PI System Roadmap – New and on the Way

Presented by **Michael Luo, Sales Support Engineer - OSIsoft**
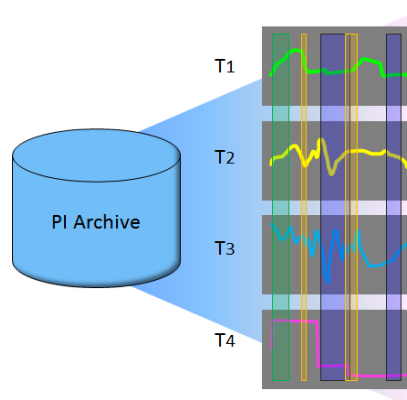
Agenda and Expectations

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

 3

PI System Themes - Future

Asset-Centric PI

Manage data via
Asset context –
Reuse many times

PI Archive

T1
T2
T3
T4

Event Frames

Identify and use
important events
and related data

Mobile
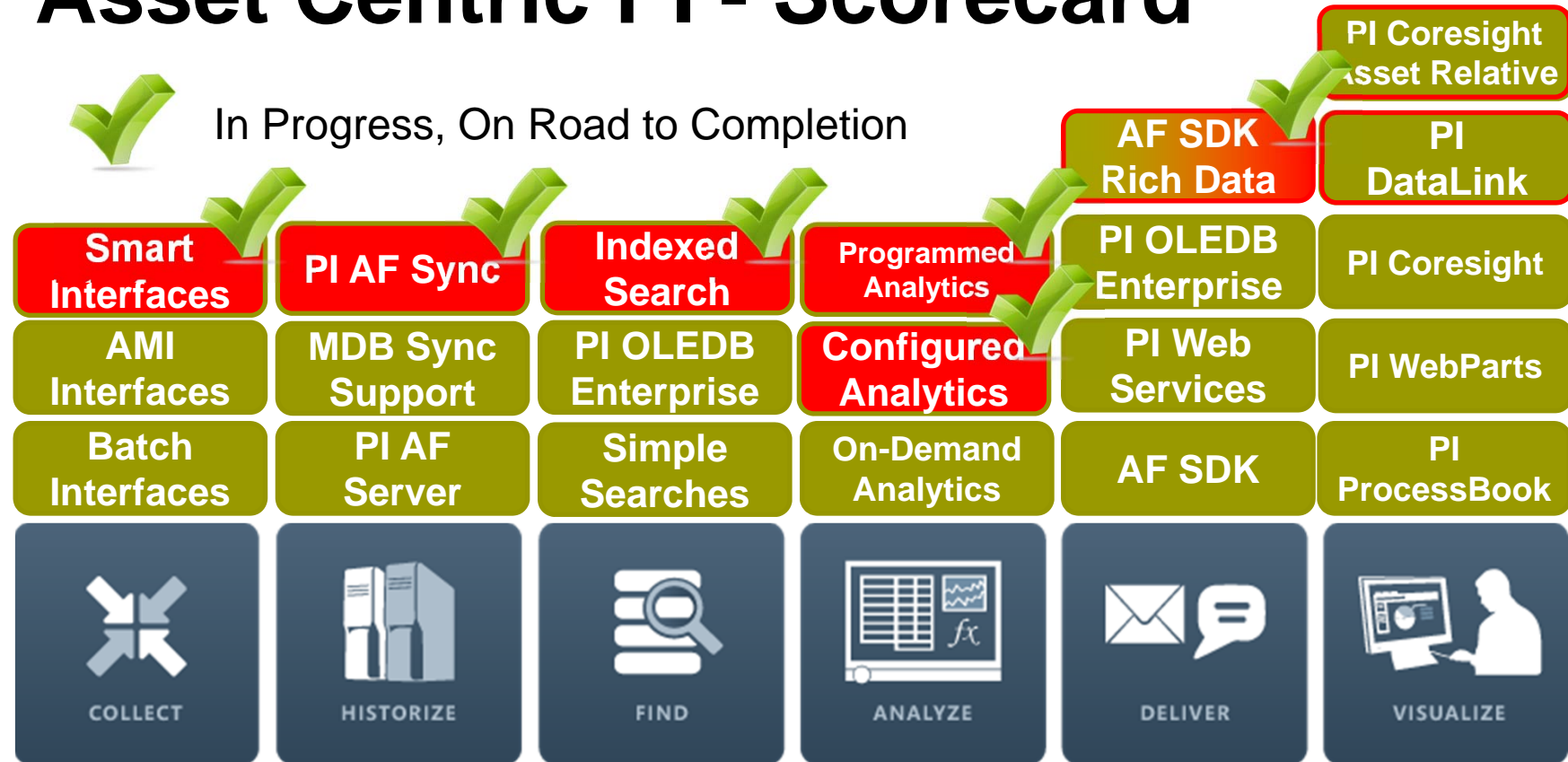
Many Devices
Touch Centric
Role Focused

Cloud

More Data
Access Anywhere
Trans-Enterprise

Asset Centric PI - Scorecard

In Progress, On Road to Completion

					PI Coresight Asset Relative
				AF SDK Rich Data	PI DataLink
Smart Interfaces	PI AF Sync	Indexed Search	Programmed Analytics	PI OLEDB Enterprise	PI Coresight
AMI Interfaces	MDB Sync Support	PI OLEDB Enterprise	Configured Analytics	PI Web Services	PI WebParts
Batch Interfaces	PI AF Server	Simple Searches	On-Demand Analytics	AF SDK	PI ProcessBook
COLLECT	HISTORIZE	FIND	ANALYZE	DELIVER	VISUALIZE

AF Centric PI system

AF to AF Scenarios

Corporate HQ

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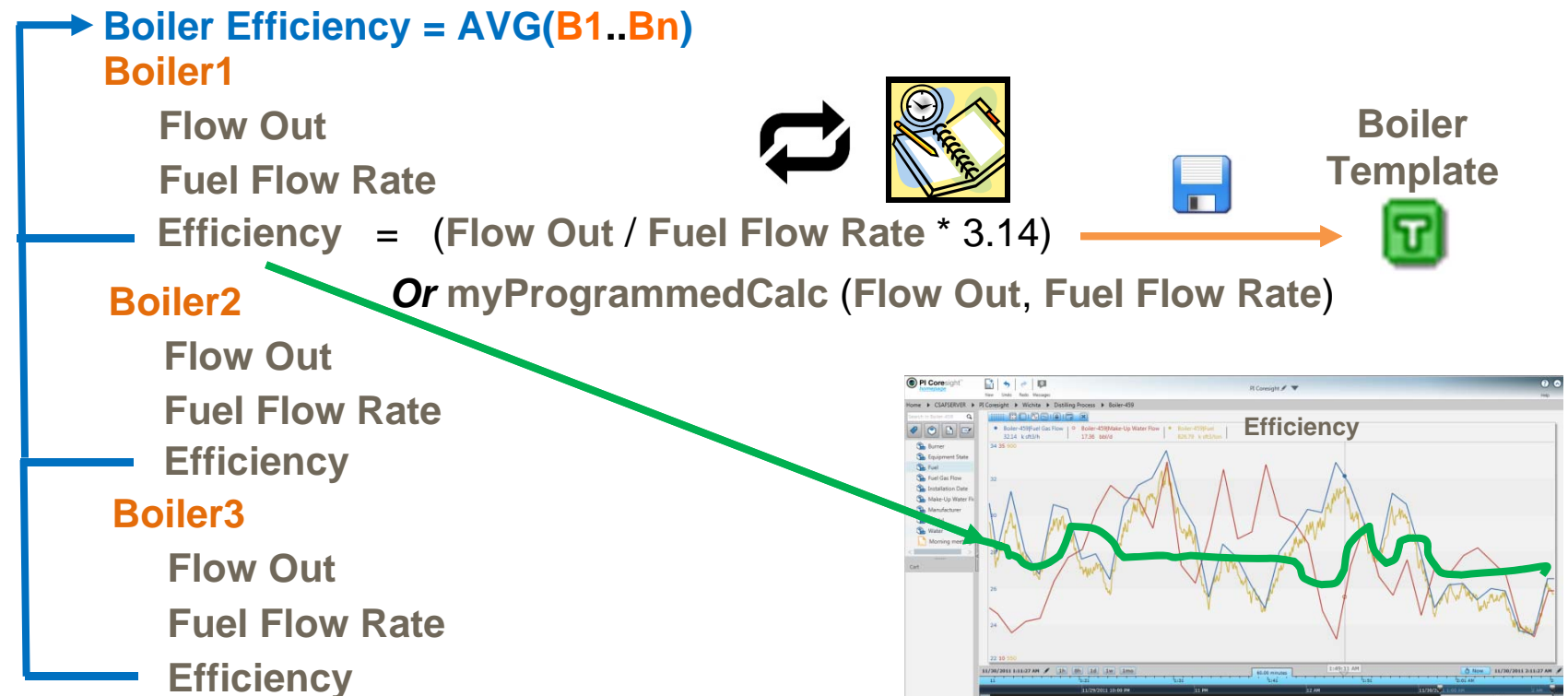- Event Frames and data to support analysis and KPIs

