The Latest Products and Upcoming Releases

Presented by

Janelle Minich, OSIsoft Product Manager

Steve Kwan, OSIsoft Product Manager

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How are we helping you transform your world?

Geospatial Insights

Visualization

Actionable Information

Forecasting

Business Data Integration

Cross Company Collaboration

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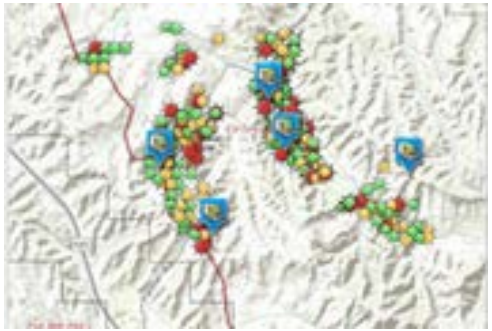
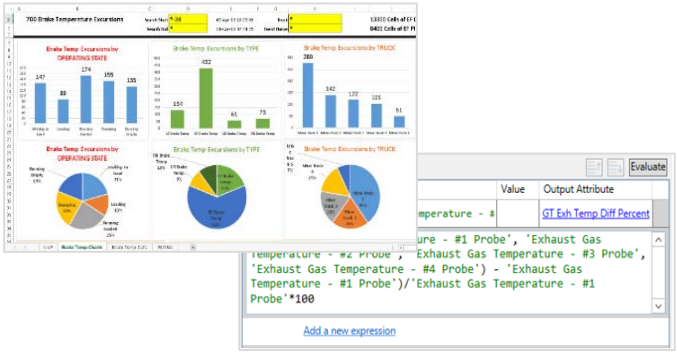
Showcasing our Latest and Upcoming Product Releases

PI Integrator for Esri ArcGIS



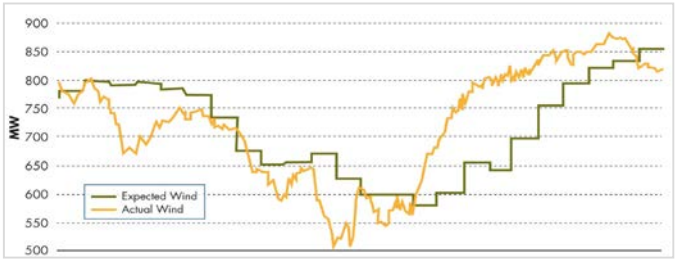
Geospatial Insights

PI Server 2015



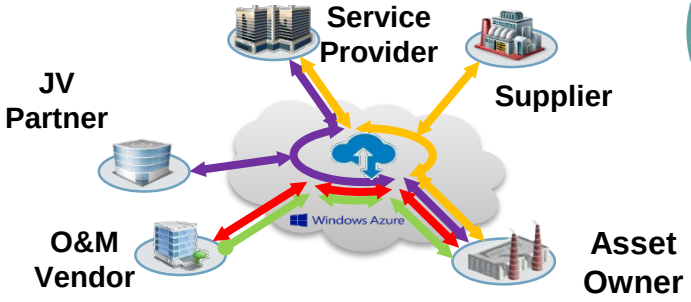
Actionable Information

Future Data



Forecasting

PI Cloud Connect



Cross Company Collaboration

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BARRICK

Barrick and ESRI Integrator

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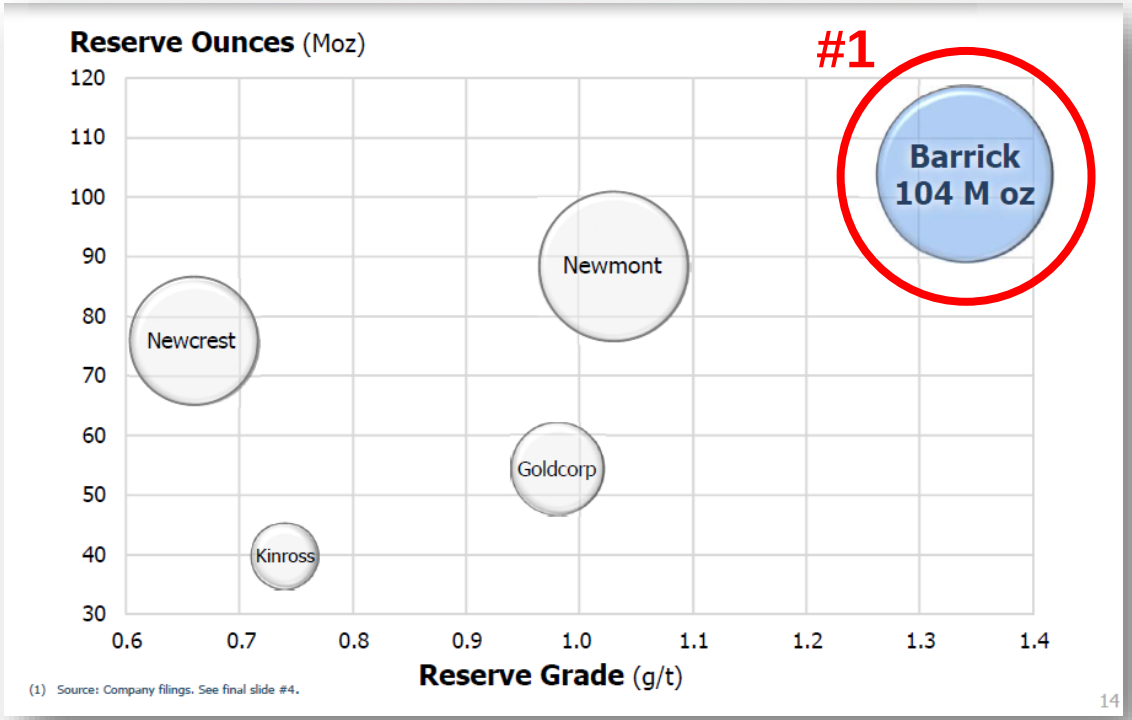
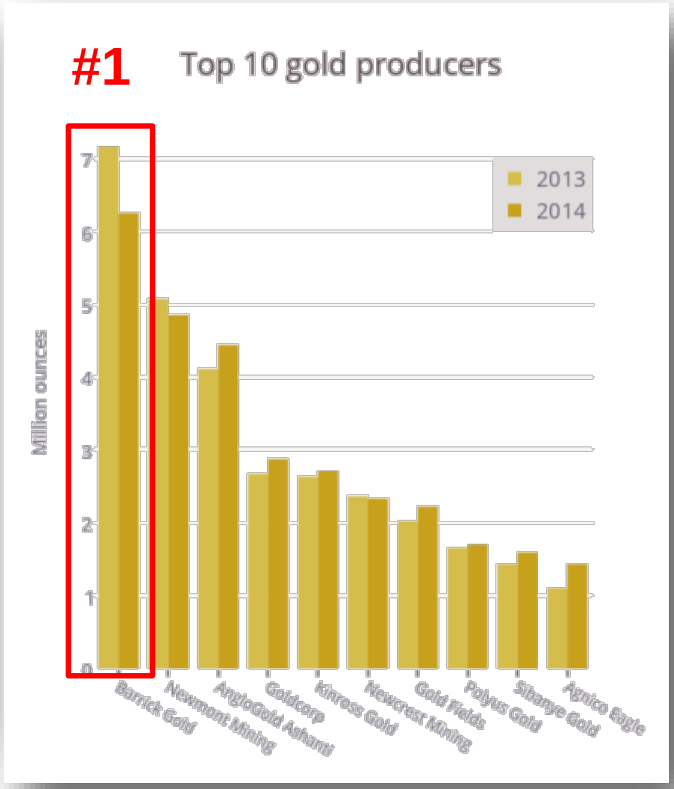
Barrick in the Gold Mining Business





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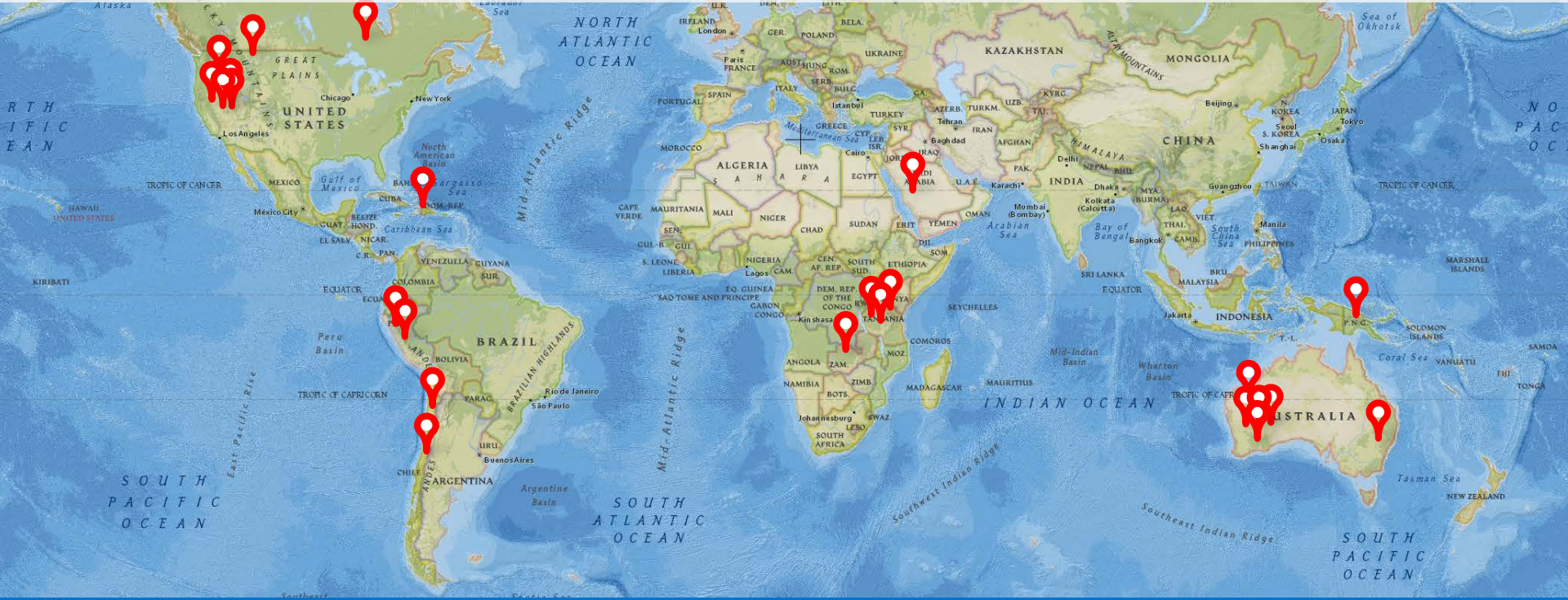
Barrick: Then and Now

2012: 25 operating mines, ~7.5 million ounces of gold @ US$864 (AISC)

2015: 15 operating mines, ~6.0 million ounces of gold @ US$715 (AISC)

Reserves 134 million ounces



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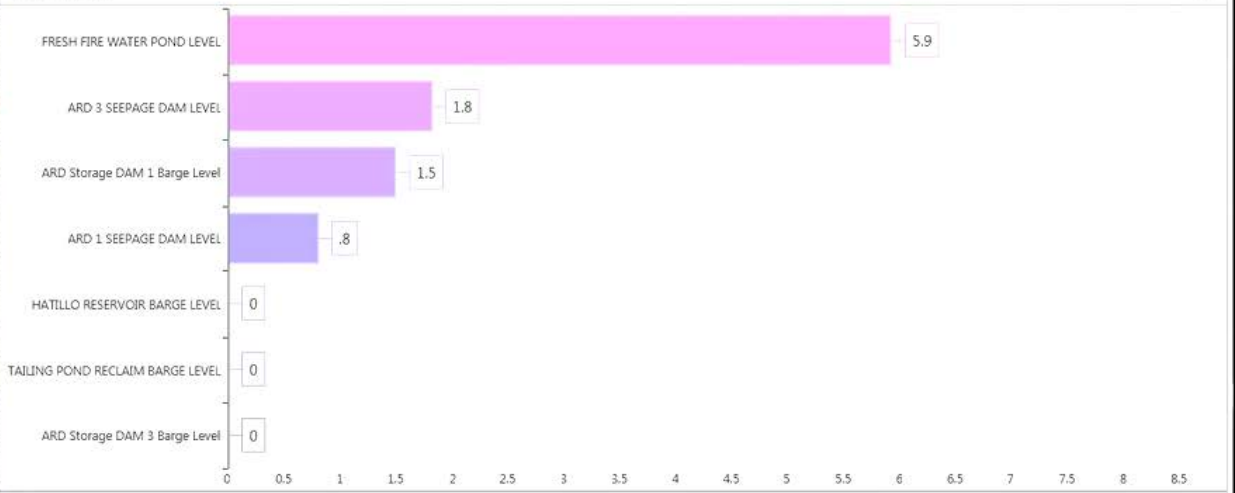
FILE TOOLS VIEW

