



PI System Roadmap – Evolving the PI System

Presented by **John Baier** – Director, Product Management

Agenda and Expectations

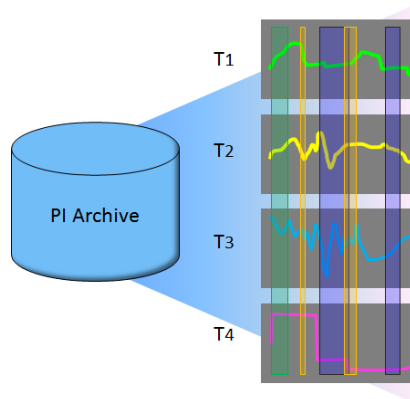
- This talk assumes:
 - You know the PI System basics
 - You have heard about the PI System 2012 wave of products
 - You want to hear about what is coming to the PI System in the 6-18 month horizon
- Very few specific dates
- All information is subject to change
- We want your feedback and suggestions!

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

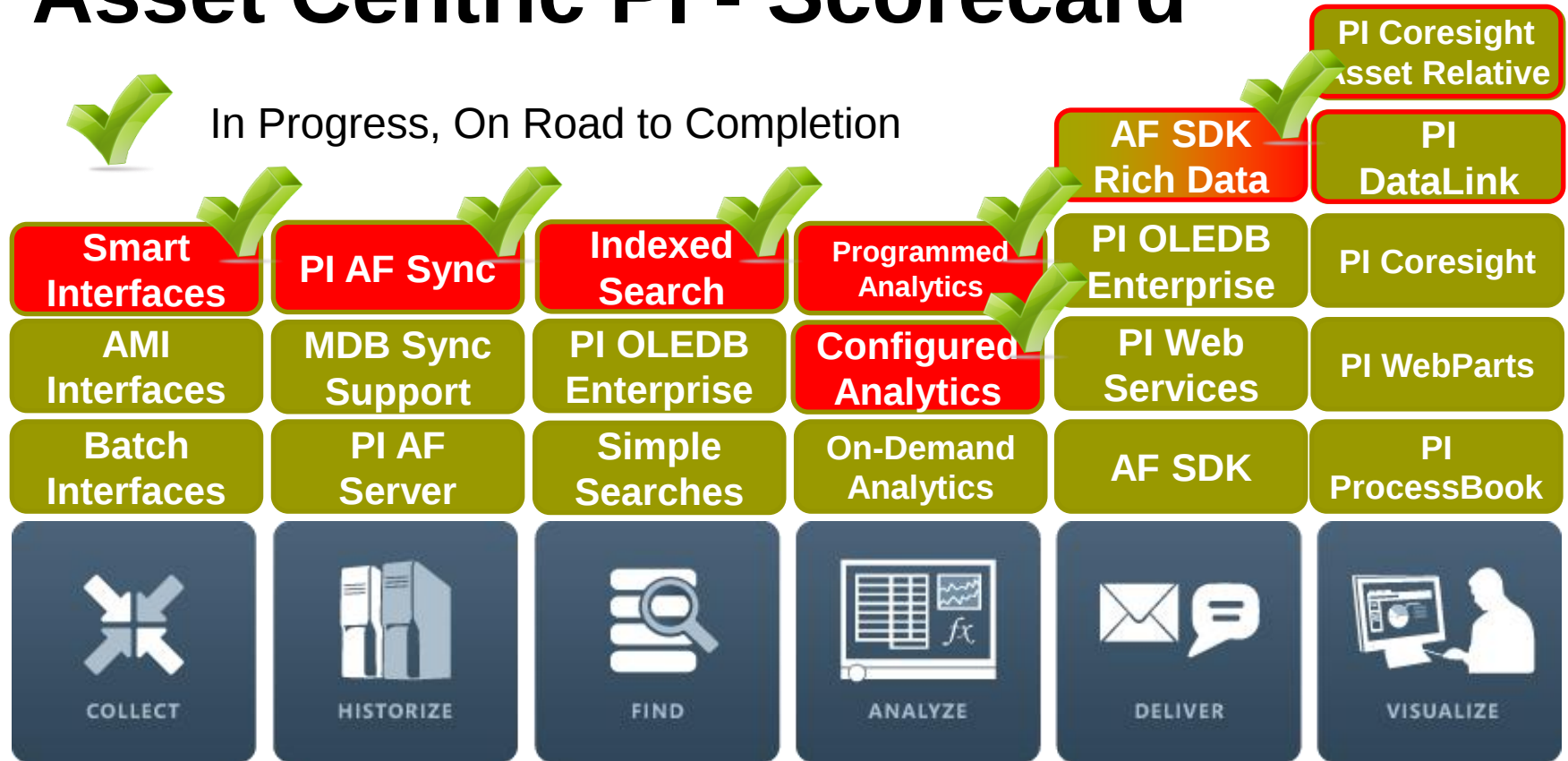
Many Devices
Touch Centric
Role Focused



Cloud

More Data
Access Anywhere
Trans-Enterprise

Asset Centric PI - Scorecard



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





Project Abacus

Configured and Programmed
Calculations for PI AF

Project Abacus Use Case

Extruding Process

→ **Boiler Efficiency = AVG(B1..Bn)**

Boiler1

Flow Out

Fuel Flow Rate

Efficiency = (Flow Out / Fuel Flow Rate * 3.14)

