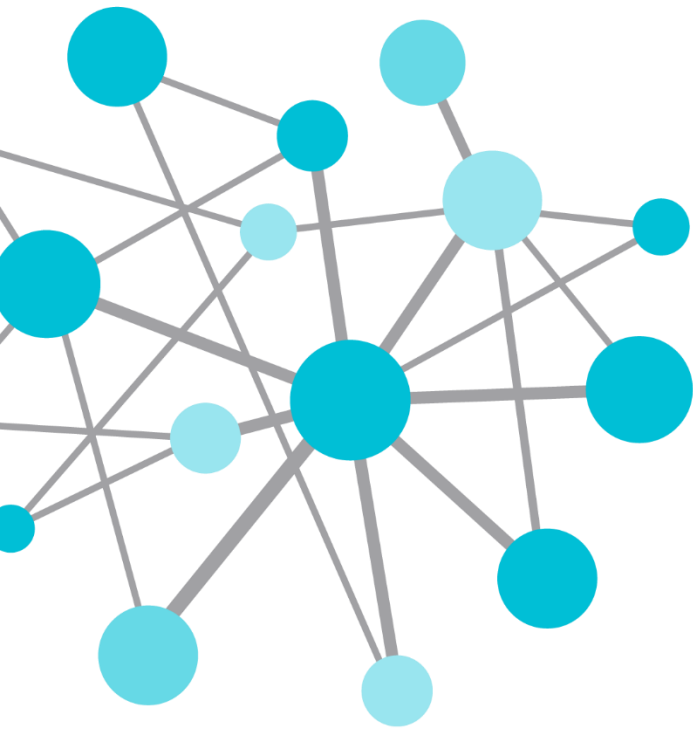


OSIsoft®

REGIONAL SEMINAR 2014

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

DECISION READY IN REAL-TIME



Unleash Your Infrastructure

Presented by **Penny Gunterman, Systems Engineer**
hgunterman@osisoft.com



This Session

Unleash your infrastructure
for operational excellence with:

- PI Server 2014
 - PI Asset Framework
 - Calculations and analytics
 - PI Event Frames
 - PI Notifications