PV - With Coresight Widget

Pueblo Viejo Water Measurements

Water Levels



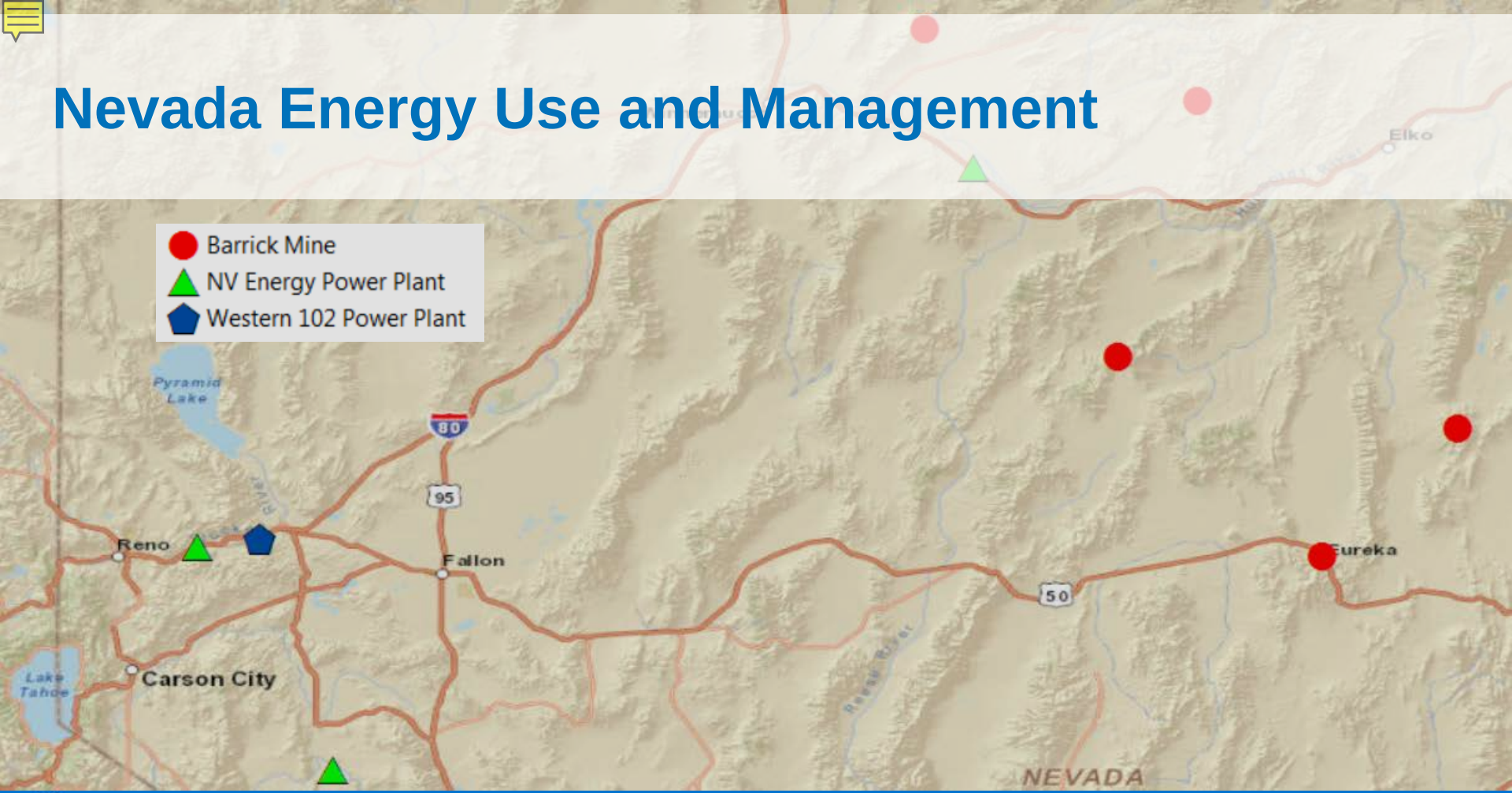
PI CoreSight Water Measurements

PI Coresight

To analyze features in PI Coresight, right-click on a feature and choose "Analyze in PI Coresight".

Or, choose the PI Coresight map tool and select some features.

Nevada Energy Use and Management



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WACKER

Wacker – Creating actionable information

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WACKER

CREATING TOMORROW`S SOLUTIONS

WACKER is a technology leader in the **global chemical** and **semiconductor** industries

WACKER Group **€ 4.83 billion** sales (2014)

16,700 Employees

Solutions for Various Industries: Renewables, Automotive, Semiconductor…

25 Production sites in Europe, America and Asia

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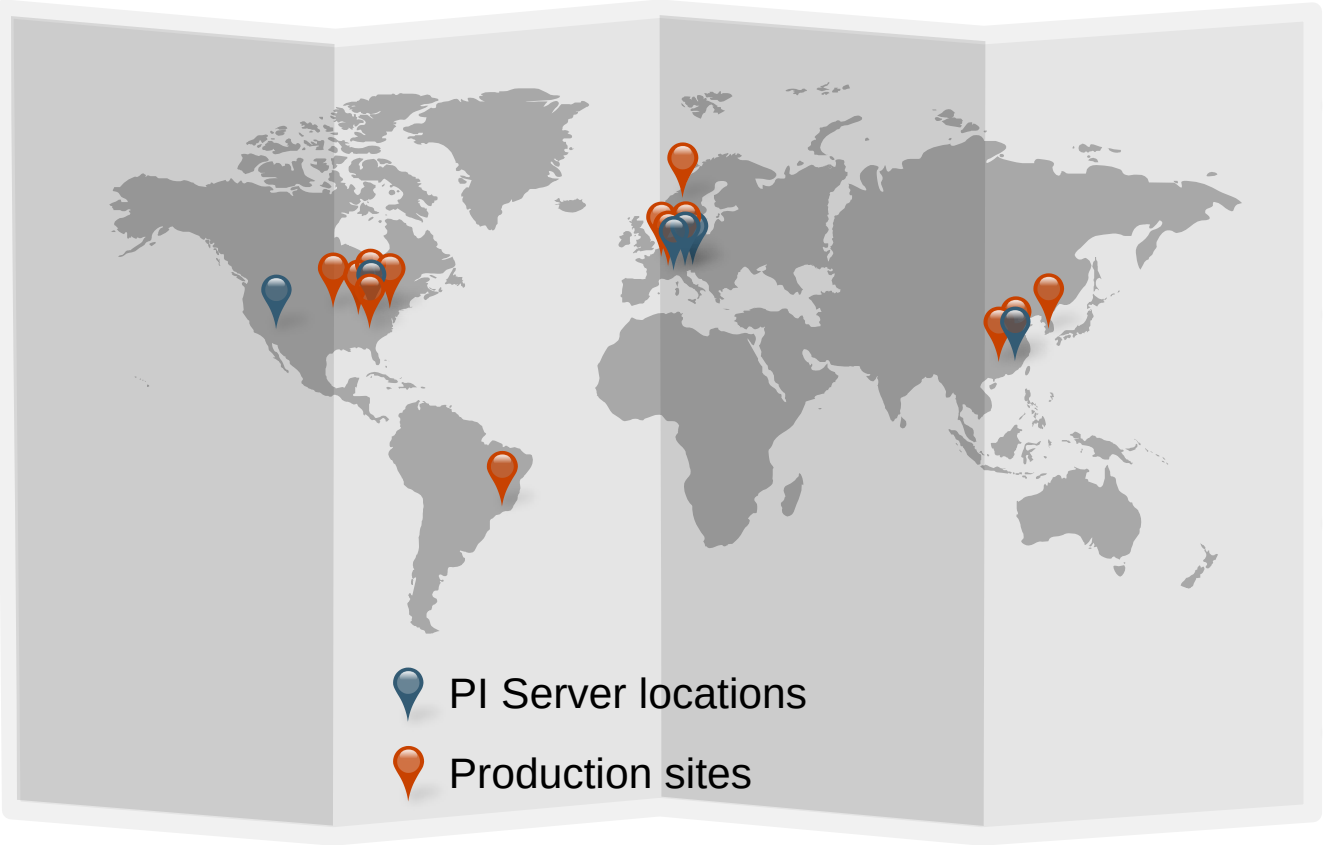
Wacker's Use of the PI System

PI Since 1992

17 PI Systems

490k PI pts

300 Production Plants



1,700 PI Client installs

Central Global support

2,500 Users access PI Data

Standard -ization

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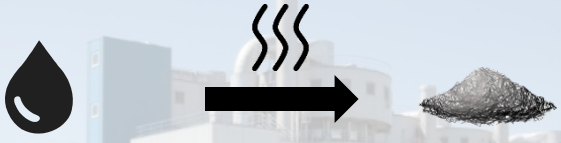
Optimizing energy consumption during drying process

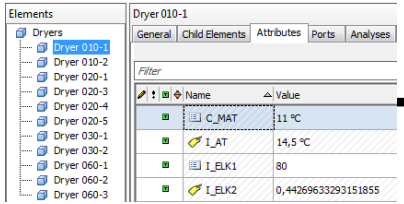
Drying process



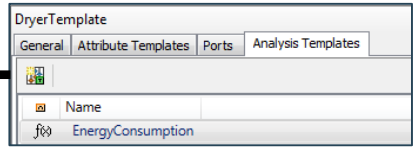
20 input data streams
(e.g.pressures, flows)

10 intermediate values

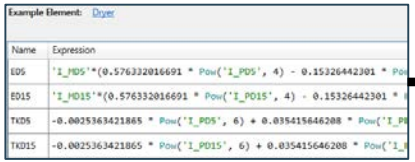
Energy consumption KPI



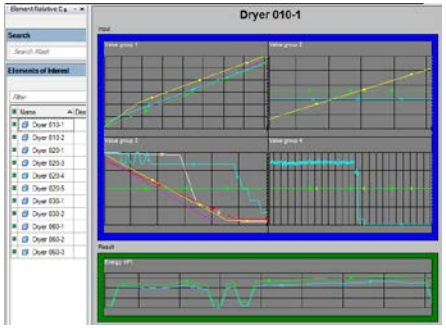
Templates simplify deployment



Replace calculations in Excel



Calculation of energy consumption



Visualizing energy consumption

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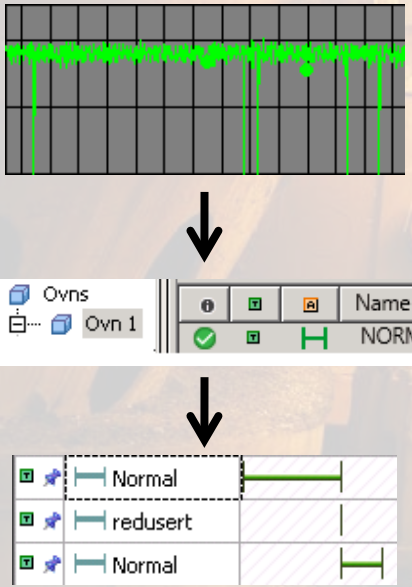
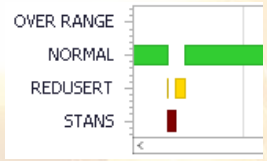
Monitoring furnace status for continuous improvement

