)$

Boiler2

Flow Out

Fuel Flow Rate

Efficiency

Boiler3

Flow Out

Fuel Flow Rate

Efficiency



Boiler Template



Or myProgrammedCalc (Flow Out, Fuel Flow Rate)



# Event Generation in Abacus

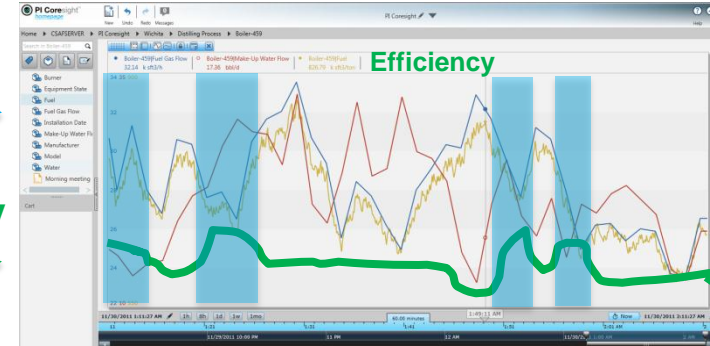


|Efficiency


|Fuel Flow Rate

|Flow Out

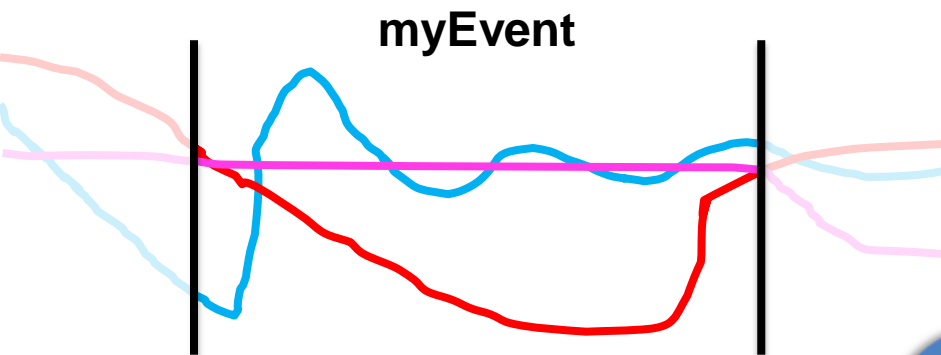
“Abacus”



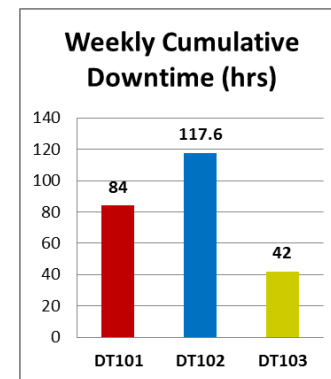
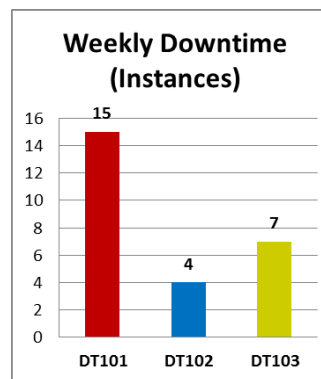
  $\text{Efficiency} = (\text{Flow Out} / \text{Fuel Flow Rate} * 3.14)$

  $\text{myEF.Start} = (\text{Efficiency} > \text{LIMIT})$   
 $\text{myEF.End} = (\text{Efficiency} < \text{LIMIT}) \text{ AND } (\text{Fuel Flow Rate} > 80)$

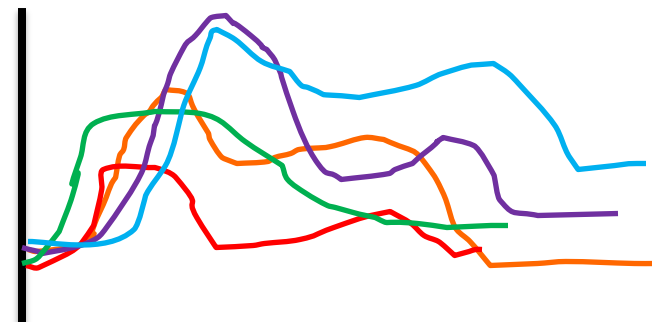
# Simplify Data Analysis



# Perform Asset Comparisons



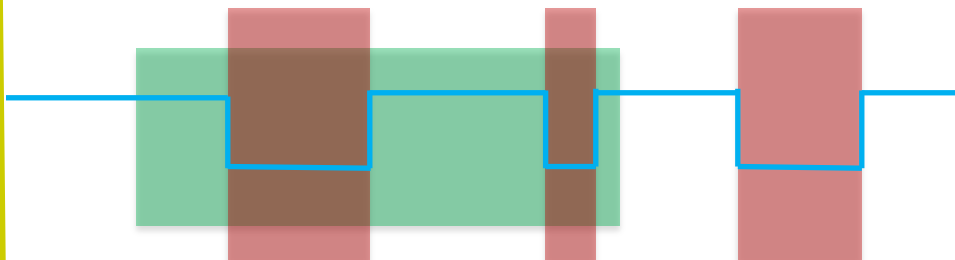
## Event Overlay Trend (Temp)



Name	Temp.Max
EF1	122.47
EF2	109.34
EF3	112.73
EF4	98.61
EF5	125.24

## Downtime Events for Product XYZ

Product XYZ (1)  
Downtime (2)



# Perform Event Comparisons

# Discover Event Interrelationships

# EVENT FILTERS

## Duration

Longer Than Shorter Than

0 m 200 m

## Category

All None

- ✓ Excursions (4)
- ✓ Downtime (3)
- ✓ Product XYZ (1)