Boiler2

Flow Out

Fuel Flow Rate

Efficiency

Boiler3

Flow Out

Fuel Flow Rate

Efficiency



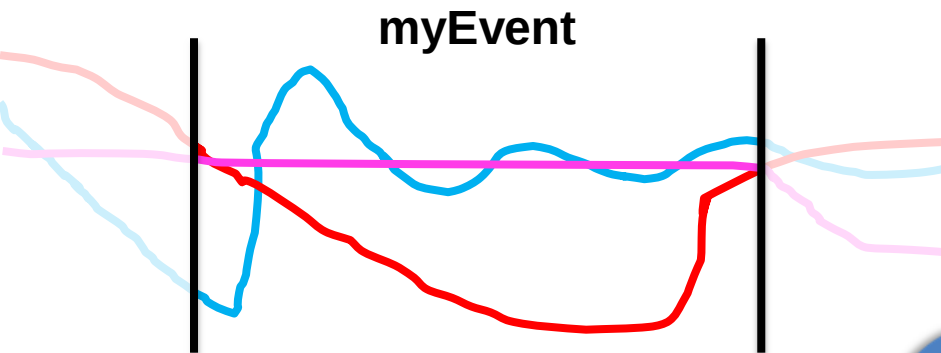
Boiler Template



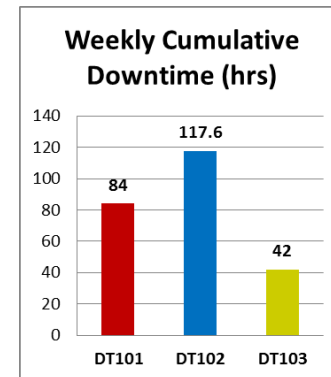
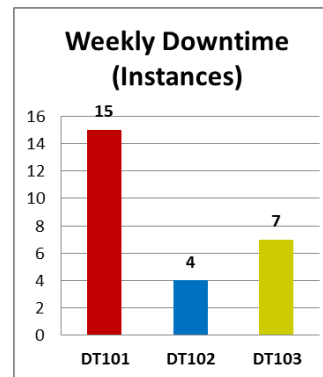
Or myProgrammedCalc (Flow Out, Fuel Flow Rate)



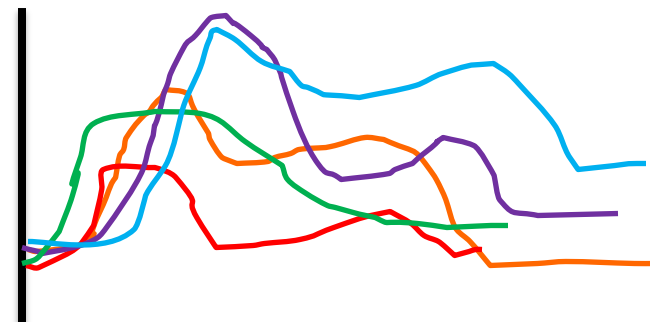
Simplify Data Analysis



Perform Asset Comparisons



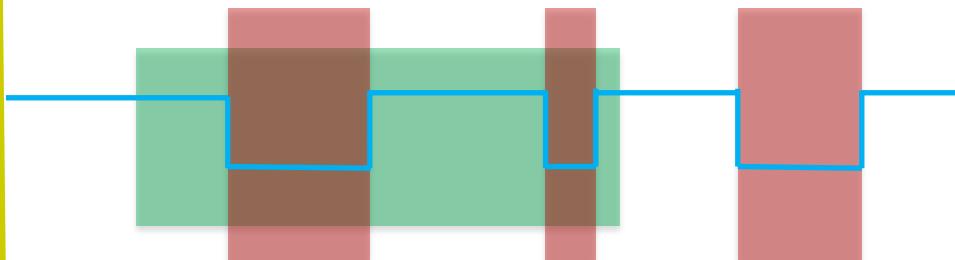
Event Overlay Trend (Temp)



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

Downtime Events for Product XYZ

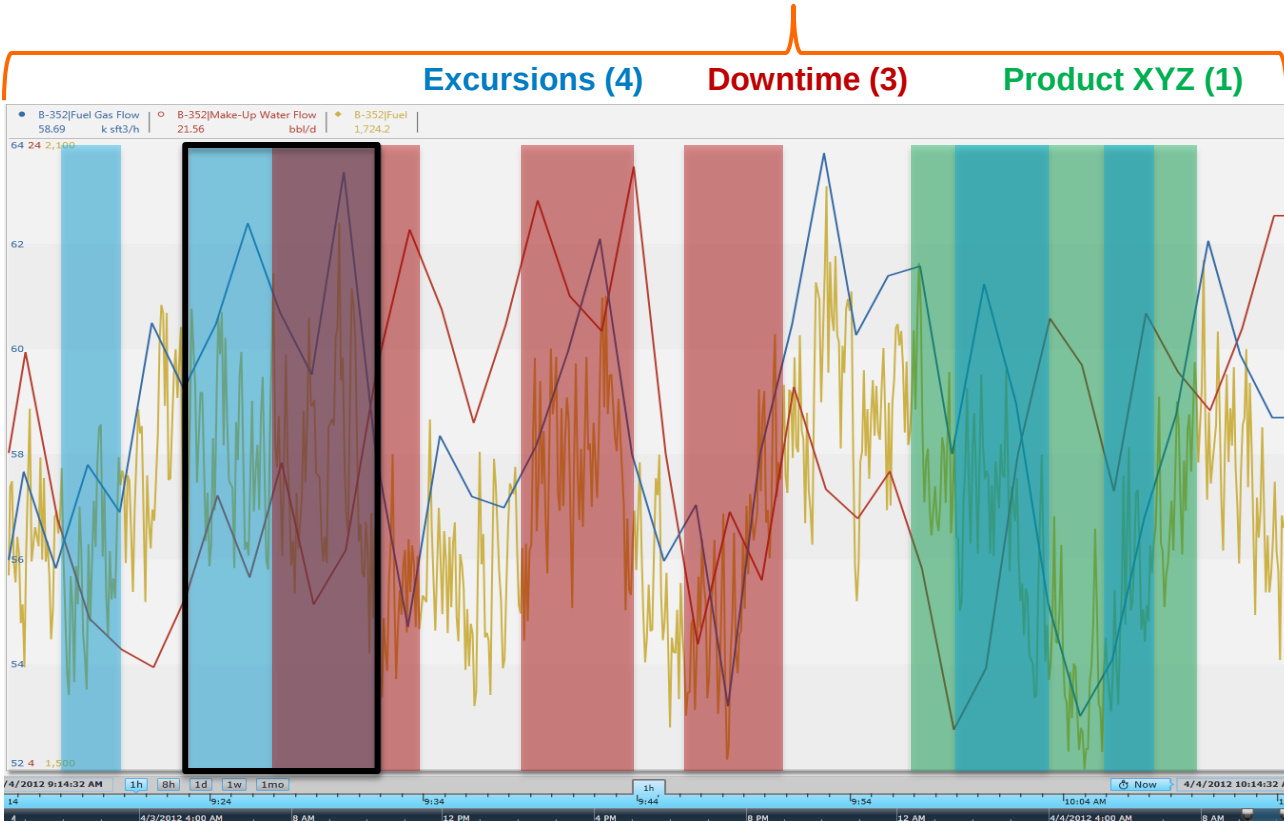
Product XYZ (1)
Downtime (2)



Perform Event Comparisons

Discover Event Interrelationships

PI Event Frames is a core capability of the PI Server to record important process or business events and help you find the *related data*.



