



Connecting Space and Time OSIsoft & Esri

Presented by **Michelle Kuiee**
Product Manager

Frank Batke
Senior Systems Engineer



Which of these describe your need?

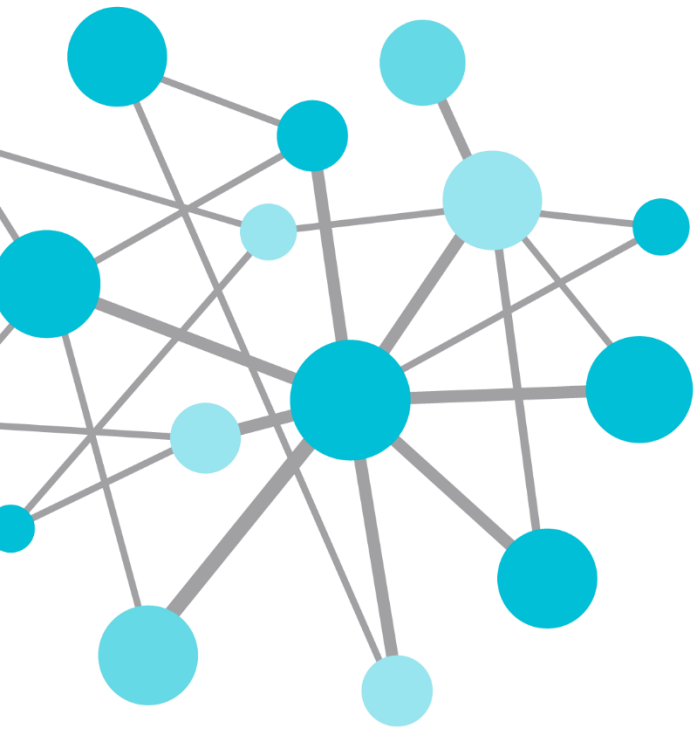


- Operating Engineers & Analysts
- Environmental Health and Safety
- Maintenance Coordinators
- Planners
- Managers & Executives

Surprise!





This is an interactive session



**This is an
interactive session**
**Have your
devices handy!**

You will be asked to vote

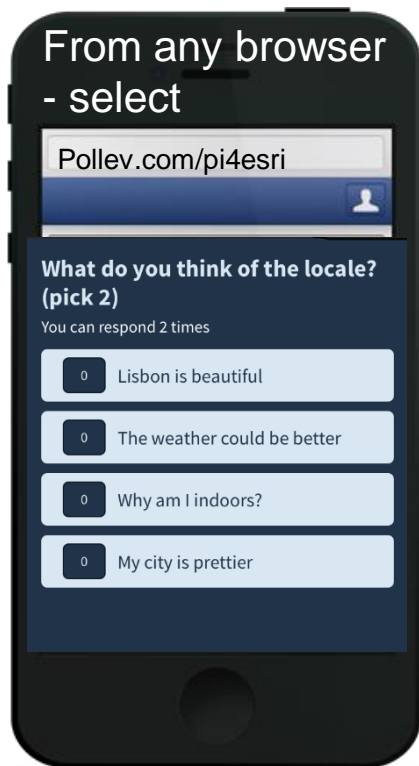
What do you think of the locale?

 Tweet **@poll** and a **KEYWORD**  Submit responses at **PollEv.com/pi4esri**



Participating with Poll Everywhere

How to vote via Twitter, the web or web poll



Your poll will show here

1

Install the app from
pollev.com/app

2

Make sure you are in
Slide Show mode

Still not working? Get help at pollev.com/app/help
or
[Open poll in your web browser](#)

What do you think of the locale?

- Lisbon is beautiful!
- The weather could be better
- Why am I indoors?
- My home city is nicer

