



PI System Roadmap

Presented by **Chris Ong**,
Customer Support Manager, Asiapac



OSIsoft.

REGIONAL SEMINARS

The **Power** of **Data**

**THRIVING
IN A
WORLD OF
CHANGE**

I N D I A

**August 22 - 23, 2013
Mumbai, India**

Agenda and Expectations

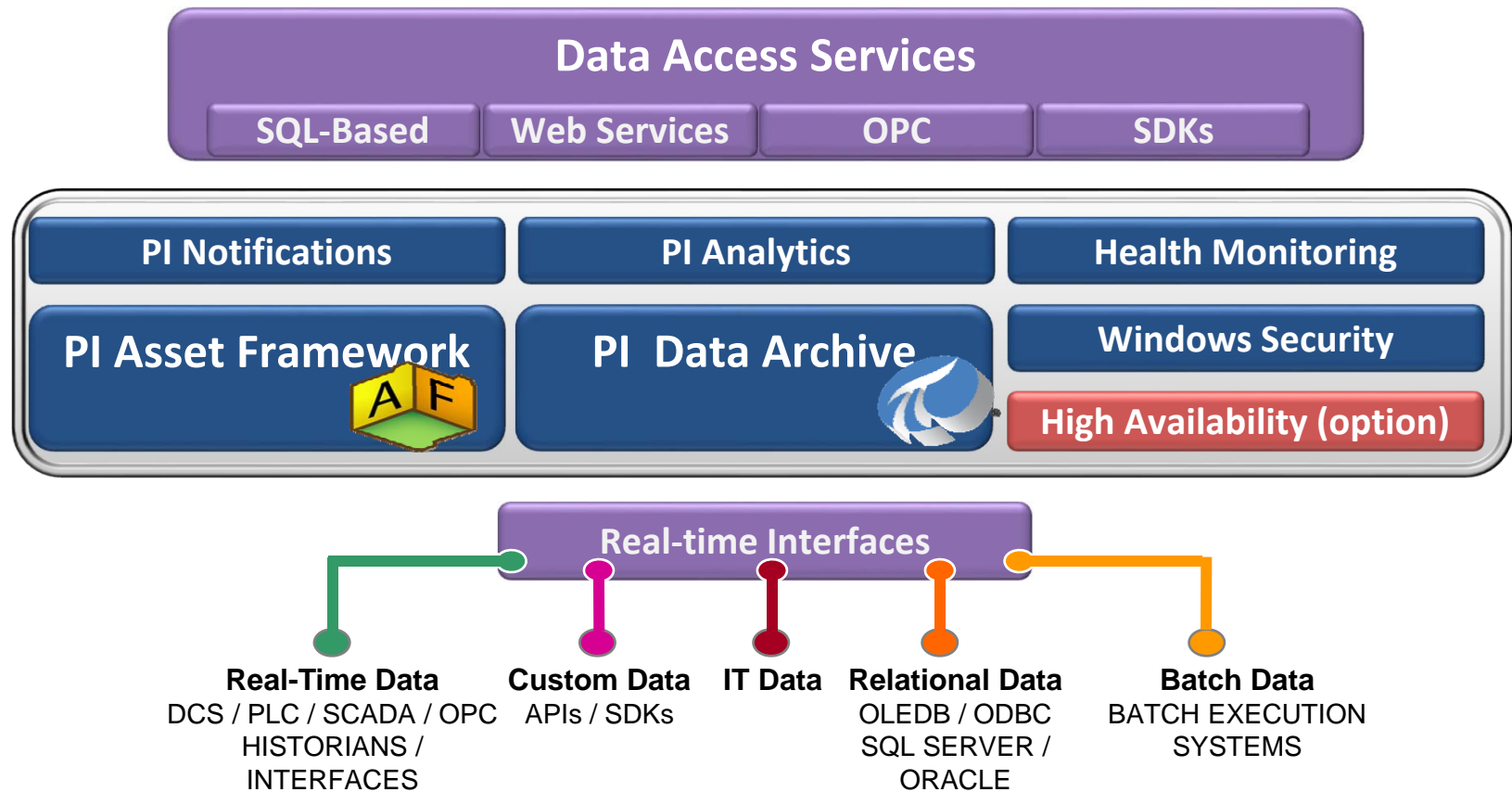
What is coming to the PI System

Now → 18 months

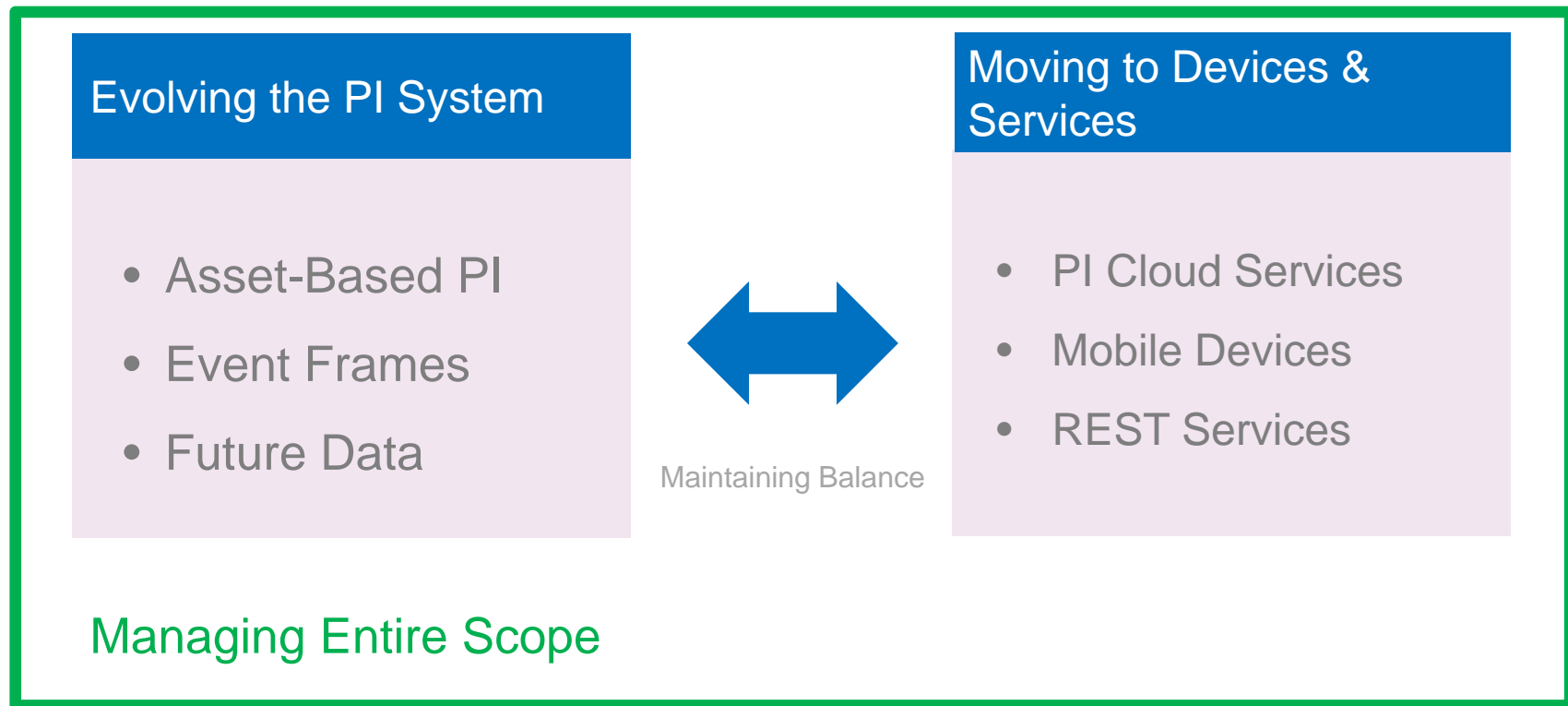
Expectations

- Date Ranges – Less Specific Further Out
- All information is subject to change

PI System Overview



2013 Priorities



PI System Themes



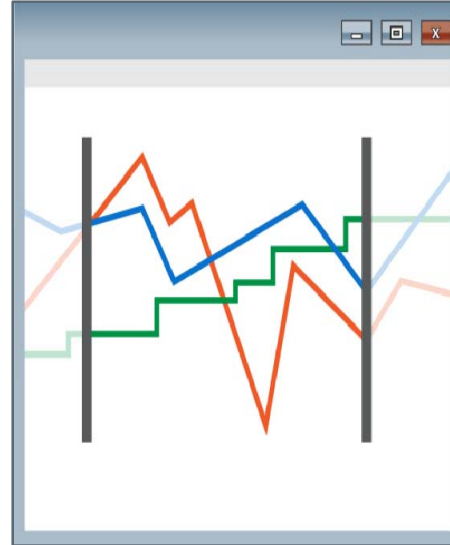
Broad Scale

More Data
High Performance
Cloud / Hybrid



Asset Based PI

Asset Context
Standardize
Reuse many times



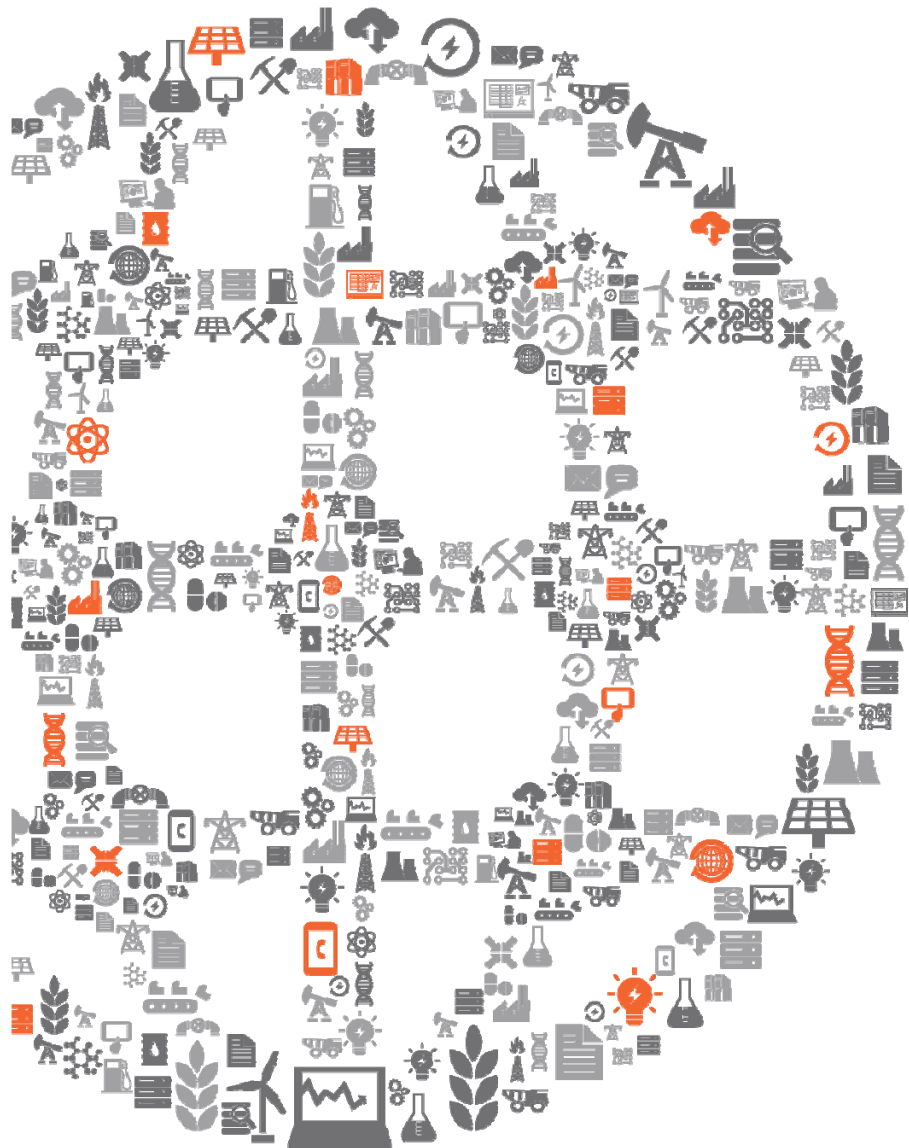
Event Frames

Capture Important
Events and
Related Data



Visualization

Many roles
Different formats
Any device

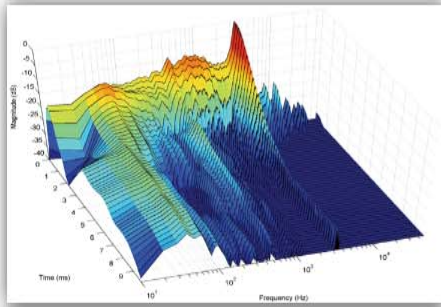


Broad Scale



PI SERVER 2012

(SCALABILITY: 20+ MILLION PI TAGS)