Templates
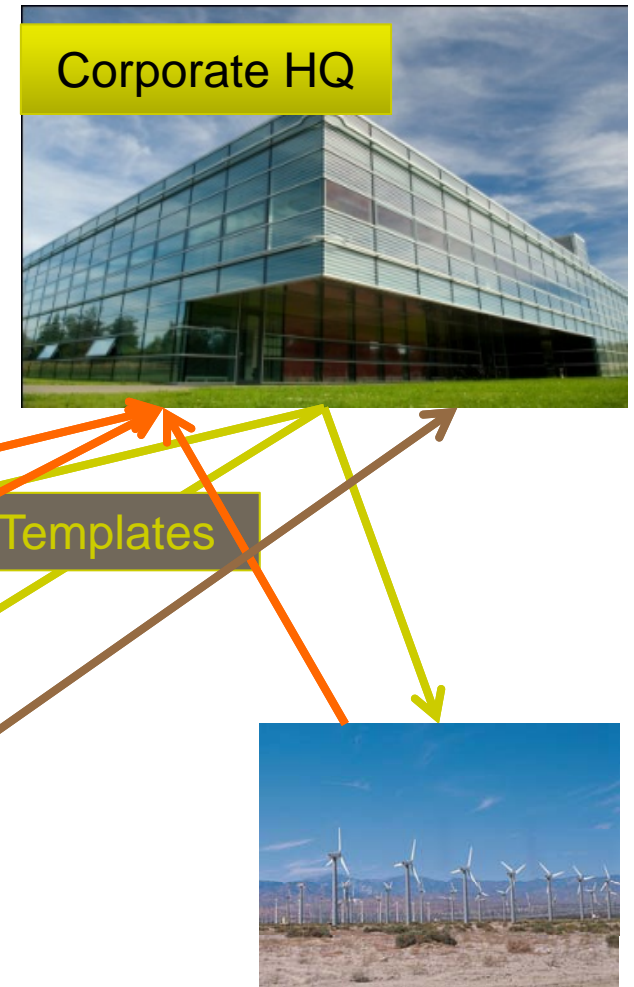
Project Abacus
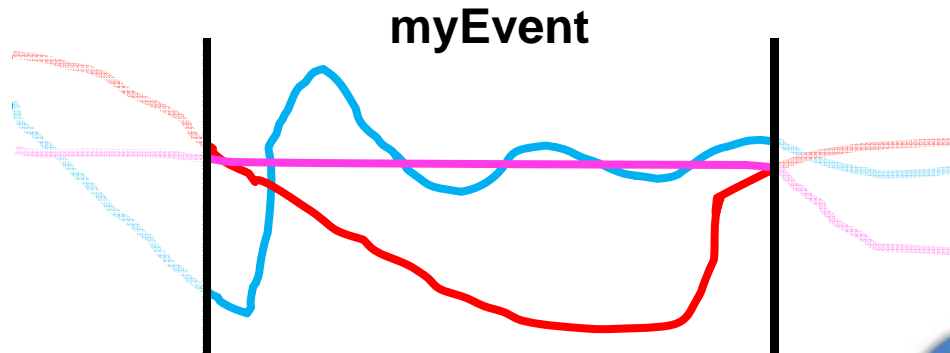**Configured and Programmed**
Calculations for PI AF

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)

      Or **myProgrammedCalc (Flow Out, Fuel Flow Rate)**

Boiler2
- **Flow Out**
- **Fuel Flow Rate**
- **Efficiency**

Boiler3
- **Flow Out**
- **Fuel Flow Rate**
- **Efficiency**

Boiler Template

Efficiency

Event Frames

Simplify Data Analysis

myEvent

Perform Asset Comparisons

Weekly Downtime (Instances)

- DT101: 15
- DT102: 4
- DT103: 7

Weekly Cumulative Downtime (hrs)

- DT101: 84
- DT102: 117.6
- DT103: 42
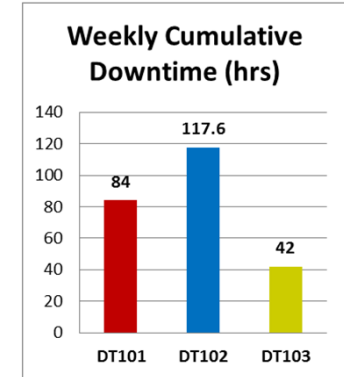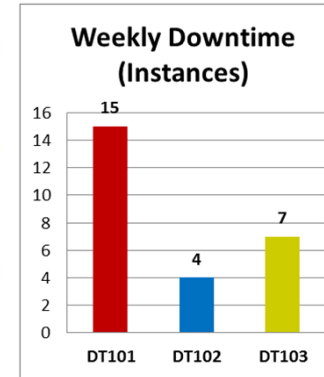
Event Overlay Trend (Temp)
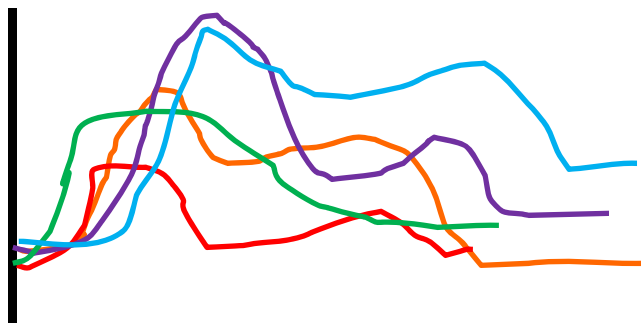
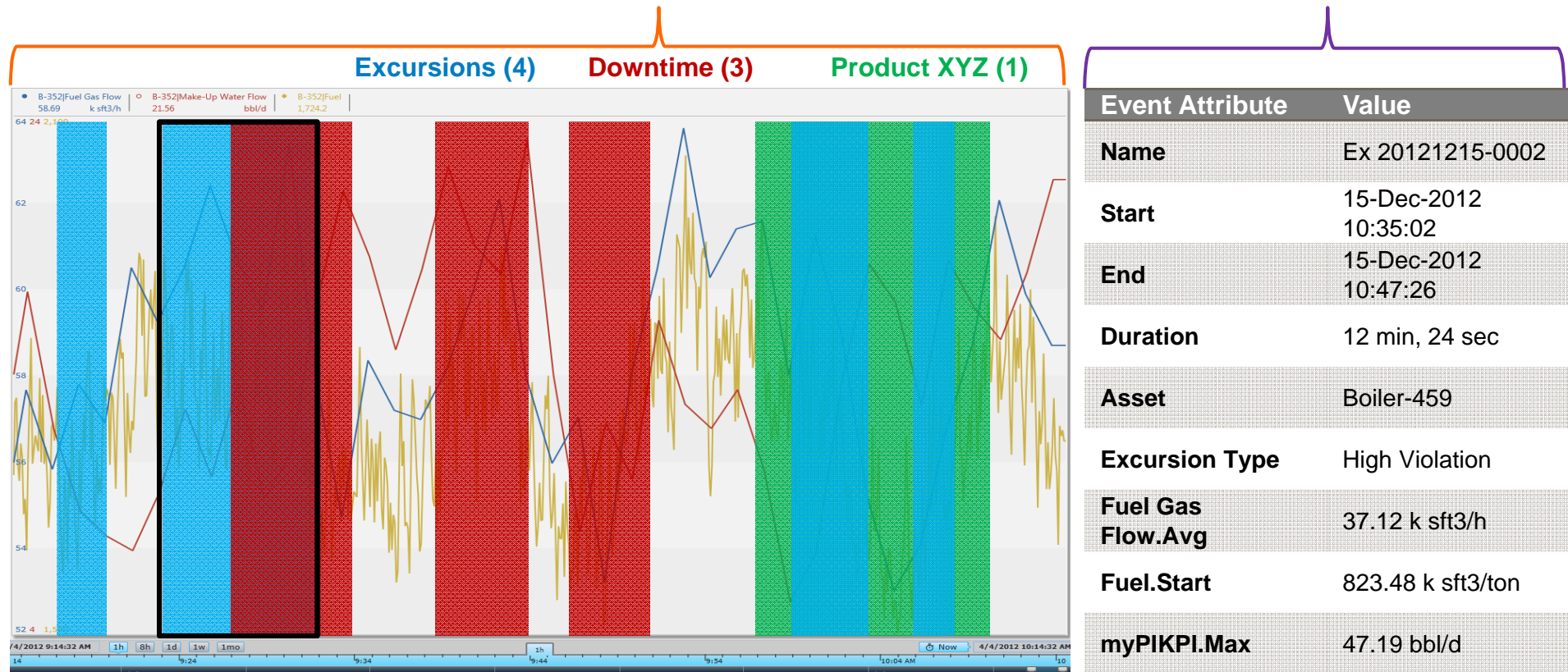| Name	Temp.Max
EF1	122.47
EF2	109.34
EF3	112.73
EF4	98.61
EF5	125.24