Event Attribute	Value
Name	Ex 20121215-0002
Start	15-Dec-2012 10:35:02
End	15-Dec-2012 10:47:26
Duration	12 min, 24 sec
Asset	Boiler-459
Excursion Type	High Violation
Fuel Gas Flow.Avg	37.12 k sft3/h
Fuel.Start	823.48 k sft3/ton
myPIKPI.Max	47.19 bbl/d

EVENT FILTERS

Duration

Longer Than Shorter Than

 0 m 200 m

Category

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

Template

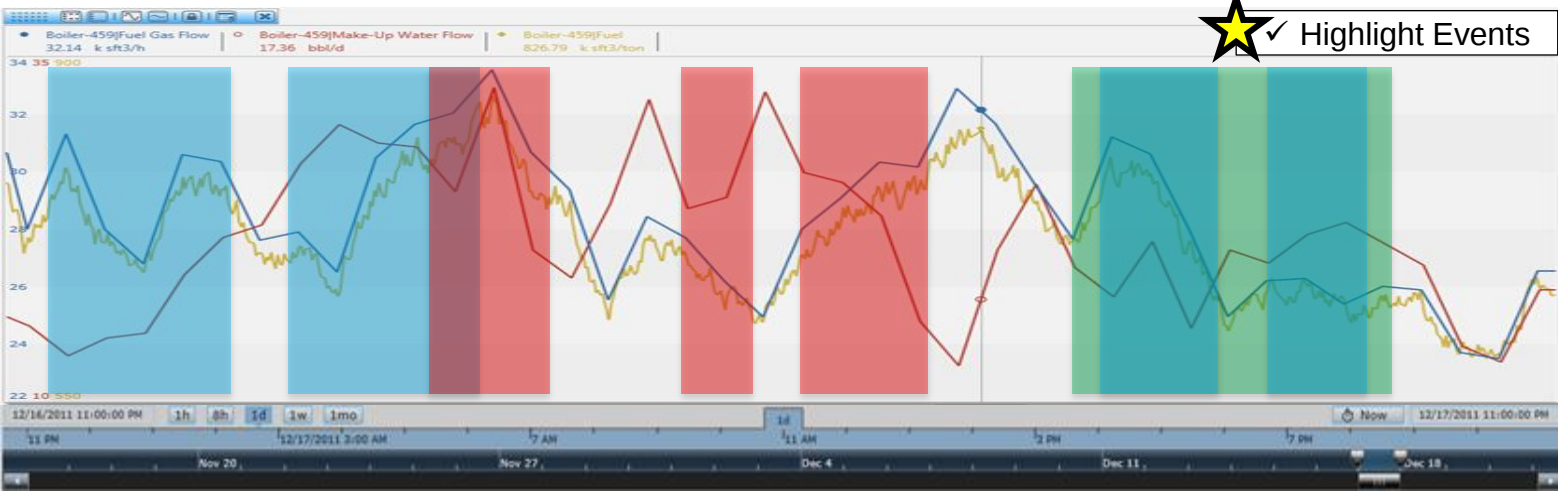
- ✓ Boiler Downtime (3)
- ✓ Boiler KPI
- Excursion (4)
- ✓ PIUnitBatch (1)

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



Ex01

Ex02

XYZ146

DT45

DT46

DT47

Ex03

Ex04

Event Generation in Abacus

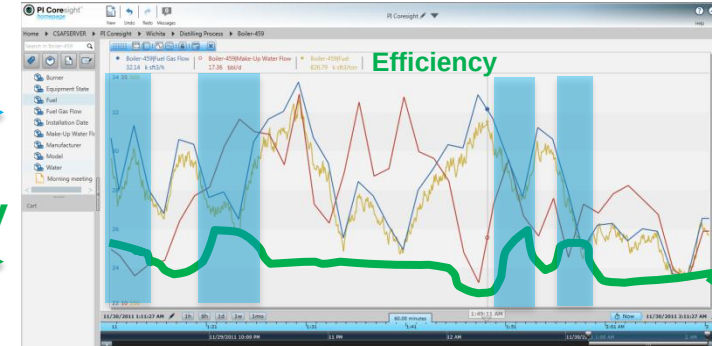


|Efficiency

|Fuel Flow Rate

|Flow Out

“Abacus”