Syncro Phasors

4.8K data streams, 120Hz
3 years online
Unique Events: 55 Trillion
Estimated Data: 430TB

430TB



Data Center

100K cells, 2M breakers
10 years online
Unique Events: 105 Trillion
Estimated Data: 840TB

840TB



Automated Metering

20M meters, 5-min reads
7 years online
Unique Events: 177 Trillion
Estimated Data: 1,410TB

1,410
TB







Fleet Monitoring

1K assets, 1M points
10 years online
Unique Events: 6,307 Tr
Estimated Data: 50,460TB

50,460
TB

2012 vs. 2010: The Final Sheet

	2010	2012	Delta
Max Point Count 	2-3M	20M+	5-10x
Startup Time	>10 min/Mpts	<30 sec/Mpts	20x
Point Creation	<100 pt/sec	500-2K pt/sec	5-200x
Tag Searching	Variable, Non-Linear	Constant or Linear	N/A
Max Update Signups 	<200K	10M+	50x
Update Signup Rate	<2K/sec	>100K/sec	50x
Data Out (Archive) 	<1M ev/sec	>10M ev/sec	10-20x
Data In (Snapshot)	<200K ev/sec	>1M ev/sec	5-10x
Data In (Archive) 	<100K ev/sec	>500K ev/sec	5-10x
Archive Shifts	>1 min/GB	<10 sec/GB	6-12x
Online Archives	<10K files	>50K files	5-10x
Backup Speed	>5 min/GB	<1 min/GB	5-10x
Offline Reprocessing	>15 min/GB	30 sec/GB	30x