Generation of PI Event Frames using PI Analytics

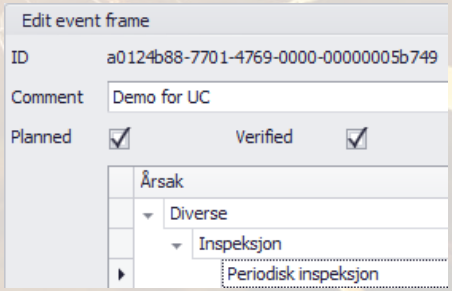


Display Event Frame data as table and Gantt chart

Refe...	Duration	Status
Ovn	02.17:45:35	NORMAL
Ovn	00.00:15:34	REDUSERT
Ovn	00.00:13:54	STANS
Ovn	00.00:00:45	REDUSERT
Ovn	01.04:10:25	NORMAL

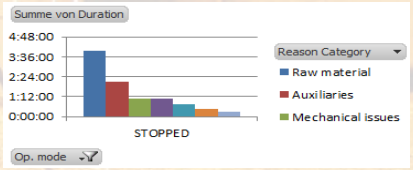


Specify / verify reasons for furnace status



Analysis of Event Frame data in Excel using PI DataLink and Pivot charts

Furnace	Op. mode	Duration	Reason Category
Ovn 1	STOPPED	1:12:00	Auxiliaries
Ovn 1	STOPPED	0:01:10	Power supply
Ovn 1	STOPPED	0:07:25	Power supply
Ovn 1	STOPPED	0:31:10	Auxiliaries



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California ISO

California ISO and Future (Forecast) Data

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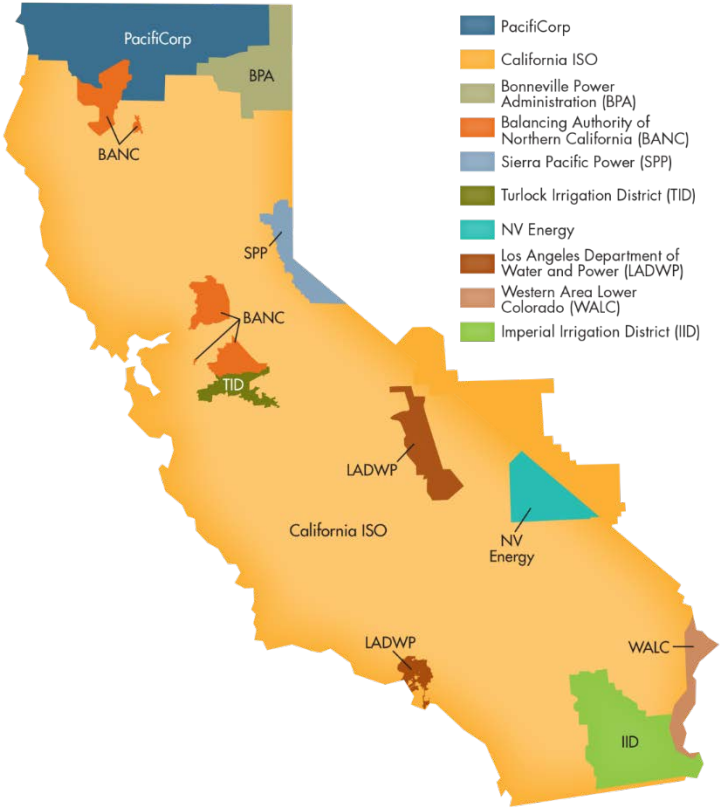
California ISO by the Numbers

- **65,225** MW of power plant capacity (net dependable capacity)
- **50,270** MW record peak demand (July 24, 2006)
- **27,076** market transactions per day
- **26,024** circuit-miles of transmission lines
- **30 million** people served
- **244 million** megawatt-hours of electricity delivered annually



October 2014

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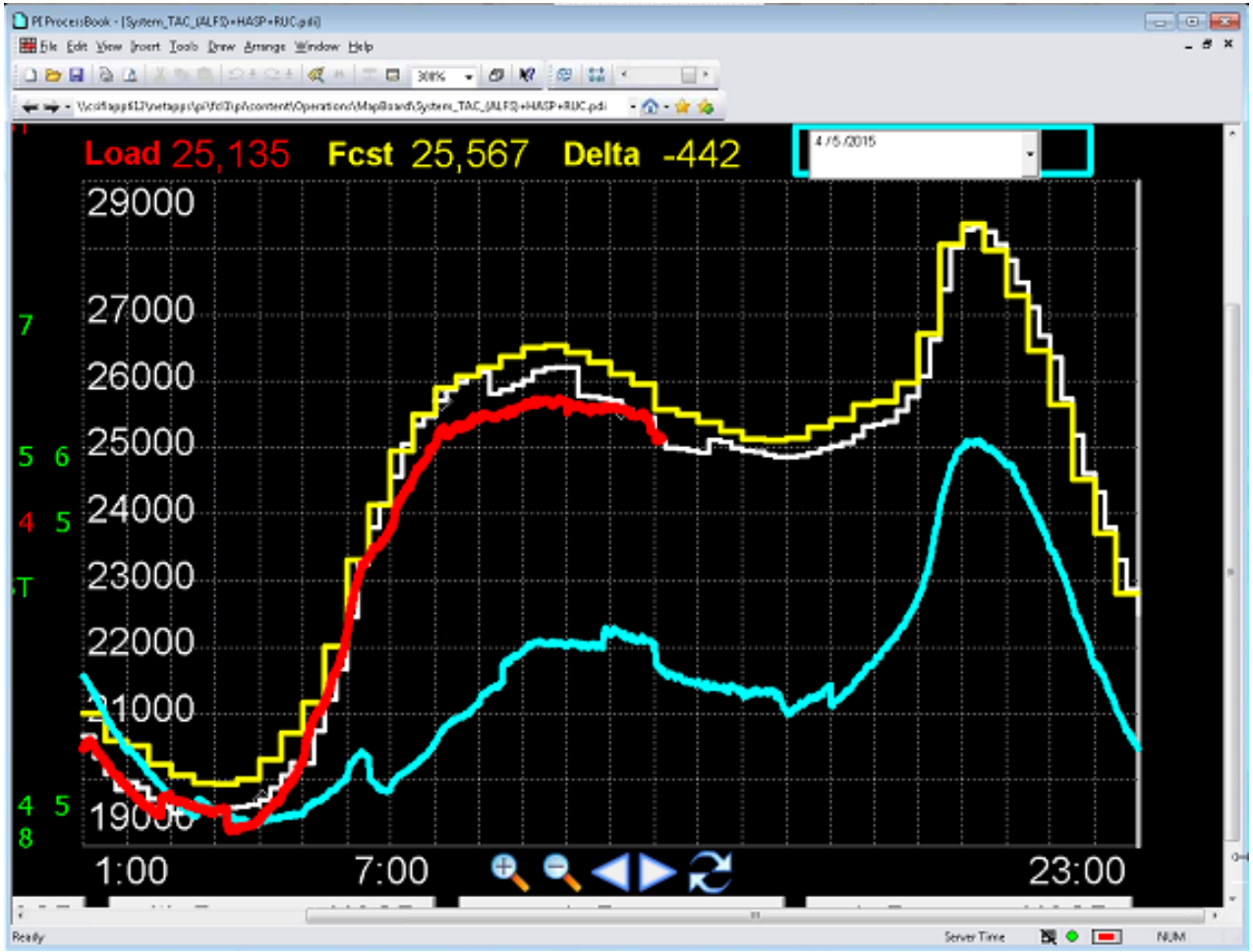

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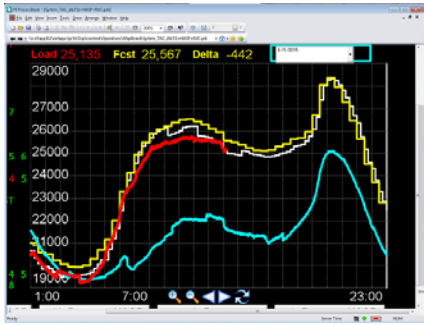
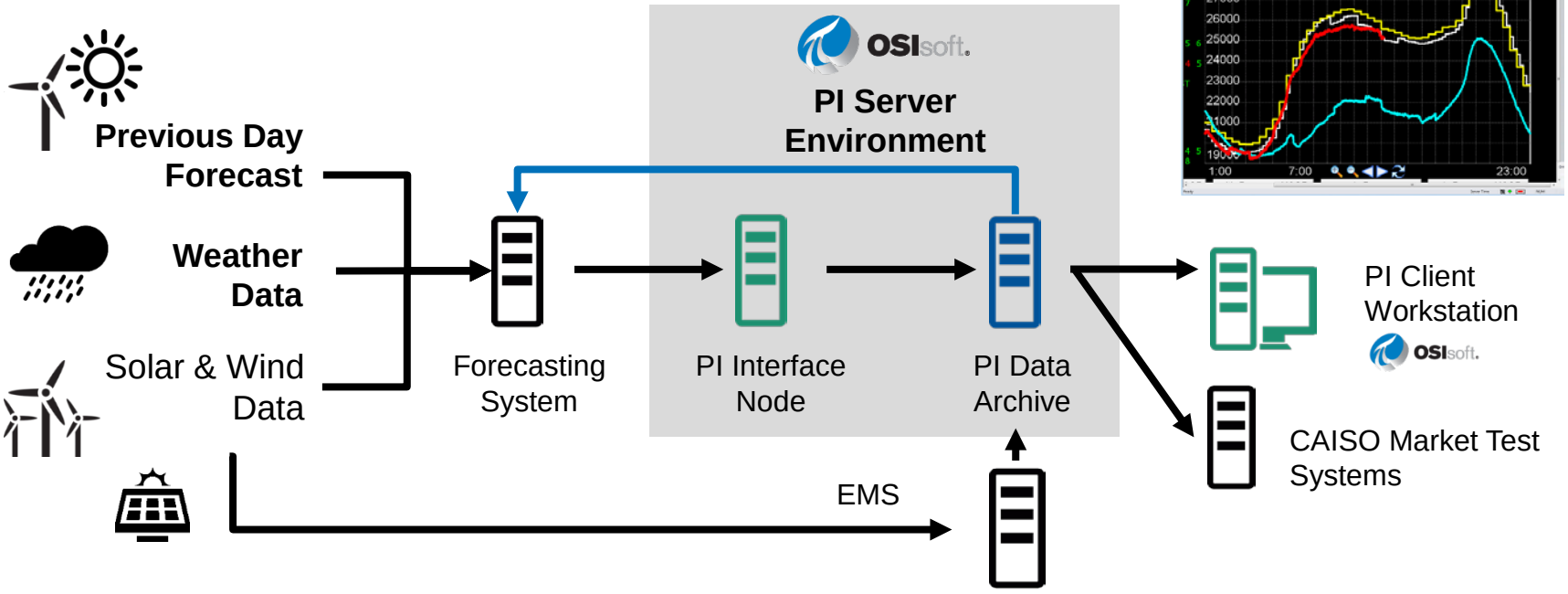
PI System Environment





- PI Data Archive 2015
- PI Asset Framework 2015
- PI Asset Analytics 2015
- PI ProcessBook 2015 (in progress)
- PI DataLink 2015 (in progress)
- PI RDBMS Interface