Facing the Data Deluge

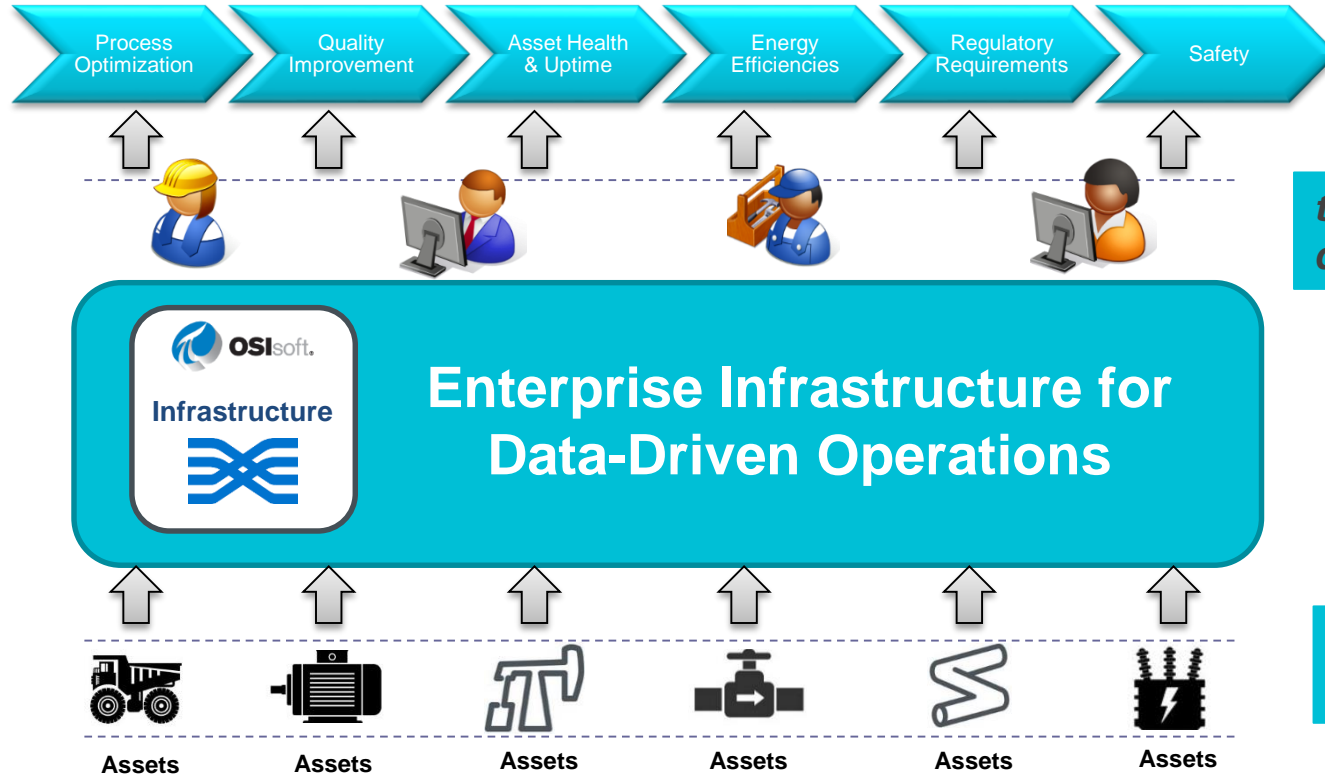
Hundreds of assets

Thousands of events

More people that need to know

*How can you deliver
operational excellence?*

Unleash the PI System Infrastructure



**Operational
Excellence**

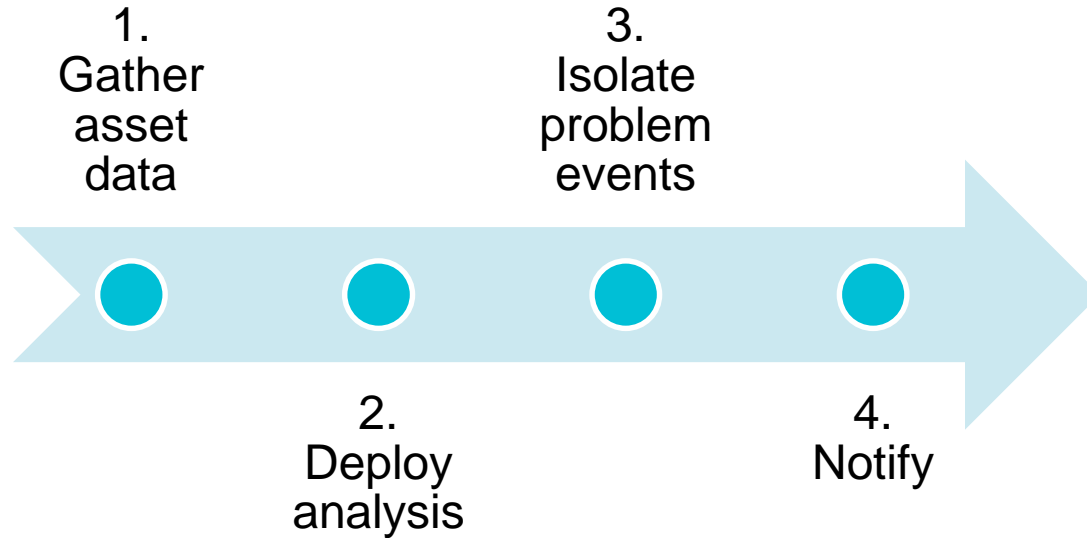
*to wherever your
data needs to go*

**Operational
Intelligence**

*Wherever your
data resides*

Operational Excellence Example

Preventing Failures



Life Before PI Asset Framework

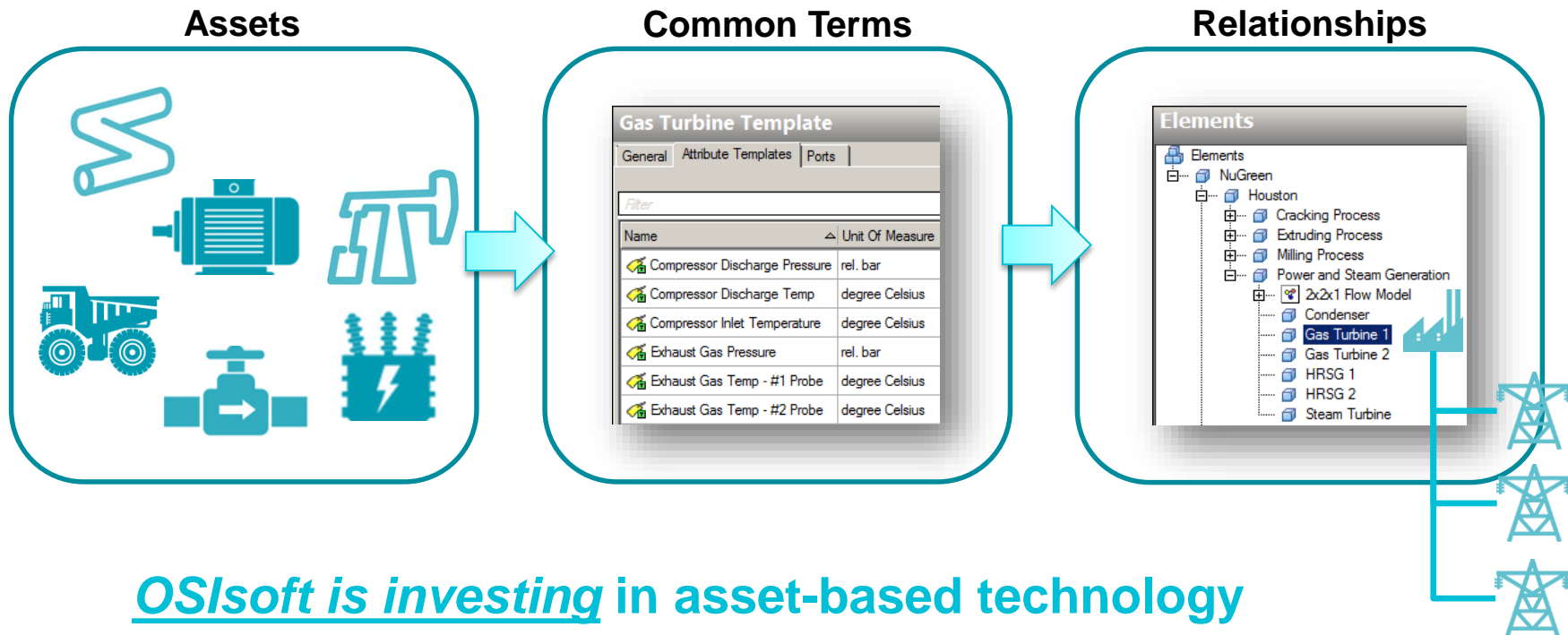
*“In last couple of years, we started experiencing a lot of **failures of this device**.*