## Template

All None

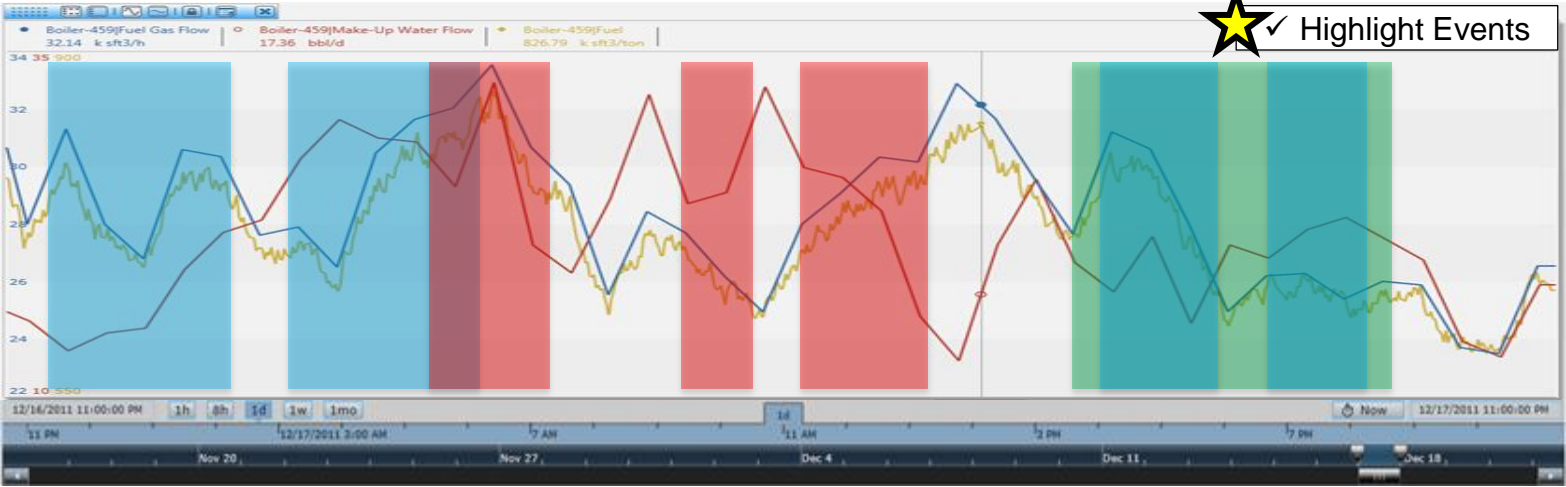
- ✓ Boiler Downtime (3)
- ✓ Boiler KPI Excursion (4)
- ✓ PIUnitBatch (1)

## Temp.Max

Greater Than Less Than

0 C 100 C

Name	Start	End	Duration	Element	Category	Template	Reason Code	Temp.Max
Ex01	16-Dec-2011 23:05:48	17-Dec-2011 00:25:24	01:19:36	B-459	Excursions	Boiler KPI Excursion	High Temp	91.2
Ex02	17-Dec-2011 02:37:19	17-Dec-2011 04:12:07	01:34:48	B-459	Excursions	Boiler KPI Excursion	Low Pressure	54.1
DT45	17-Dec-2011 04:31:22	17-Dec-2011 05:20:34	00:49:12	B-459	Downtime	Boiler Downtime	Broken Thermo	32.4
DT46	17-Dec-2011 07:56:58	17-Dec-2011 08:19:46	00:22:48	B-459	Downtime	Boiler Downtime	Broken Thermo	31.7
DT47	17-Dec-2011 09:41:22	17-Dec-2011 10:52:58	01:11:36	B-459	Downtime	Boiler Downtime	Safety Shutdown	87.2
XYZ146	17-Dec-2011 13:12:34	17-Dec-2011 16:29:22	03:16:48	B-459	Product XYZ	PIUnitBatch	n/a	48.9
Ex03	17-Dec-2011 19:28:58	17-Dec-2011 20:41:22	01:12:24	B-459	Excursions	Boiler KPI Excursion	High Temp	95.3
Ex04	17-Dec-2011 21:44:58	17-Dec-2011 22:45:46	01:00:48	B-459	Excursions	Boiler KPI Excursion	Low Temp	20.4