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Outotec

Outotec and PI Cloud Connect

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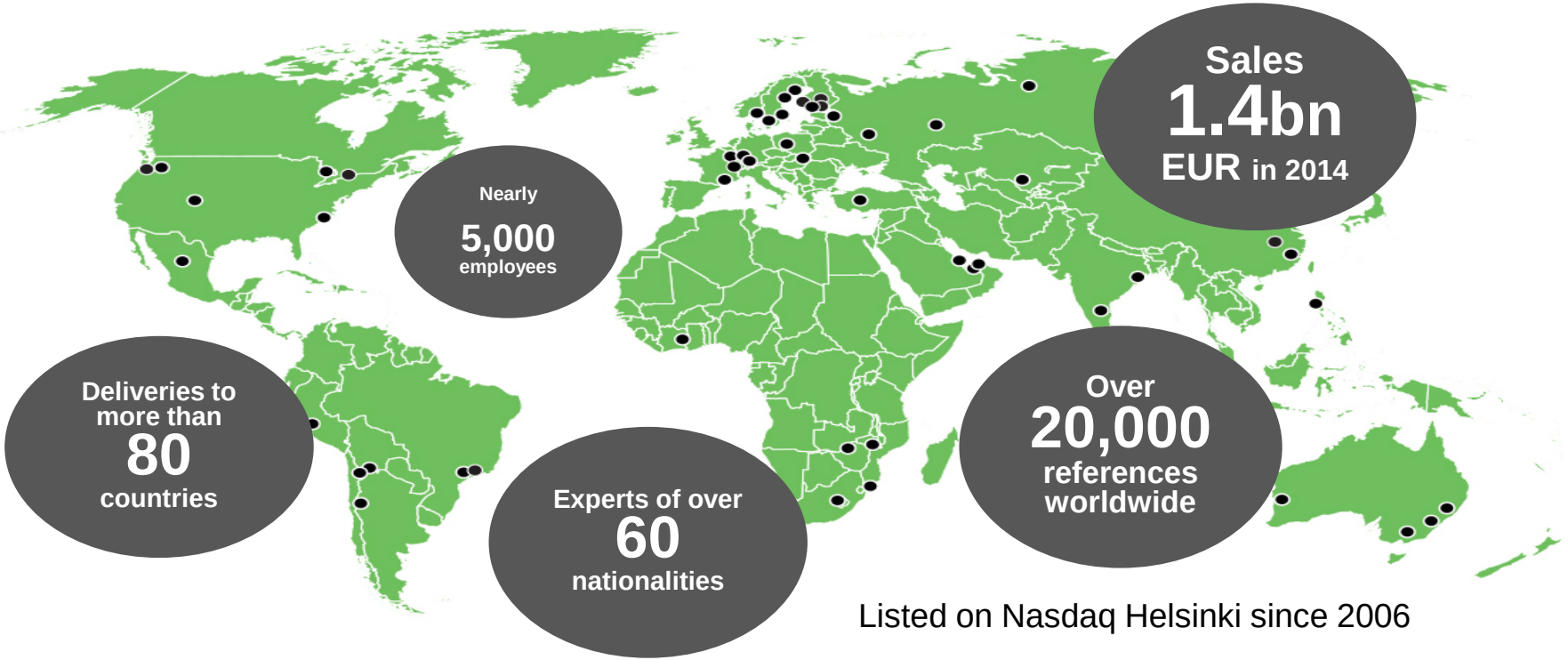
Outotec – A process technology company



Listed on Nasdaq Helsinki since 2006

Serving the metals & mining, water treatment, energy and chemical industries

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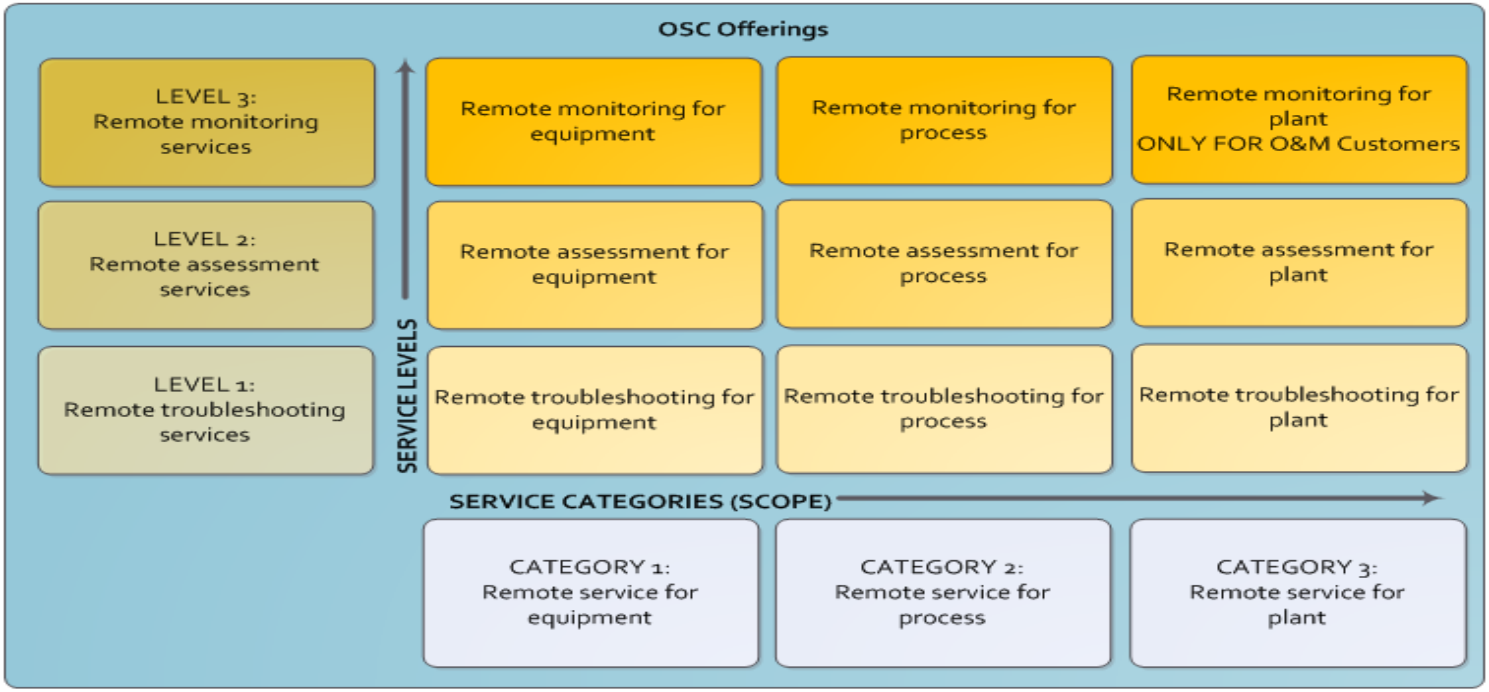
Digitalization: Remote Services Portfolio

Outotec provides our customers with 9 Remote Service Products:



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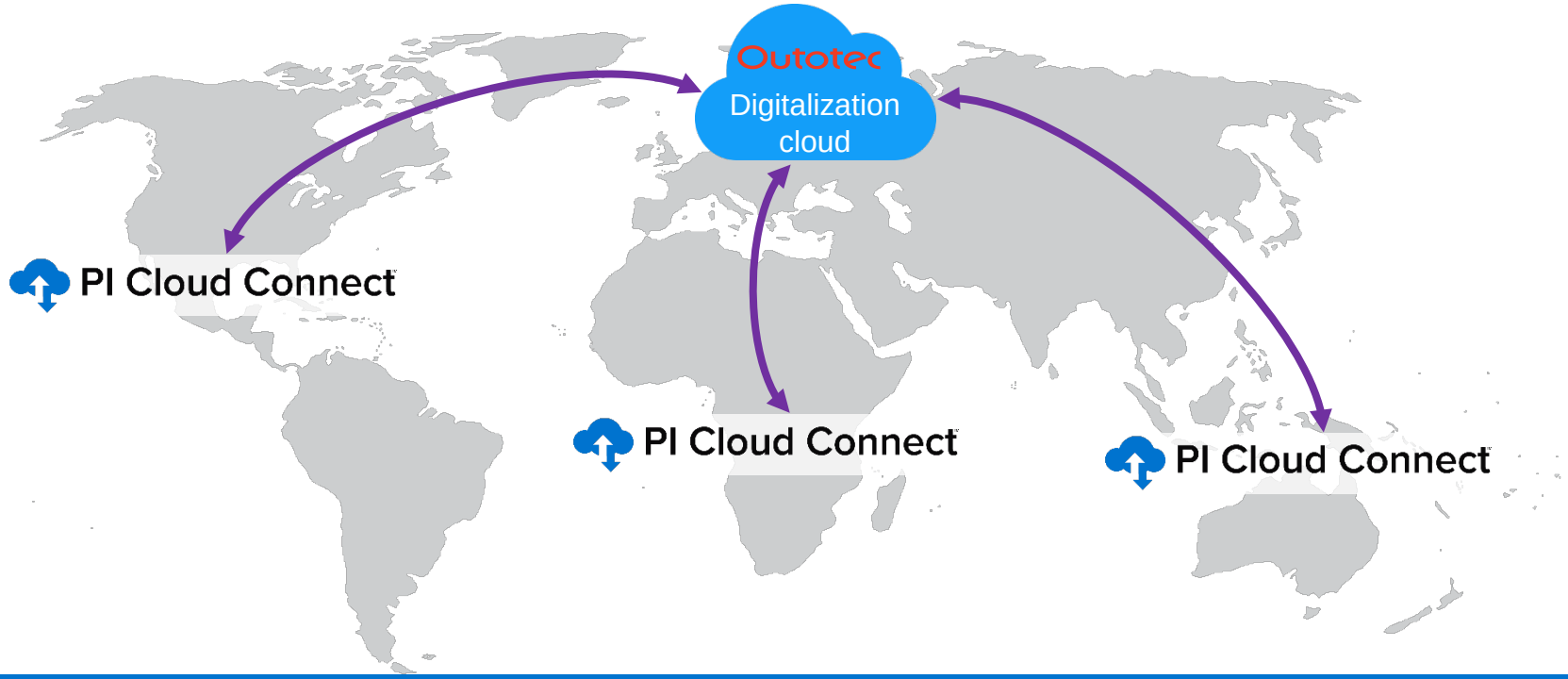
Scalable architecture to meet global demand

Information Security

Rapid deployment

Scalability



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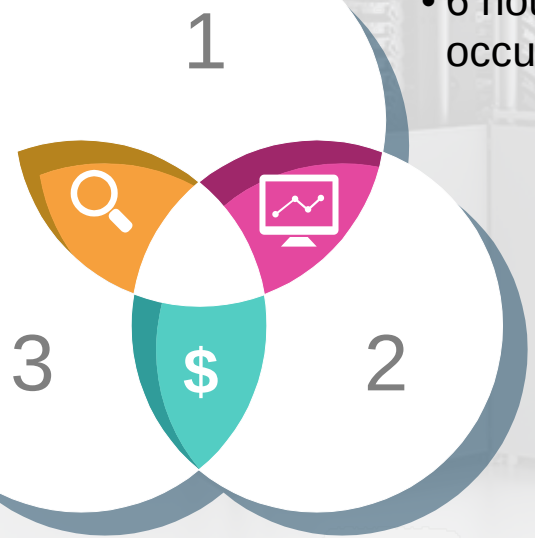
Anglo Platinum: Removing operational failures of filters (O&M case)

Challenge

- Unplanned service every 2 weeks
- 6 hours of lost production time each occurrence



Benefit

- Reduce downtime by 30%
- Potential Savings: €1.3M/yr

Solution

- Outotec monitoring service
- Detect incorrect parameters remotely

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How are we helping you transform your world?