***We’re not sure why** totally yet [...] we’ve got this problem that we don’t have a handle on [...] it could pop up at any moment, and **we don’t have any insight into it**.*

*So I thought **there’s got to be a better way**.”*

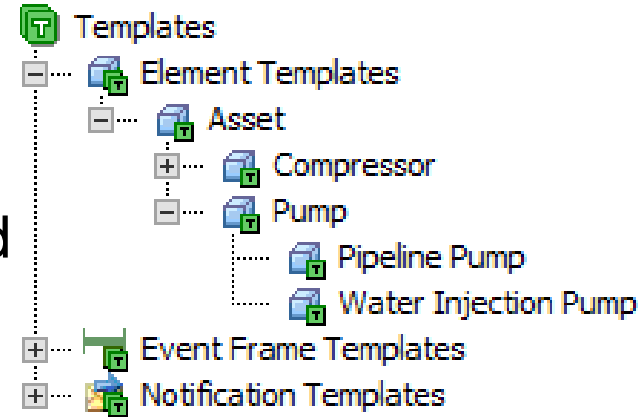


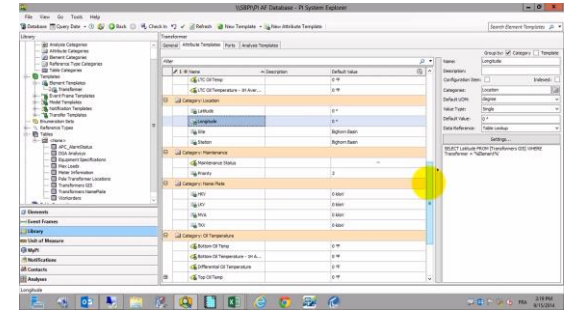
Introducing PI Asset Framework – *Assets in Context*



The Power of Templates

- Reduce **time to deployment**
 - Attributes, KPIs, events, alerts defined
 - Tag creation can be templated
- Facilitate **asset management**
 - Post-modifications are replicated to all assets
 - Create assets in bulk using the PI Builder (MS Excel)
- Reuse **visualization** screens and reports
 - Element-relative visualization for similar assets





DEMO

Preventing Failures Step 1. Gather Your Asset Data

*“I started **reviewing failures** [...]*

*Some were immediate, others started **showing a type of signature**, a rapidly fluctuating voltage [...]*

*So I started playing with PI [...] and thought **there's got to be a way to detect when there are fluctuations in voltage.**”*