★ Highlight Events

Ex01

Ex02

XYZ146

DT45

DT46

DT47

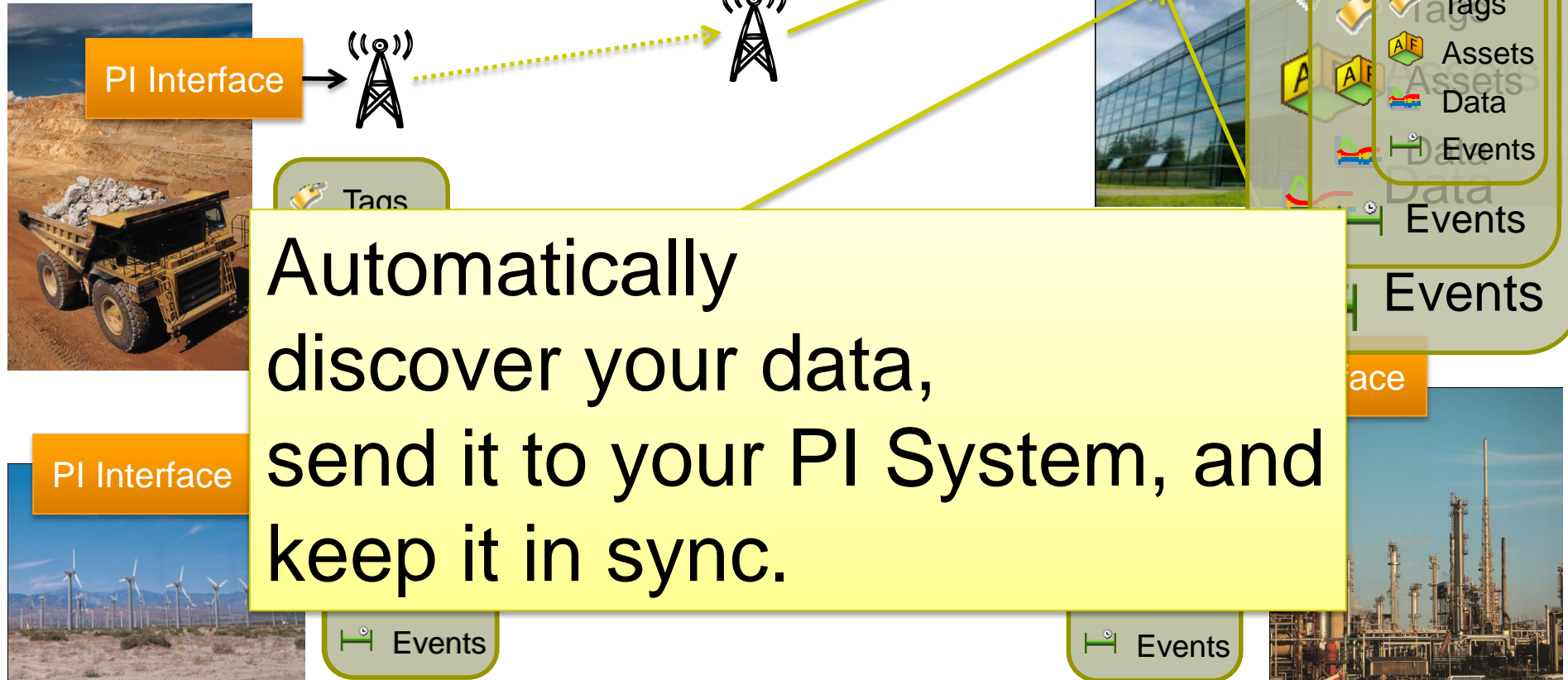
Ex03

Ex04

2011	2012		2013		FUTURE
4Q	1H	2H	1H	2H	
Wave 1 – Partner and Early Adopters	Wave 2 – Event Frames for the Mainstream				
	<div> <div>Goal</div> <div> <u>End-to-End Event Frames Experience</u> <ul style="list-style-type: none"> <li>Ability to generate Event Frames automatically</li> <li>Several event frame visualization options</li> </ul> </div> </div>				
					Wave 3 – Batch Moves to Event Frames
					<div> <div>Goal</div> <div> <u>Move PI Batch Customers Forward</u> <ul style="list-style-type: none"> <li>Batch to EF Migration</li> <li>Functional Equivalency with existing Batch Clients</li> </ul> </div> </div>

**NOTE: Future dates are subject to change. Last Updated: 04-2012**

# Smart Interfaces



# AF to AF Scenarios

- Implement corporate standards
- Ensure commonality across enterprise
- Configuration changes, updates
- Event Frames and data to support analysis and KPIs

Corporate HQ



Templates



# More to search than ever...



## Visualization

- Displays, captions, text
- PI Points, AF Elements & Attributes

## Data Access

- Frequently accessed Data Streams
- Related Data Streams
- Workstation data sources

## Analysis

- Performance Equations / Totalizers / Alarms
- ACE Calculations / Notifications / Event Frames

## Directory

- AF Element Attributes / AF Elements
- AF Element Templates

## Server

- Data Streams, PI Properties, By Value (> 75)