Downtime Events for Product XYZ

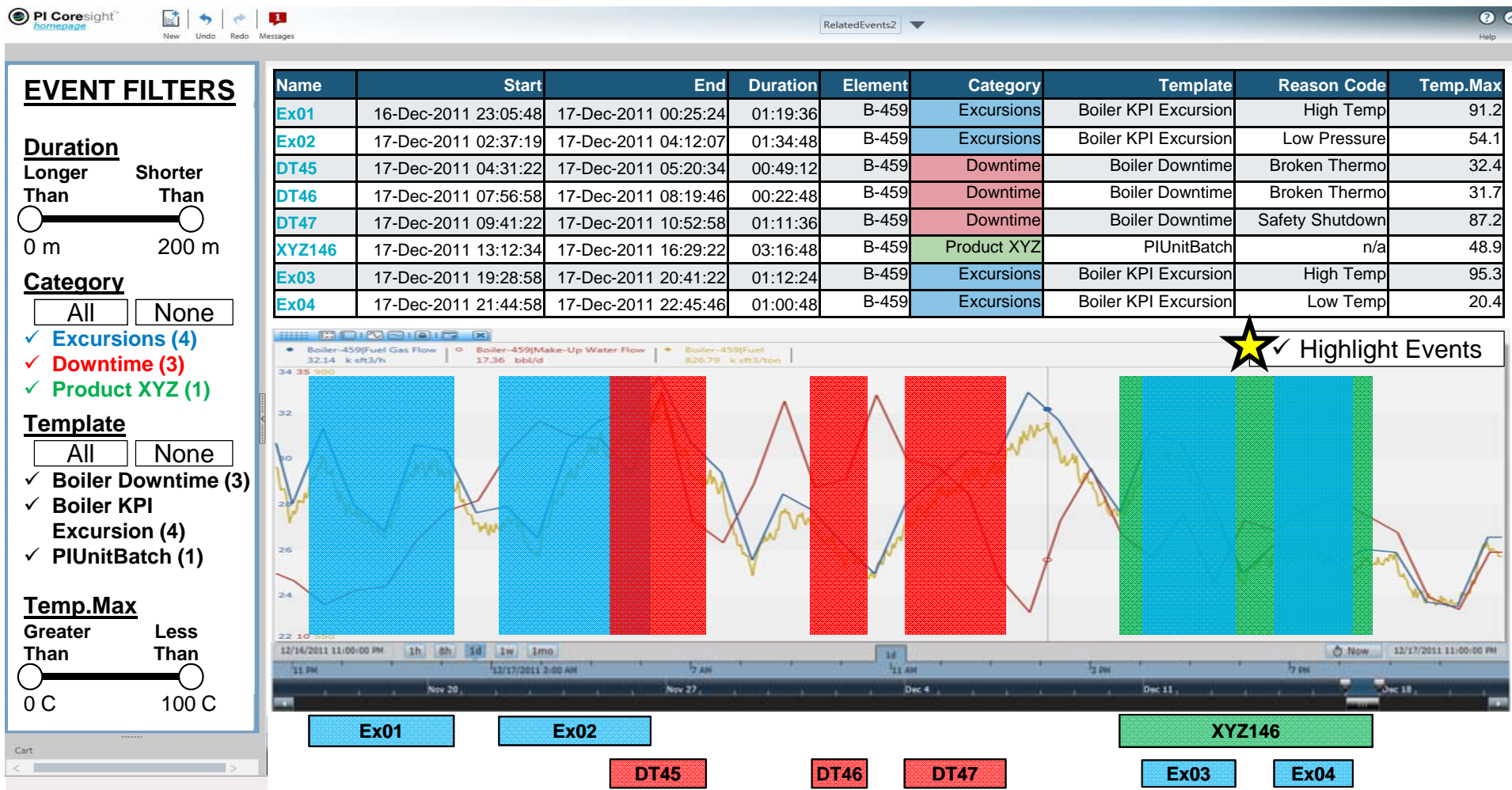**Product XYZ (1)**
Downtime (2)
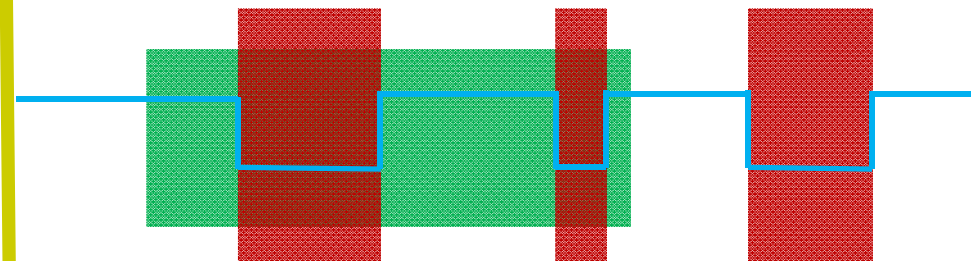
Perform Event Comparisons

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

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

Event Generation in Abacus

|Efficiency →

|Fuel Flow Rate →

|Flow Out →

"Abacus"

→ **myEF**

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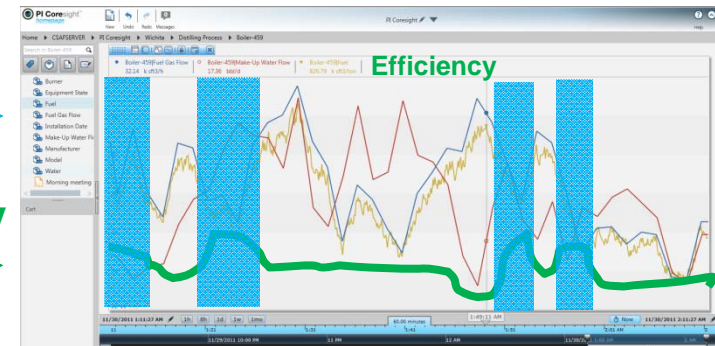
Efficiency = (**Flow Out** / **Fuel Flow Rate** * 3.14)

myEF.Start = (**Efficiency** > LIMIT)
myEF.End = (**Efficiency** < LIMIT) AND (**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

End-to-End Event Frames Experience
- Ability to generate Event Frames automatically
- Several event frame visualization options

Wave 3 – Batch Moves to Event Frames

Goal

Move PI Batch Customers Forward
- Batch to EF Migration
- Functional Equivalency with existing Batch Clients