Introducing Calculations and Analytics



Asset



Analysis



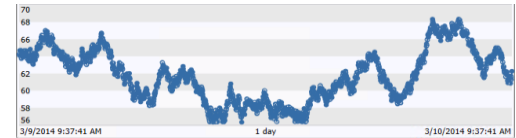
Testing



Execution



PI Tag



Backfill

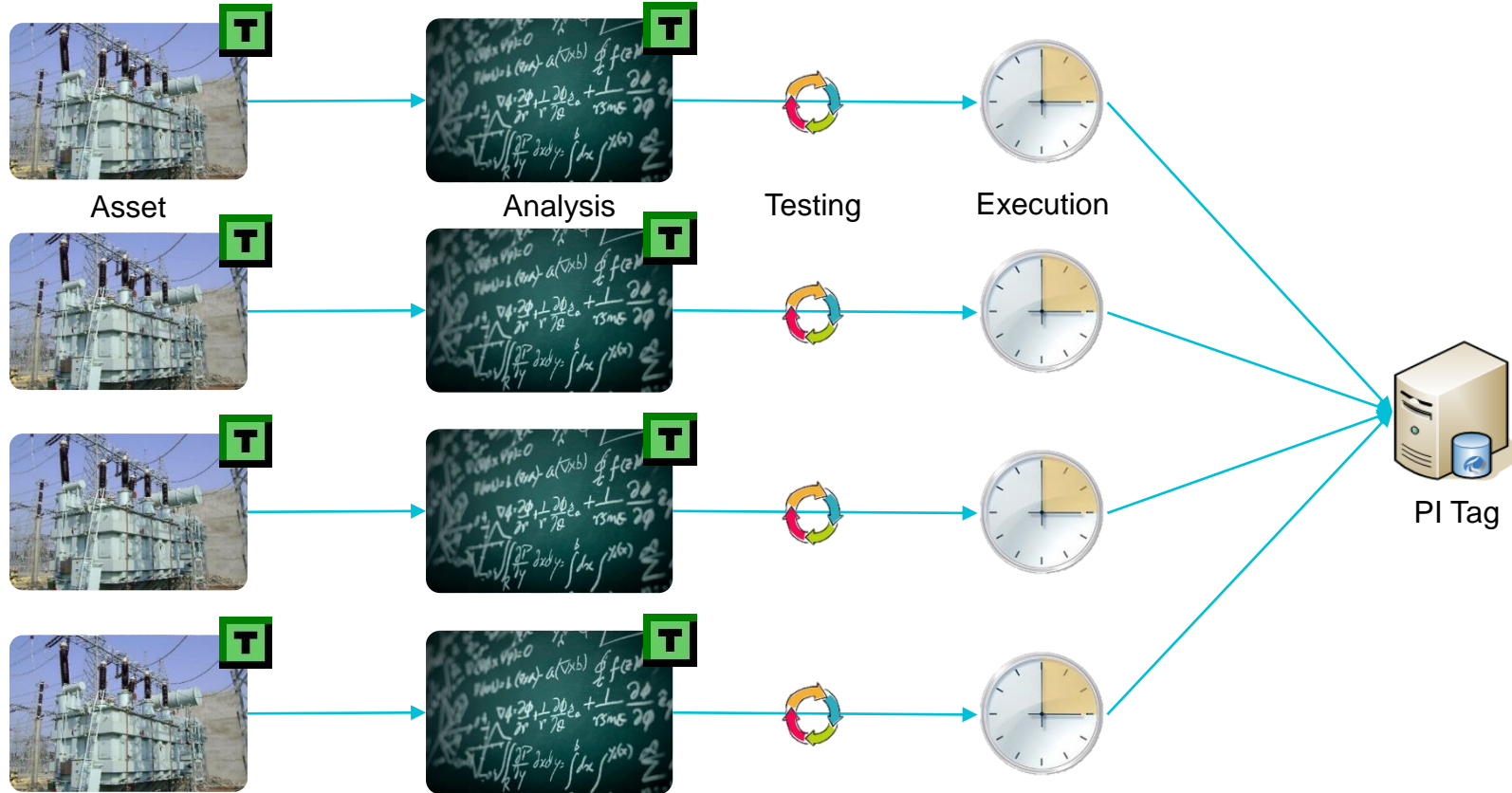
*“So I settled on **standard deviation**.*

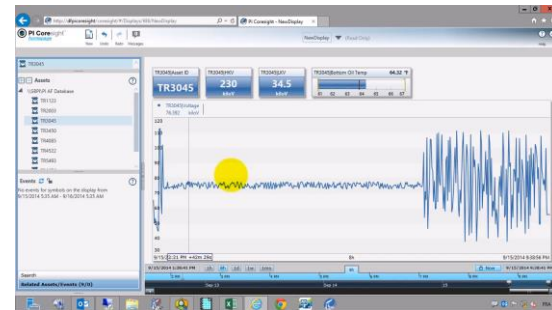
*When the voltage is in the **normal mode**, **standard deviation stays low**, but when we get into rapid fluctuation, **then standard deviation jumps up**.*

*But now I have the issue, **we have 255 of these to monitor, how do we do it?**”*



Calculations and Analytics Continued





DEMO

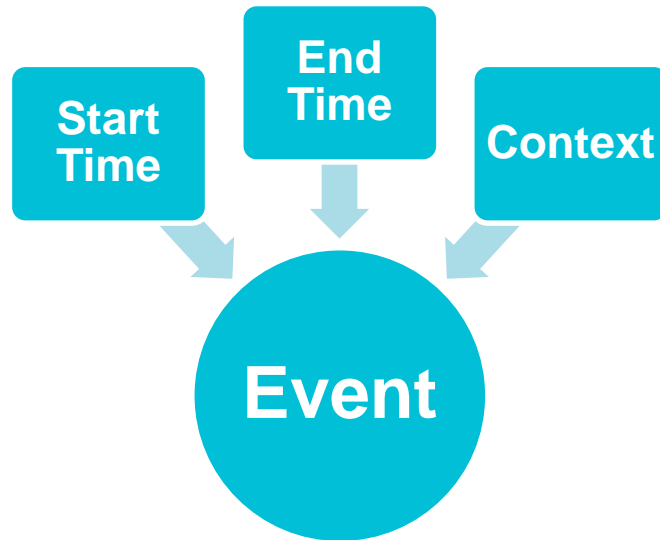
Preventing Failures Step 2. Deploy Your Analysis

*“Within a span of **slightly under 2 weeks**, we had a **diagnostic system deployed** across 255 transformers.*

*I want a **weekly summary** of which transformers had alarmed, and then a secondary report that **provides me the details.**”*



Introducing PI Event Frames



Referenced Elements	Name
	OW-206
	OW-207

Name	Value
Category: General Info	
Comment	
Operator	Bobby Wolf
Phase	Dwell
Type	LOW TEMP
Category: Limits	
Temp.Limit.High	88 deg C
Temp.Limit.Low	70 deg C
Category: Manual Logger	
Comment	
Category: Process Parameters	
Level.Start	42.7438011169434 L
Temp.End	71.1539001464844 deg C
Temp.Max	71.1538996921712 deg C
Temp.Min	62.1662445068359 deg C
Temp.Range	8.98765538533529 deg C
Temp.Start	62.1662445068359 deg C