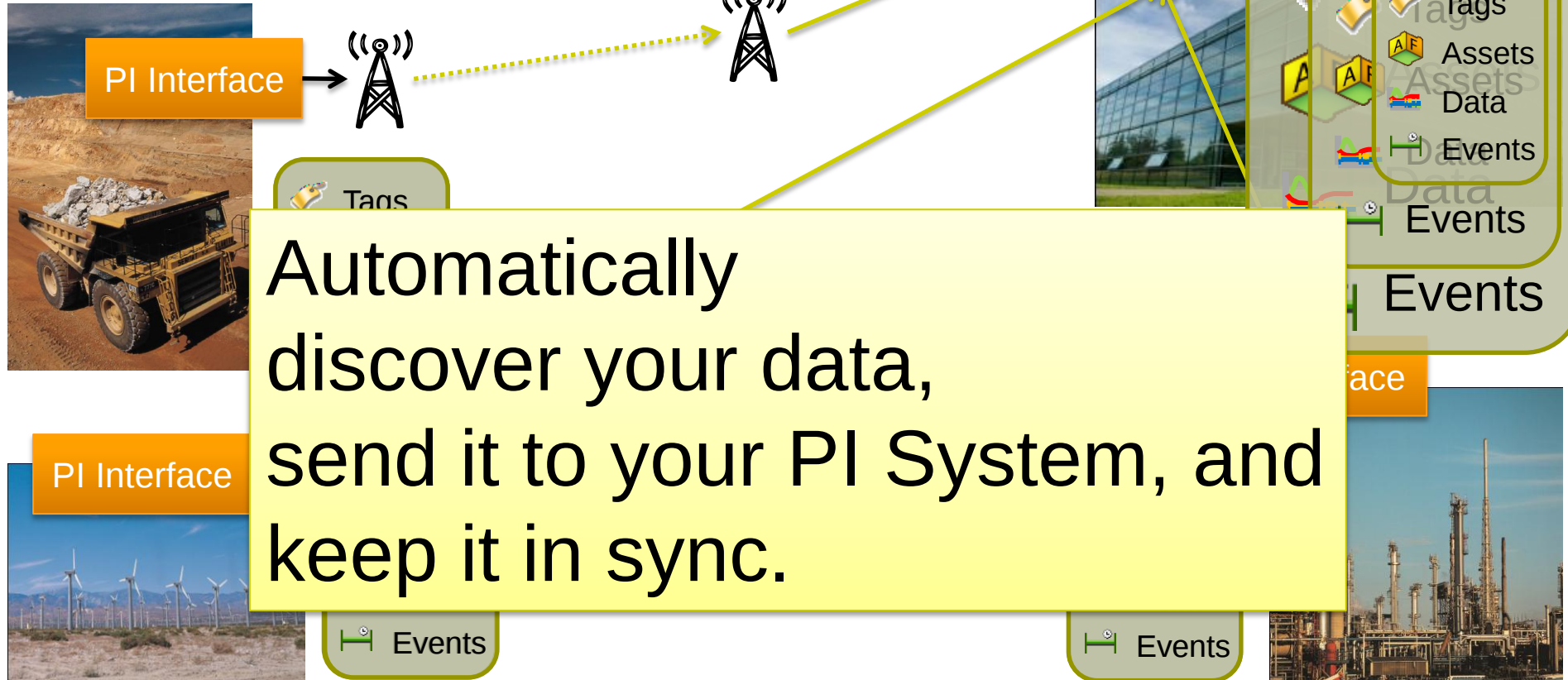
 $\text{Efficiency} = (\text{Flow Out} / \text{Fuel Flow Rate} * 3.14)$

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

2011	2012		2013		FUTURE
4Q	1H	2H	1H	2H	
Wave 1 – Partner and Early Adopters	Wave 2 – Event Frames for the Mainstream				
	Goal <u>End-to-End Event Frames Experience</u> - Ability to generate Event Frames automatically - Several event frame visualization options				
					Wave 3 – Batch Moves to Event Frames
					Goal <u>Move PI Batch Customers Forward</u> - Batch to EF Migration - Functional Equivalency with existing Batch Clients

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

Smart Interfaces



Automatically discover your data, send it to your PI System, and keep it in sync.

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

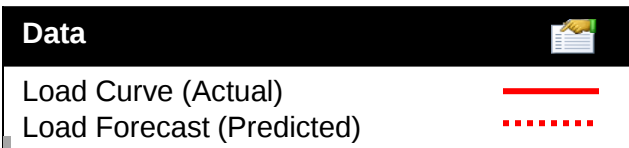
- Data sources
- Non-PI data

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



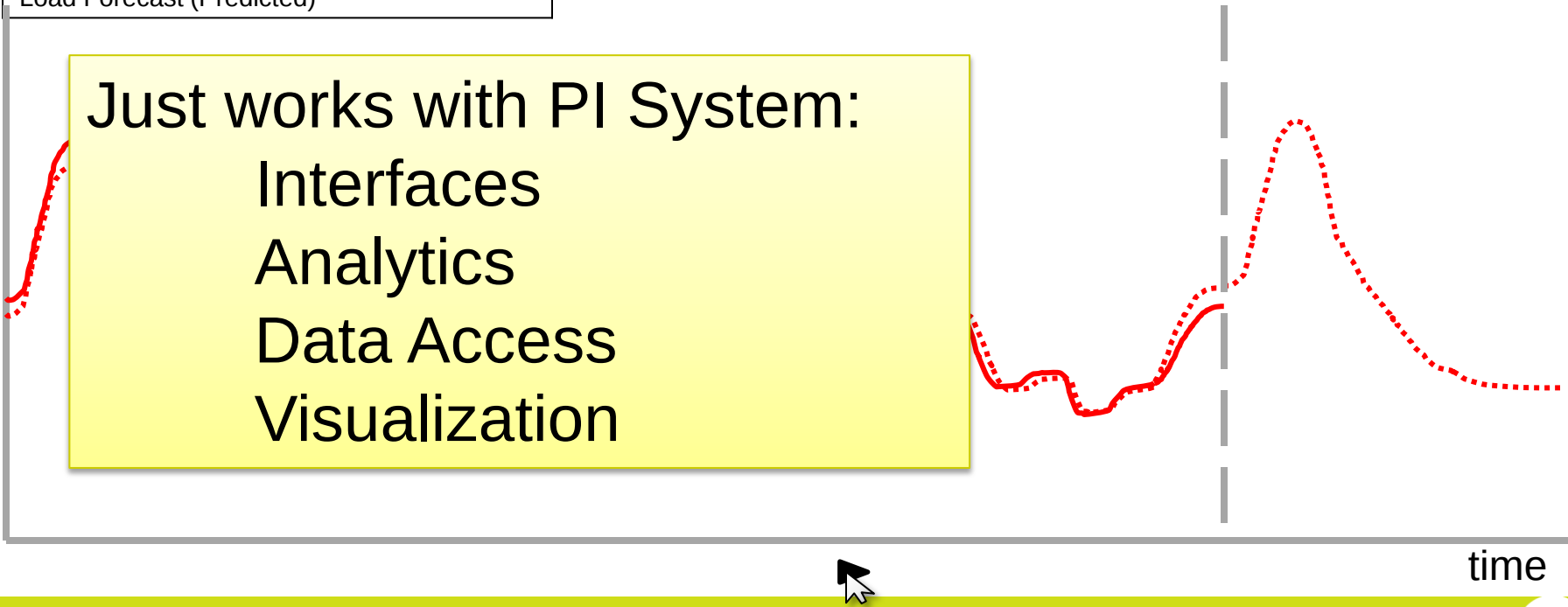
Just works with PI System:

Interfaces

Analytics

Data Access

Visualization



time

PI Data Access, longer-term

PI System SDK

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

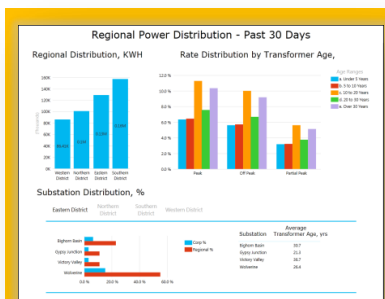
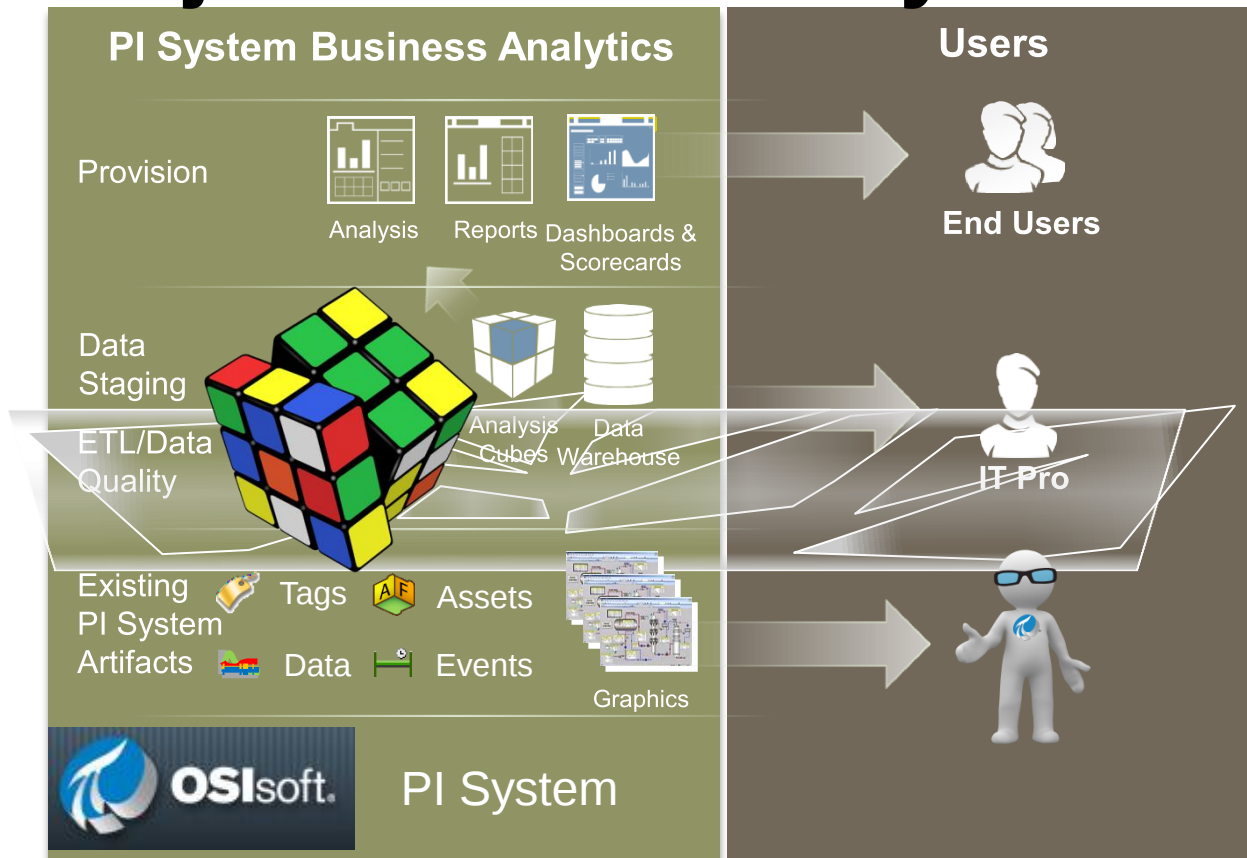
RESTful Web Services

Emerging web service standard, ideally suited for mobile and cloud

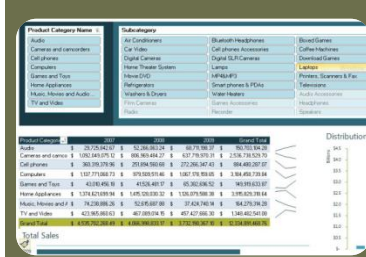
Integration Services

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

Project Rubik – Why?