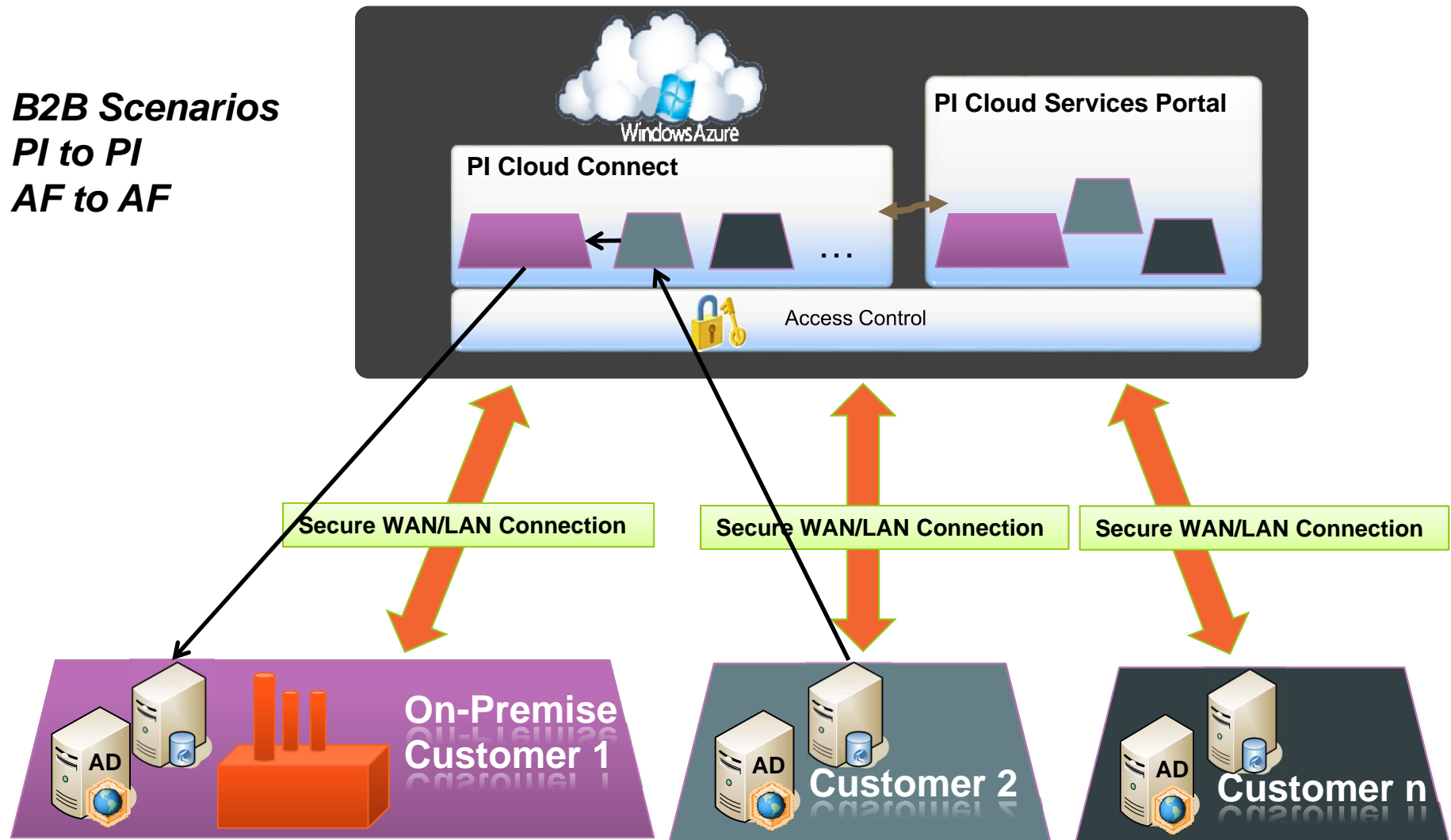


PI Cloud Connect

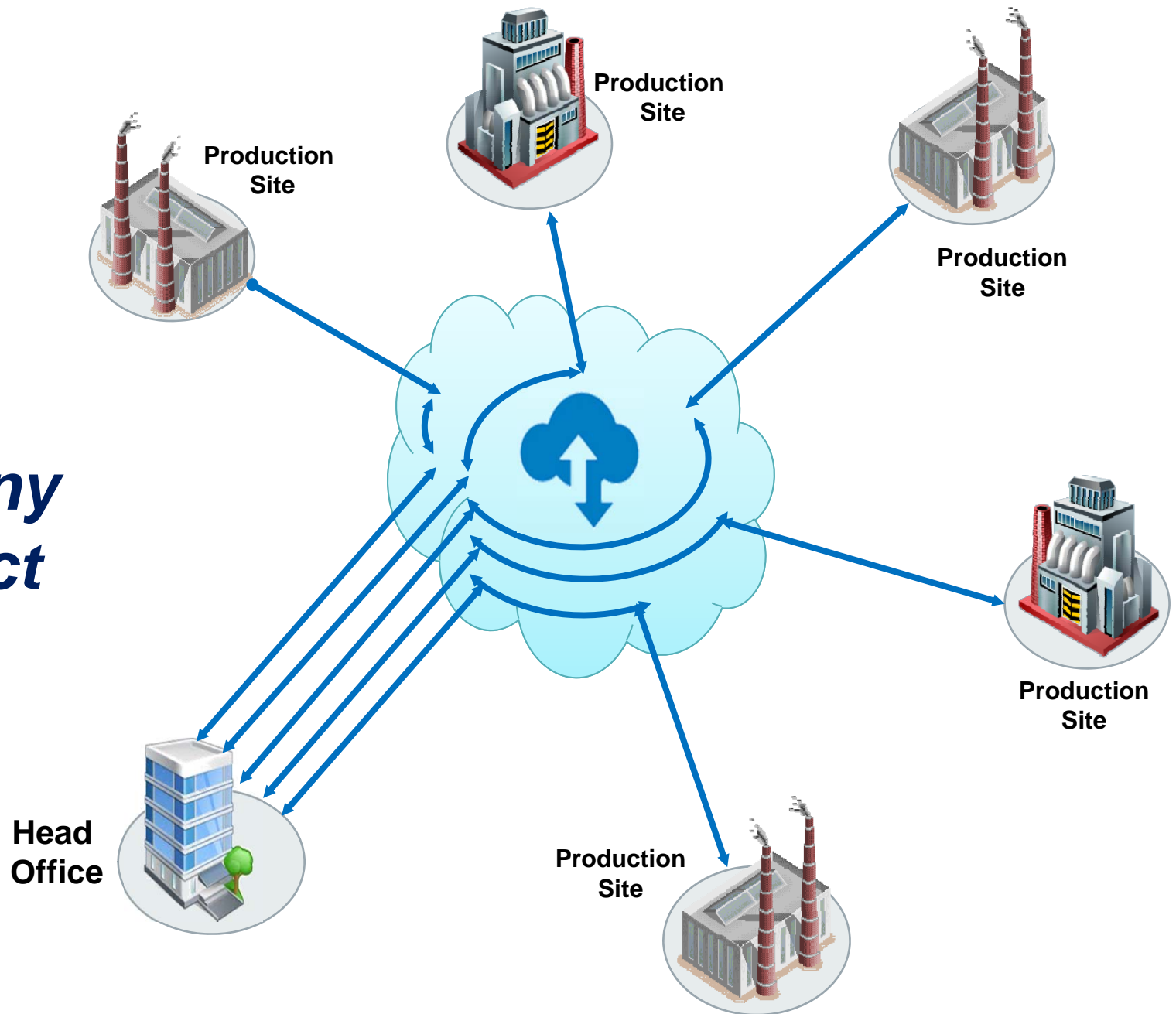
B2B Scenarios

PI to PI

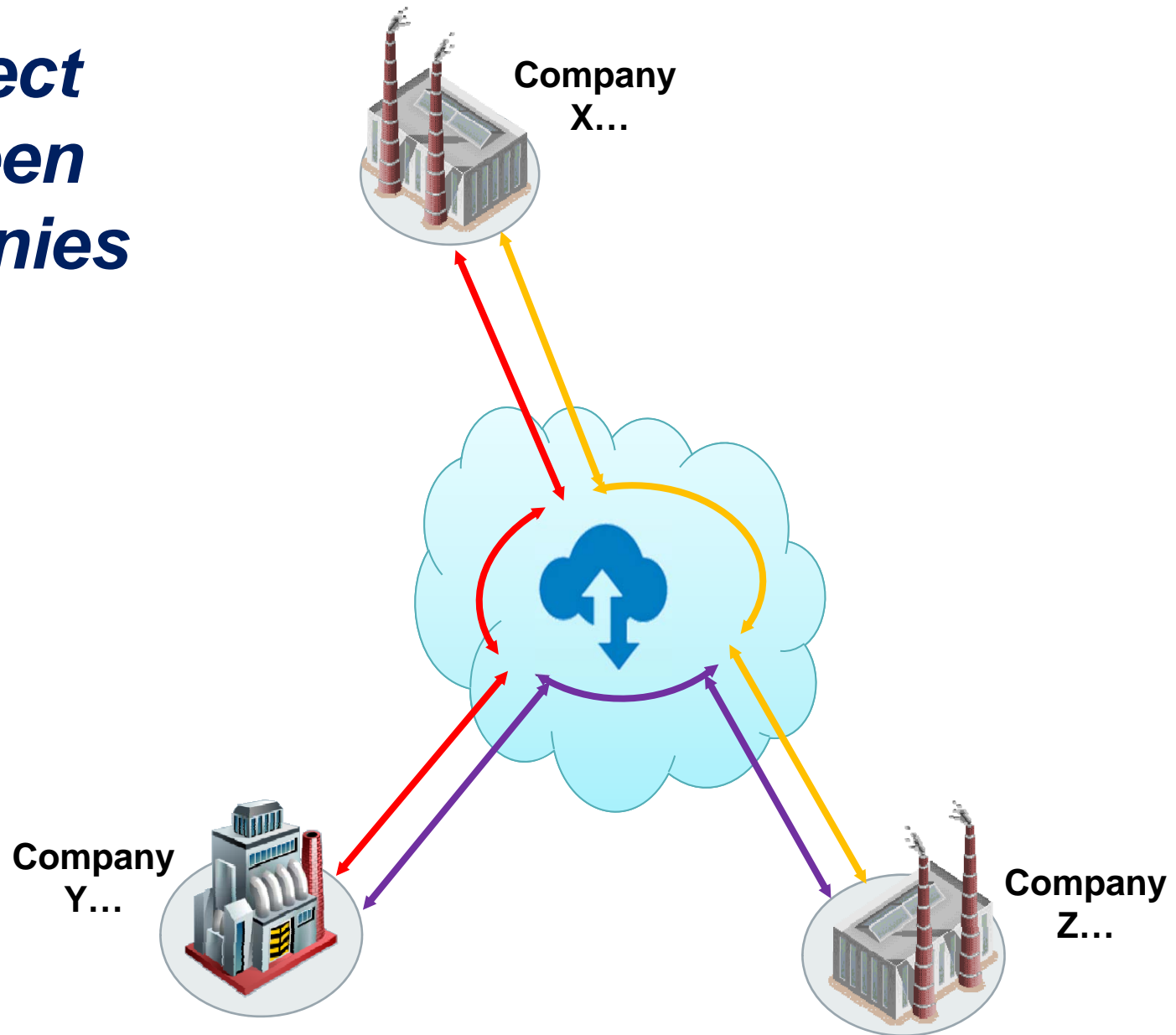
AF to AF



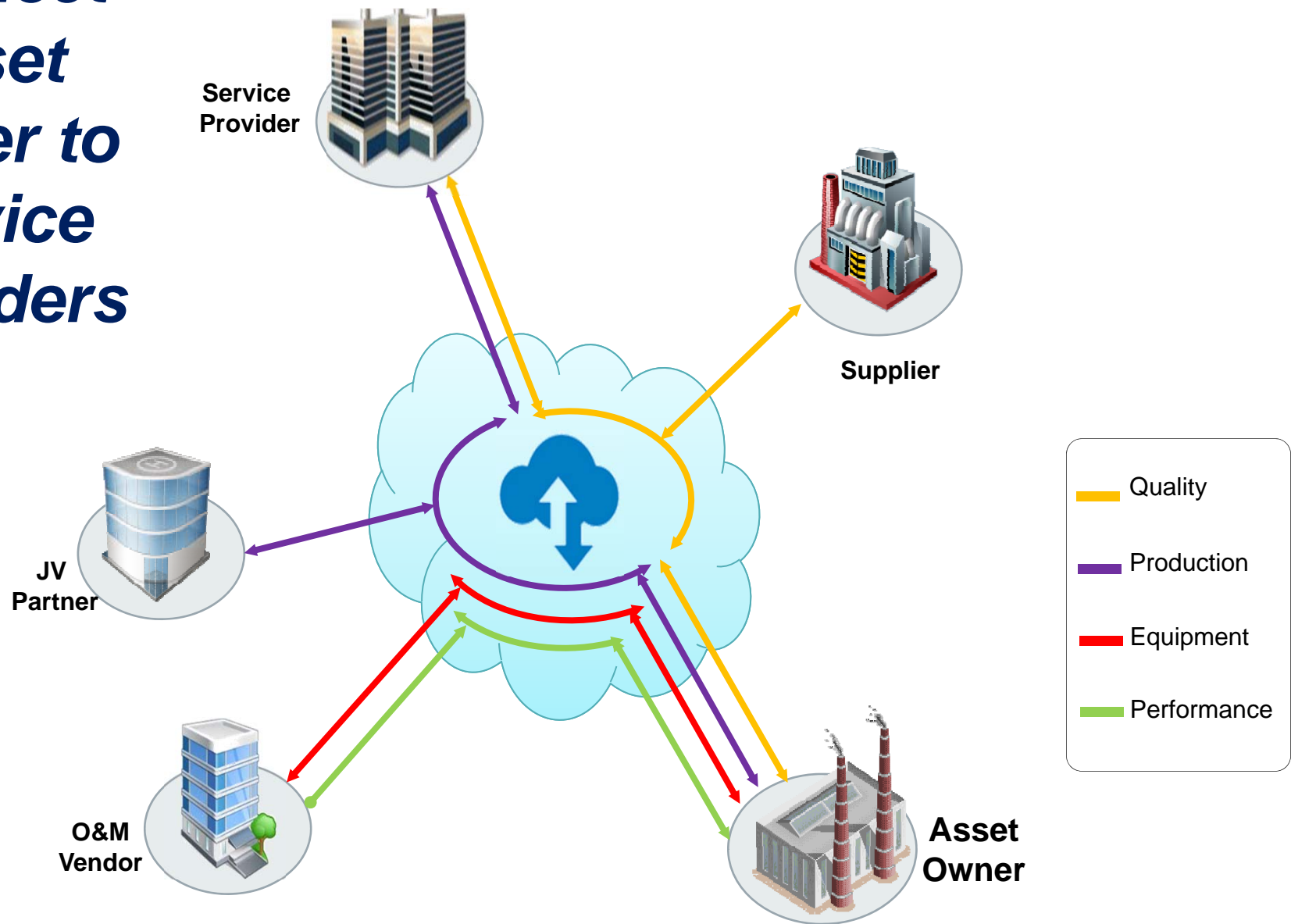
Intra Company Connect



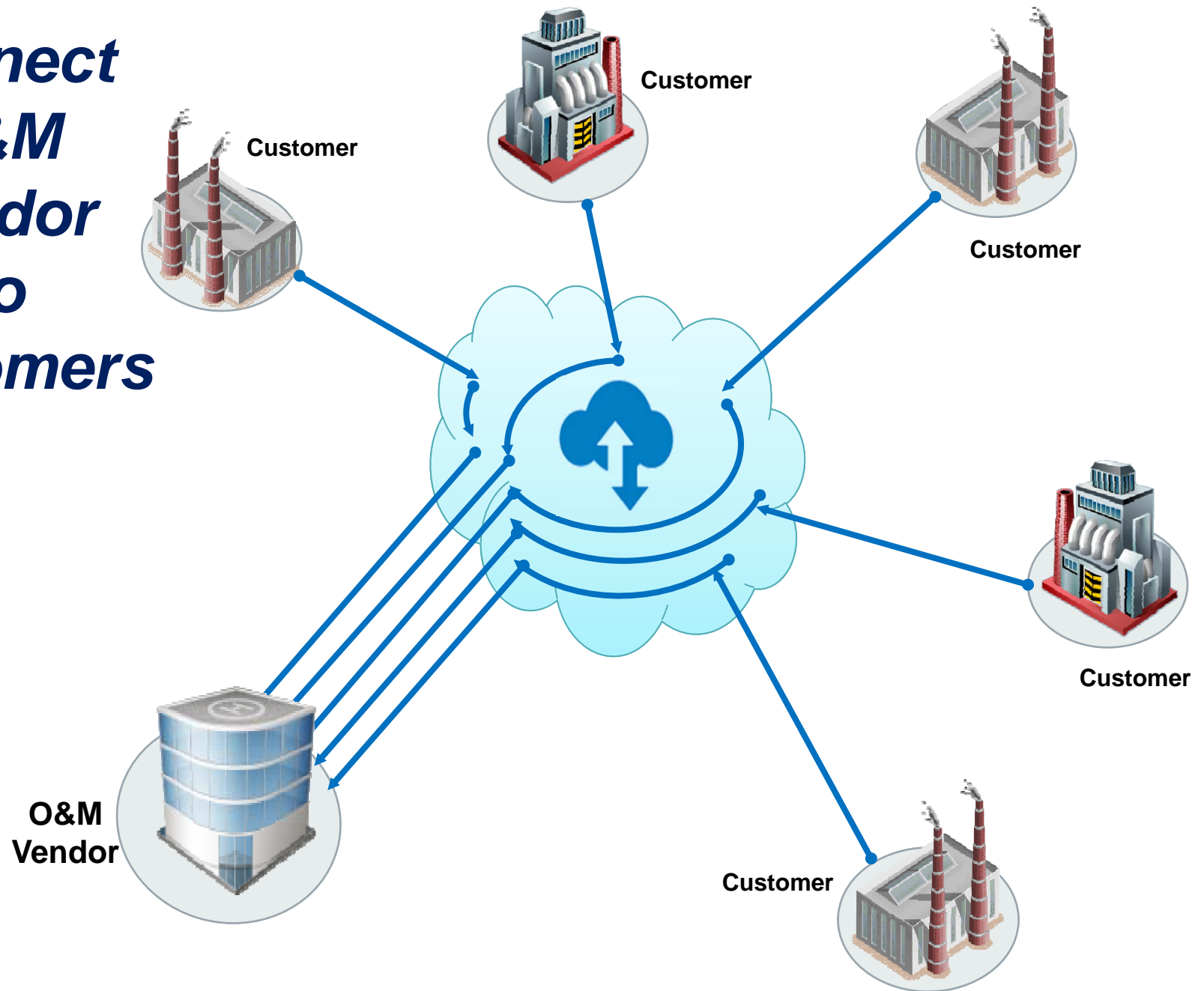
Connect Between Companies



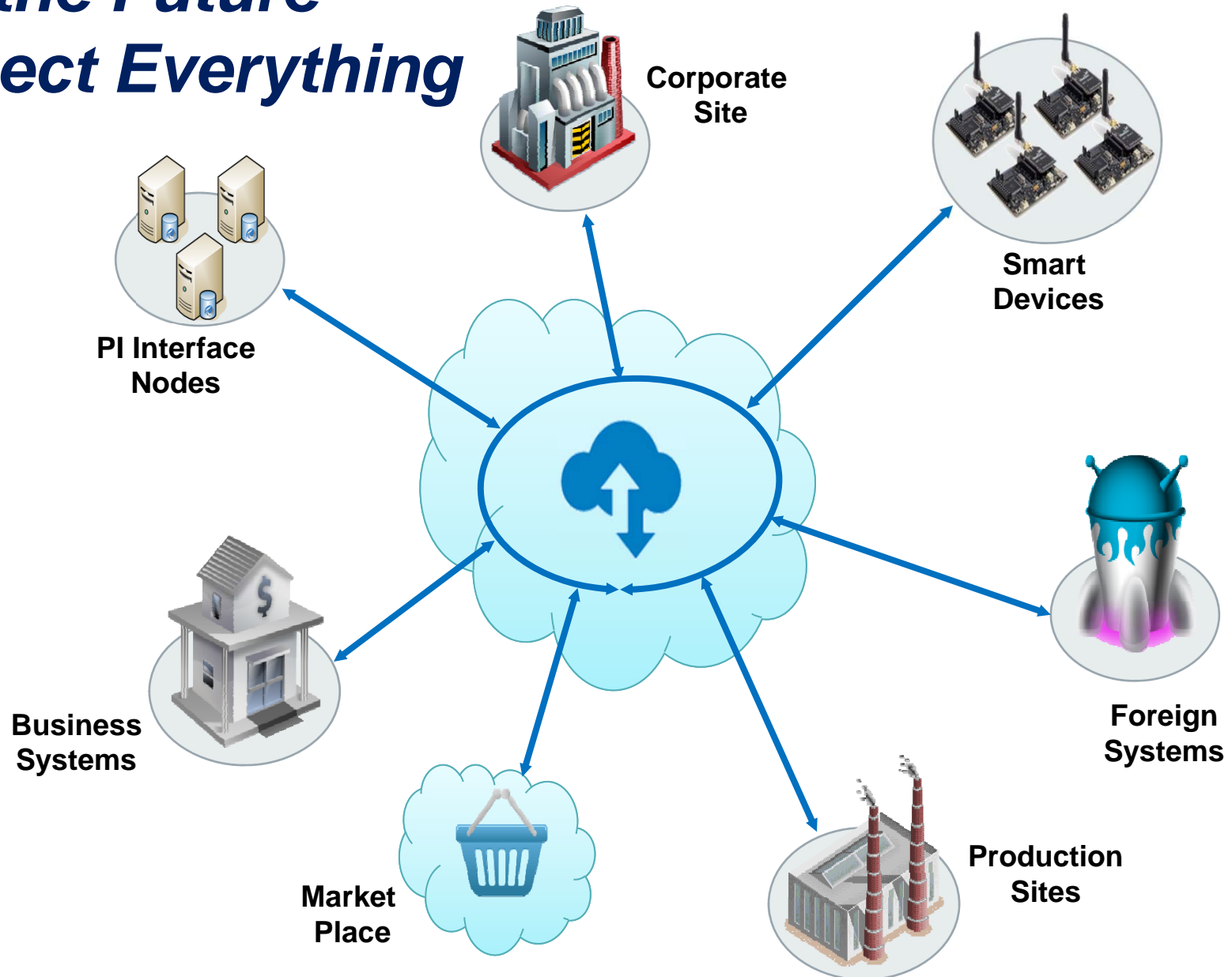
Connect Asset Owner to Service Providers