## Interfaces

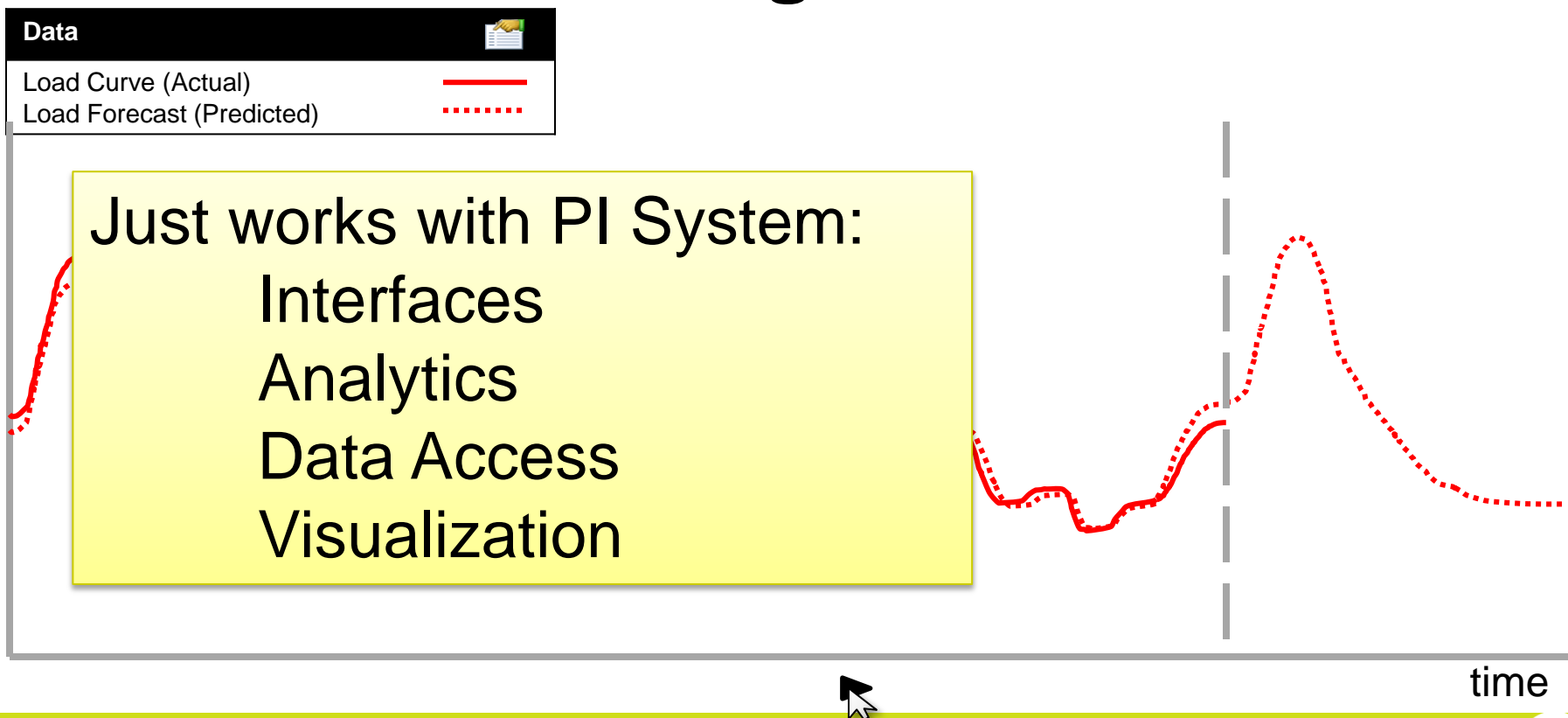
- Data sources
- Non-PI data

# Find - PI System Search



- Optimized Search Engine for the whole PI System
- Indexed for scale and high performance
- Can crawl many PI Servers\*
- Ranked and Related Results
- Includes client artifacts:
  - PI ProcessBook Displays, PI Coresight Displays
- Shared User Experience

# Future Data Coming – Next PI Server



# PI Data Access, longer-term

## PI System SDK

A single high performance SDK that allows you to access all PI System data

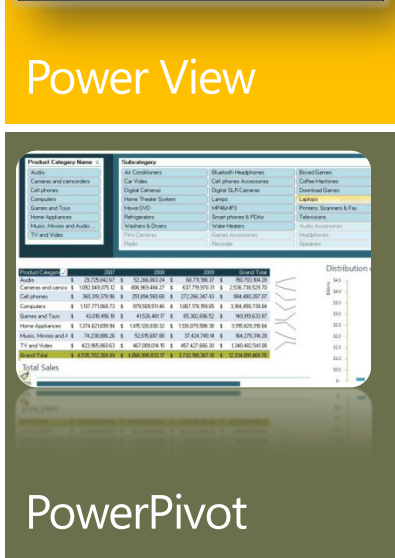
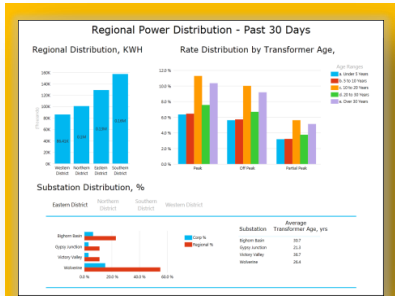
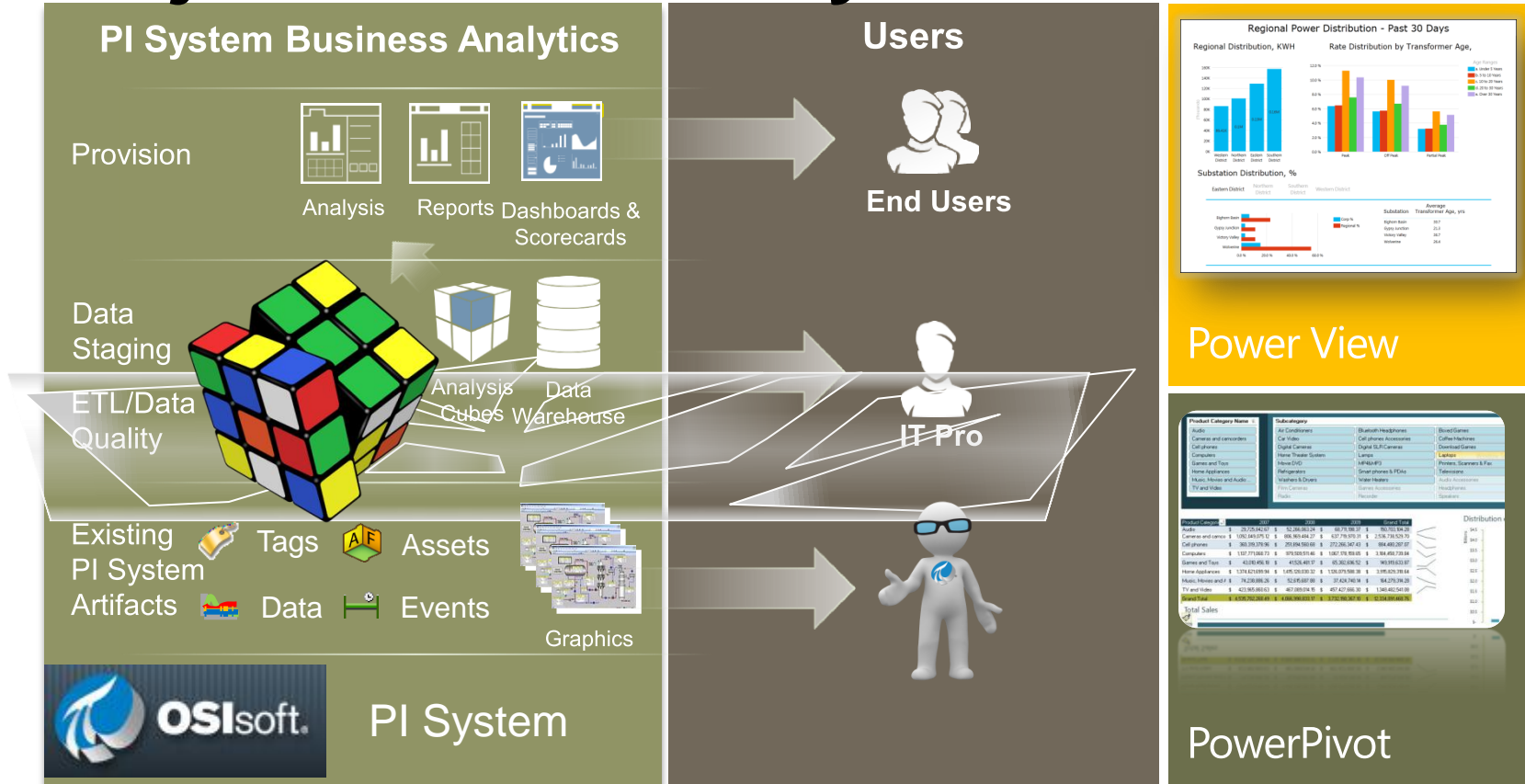
## RESTful Web Services