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

Smart Interfaces

PI Interface

PI System

- Tags
- Assets
- Data
- Events

PI Interface

- Tags
- Assets
- Data
- Events

PI Interface

- Tags
- Assets
- Data
- Events

Smart Interfaces

PI System

Tags

Assets

Data

Events

PI Interface

Tags

PI Interface

Events

Events

Automatically discover your data, send it to your PI System, and keep it in sync.
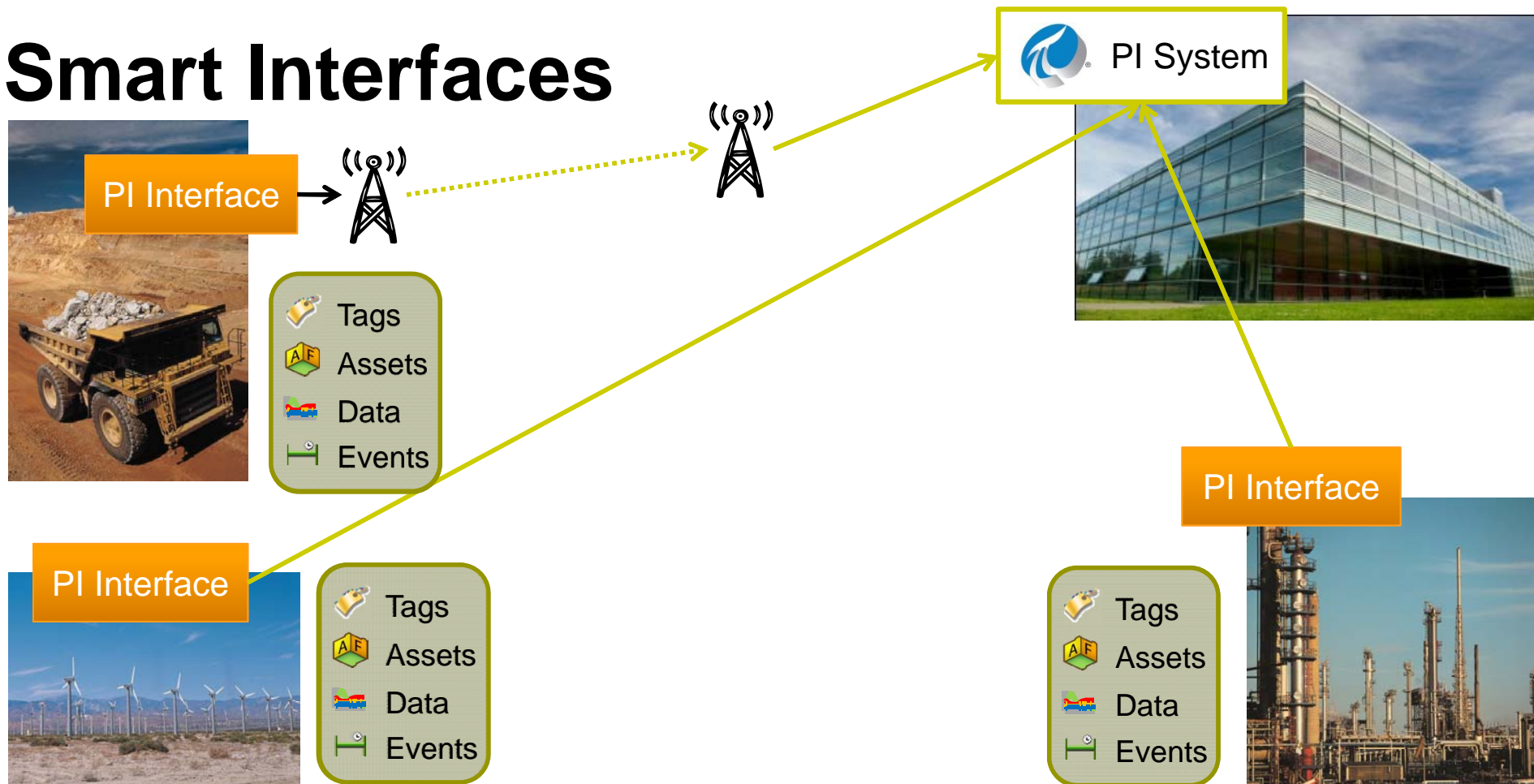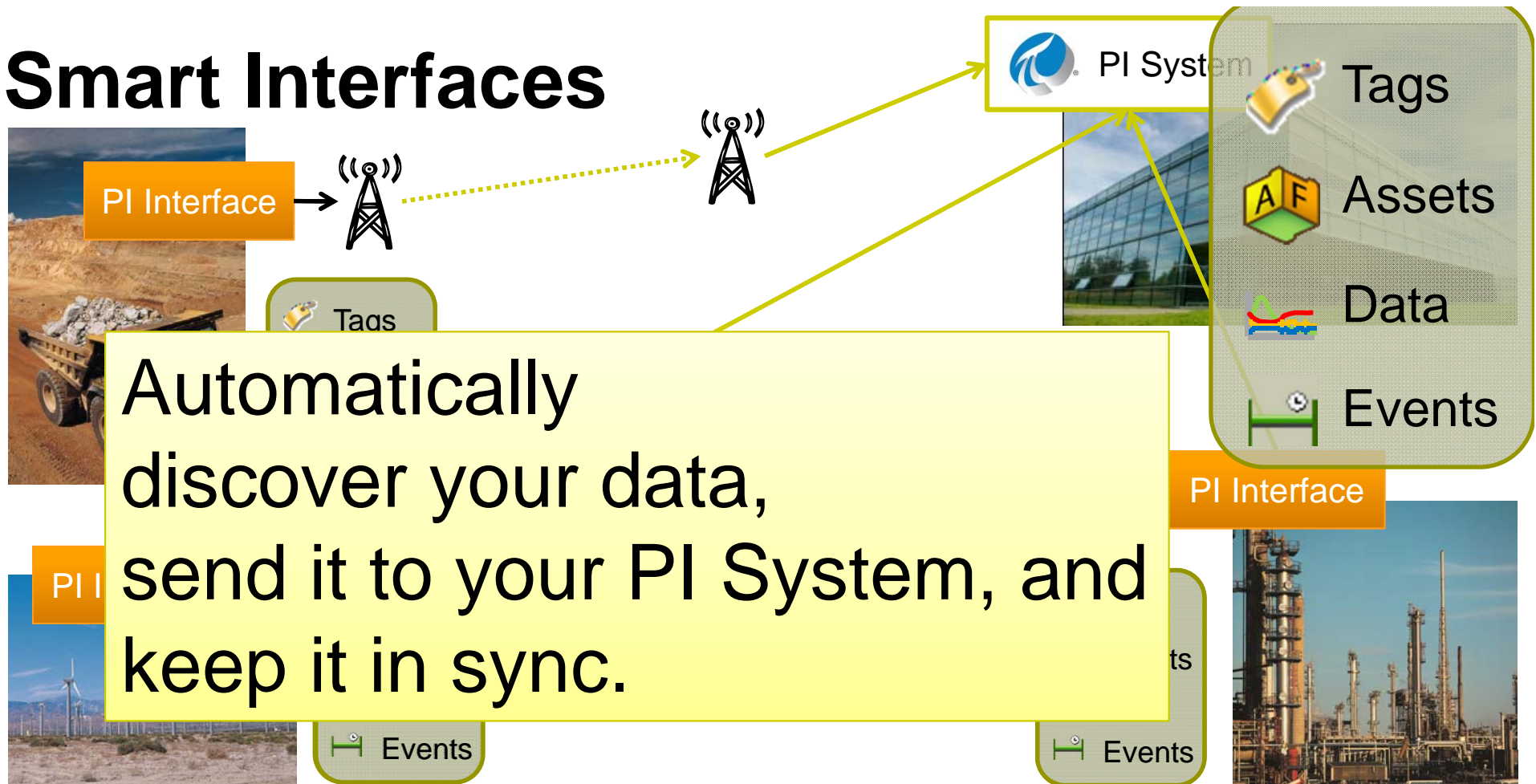
More to search than ever…