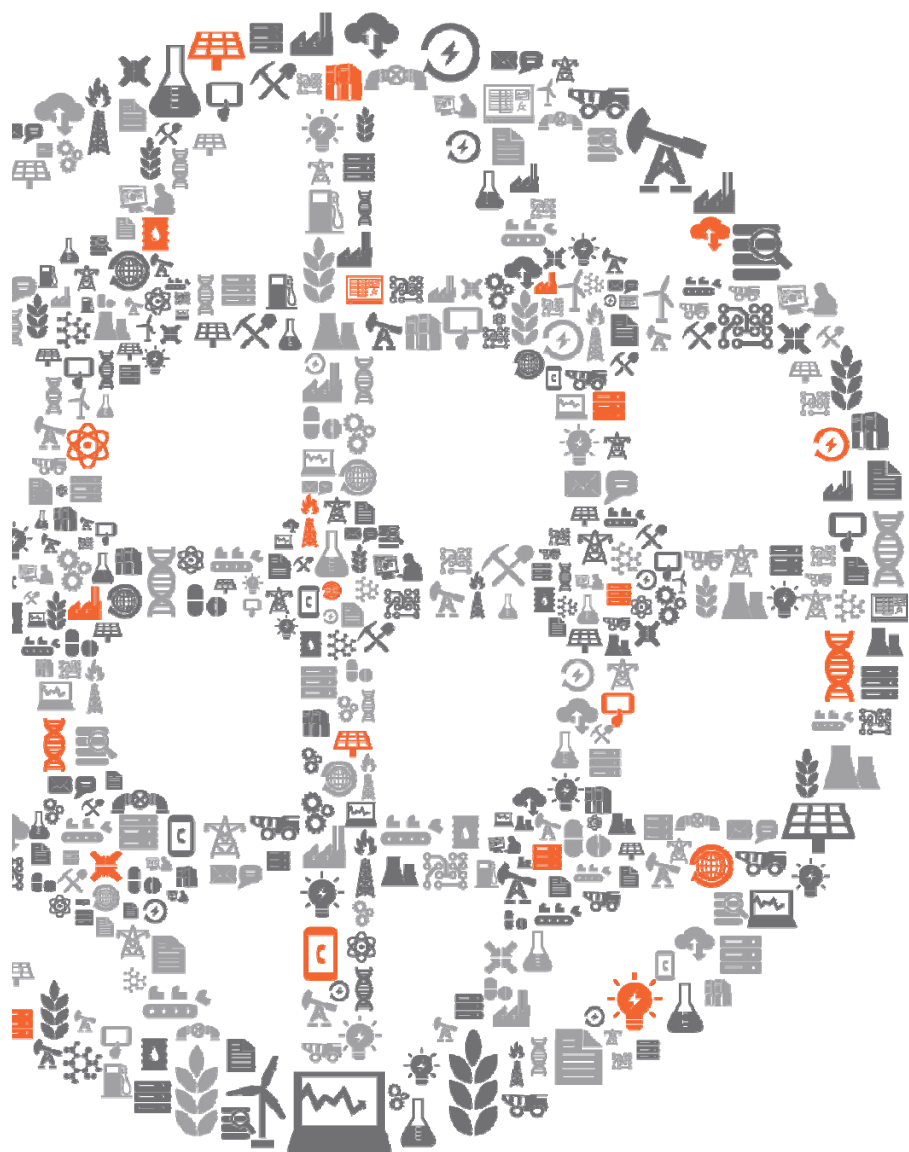


Connect O&M Vendor To Customers



In the Future – Connect Everything





Asset Based PI



A Complete Picture of Your Asset

Real-time values

- Inlet pressure
- Inlet flow
- Ambient temperature

Asset details

- Name
- Make
- Model

External Databases

- Performance curves
- Last service date
- Design documents
- Inspection best practice

Calculations

- Performance calculations
- KPI's

Real-time Values

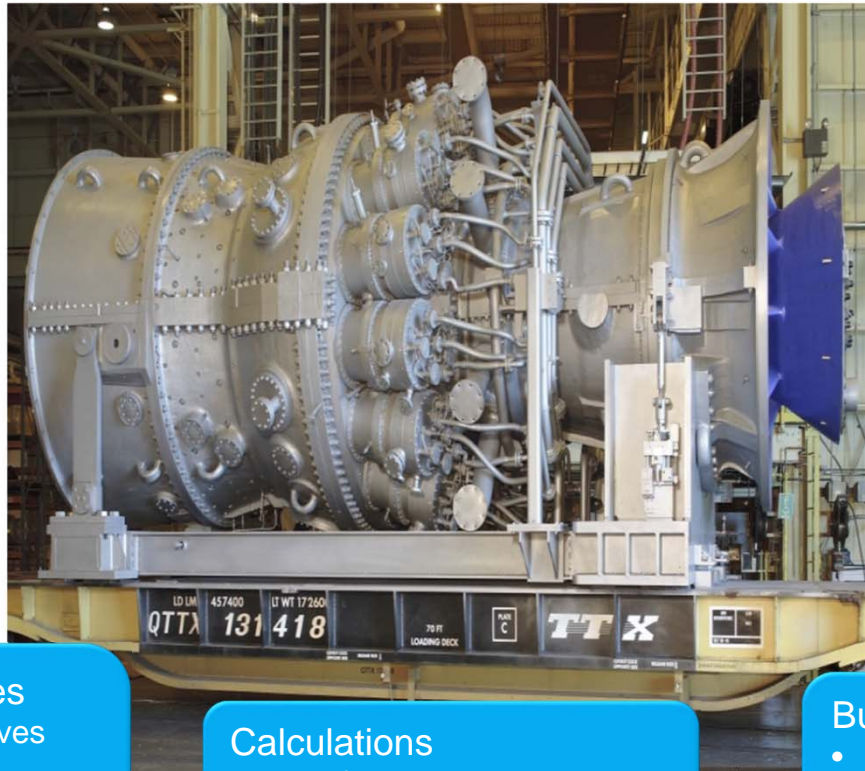
- Exhaust temperature
- Exhaust flow
- Measured MW output

Notifications

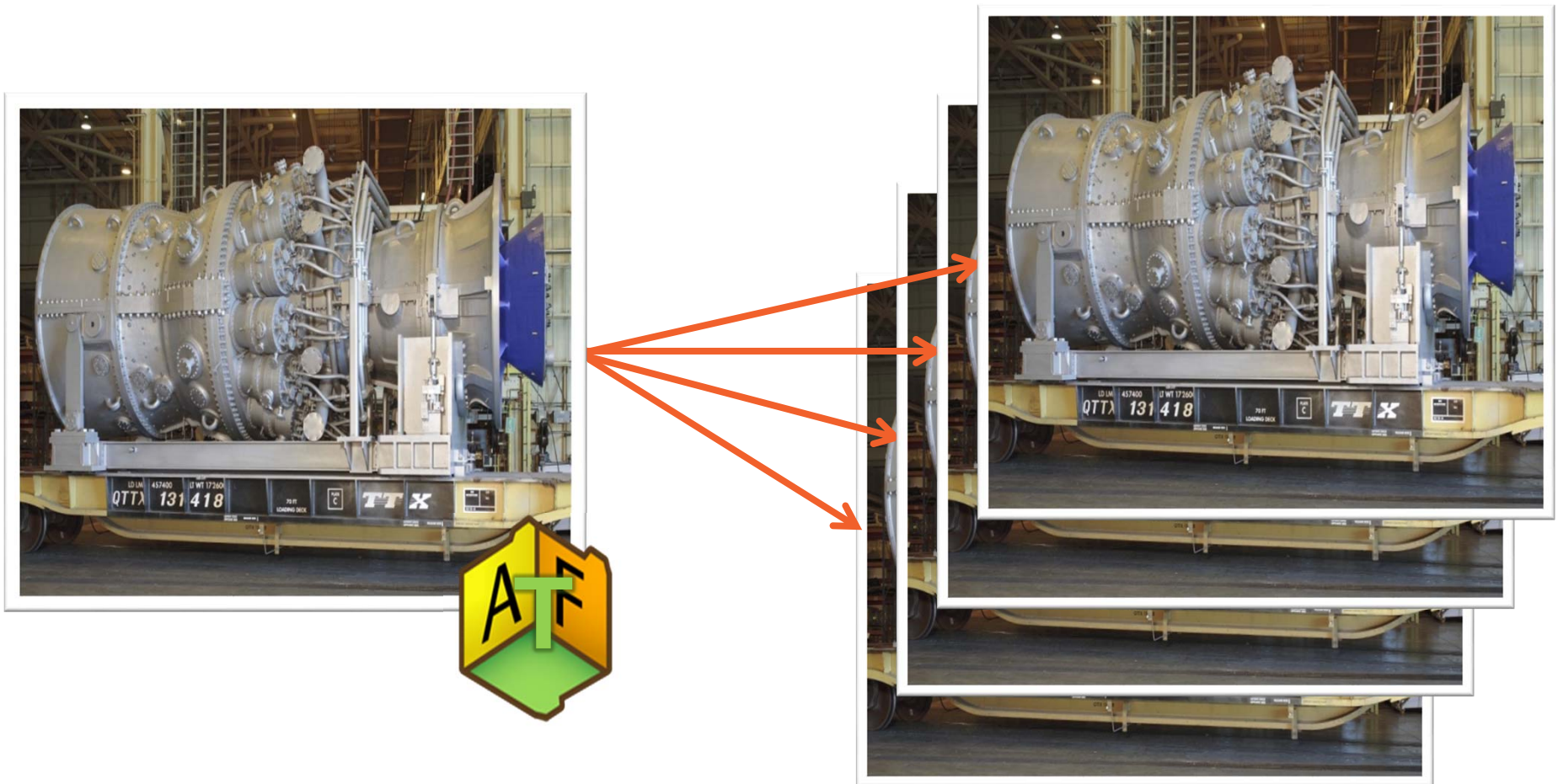
- Performance excursions
- Temperature difference
- High temperature