Emerging web service standard, ideally suited for mobile and cloud

## Integration Services

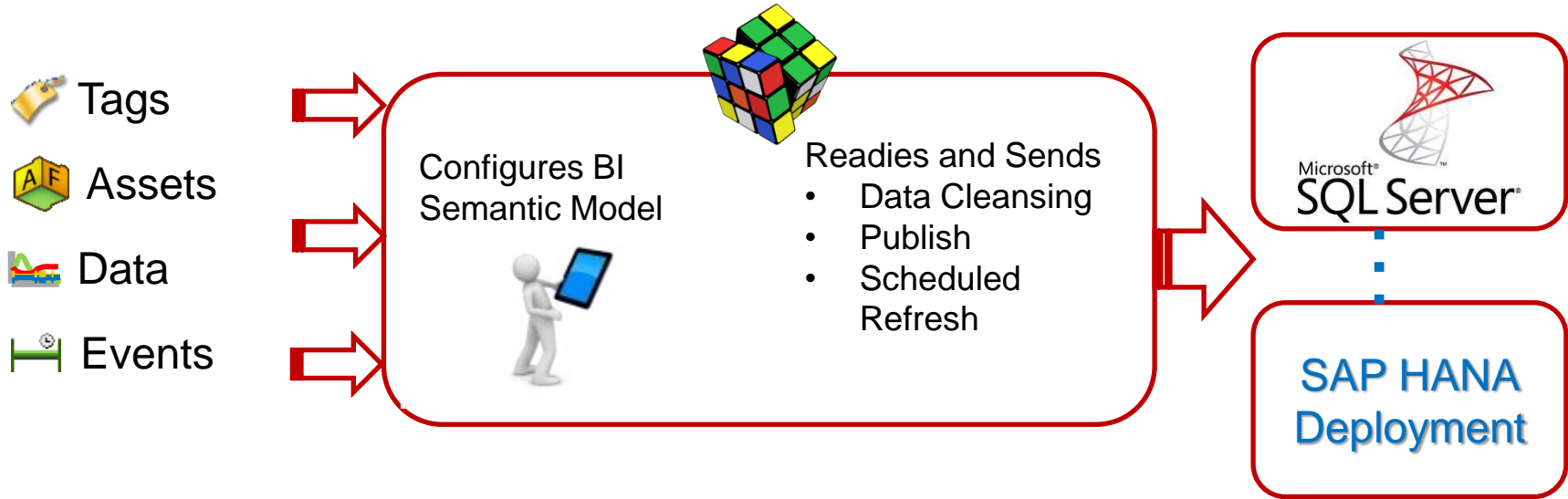
Makes business system integration easy, not just possible (ERP, BI)

# Project Rubik – Why?



# Project Rubik

- Bridge the gap between PI System experts and BI Users
- Allow PI System expert to select the data
- Leverage BI Visualization Tools from Microsoft, SAP (and others)

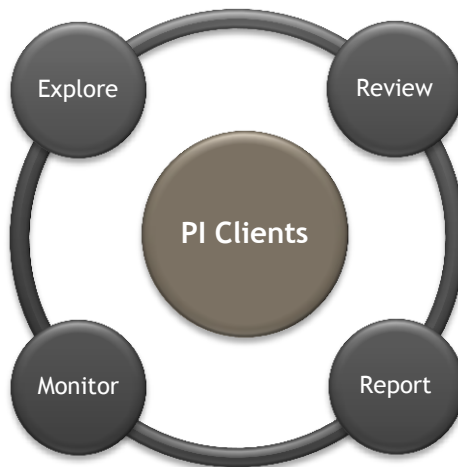


# Visualization Landscape

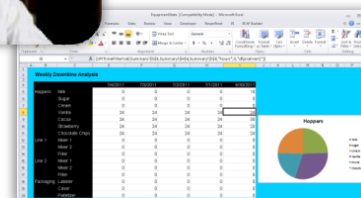
**PI Coresight:**  
*Ad Hoc Analysis & Collaboration*



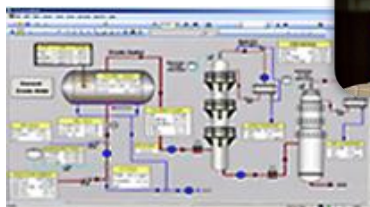
**PI WebParts:** Composite Apps, Shared broadly