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

Data

| Load Curve (Actual) | ———— |
| Load Forecast (Predicted) | ·········· |

Just works with PI System:
Interfaces
Analytics
Data Access
Visualization

time
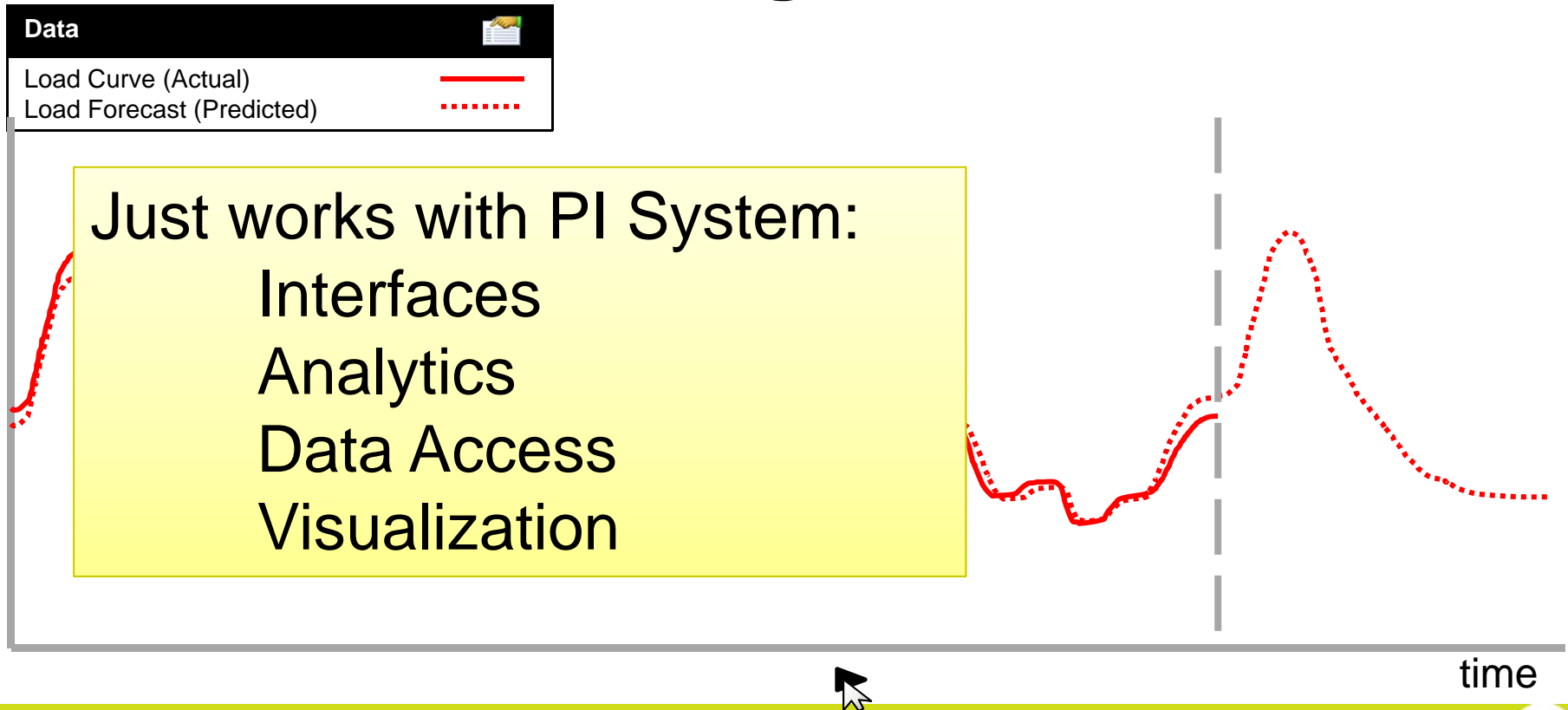
PI Data Access, longer-term

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)
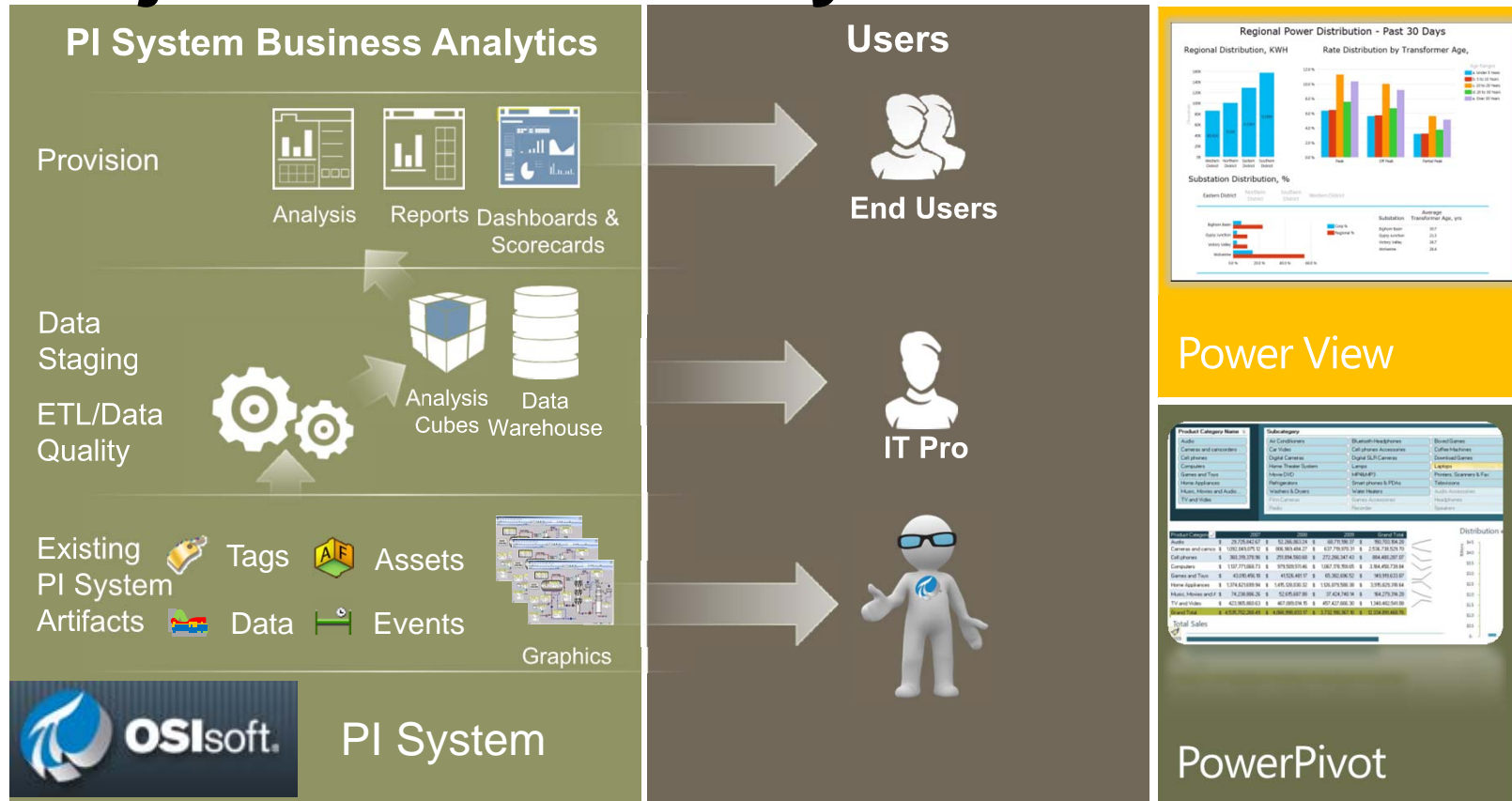
Project Rubik – Why?

Project Rubik – Why?

23
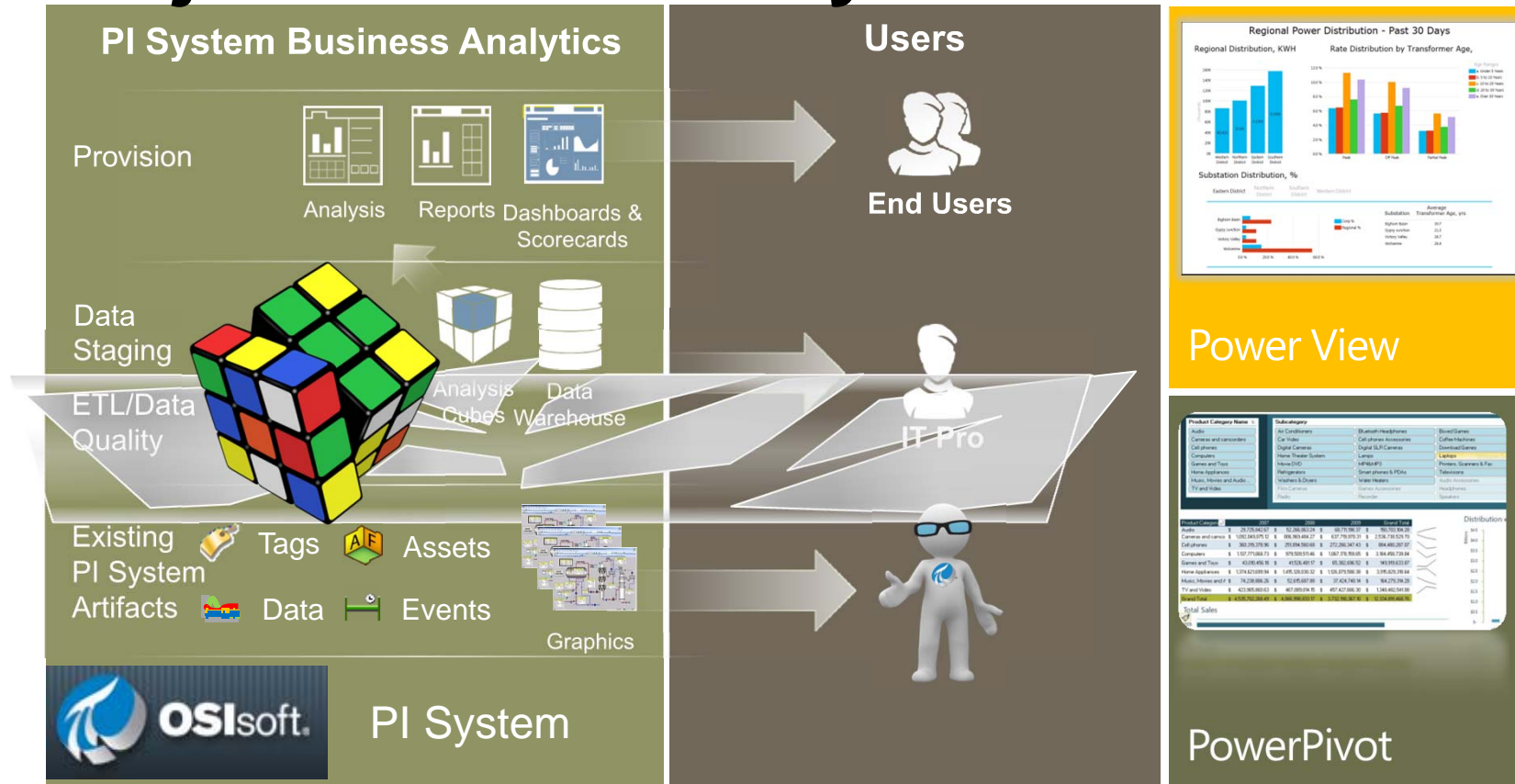
Project Rubik

- 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)