Business Events

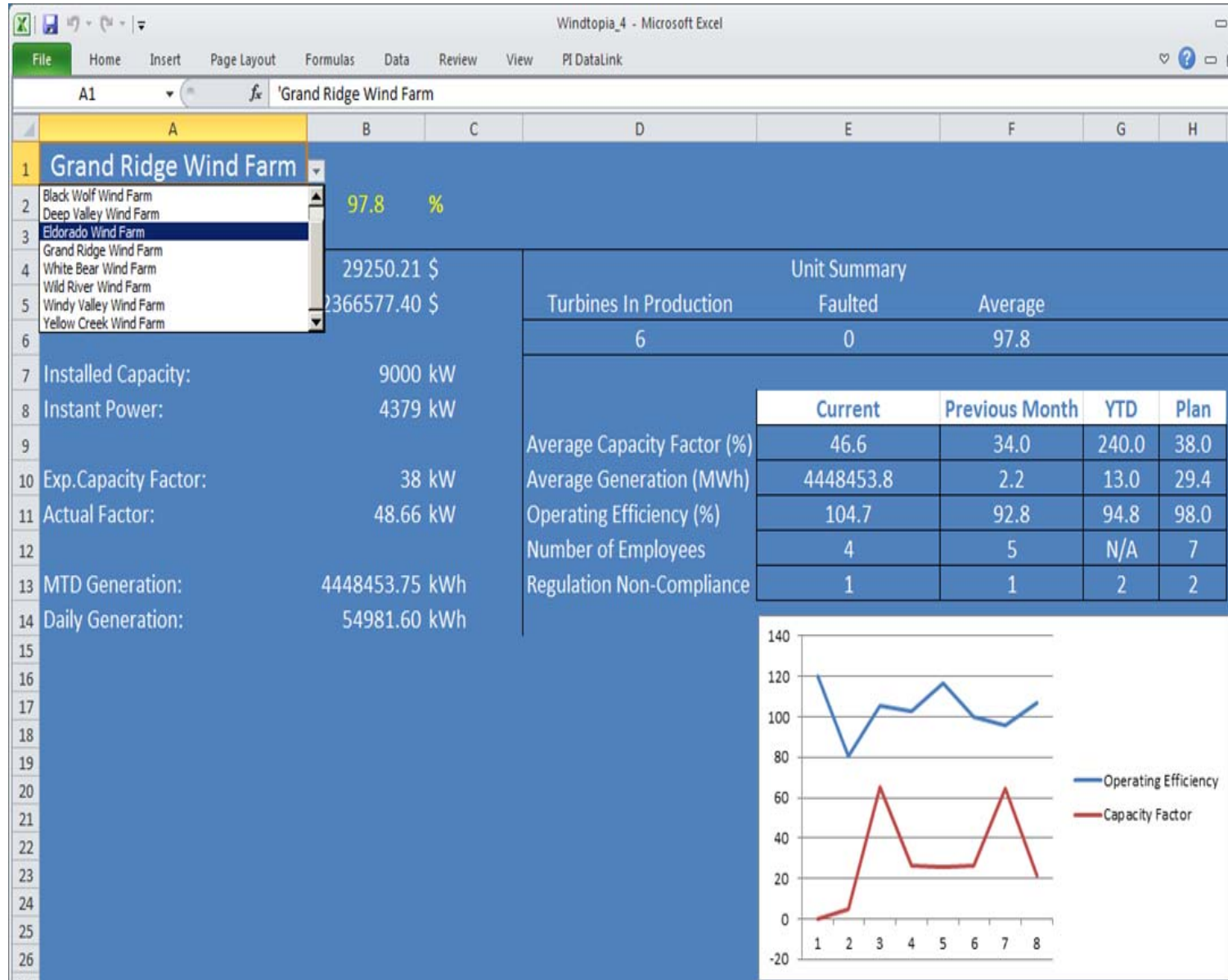
- Downtime
- Startup
- Excursions



A Common View for Similar Assets



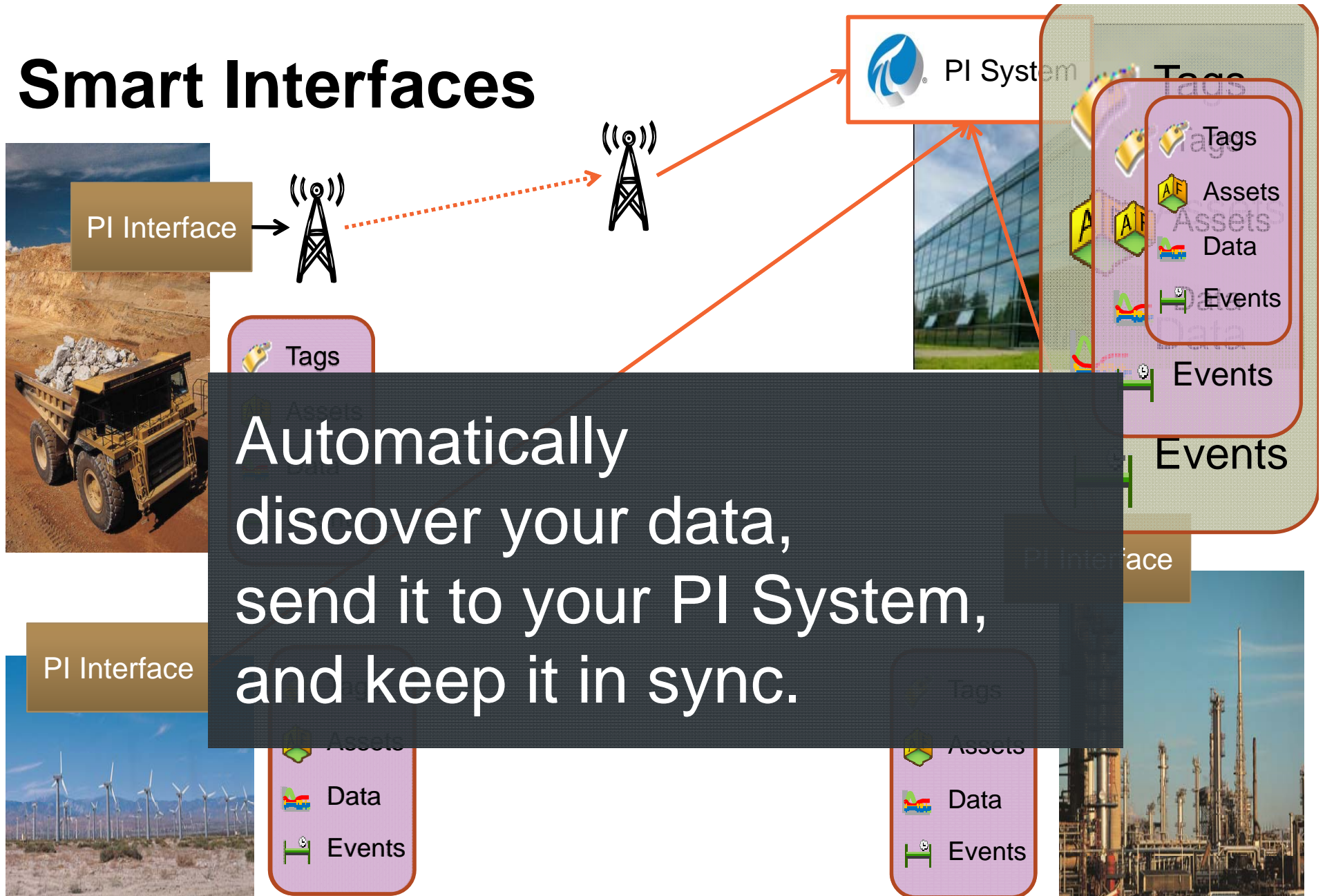
Asset-relative reports in PI DataLink 2013



Explore assets with PI Coresight 2012 R2



Smart Interfaces





Asset Based Analytics

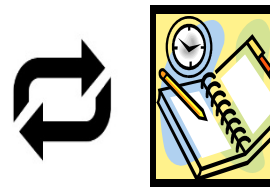
Asset Based Analytics Use Case

Extruding Process

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

Boiler1

Flow Out
Fuel Flow Rate



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



Boiler
Template



Boiler2

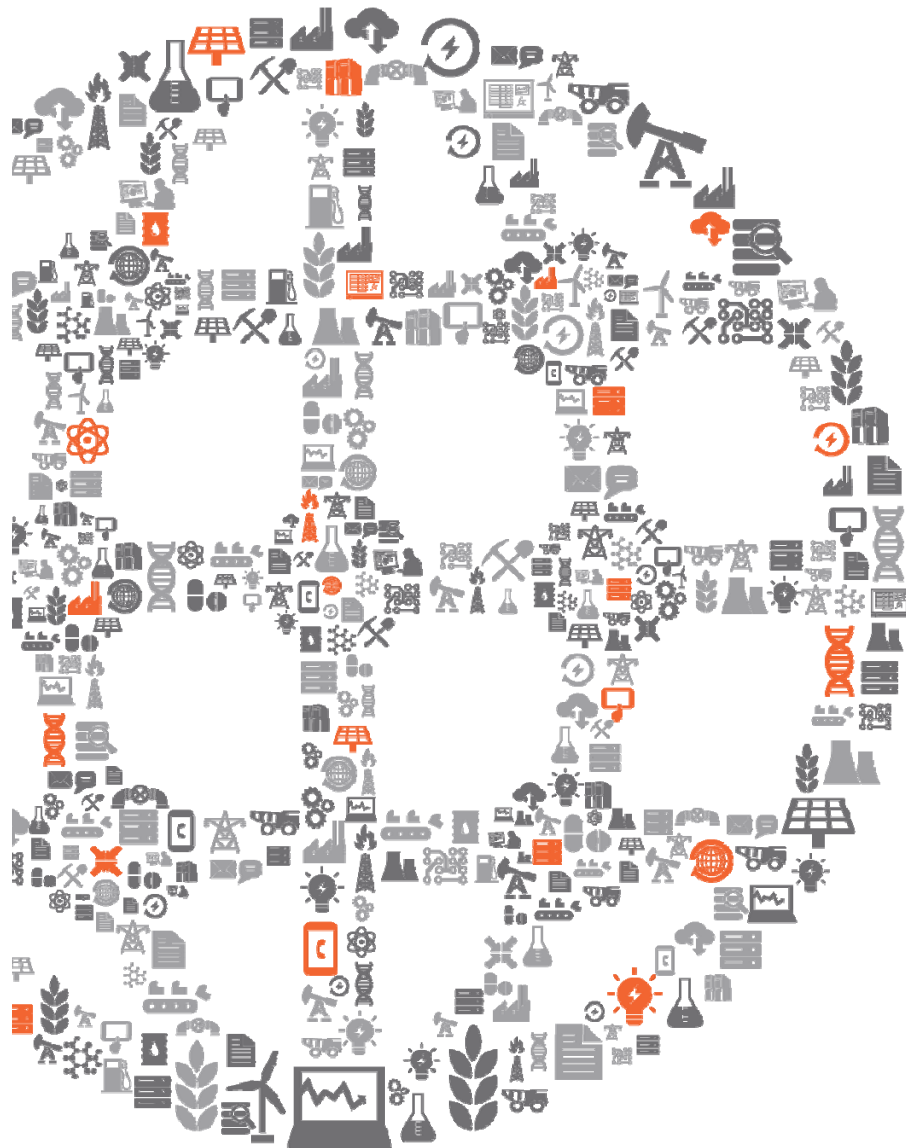
Flow Out
Fuel Flow Rate

Efficiency

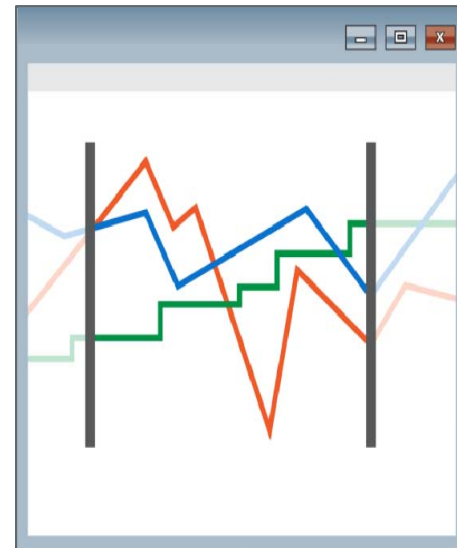
Boiler3

Flow Out
Fuel Flow Rate
Efficiency



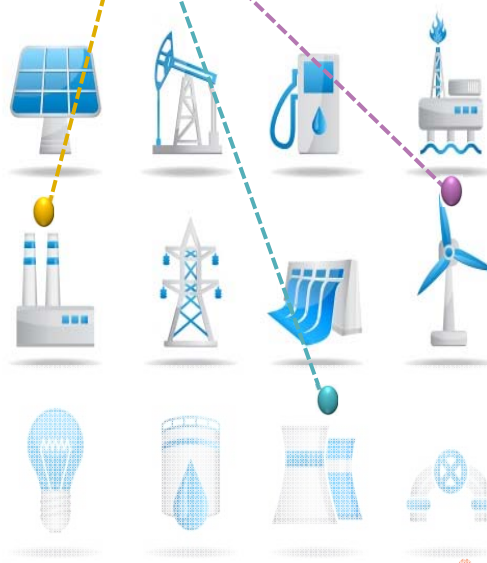


Event Frames





Information Challenges



PI Event Frames

Events Shorten the Time to Insight

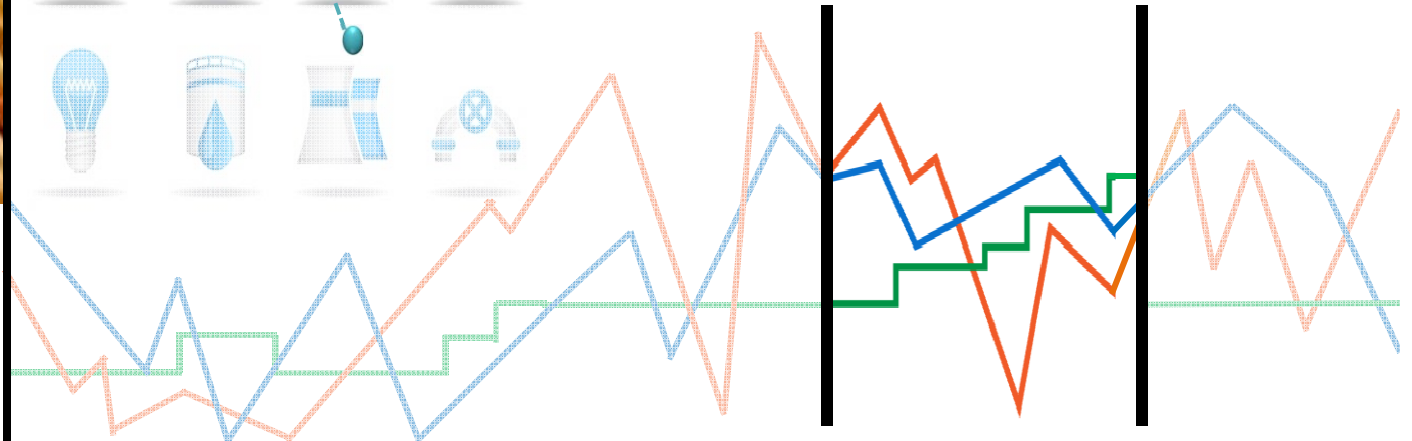
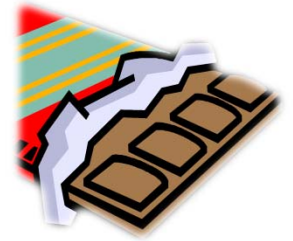
Too High!