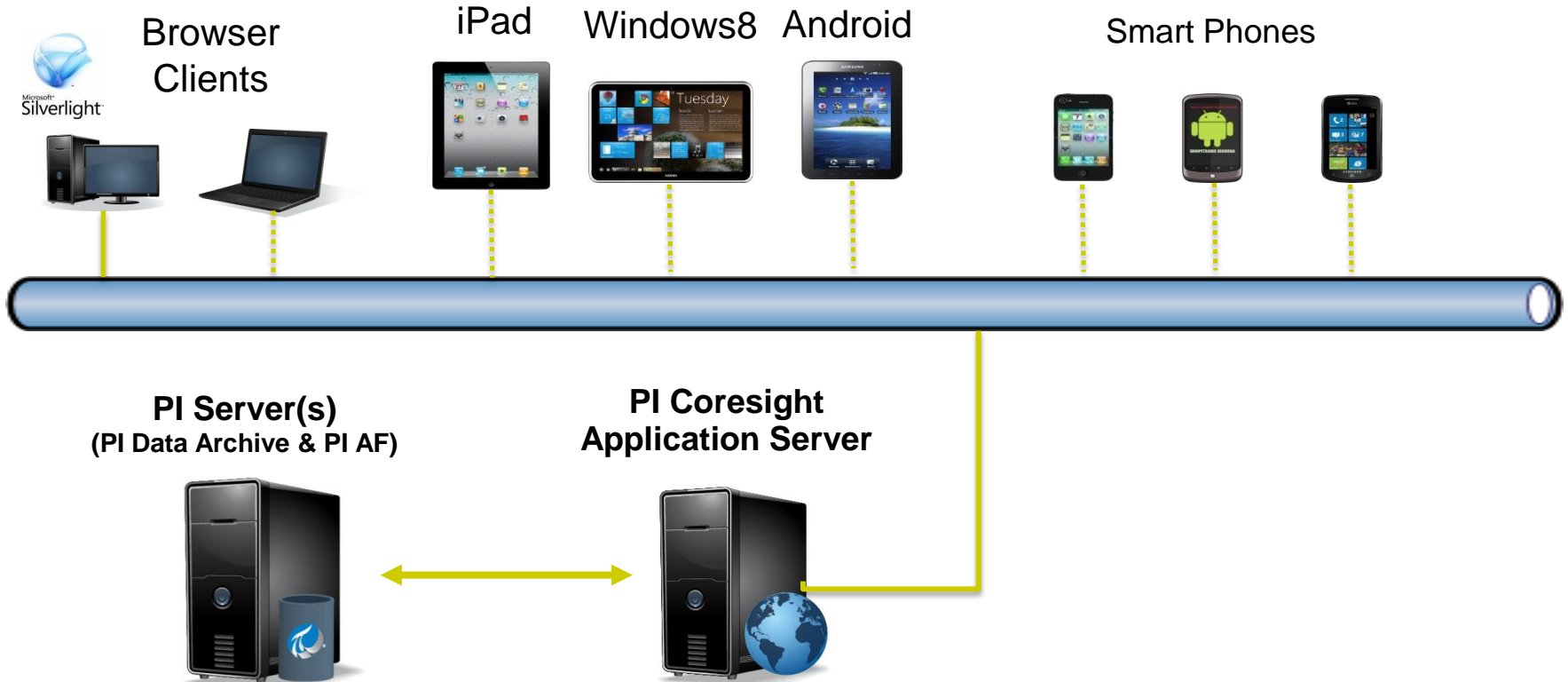
**PI DataLink:**  
Reporting and table based analytics in Microsoft Excel



**PI ProcessBook:**  
Display authoring and Process monitoring



# PI Coresight with Mobile Clients



# PI Coresight Tablet Edition – Target Audience

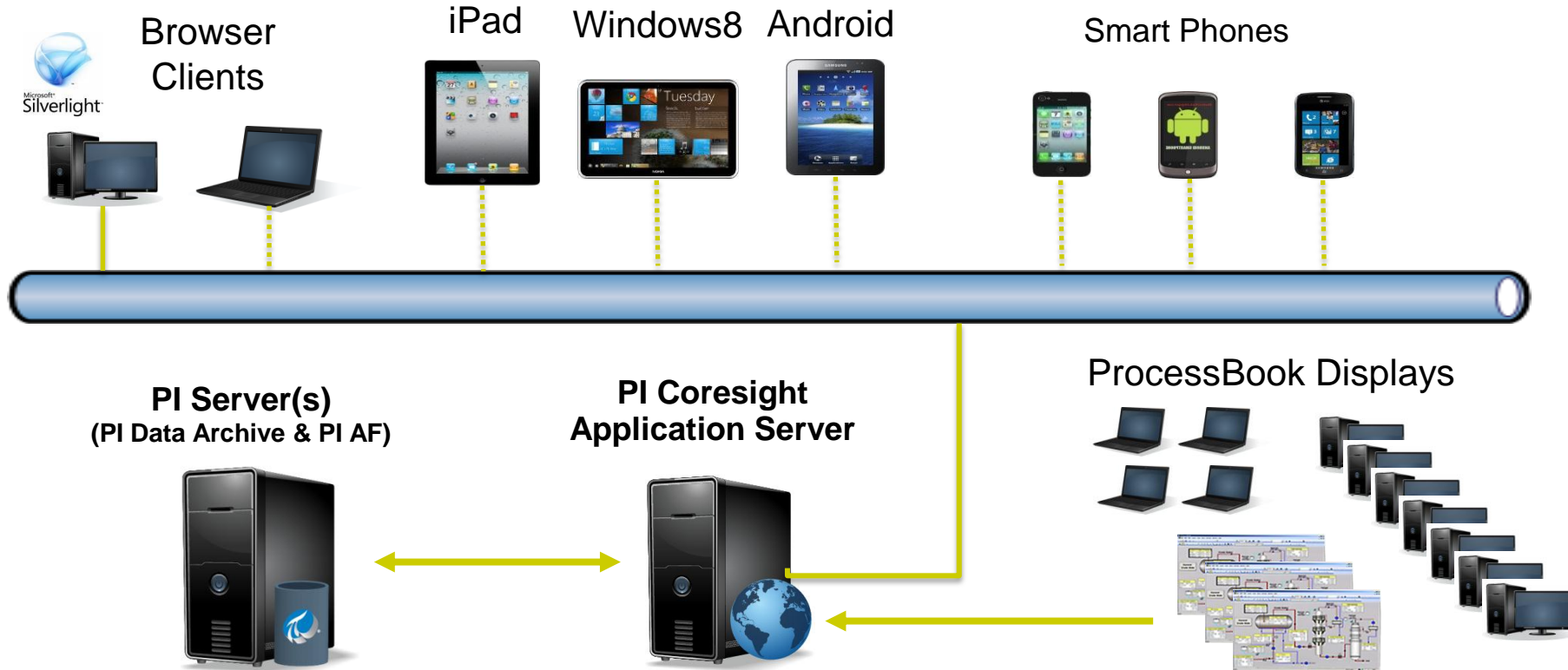
- Plant / Operations Management
  - Most likely to have iPad or similar device
  - Overview of how the plant/utility is running
  - Failures, Efficiency, KPIs, Actual vs Forecast
- Process Engineers / Corporate Planners
  - Identifying problems
  - Optimize processes – plant to plant
  - Create Content / Displays for management
- Maintenance
  - Manual Data Entry / Problem Recording
  - Troubleshooting – documents and real-time
  - Calibration