Tags

Assets

Data

Events

Configures BI
Semantic Model

Readies and Sends
- Data Cleansing
- Publish
- Scheduled
  Refresh

Microsoft®
SQL Server®

SAP HANA
Deployment
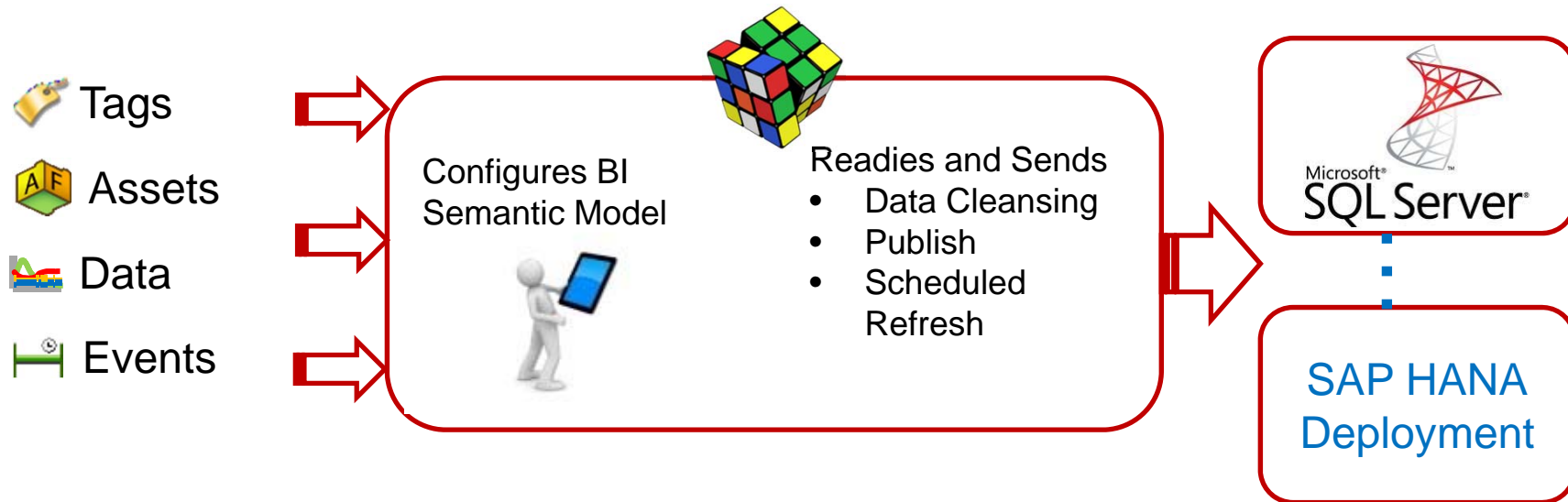
Visualization Landscape

PI Coresight:
Ad Hoc Analysis &
Collaboration

PI WebParts: Composite
Apps, Shared broadly

Explore

Review

PI Clients

Monitor

Report

PI DataLink:
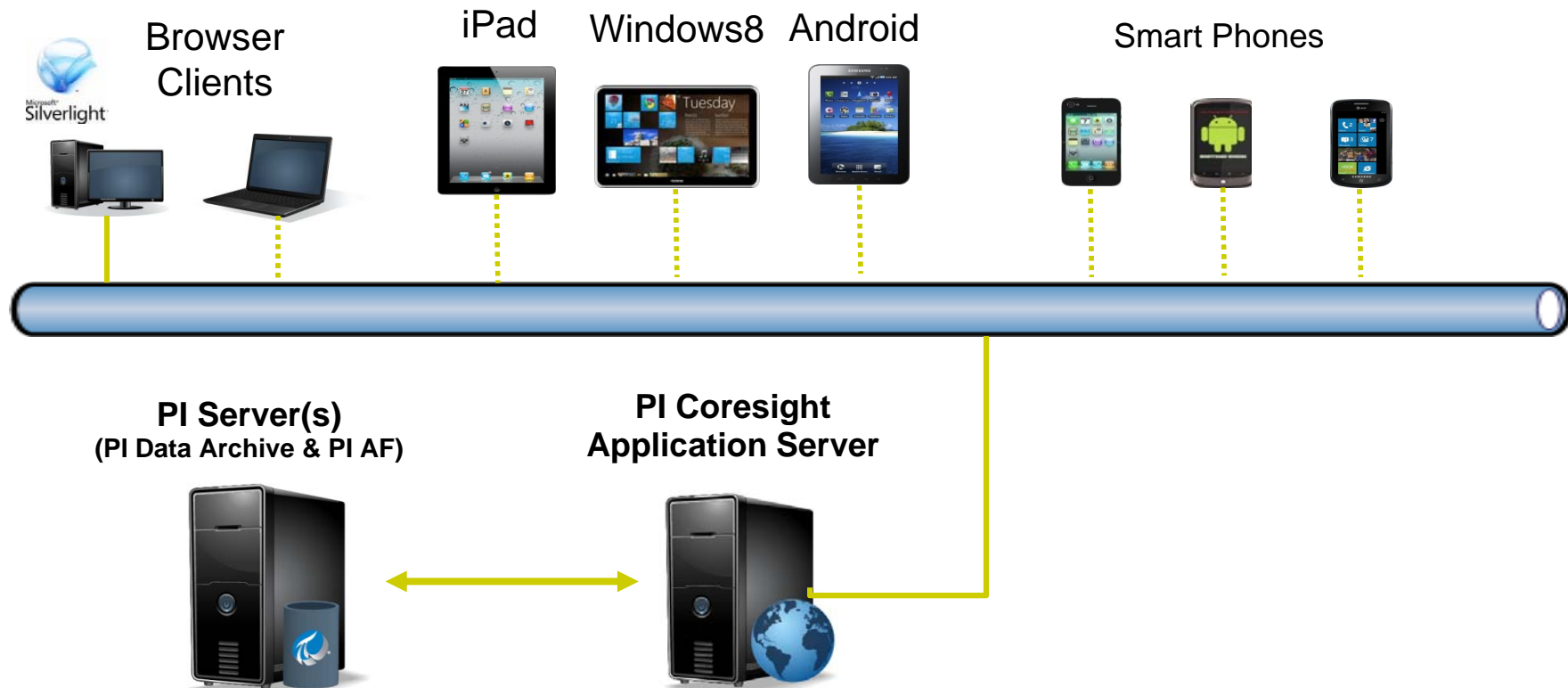Reporting and table
based analytics in
Microsoft Excel
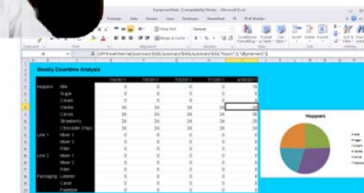
PI ProcessBook:
Display authoring and
Process monitoring