Your poll will show here

1

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pollev.com/app

2

Make sure you are in
Slide Show mode

Still not working? Get help at pollev.com/app/help

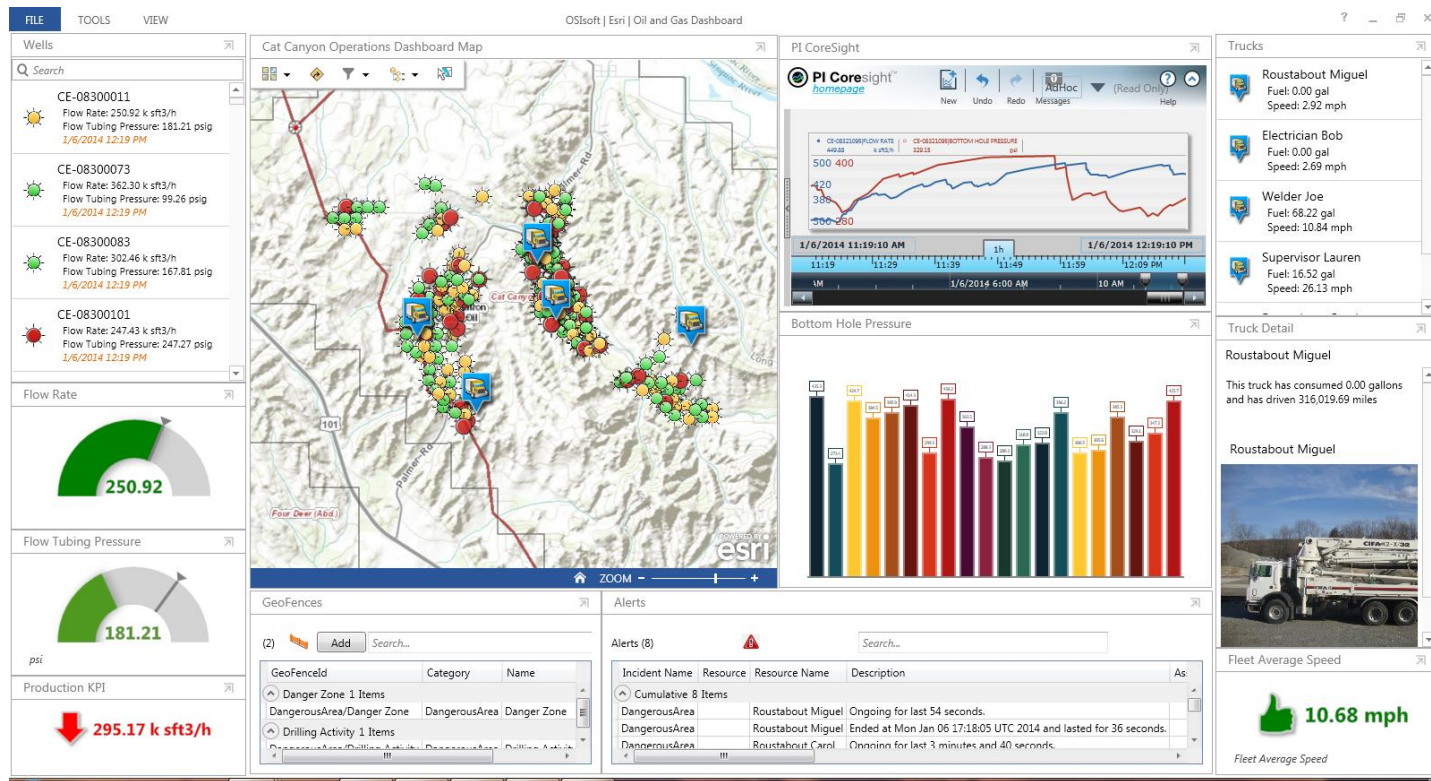
or

[Open poll in your web browser](#)