# PI Coresight Phone Edition – Target Audience

- Check in with Plant from Home / Road
- Tell me if something is wrong!
- Focus on Notifications, Acknowledge, Dispatch, and Escalation
- Give me some basic data related to notification
- Outside of plant - 3G, 4G, or public WiFi
- Personalization

# PI Coresight – ProcessBook Display Viewer



# PI WebParts 2013

**Support for SharePoint 2010 and SharePoint 2013**

**Become a better SharePoint corporate citizen**

**Become a more “IT” friendly product**

**Replace obsolete technology**

**Set the stage for OS and Browser independence, Mobile**



**Remote Data Services**

**WSP Installs**

**Can leverage Adobe SVG Viewer if needed**

**Support for IE 8 and Firefox**

**Support for IE9/10 with Master Page Edit**



**Remote Data Services**

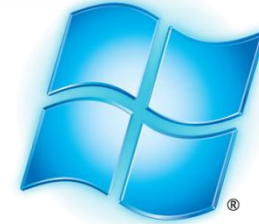
**WSP Installs**

**Visualization using Web Standards**

**Support for IE9, IE10, Firefox, and Chrome**

**Mobile Device Support – ios, Android, WP**

# Evolution of Operating Systems



Windows Azure™

# PI Cloud Initiatives

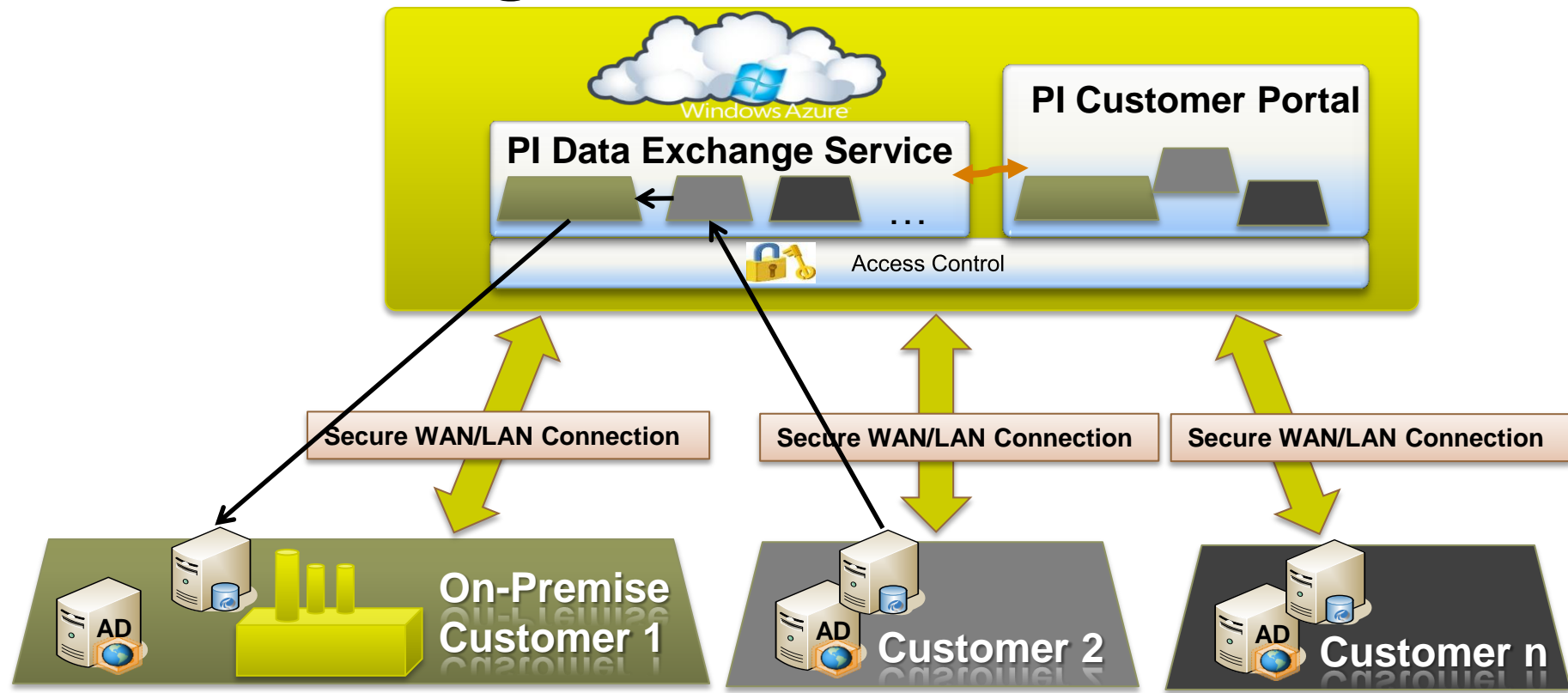
## Add to existing PI Systems

- PI System Management
- PI Data Exchange
- PI Coresight Service
- Data, Visualization and other services for Partner and Custom Apps