Geospatial Insights

Visualization

Actionable Information

Forecasting

Business Data Integration

Cross Company Collaboration

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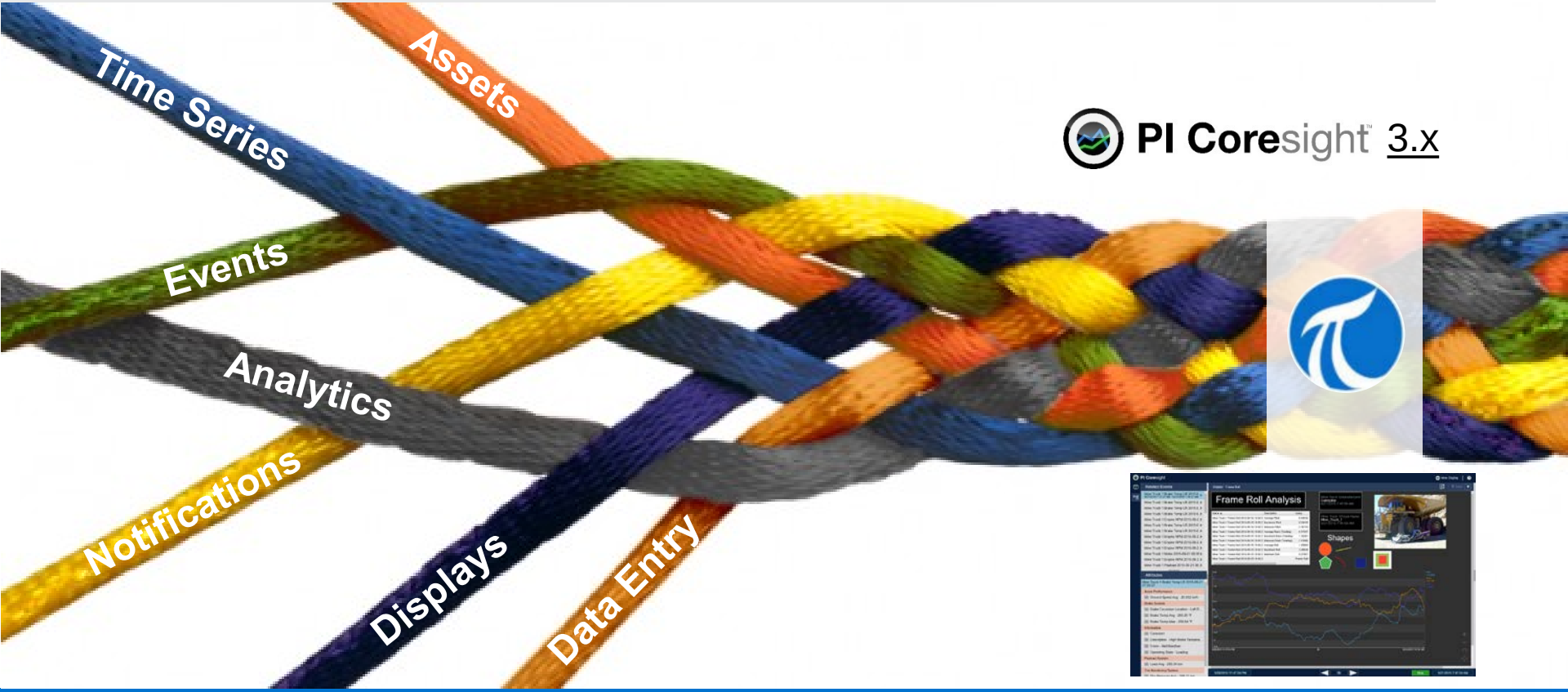
The PI System delivers even more value when integrated together



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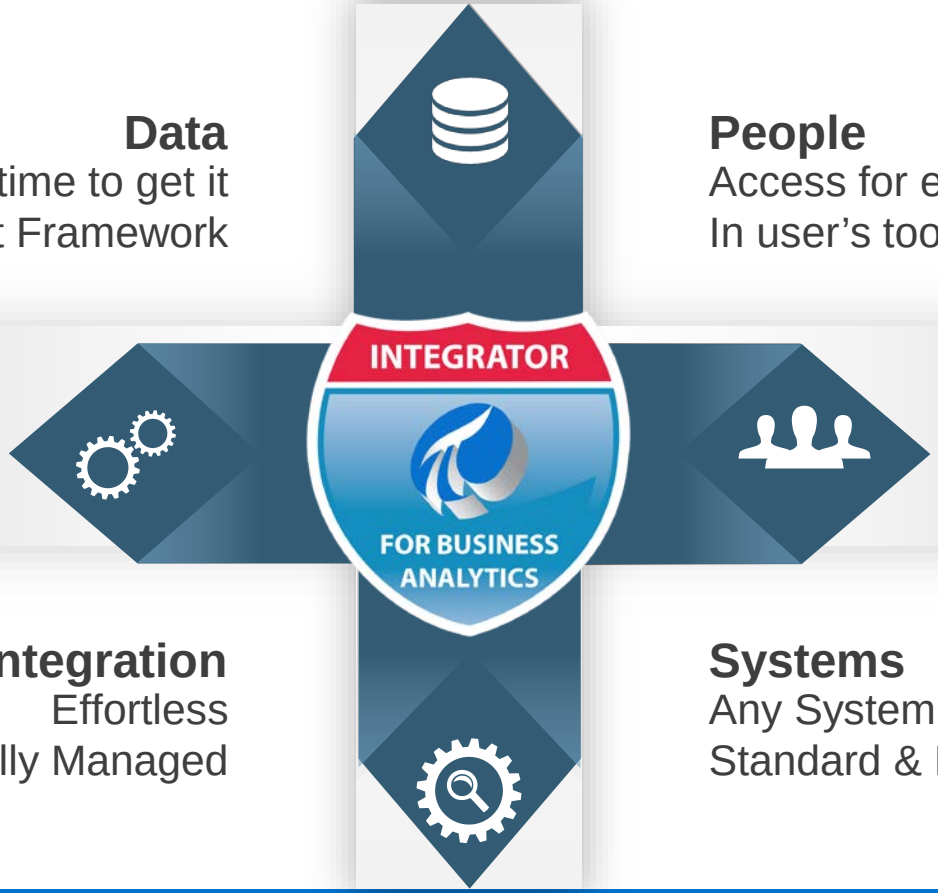
PI Integrator for Business Analytics

Data
Reduce the time to get it
Powered by PI Asset Framework

People
Access for everyone
In user's tool of choice



Integration
Effortless
Self Service UI / Centrally Managed

Systems
Any System
Standard & Native Integrations

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What can you do to transform your world…

Geospatial Insights

Visualization

Actionable Information

Forecasting

Business Data Integration

Cross Company Collaboration

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When can you start…

Geospatial Insights

PI Integrator for Esri ✓

Visualization

PI Coresight 2015 ✓ 2016

Actionable Information

PI Server 2015 ✓

Forecasting

PI System 2015 ✓

Business Data Integration

PI Integrators ✓

Cross Company Collaboration

PI Cloud Connect ✓

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PI System Roadmap

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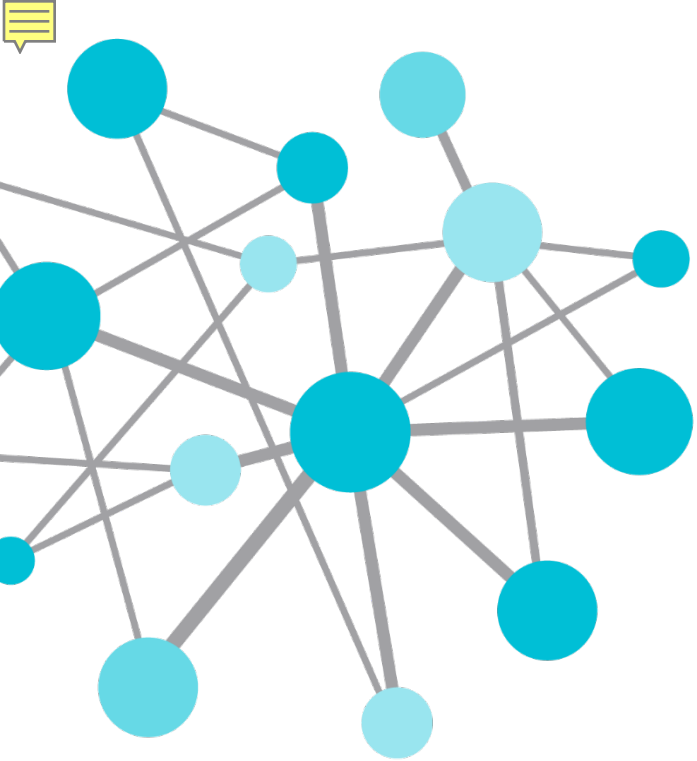

Managing Complexity

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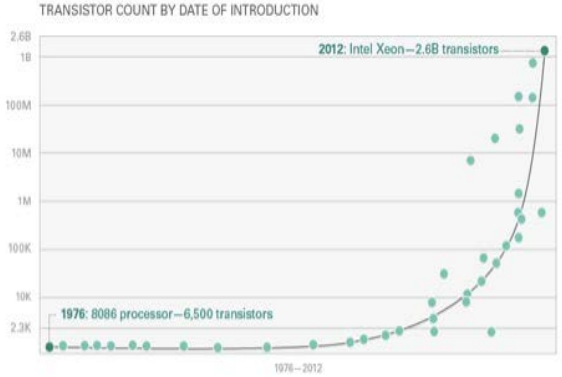
Why are systems getting more complicated?



Moore's Law

HART at the Speed of Ethernet

Distributed Network Protocol

WITSML™

ASHRAE BACnet™

More data transport protocols

Security requirements

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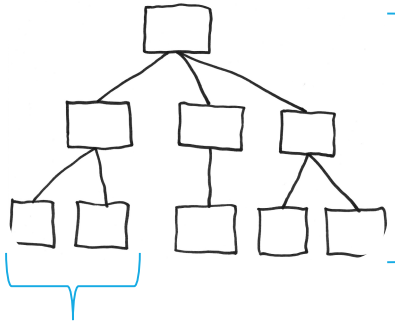
How to handle more of everything: Asset Framework & Event Frames

Context



Grouping

Hierarchy

Common Names
Units of Measure
Hidden and Excluded Attributes

New

Consistency

Reuse

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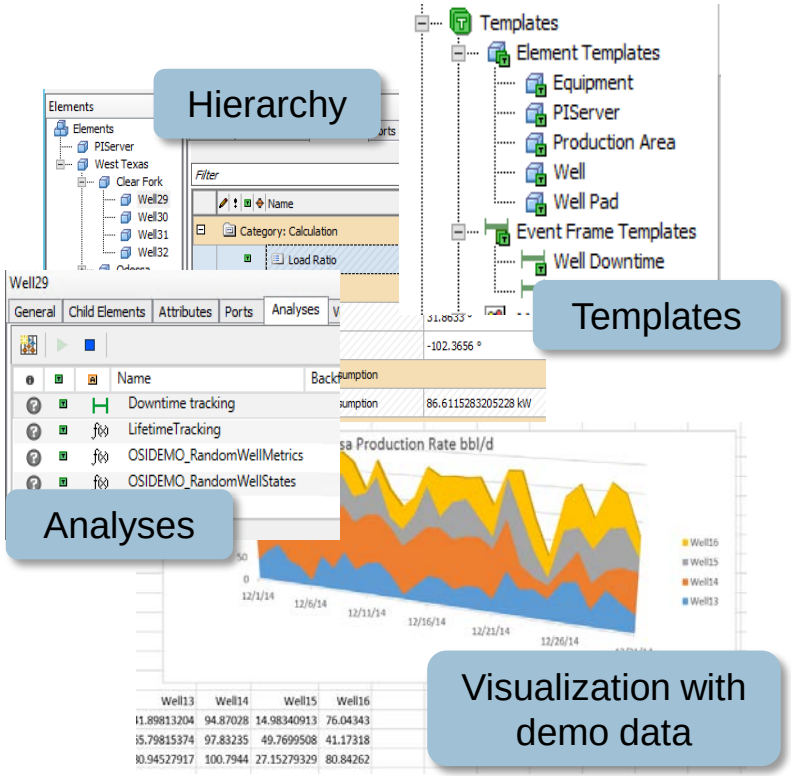
Asset Based PI Example Kits

- See business initiatives take shape
  - Example AF templates
  - Simple AF structure
  - Sample reports

- Download and discuss on PI Square
  - Search for the "Asset Based PI Example Kit" place



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Next year

- PI Notifications
- Asset Analytics enhancements
- System management improvements in the PI Data Archive