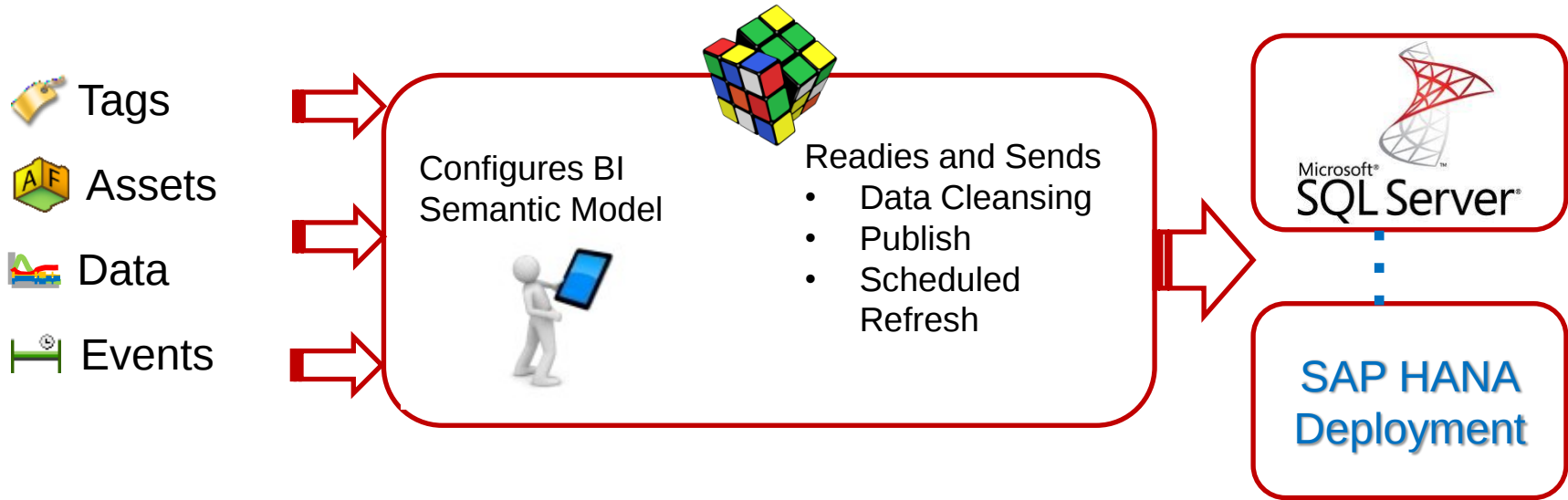
Power View



PowerPivot

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

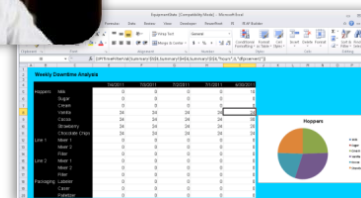
PI Coresight:
Ad Hoc Analysis & Collaboration



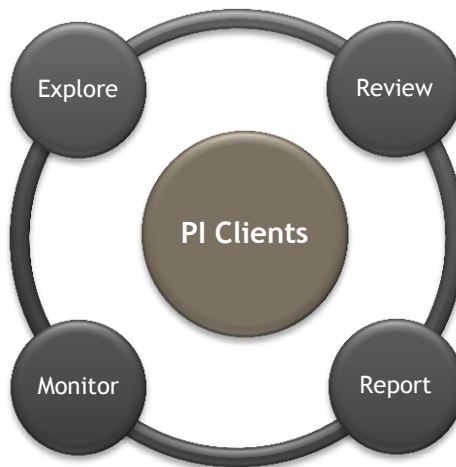
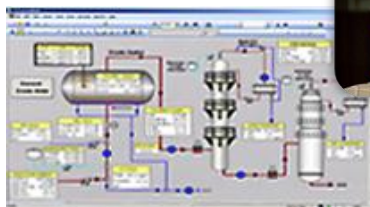
PI WebParts: Composite Apps, Shared broadly



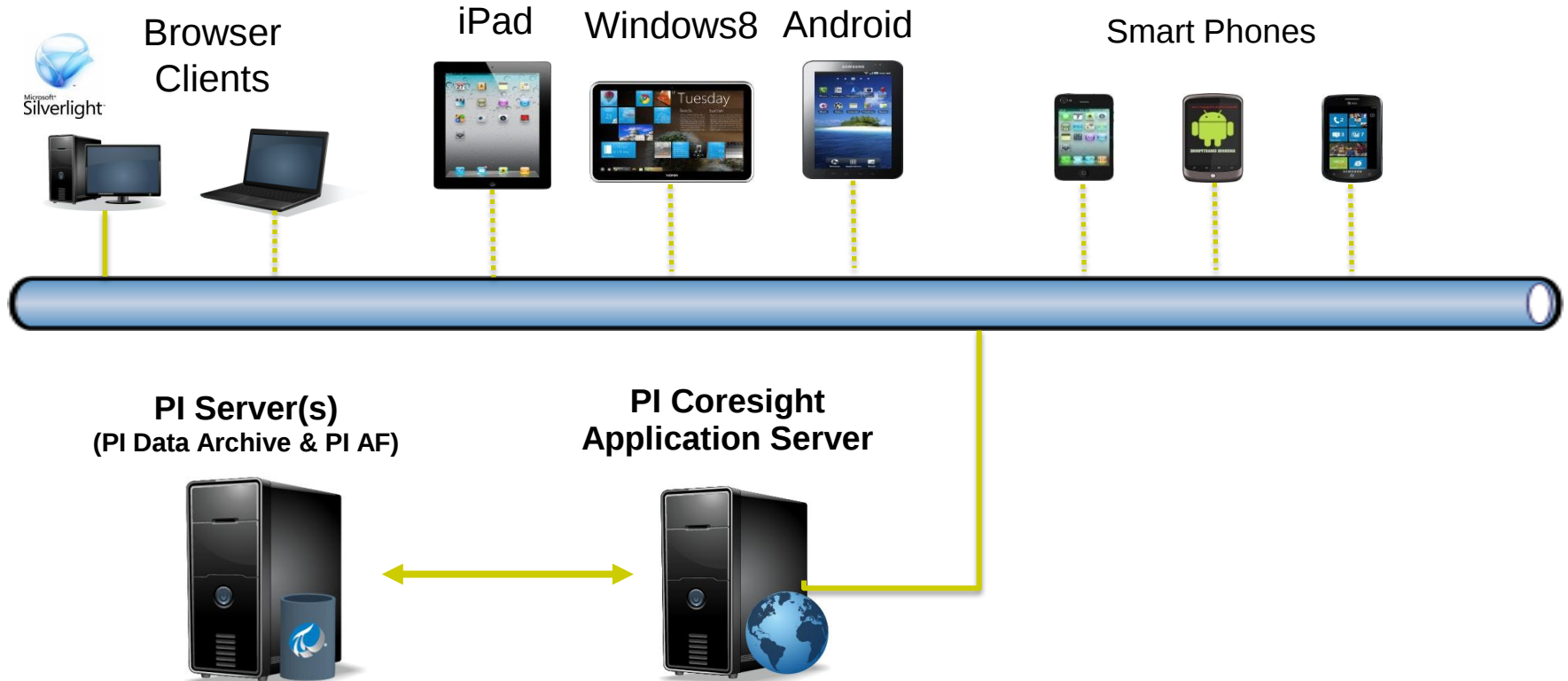
PI DataLink:
Reporting and table based analytics in Microsoft Excel