PI on Mobile Devices

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
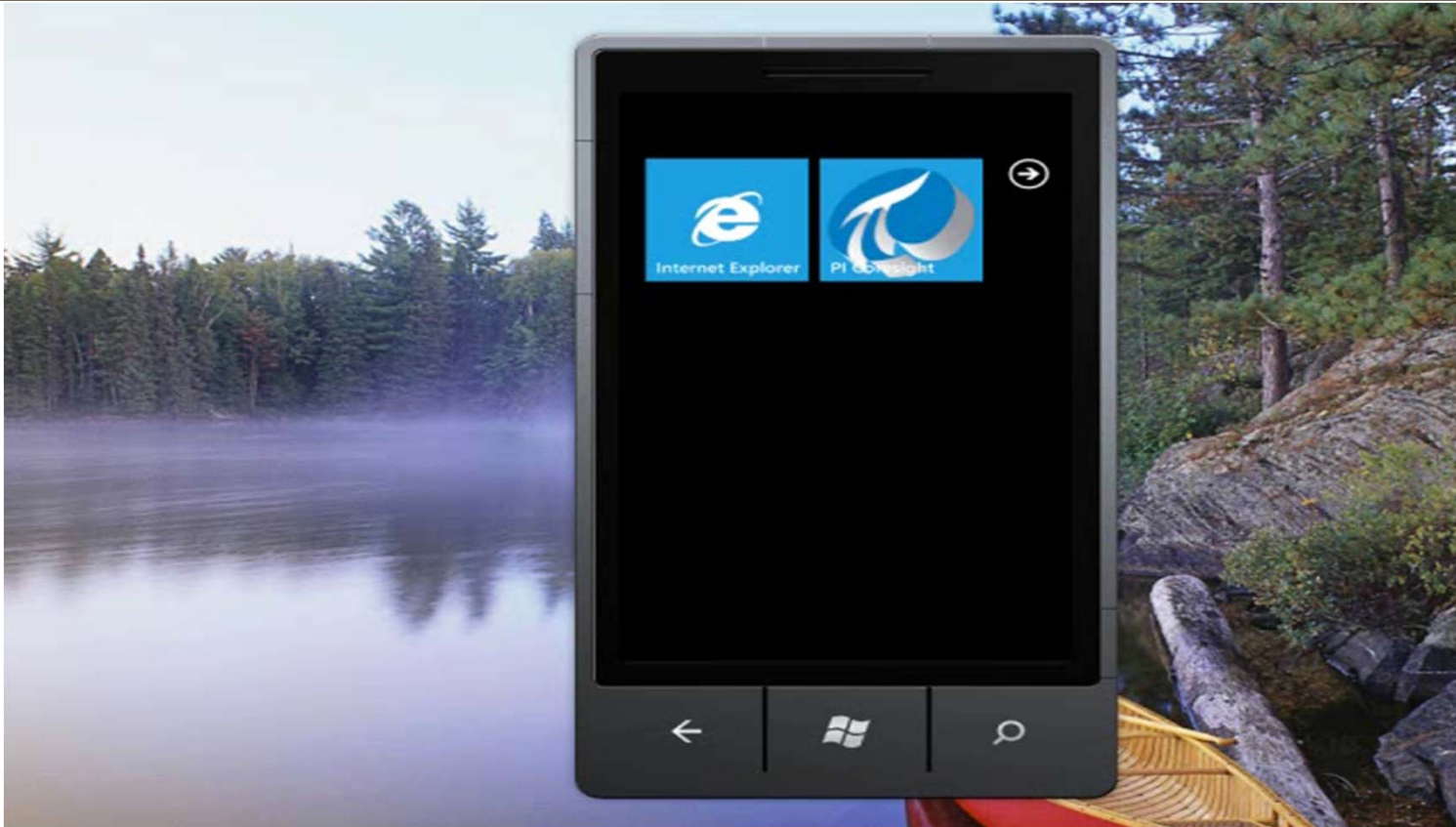 - Calibration

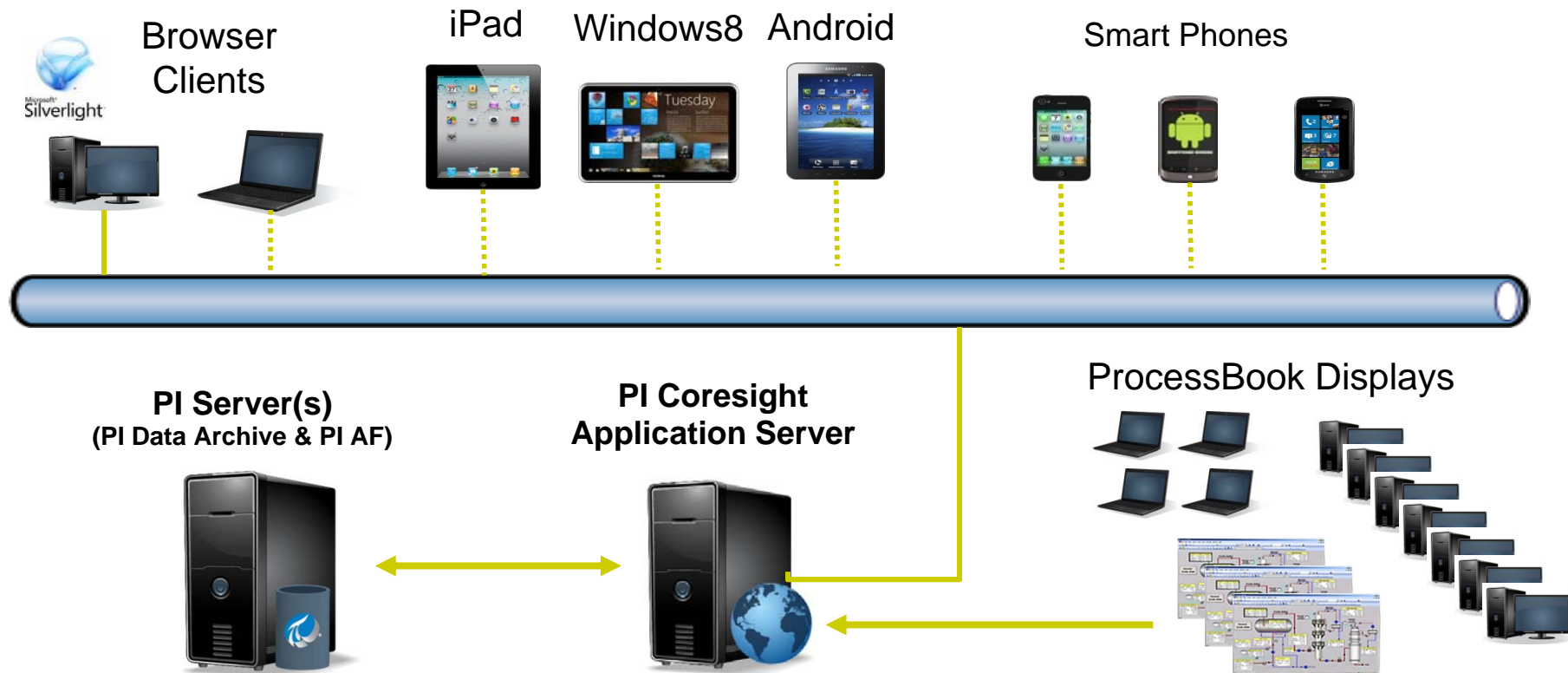# PI Coresight Phone Edition – Target Audience

- 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 Phone Demo

31

PI Coresight – ProcessBook Display Viewer

Browser Clients

iPad

Windows8

Android

Smart Phones

PI Server(s)
(PI Data Archive & PI AF)

PI Coresight
Application Server

ProcessBook Displays

PI WebParts 2012

Support for SharePoint 2010 and SharePoint "15"
Become a better SharePoint corporate citizen
Become a more "IT" friendly product
Replace obsolete technology
Set the stage for OS and Browser independence, Mobile

Microsoft® SharePoint 2010
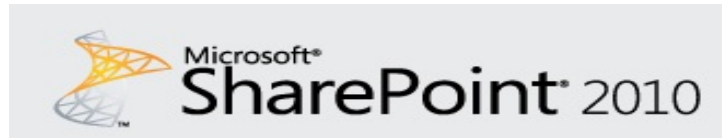
Remote Data Services
WSP Installs
Can leverage Adobe SVG Viewer if needed
Support for IE 8

Microsoft® SharePoint "15"

Remote Data Services
WSP Installs
Visualization using Web Standards
Support for IE9, IE10, Firefox, and Chrome