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Data Protocols

BACnet

DNP3

EtherNet/IP

HART-IP

IEC 60870-5-104

IPMI

OPC Unified Architecture

WITSML

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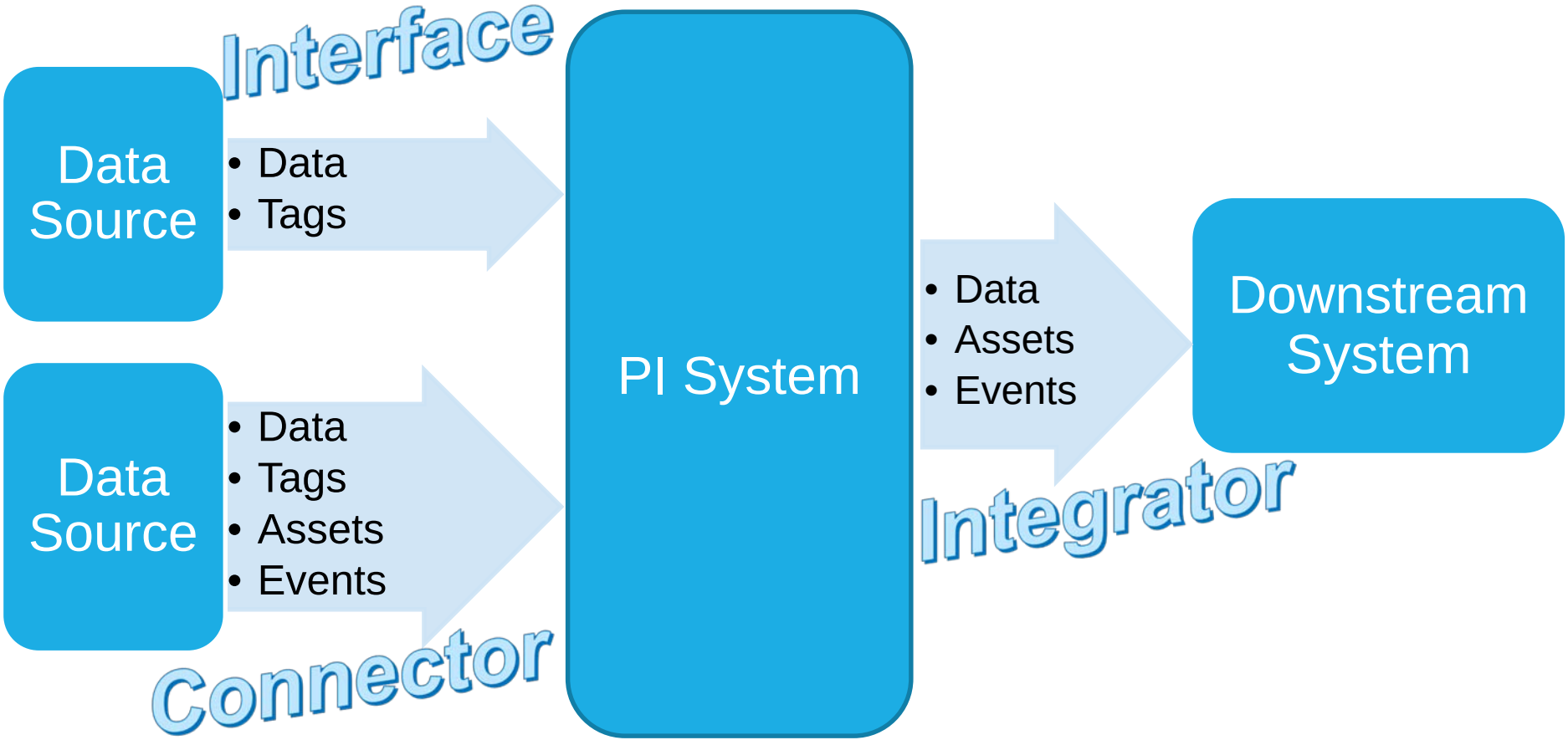

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Advantages of PI Connectors

- Auto-discover & auto-create assets and tags
- Collect event data type (Event Frames)
- Simple configuration
- Higher speed
- Ability to run on Linux
- Security

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Security

- Identity
- Transport security

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Transport Security with PI Server 2015

From \ Connection	PI Trust	NTLM RC4/MD5	Active Directory (Kerberos) AES256/SHA1*
PI Buffer Subsystem	✗	✓	✓
PI Connectors	✗	✓	✓
PI DataLink	✗	✓	✓
PI ProcessBook	✗	Future	Future

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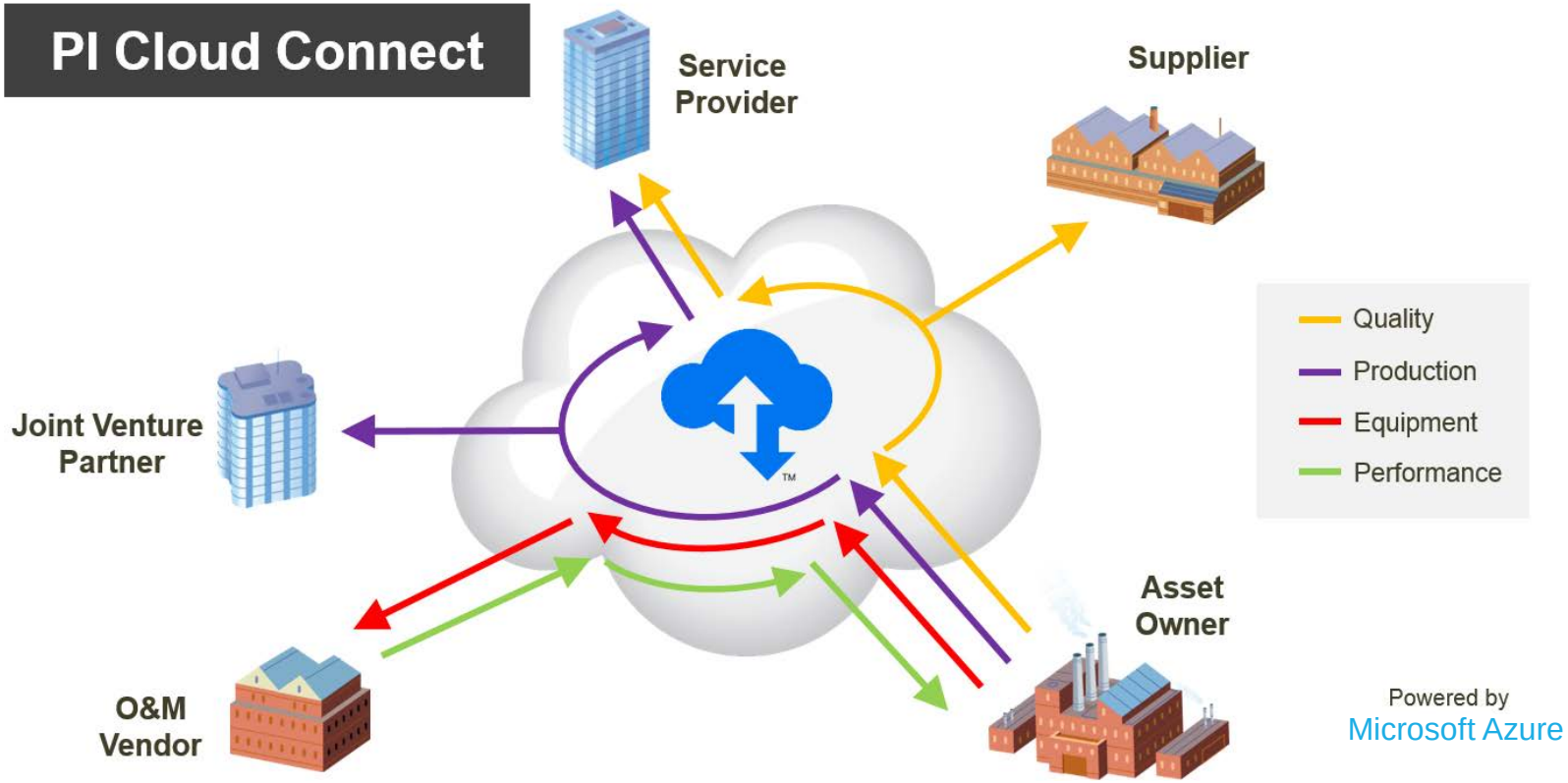
Software as a Service



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Managing Complexity

- PI Asset Framework & PI Event Frames
- PI Connectors
- Security (transport security, claims-based identity)
- PI Cloud Connect

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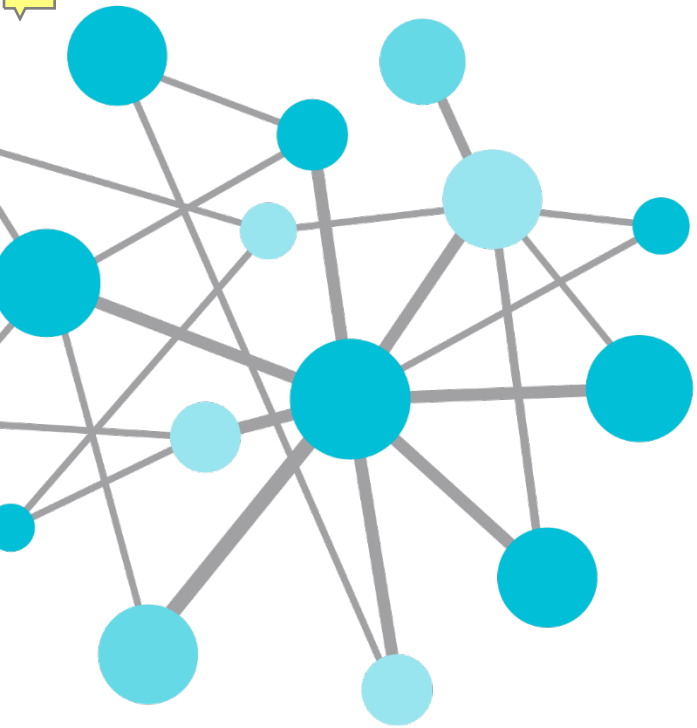

Data

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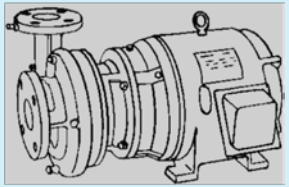
Asset Analytics

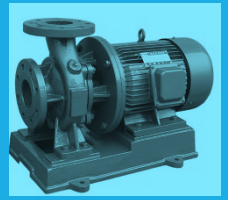
Element Template



Analysis Template

- Schedule or Attribute triggers
- Expressions or rollups or event frame generation

Element



Analysis

- Applied to specific attributes
- Automatically follows changes to template

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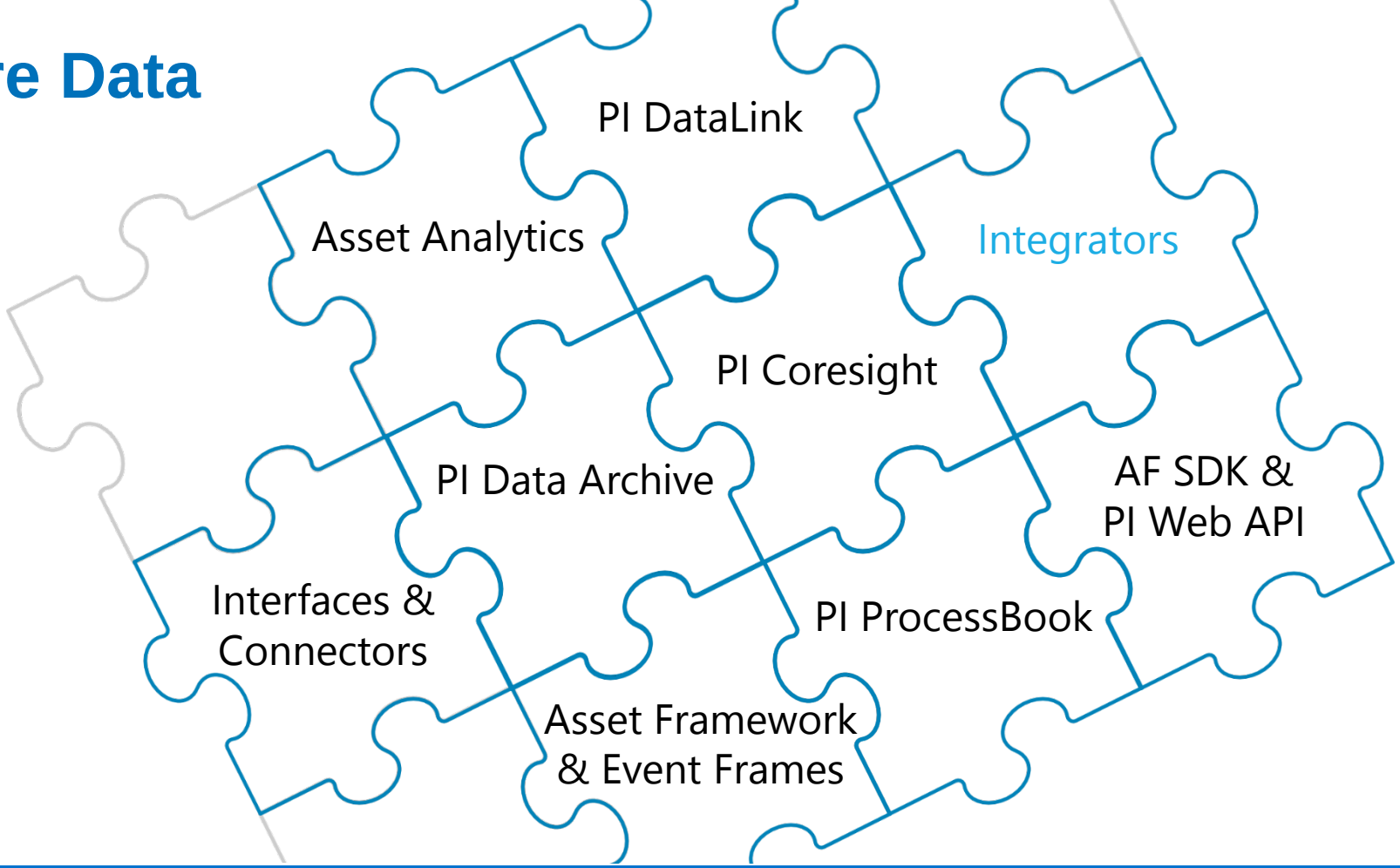
Future Data