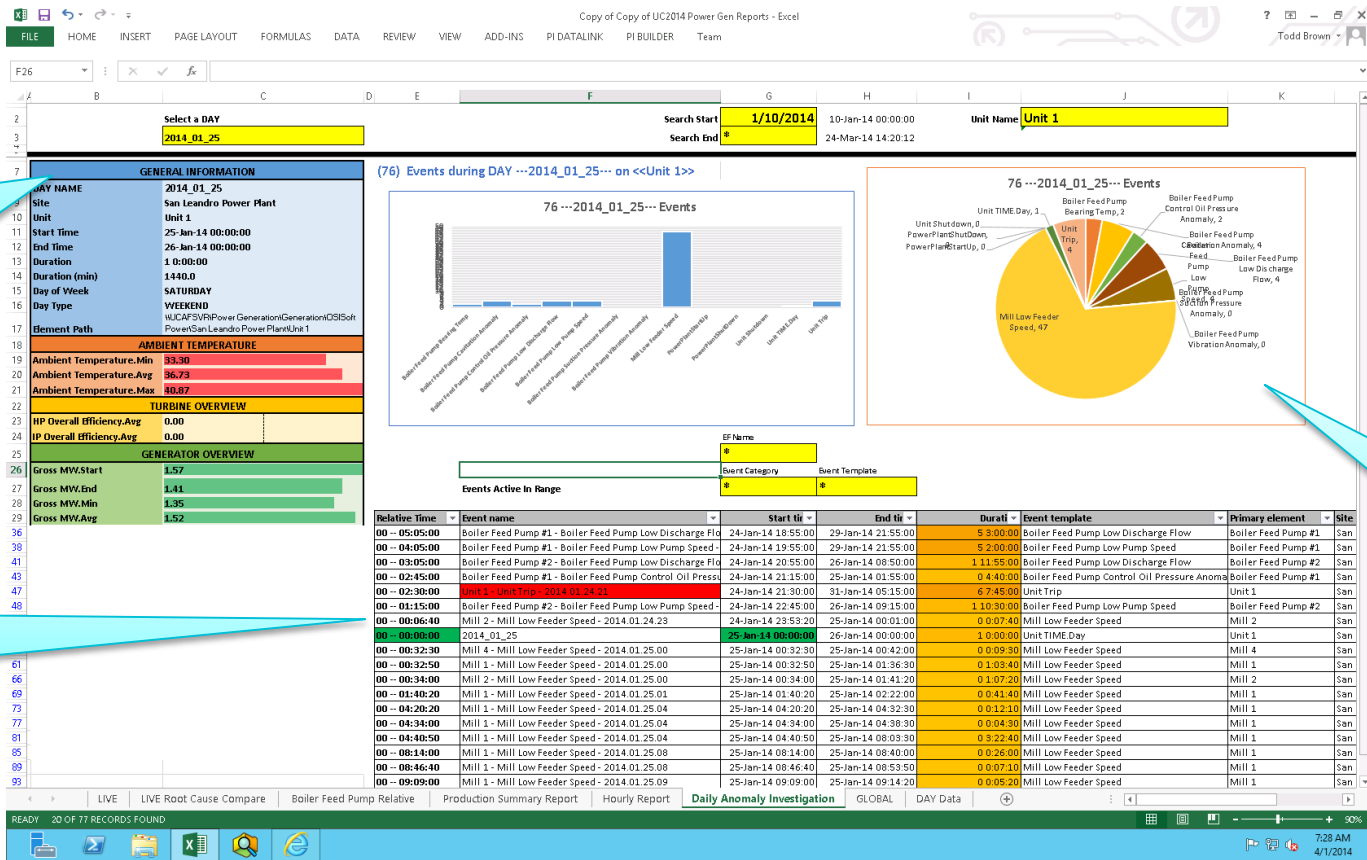
Asset(s)
associated to
the event

Text entries
useful for
filtering/group-
by analysis

Placeholders
for **manual**
data entry

Calculated
data using
event start &
end time
context

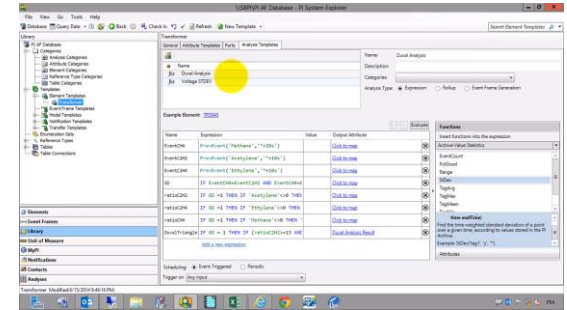
Weekly Failure Report Example



Weekly Data

Failure Events

Excel Charting



DEMO

Preventing Failures Step 3. Isolate Problem Events

*“If we detect it, then **notifications** are sent, primarily to the department that I’m in, and we try to validate the data as quickly as we can.*

*We **transfer this knowledge** to our operating department to **give them time to prepare.**”*



Introducing PI Notifications

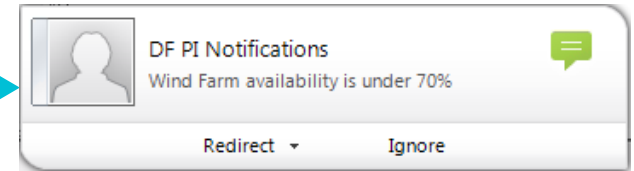


PI Notifications

From: ☐ PINotAdmin
To: ☒ Mariana Sandin
Cc:
Subject: Transformer TR0842 Load is in high alarm