Downtime



Batches





PI Event Frames Generator + PI Event Frames Interface Mgr



PI Event Frames Interface Manager

The Current Interface is : PIEFGEN3

Event Frames Structure

Configure the event frames structure to define when event frames are created, on which template the event frames are based, and which elements and attributes are associated with the event frame.

Settings

- Interface Selection
- File Selection
- Server Information
- Event Frames Structure
- Templates
- Time Settings
- Operational Settings
- Save Settings

Options

- Test Configuration
- Service Configuration
- Converter

EFConfig_Tree

- Truck 1 Roundtrip
 - Waiting to Load
 - Loading
 - Running Empty
 - Running Loaded
 - Dumping
- Truck 2 Roundtrip
- Truck 3 Roundtrip
- Truck 4 Roundtrip
- Truck 5 Roundtrip

Truck 1 Roundtrip Other Settings

Configuration Name: Truck 1 Roundtrip

Event Frame Template: Truck RoundTrip Template Template...

☐ PIBaGen Compatibility Mode

Active Point:

Tagname: Truck1_Trigger

Behavior: ☒ Pulse ☐ Step ☐ Include Zeroth State (Continuous)

Strings indicating zeroth state: Example: inactive, stop, off

Event Frame Name:

☐ Use Active Point value

☐ Use Static Name

☒ Use this PIPoint value: Mine Truck 1.RouteName

Attribute Name	Configuration	Value
Driver	PIPoint	Mine Truck 1.Driver
Route	PIPoint	Mine Truck 1.Route
Comment	Not Included	
Description	Not Included	

PIPoint Search...

Go to Templates

Generate Events via Trigger Tags
Assign to an Event Frame Template
Populate Event Frame Name
Populate Event Frame Attributes
Assign to Element

EFConfig_Tree

- Truck 1 Roundtrip
 - Waiting to Load
 - Loading
 - Running Empty
 - Running Loaded
 - Dumping
- Truck 2 Roundtrip
- Truck 3 Roundtrip
- Truck 4 Roundtrip
- Truck 5 Roundtrip

Truck 1 Roundtrip Other Settings

Add Reference Elements in the grid below.

The Primary Reference Element is: \\DFPIAF\OSI Mining\Trucks\Mine Truck 1.

PI AF Element Search...

\\DFPIAF\OSI Mining\Trucks\Mine Truck 1

Default Settings

☒ Enable

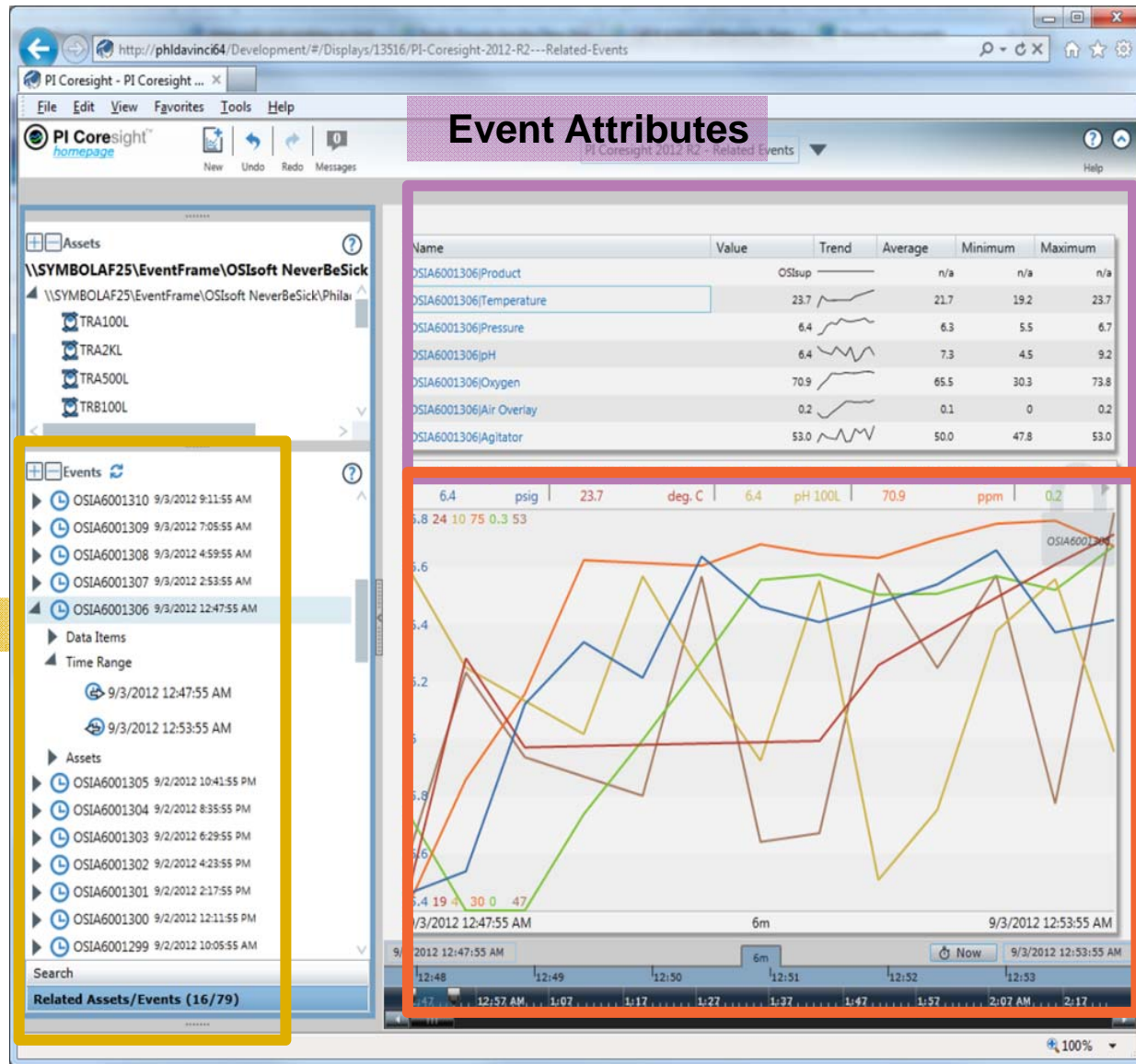
☐ Debug Messages

☐ Merge Consecutive

Recovery Time: 1 day(s)

Evaluation Delay: 0 second(s) Set to -1 to Evaluate At End

PI Coresight 2012 R2 and Events





PI OLEDB Enterprise 2012 + Microsoft Power View



Route

No Data
Route A
Route B
Route C
ROUTE D

Truck, Operator & Route Report

Truck

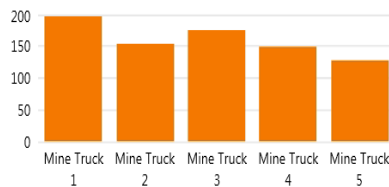
Mine Truck 1
Mine Truck 2
Mine Truck 3
Mine Truck 4
Mine Truck 5

Truck Fleet Monitoring:
Filter on Route, Truck, or Driver

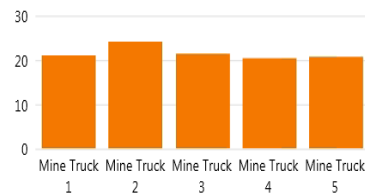
Driver

Chris Scatman
Jason Rice
Latrice Lewis
Mace Mixon
Mike Moore
Neil Macer
Rylance Rebel
Sam Spillman
Sorlie Otters

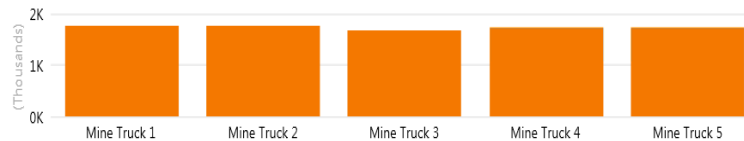
Average of Load - Maximum by Truck



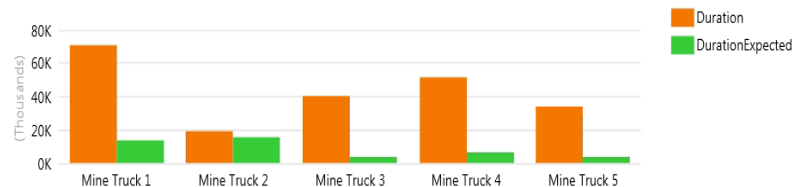
Average of Ground Speed - Average by Truck



Average of Engine RPM - Average by Truck



Duration, and DurationExpected by Truck



Route

No Data
Route A
Route B
Route C
ROUTE D

Driver

Mike Kleener
Sam Jackson

Truck, Operator & Route Report

Truck

Mine Truck 1
Mine Truck 2
Mine Truck 3
Mine Truck 4
Mine Truck 5

Average of Load - Maximum by Truck



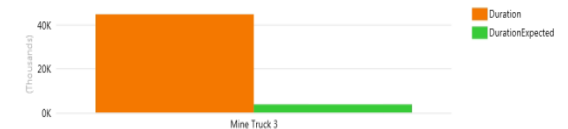
Average of Ground Speed - Average by Truck