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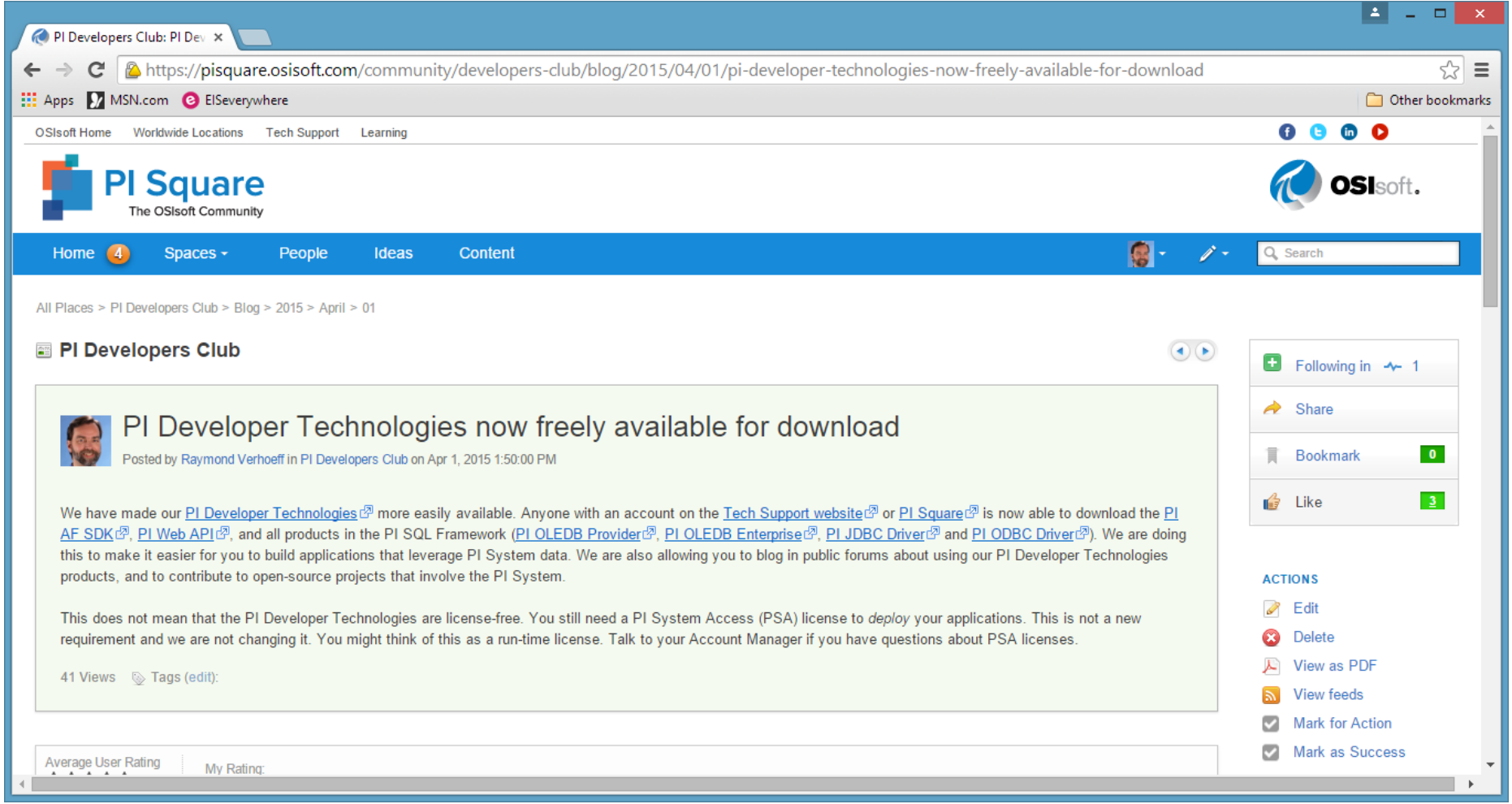

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Launching Open Licensing Rights

Developer Technology	
.NET Framework	AF SDK
PI Web API	Core Services Indexed Search
PI SQL Framework	PI OLEDB Enterprise PI OLEDB Classic PI ODBC PI JDBC

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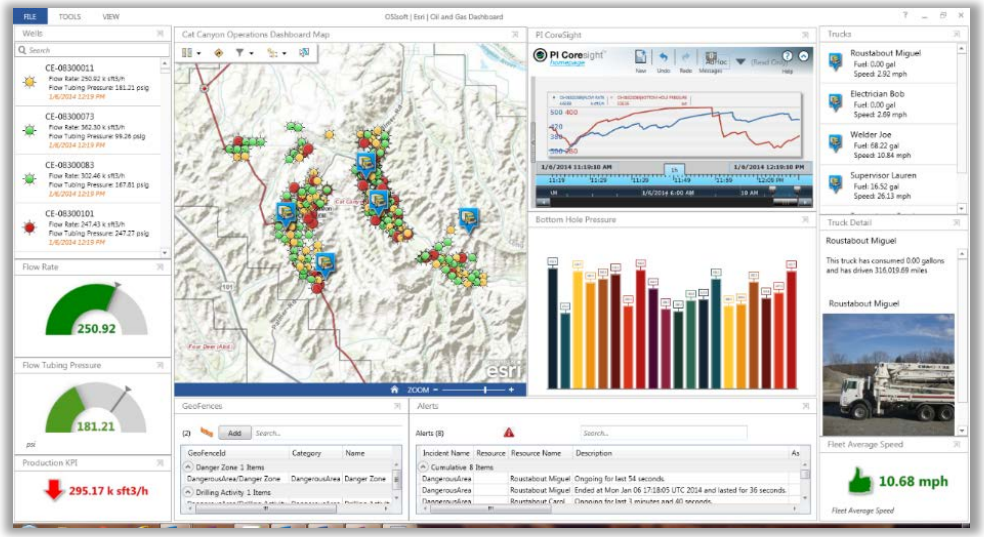
PI Integrator for Esri ArcGIS

Overlay Assets and Real-time Information onto Esri Maps



- Overview of your PI System assets using Esri maps
- Esri maps become live with PI System data
- Drill into asset data using PI Coresight
- Import Esri ArcGIS assets into PI AF

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Business Intelligence, MapReduce, Machine Learning

Fleet Assets and Different Brands

Optimization

Startups and Plant turn-arounds

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Why do you need a PI Integrator?

Real-time Data isn't perfect

- Naturally incomplete (delays, shutdowns)
- Not evenly spaced
- Doesn't look and behave like SQL (RDBMS)
- Subject to errors in measurement
- Varies in fidelity
- Needs context (Assets, Events)
- Hard to collect effectively

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From Raw Data to Decision Ready Data

OSIsoft.

System of Record

- Guaranteed Delivery & Storage
- Full Fidelity of Sensor
- Optimized for Real-Time
- Backup/Restore
- HA
- Security

Needs:

- Cleanse
- Augment
- Shape
- Transmit

Visual Analytics

Excel, tableau, Spotfire TIBCO Software, COGNOS, QlikView

Statistical Analytics

hadoop MapReduce, sas, SAP

Analytics Packages

- Designed to Analyze Large Sets
- Expects that the Data Exists
- Problem Defines Data Shape
- Typically Evenly Spaced in Time

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PI Integrators

- PI Integrator for ESRI ArcGIS
- PI Integrator for Business Analytics
  - Data Designer UI
  - Data Extraction, Shaping, Cleansing
  - MS SQL Server - Intermediate Store
  - Pull Data from PI System using ODBC
- PI Integrator for SAP HANA
  - Similar to above, adds into HANA Smart Data Access (SDA)
  - Create virtual tables corresponding to Views in PI System

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Data

- Asset Analytics
- Future data
- Open SDKs
- Integrators
  - PI Integrator for Esri ArcGIS
  - PI Integrator for Business Analytics
  - PI Integrator for SAP HANA

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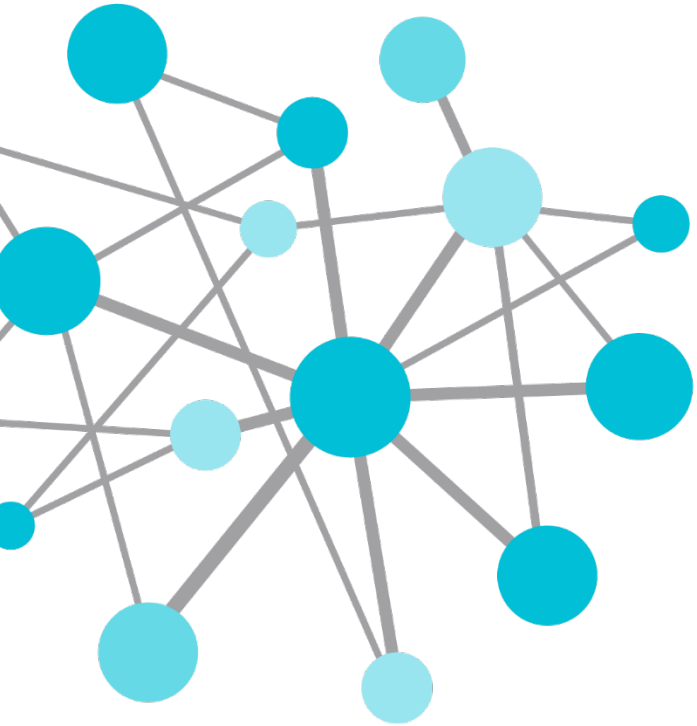

Viewing data

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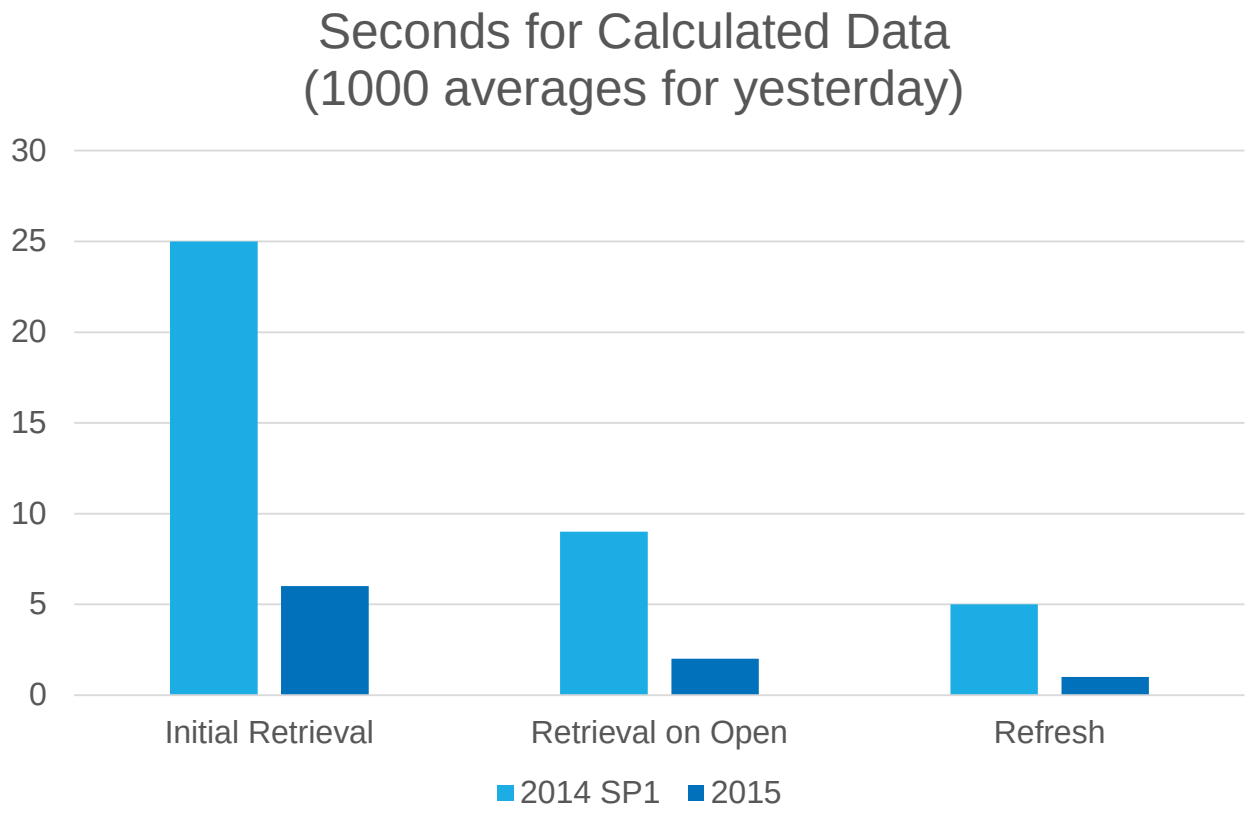
PI DataLink 2015