[Instant PI WebParts Trend](#)
[Acknowledge With Comment](#)
[Acknowledge](#)

Name:	Transformer Load - High TR0842
State:	High
Trigger Time:	7/29/2012 9:07:01 AM Pacific Daylight Time (GMT-07:00:00)
Start Time:	7/29/2012 9:07:01 AM Pacific Daylight Time (GMT-07:00:00)
End Time:	1/1/1970 12:00:00 AM Pacific Standard Time (GMT-08:00:00)
Triggering Conditions:	Load > 22
Target:	TR0842



Web Service



Maintenance
System



Source	Category	Event ID	Message	Time
SQL Server	Errors and Warnings	101	SQL Server has encountered a replication error. The error message is: 'The specified path does not exist.' The error occurred on the server 'SQLSERVER' at 10/10/2014 10:10:10 AM.	10/10/2014 10:10:10 AM
SQL Server	Errors and Warnings	102	SQL Server has encountered a replication error. The error message is: 'The specified path does not exist.' The error occurred on the server 'SQLSERVER' at 10/10/2014 10:10:10 AM.	10/10/2014 10:10:10 AM
SQL Server	Errors and Warnings	103	SQL Server has encountered a replication error. The error message is: 'The specified path does not exist.' The error occurred on the server 'SQLSERVER' at 10/10/2014 10:10:10 AM.	10/10/2014 10:10:10 AM
SQL Server	Errors and Warnings	104	SQL Server has encountered a replication error. The error message is: 'The specified path does not exist.' The error occurred on the server 'SQLSERVER' at 10/10/2014 10:10:10 AM.	10/10/2014 10:10:10 AM
SQL Server	Errors and Warnings	105	SQL Server has encountered a replication error. The error message is: 'The specified path does not exist.' The error occurred on the server 'SQLSERVER' at 10/10/2014 10:10:10 AM.	10/10/2014 10:10:10 AM
SQL Server	Errors and Warnings	106	SQL Server has encountered a replication error. The error message is: 'The specified path does not exist.' The error occurred on the server 'SQLSERVER' at 10/10/2014 10:10:10 AM.	10/10/2014 10:10:10 AM
SQL Server	Errors and Warnings	107	SQL Server has encountered a replication error. The error message is: 'The specified path does not exist.' The error occurred on the server 'SQLSERVER' at 10/10/2014 10:10:10 AM.	10/10/2014 10:10:10 AM
SQL Server	Errors and Warnings	108	SQL Server has encountered a replication error. The error message is: 'The specified path does not exist.' The error occurred on the server 'SQLSERVER' at 10/10/2014 10:10:10 AM.	10/10/2014 10:10:10 AM
SQL Server	Errors and Warnings	109	SQL Server has encountered a replication error. The error message is: 'The specified path does not exist.' The error occurred on the server 'SQLSERVER' at 10/10/2014 10:10:10 AM.	10/10/2014 10:10:10 AM
SQL Server	Errors and Warnings	110	SQL Server has encountered a replication error. The error message is: 'The specified path does not exist.' The error occurred on the server 'SQLSERVER' at 10/10/2014 10:10:10 AM.	10/10/2014 10:10:10 AM

DEMO

Preventing Failures Step 4. Notify

ComEd's Story Unleashed...

Identify Pre-cursor Trends

Build a Sandbox to Identify the Condition

Analyze the Results

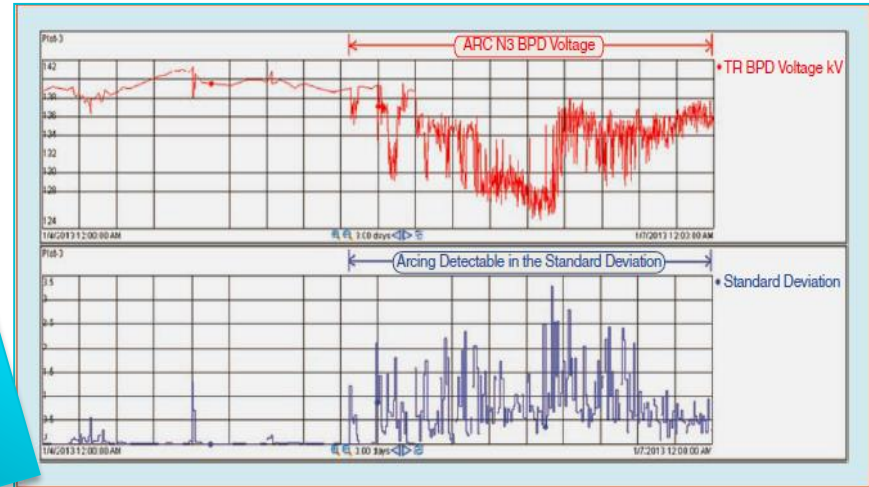
Automate and Improve

Need:

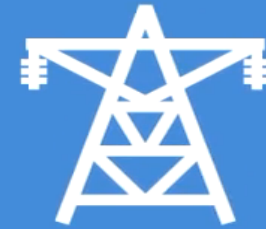
Identify failing bushing pot devices by detecting erratic voltage across electric 255 transformers