PI ProcessBook:
Display authoring and Process monitoring



PI Coresight with Mobile Clients



PI Coresight Tablet Edition – Target Audience

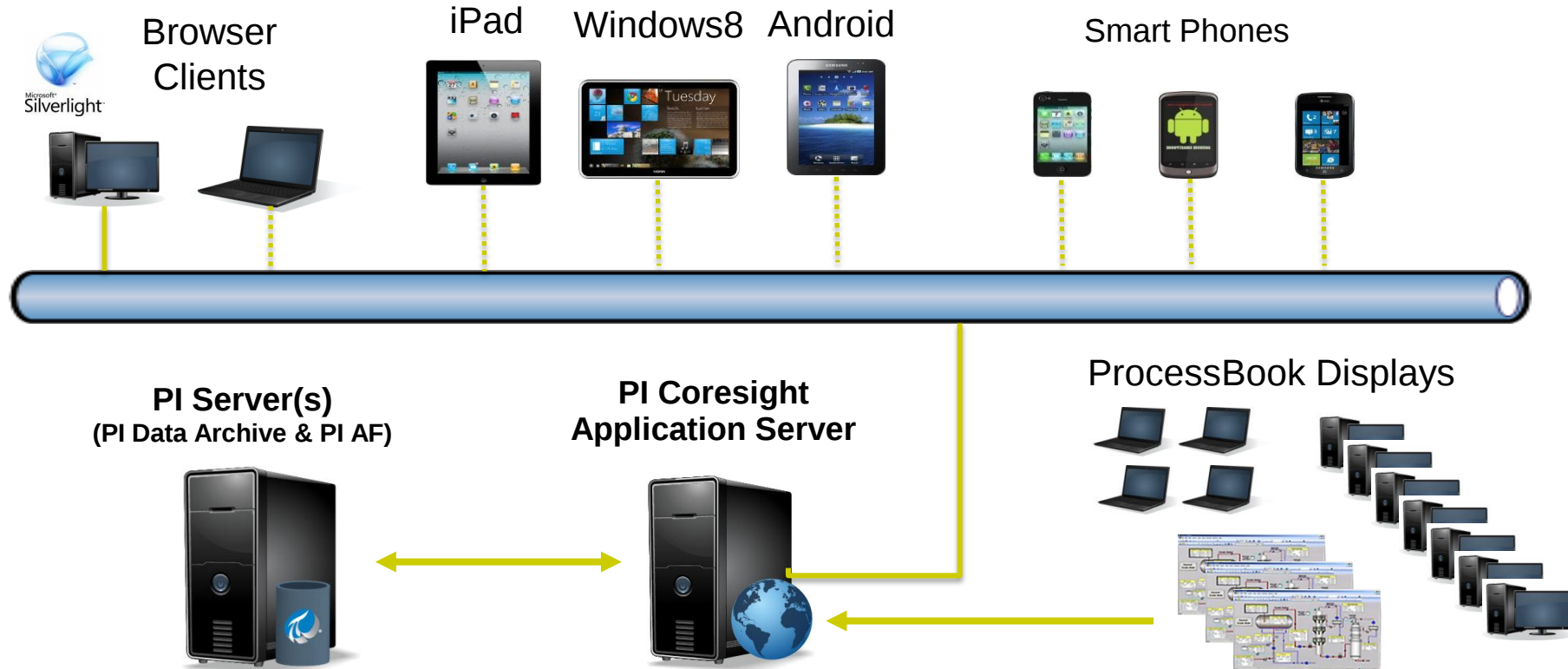
- Plant / Operations Management
 - Most likely to have iPad or similar device
 - Overview of how the plant/utility is running
 - Failures, Efficiency, KPIs, Actual vs Forecast
- Process Engineers / Corporate Planners
 - Identifying problems
 - Optimize processes – plant to plant
 - Create Content / Displays 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