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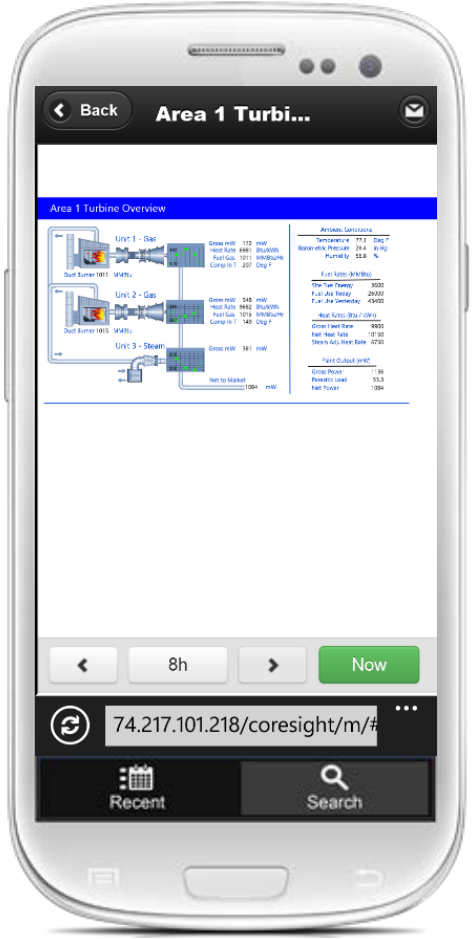
PI Coresight 2014

- Fast and easy access to PI System data
- PI ProcessBook display viewing in any browser
- New mobile web site designed for small screens and accessible on any device



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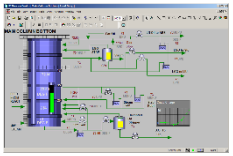


PI ProcessBook

Display Editor
Process Monitoring

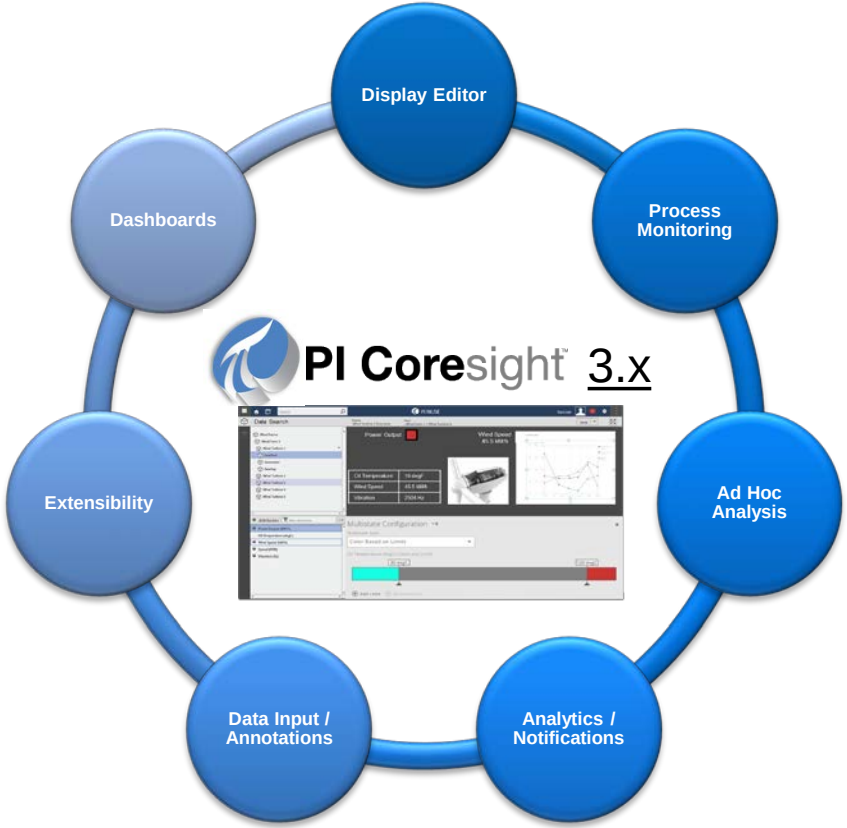
PI Coresight 2.x

Ad Hoc Analysis
PB Display Viewer

PI WebParts

Dashboards

TODAY (2015)



FUTURE (2016+)

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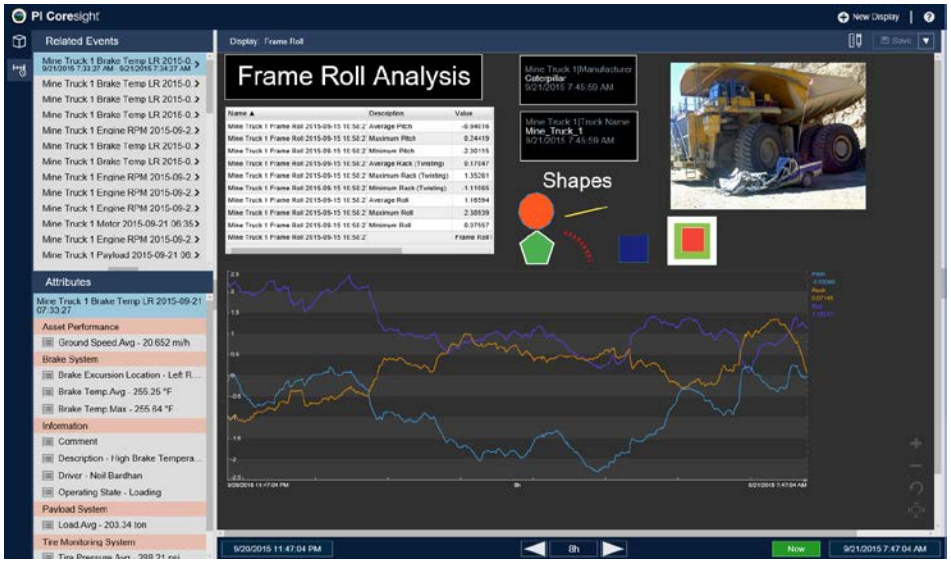
PI Coresight 2016 – Expected Features

- Fully HTML5 based; usable on any device
- Absolute size and position display editor
- Support for shapes and graphic images
- Multistate behavior
- Event Comparison (Overlay trend)
- Related Assets and Events
- Event details page



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Viewing data

- PI DataLink
- PI Coresight
  - ProcessBook Viewer
  - Mobile experience
  - Event comparison
  - Notifications
  - Extensibility

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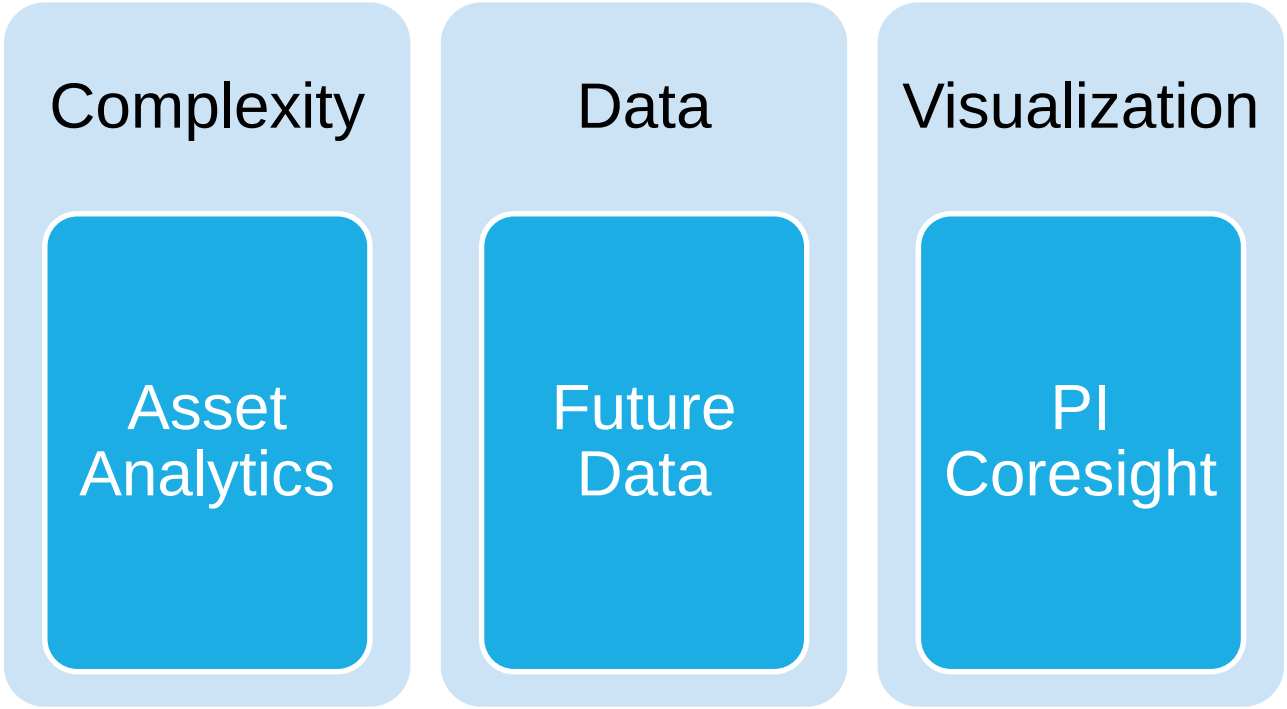
What should you do next?



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감사합니다

谢谢

Danke

Gracias

Merci

Thank You

ありがとう

Спасибо

Obrigado

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Questions

Please wait for the **microphone** before asking your questions

State your **name & company**

Please don't forget to…

Complete the Survey for this session

The Power of Data
DECISION READY IN REAL-TIME

Evaluation Form (Seminar Location - Date)

Name:_____ Company: _____

Email:_____

Quality and content of the presentations	Poor	Good	Excellent	N/A
Welcome	○	○	○	○
The Journey To Real-Time Operational Intelligence	○	○	○	○
The Power of Connection	○	○	○	○
Tank Level Management System	○	○	○	○
Using the PI System to Aid in Troubleshooting Operational Aspects of Oil and Gas Well Drilling and Completion	○	○	○	○
Unleash your Infrastructure	○	○	○	○
Information on the Spot	○	○	○	○
Wrap-up/Seminar Conclusion	○	○	○	○

Quality and organization of the seminar				
Choice of date	○	○	○	○
Time allowed for lunch/breaks	○	○	○	○
Choice of presentations	○	○	○	○
Pace and time allowed for the presentations	○	○	○	○

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Come See Us At The Pods!

Bring your questions, comments, and suggestions!

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