From: PI-ACE.BushingPotDeviceNotification,noreply@comcast.com
To: ComEd Bushing Pot Alarm Notification
Cc:
Subject: Bushing Pot Device Alarm - 38TR76 BKV

38TR76 BKV = 135.5
38TR76 M = CLOSED-METER
Start Time: 12/13/2013 6:10:00 AM
3 day Stdev = 3.772986
10 min Stdev values for the past hour:
12/13/2013 6:00:00 AM to 12/13/2013 6:10:00 AM = 0.042971
12/13/2013 5:50:00 AM to 12/13/2013 6:00:00 AM = 0.043006
12/13/2013 5:40:00 AM to 12/13/2013 5:50:00 AM = 1.120646
12/13/2013 5:30:00 AM to 12/13/2013 5:40:00 AM = 4.730449
12/13/2013 5:20:00 AM to 12/13/2013 5:30:00 AM = 7.349881
12/13/2013 5:10:00 AM to 12/13/2013 5:20:00 AM = 5.998719



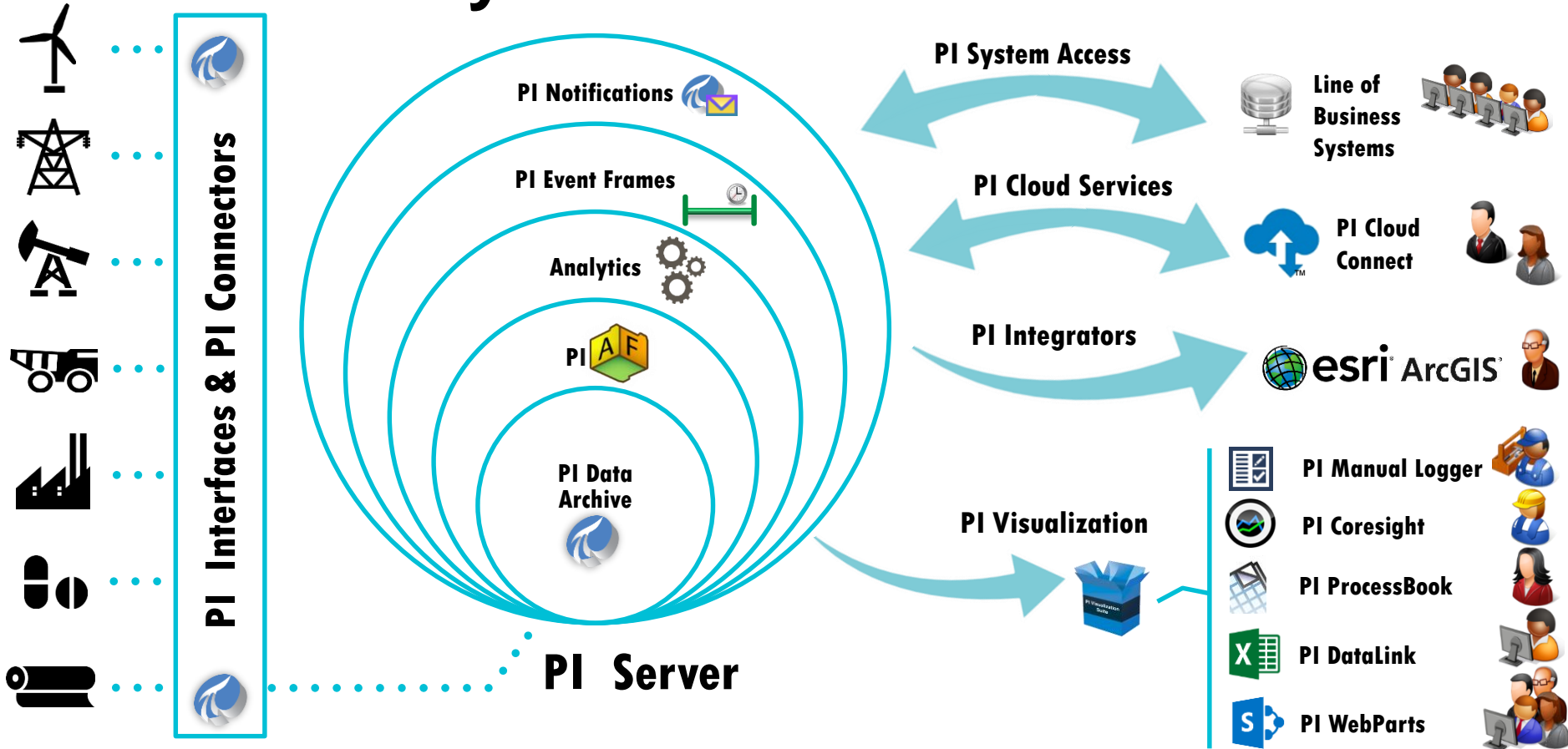
Operation Intelligence:
Prevented several transformer outages by notifying Engineers in time