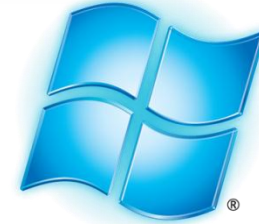
WSP Installs

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

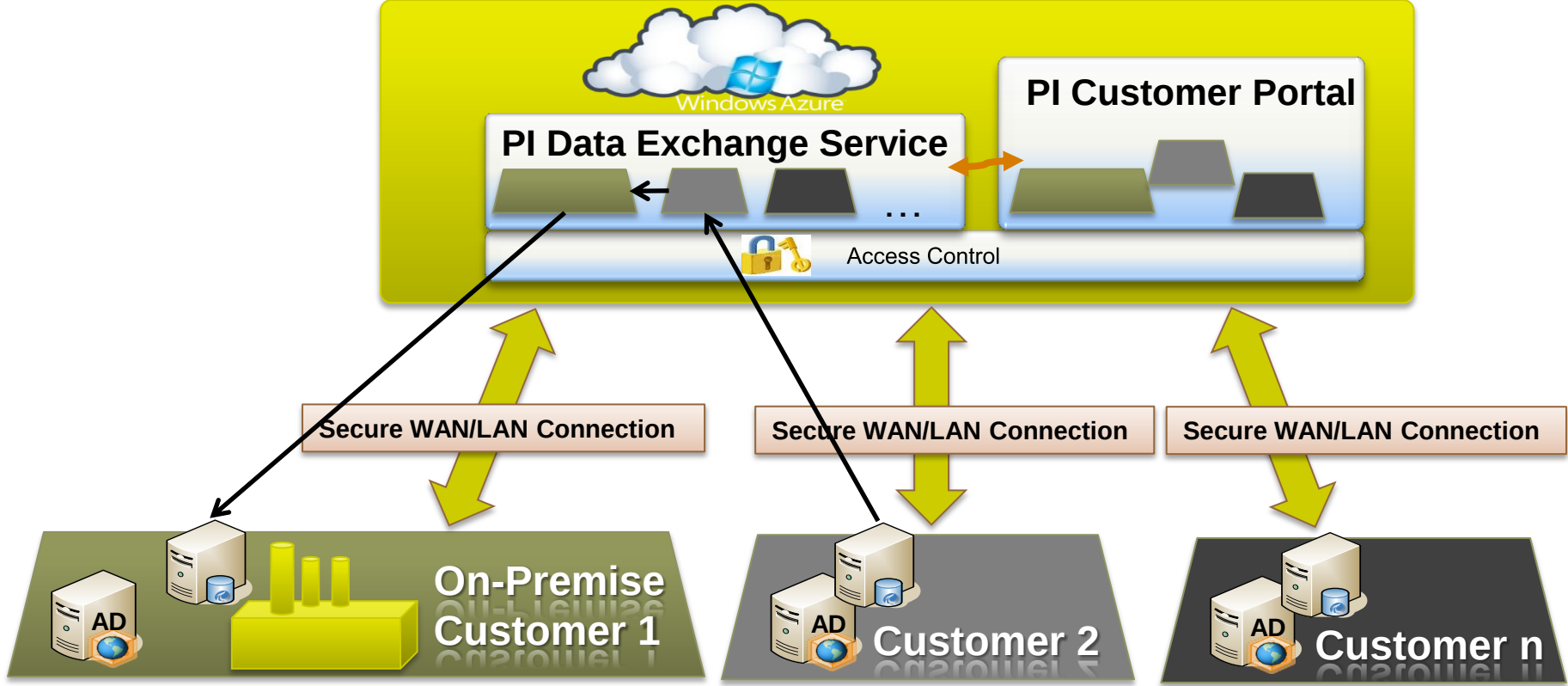
Add to existing PI Systems

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

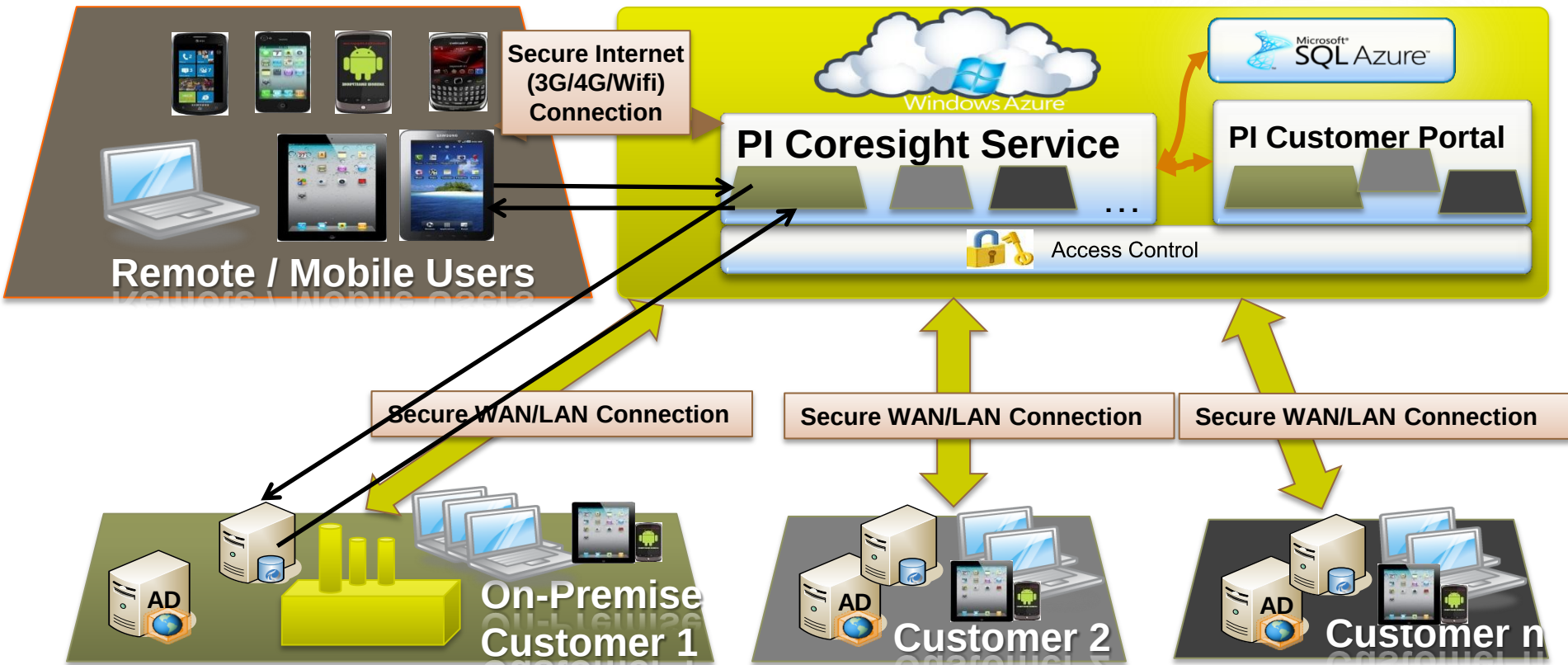
Full PI Deployment in the Cloud

- 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



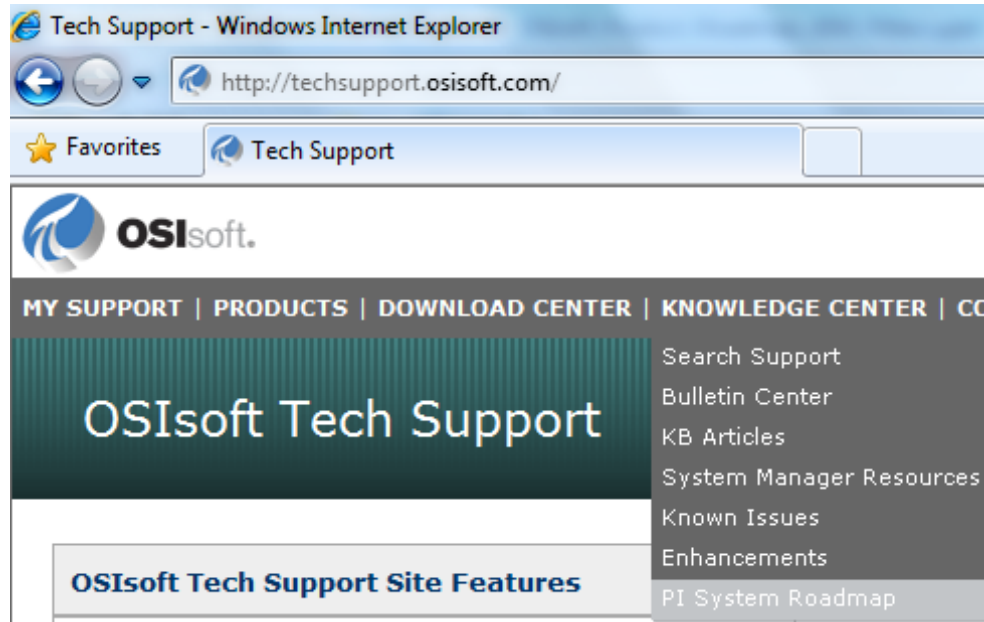
PI Coresight Service with Mobility



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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