PI on Cloud

34

Evolution of Operating Systems
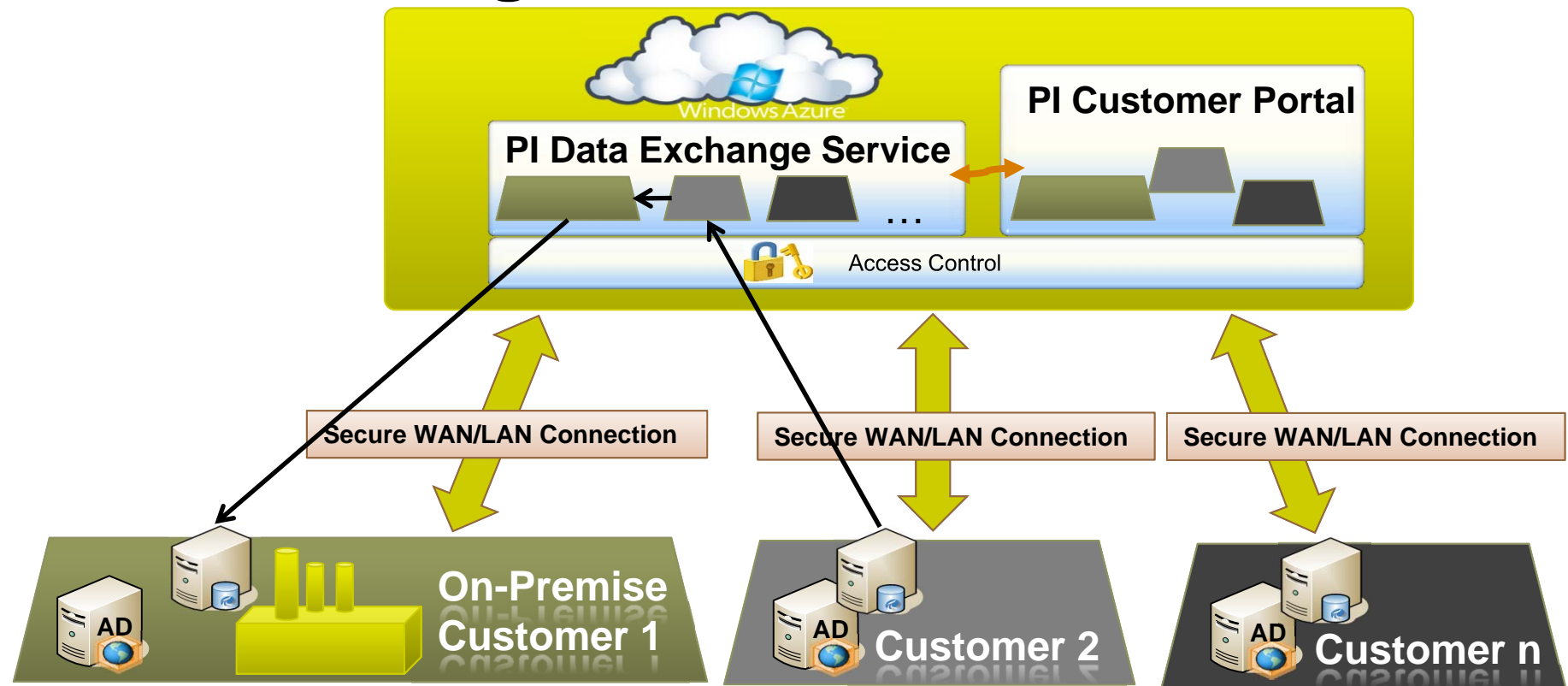
PI Cloud Initiatives

Add to existing PI Systems

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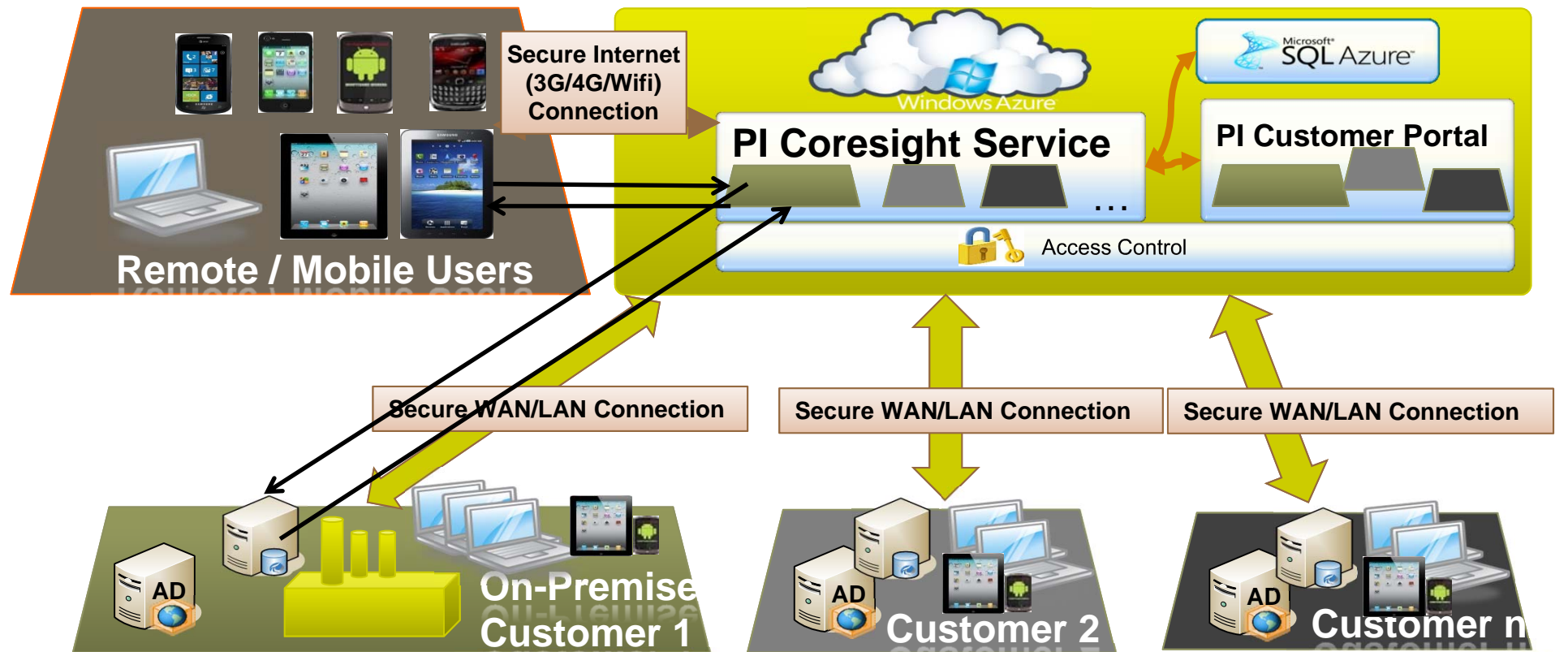- Data, Visualization and other services for Partner and Custom Apps

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
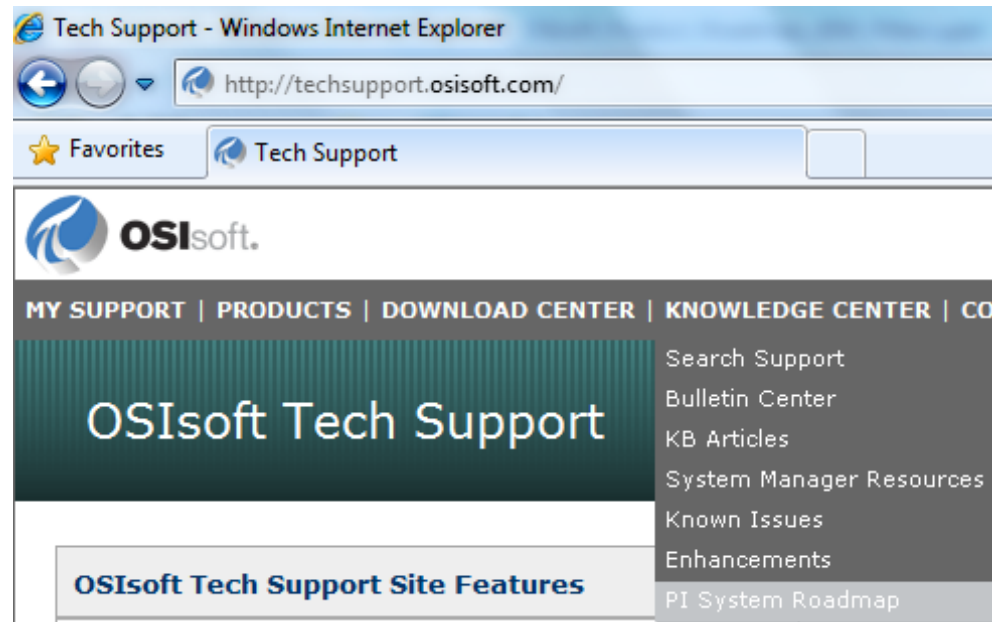
PI Data Exchange Service

PI Coresight Service with Mobility

Secure Internet (3G/4G/Wifi) Connection

Remote / Mobile Users

Windows Azure

PI Coresight Service

...

Microsoft SQL Azure

PI Customer Portal

Access Control

Secure WAN/LAN Connection

Secure WAN/LAN Connection

Secure WAN/LAN Connection

AD

On-Premise Customer 1

AD

Customer 2

AD

Customer n

Stay Up-To-Date on the Web

- PI System Roadmap on OSIsoft Technical Support Site

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

THANK
YOU

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