Average of Engine RPM - Average by Truck



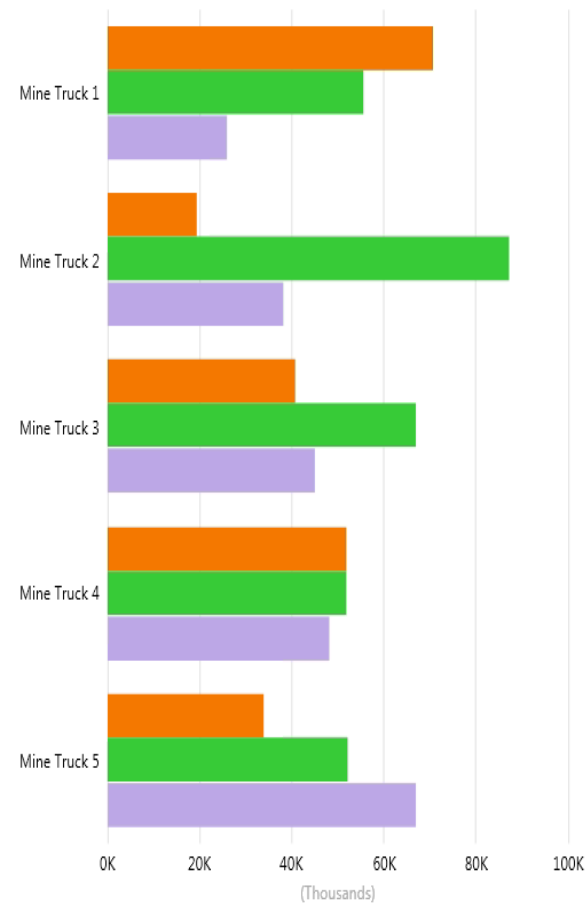
Duration, and DurationExpected by Truck



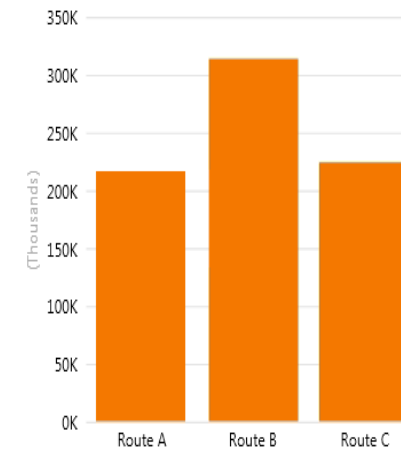


RoundTrip Cumulative Duration by Truck & Route

Duration by Truck, and Route



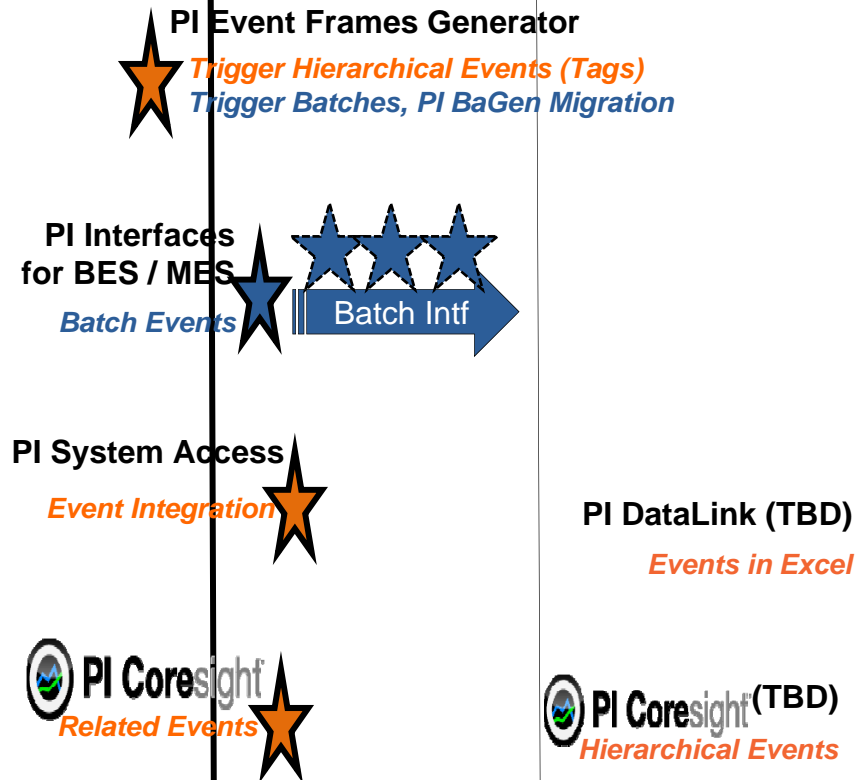
Duration by Route



2012	2013		2014	FUTURE
4Q	1H	2H	1H	See PI System Roadmap on Tech Support site for updates

Wave 2 – PI Event Frames for the Mainstream

Wave 3 – PI Batch to PI Event Frames [+]



PI ProcessBook (TBD)

Recent Events

PI AF Asset Based Analytics (TBD)

Event Detection

PI Data Archive (TBD)

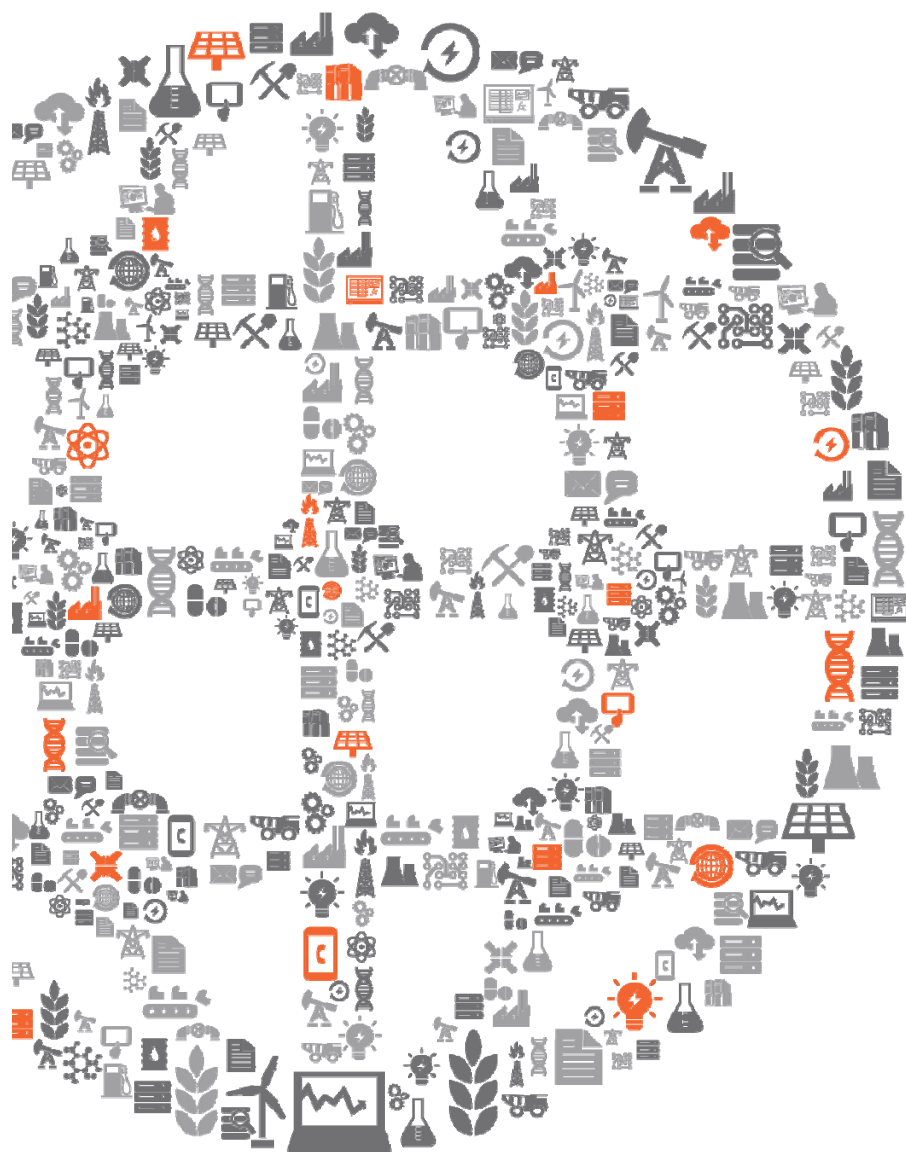
Batch to EF Migration



Product	Theme
PI AF	Audit Trail Viewer
PI Coresight	Event Overlay Trending
PI Coresight Mobile	Events in Your Pocket
RtReports	EF Integrated into Compliance Reports
PI Manual Logger	Log Events / Event Attributes
PI Notifications	Event Subscription & Notification
PI Data Archive	Batch Link / Redirection [TBD]

* Items in green indicate that development has started, but release projections are not yet available.

NOTE: Future dates are subject to change. Last Updated: 04-17-2013



Visualization



PI Visualization Suite

PI Coresight:
Ad Hoc Analysis &
Collaboration



PI WebParts: Composite
Apps, Shared broadly



Explore

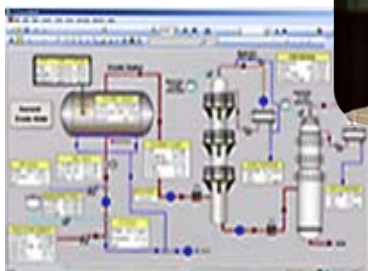
Review

Monitor

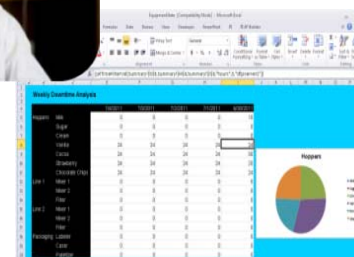
Report



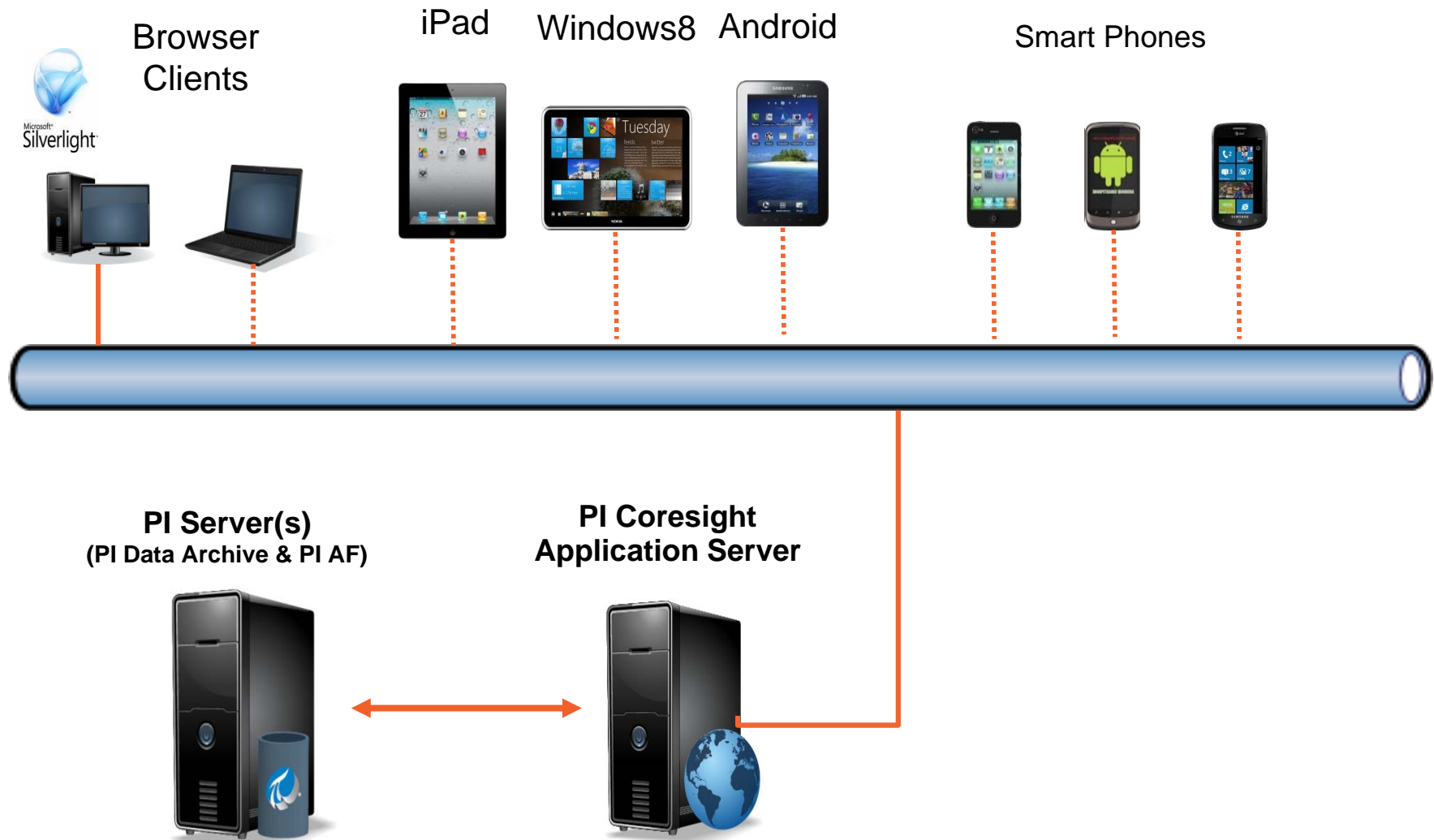
PI ProcessBook:
Display authoring and
Process monitoring