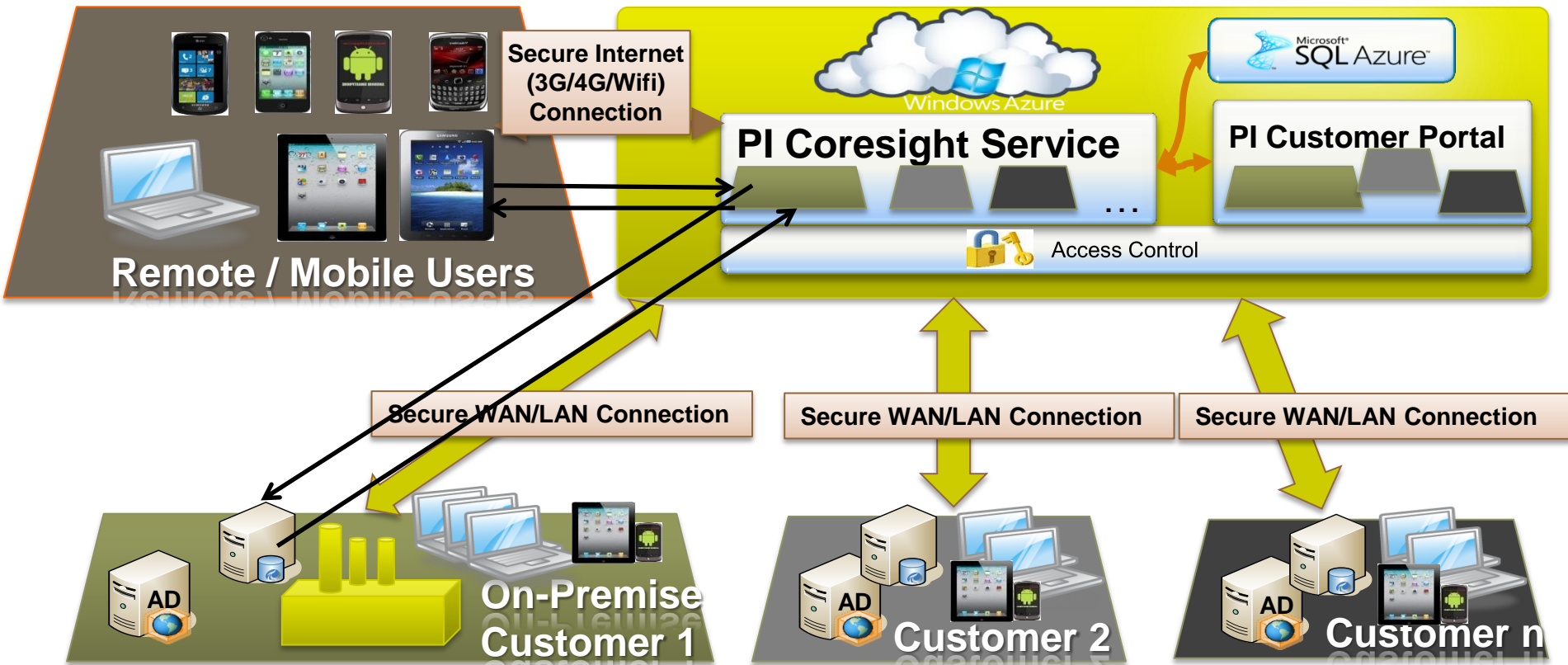
## Full PI Deployment in the Cloud

- Simplified Deployment and Management
- Take advantage of Azure Platform (PaaS)
- Functionality you know in PI today plus much more
- Highly efficient and elastic

# PI Data Exchange Service



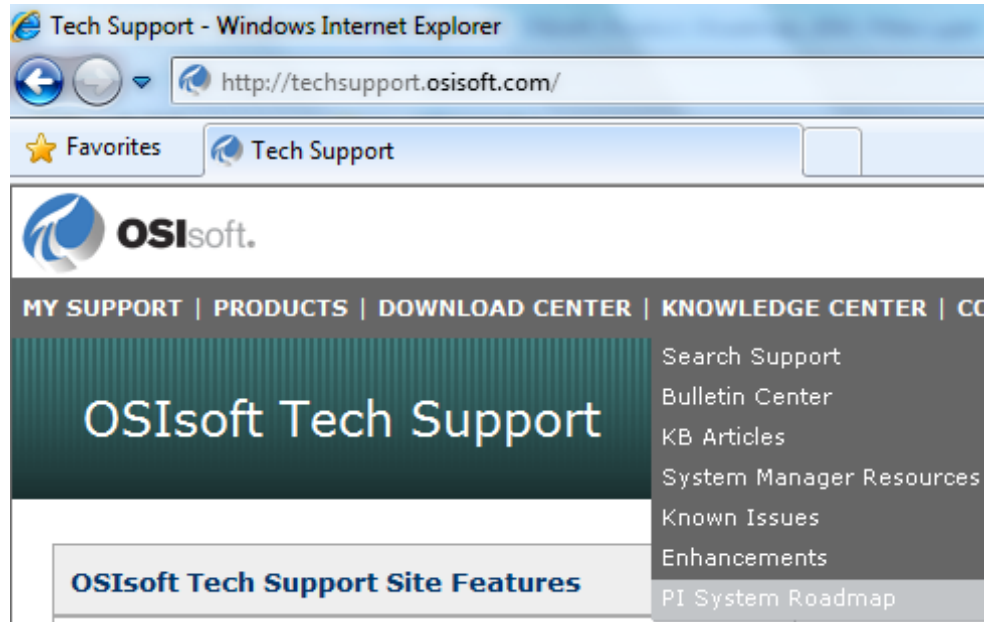
# PI Coresight Service with Mobility



# Stay Up-To-Date on the Web

- PI System Roadmap on OSIsoft Technical Support Site

<http://techsupport.osisoft.com/techsupport/NonTemplates/roadmap.aspx>





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