Trusting the Data: Analytics and Visualization

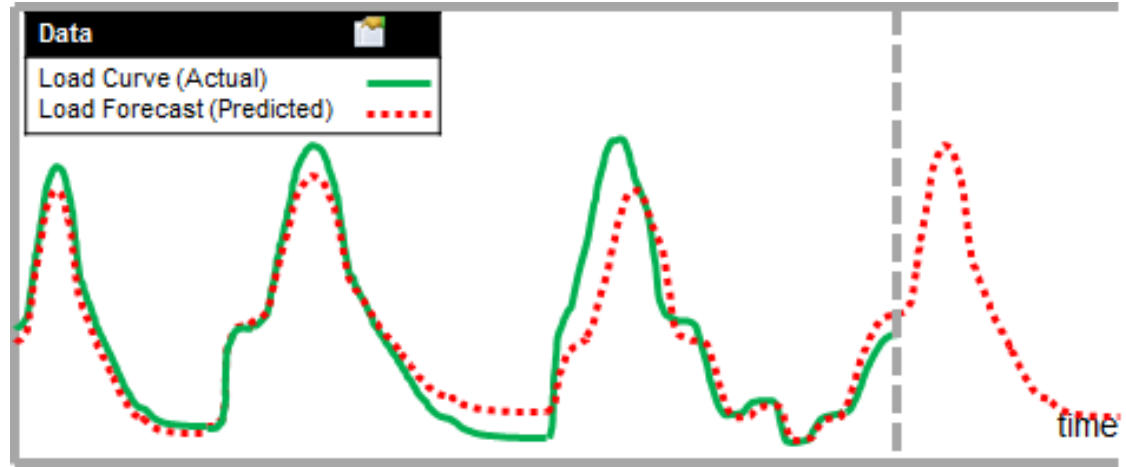
John Juna
ComEd

PI System Infrastructure



PI Data Archive 2015

- Future Data



- PI Batch to PI Event Frames migration

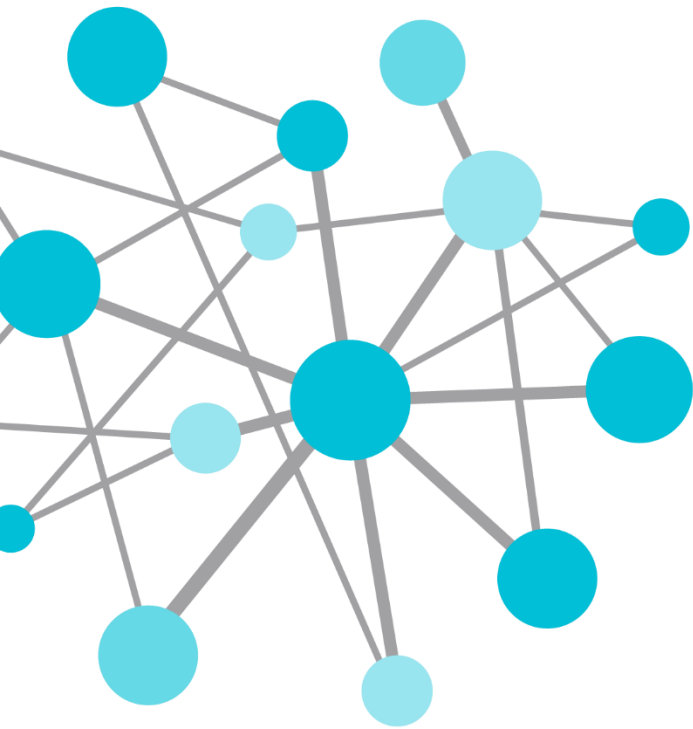
Summary

Unleash your PI System infrastructure with:

- PI AF to enable **asset management**
- Calculations and analytics to **generate new insights**
- PI Event Frames to **accelerate decision making**
- PI Notifications to **deliver the right information**, at the right time, to the right people



**Operational
Excellence**

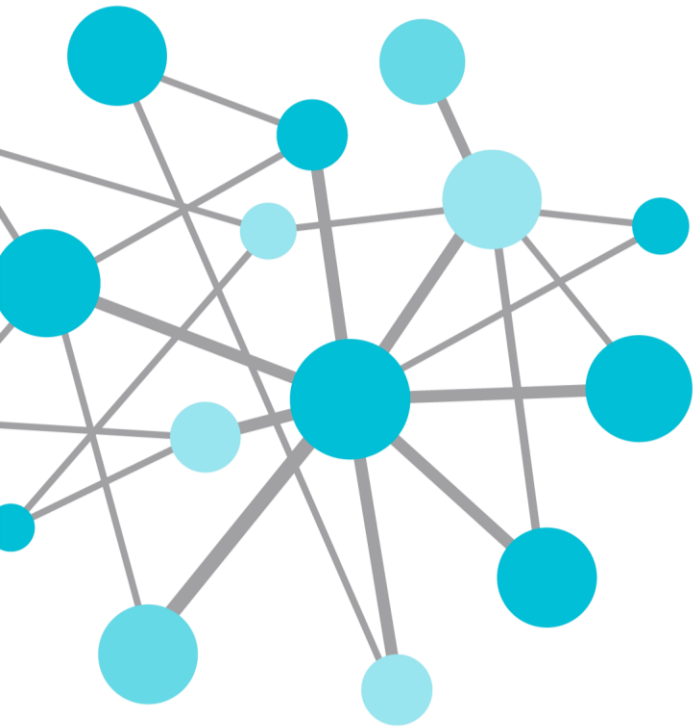


Questions

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



**Please state your name
and your company**



THANK
YOU

Brought to you by  **OSI**soft.

Penny Gunterman

Systems Engineer

hgunterman@osisoft.com

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