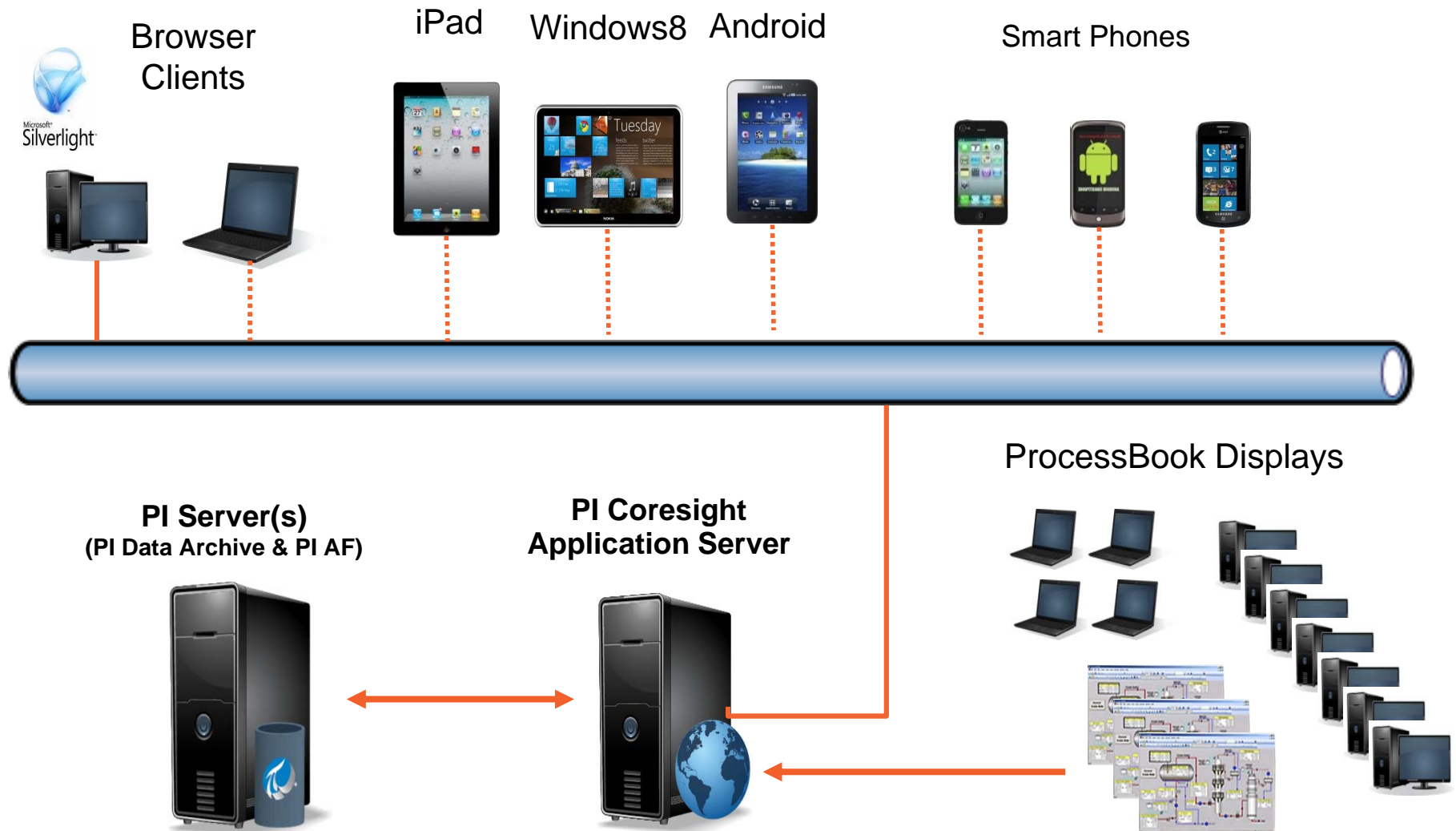
PI DataLink:
Reporting and
analytics in Microsoft
Excel



PI Coresight with Mobile Clients



PI Coresight – ProcessBook Display Viewer



PI WebParts 2013

- The Latest Platforms

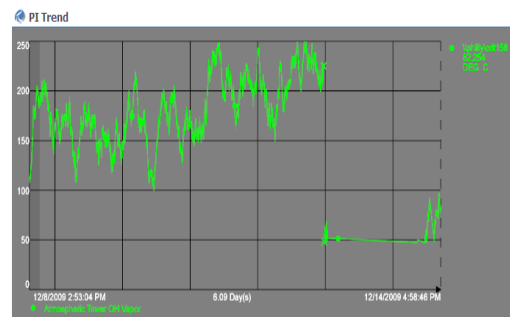


- The Latest Browsers
 - On the Latest Devices

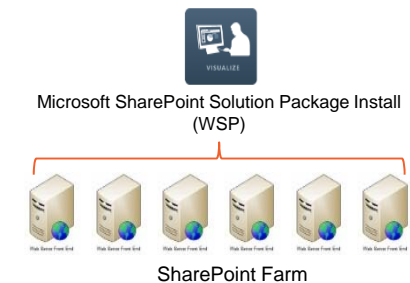


- The Latest Technology

Native Browser SVG Rendering

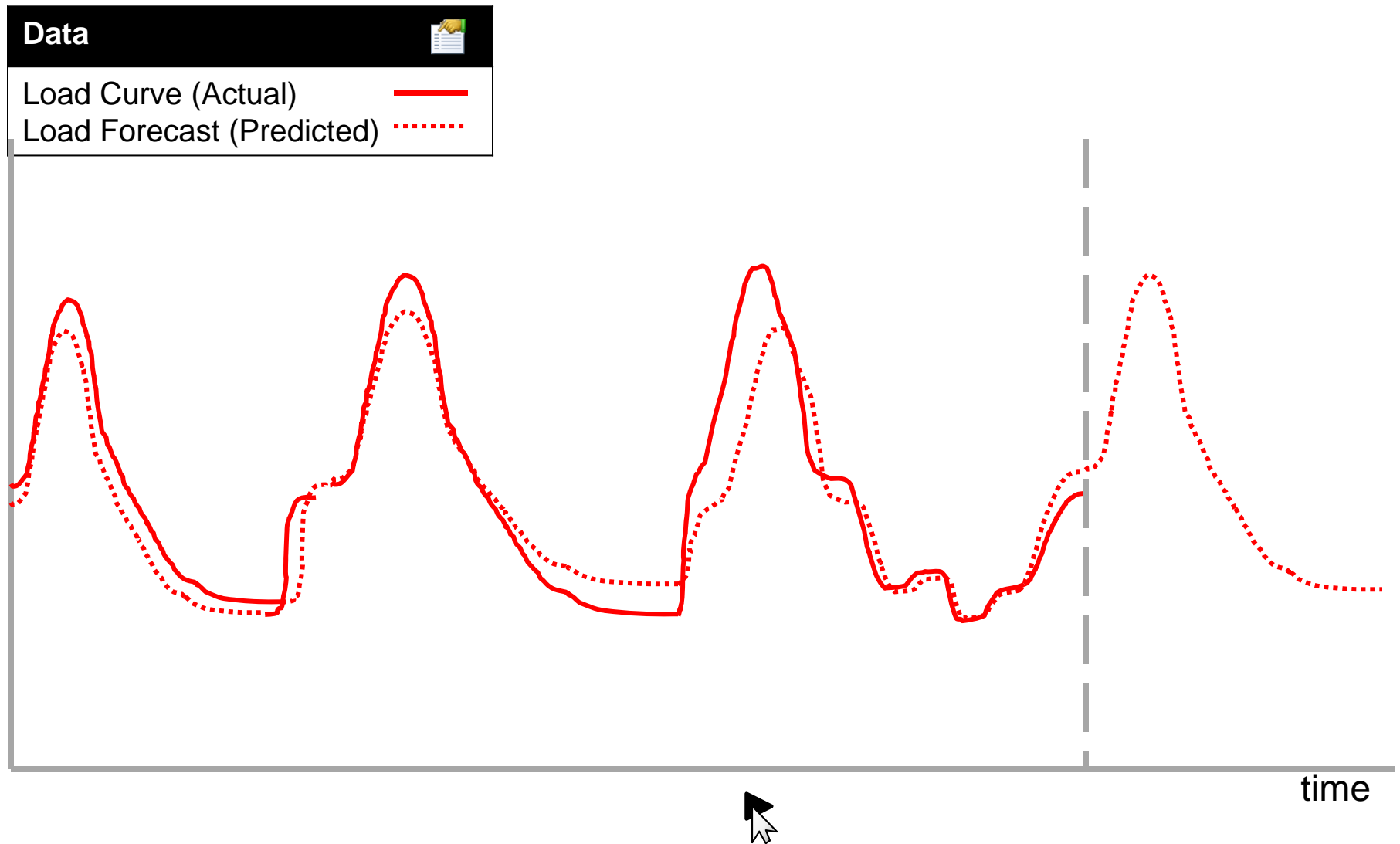


WSP Solution Deployment





Future Data Coming in 2014



PI System Access - Evolution

PI System SDK

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

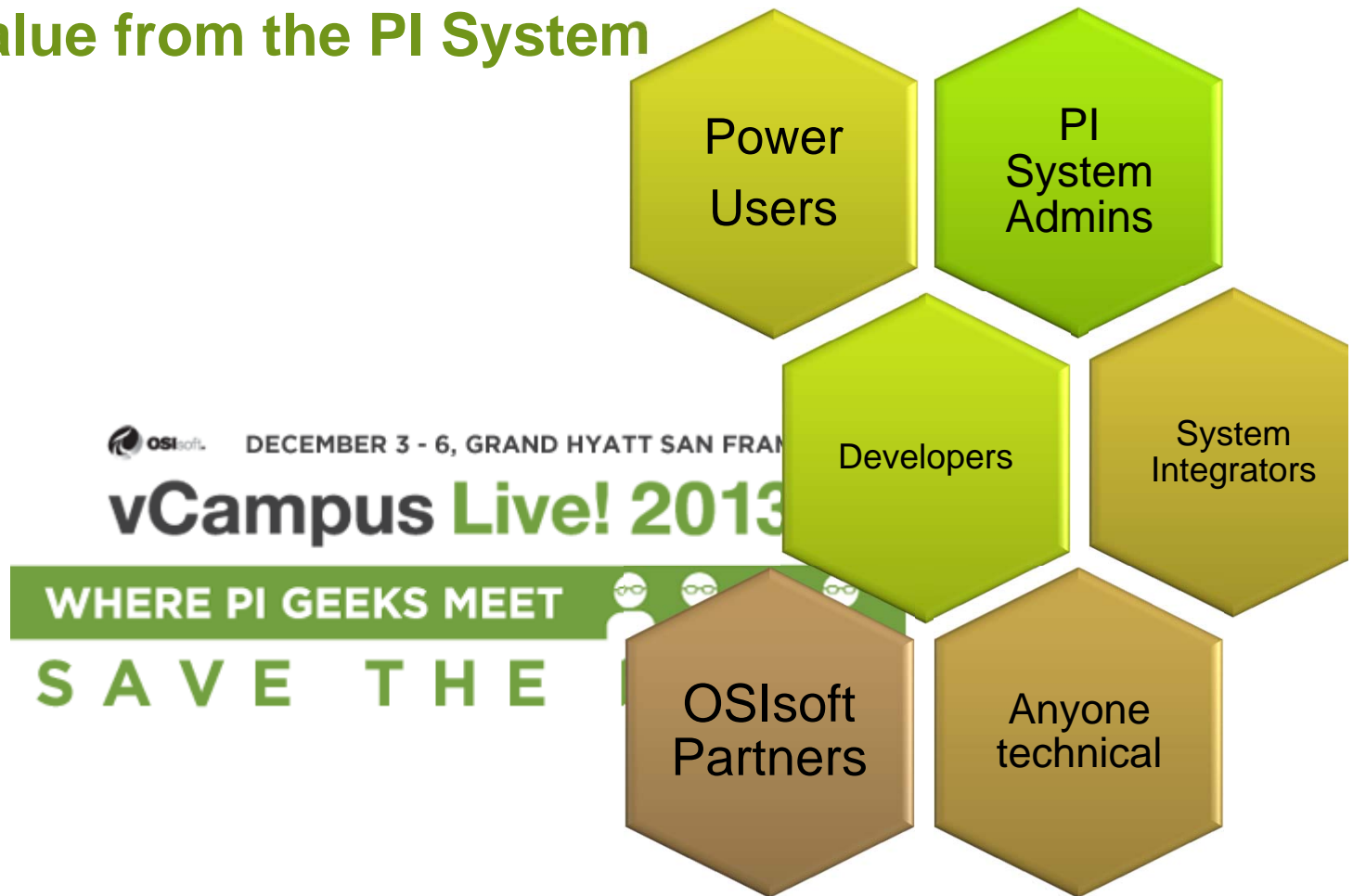
RESTful Web Services

Modern web service standard, ideally suited for mobile and cloud

Enterprise Integration

Rich business system integration made easy (ERP, BI, Geo-spatial)

Get hands on knowledge of how to
use and get value from the PI System



Stay Up-To-Date on the Web

- PI System Roadmap on OSIsoft Technical Support Site

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



Chris Ong

- cong@osisoft.com
- Customer Support Manager, Asiapac

Questions?



**THANK
YOU**

Brought to you by