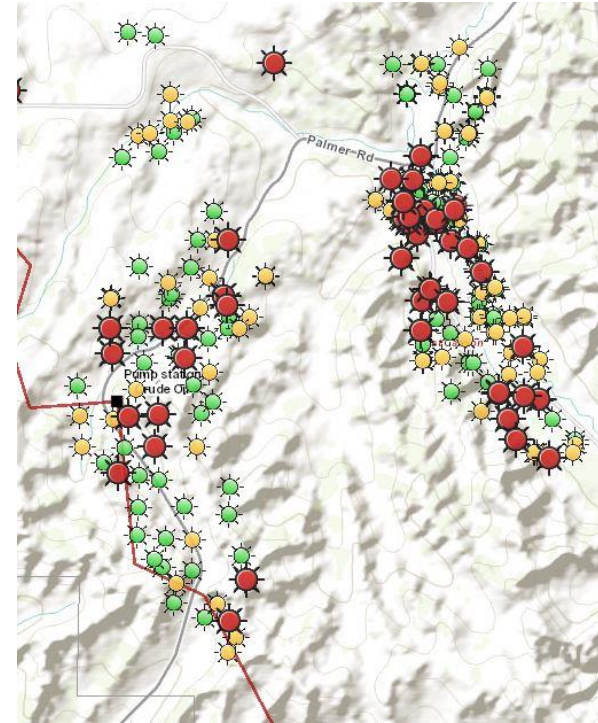
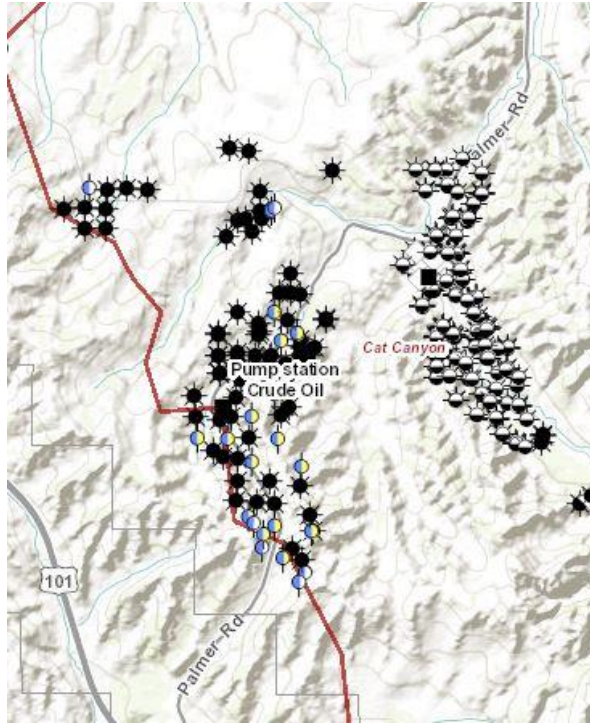
Tell us why you are in this session

- I have PI System and am curious about GIS Integration
- I have PI System and ArcGIS – What is possible?
- I want an update (I've been following the development)
- A colleague told me to come

Bring your Maps to Life



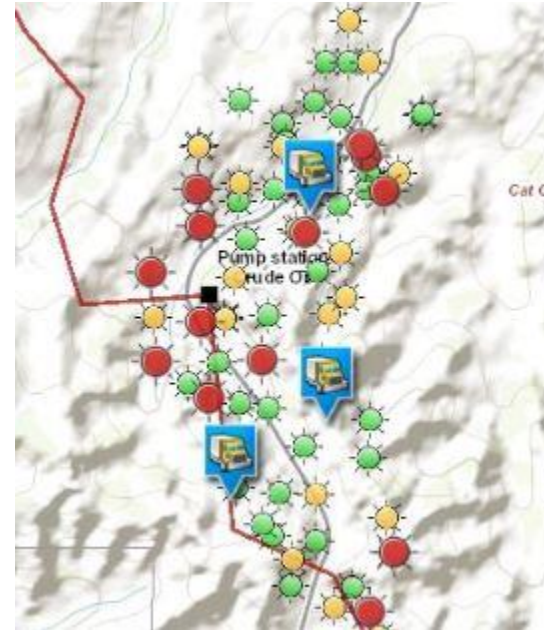
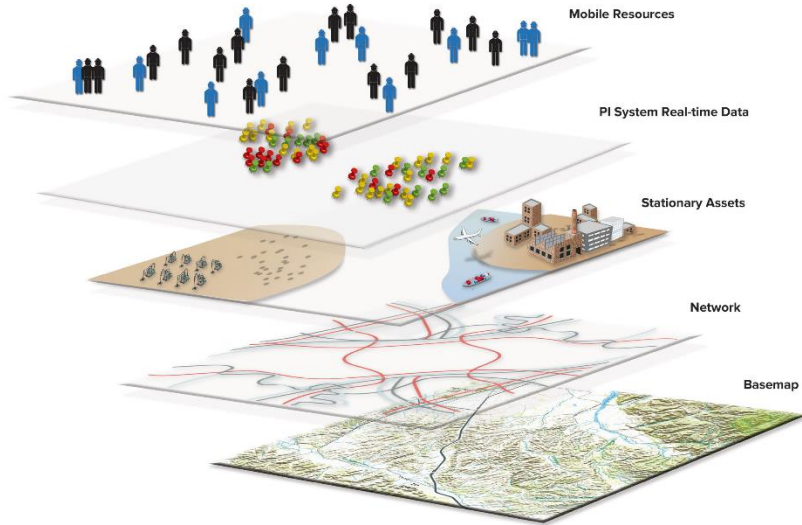
Before and After



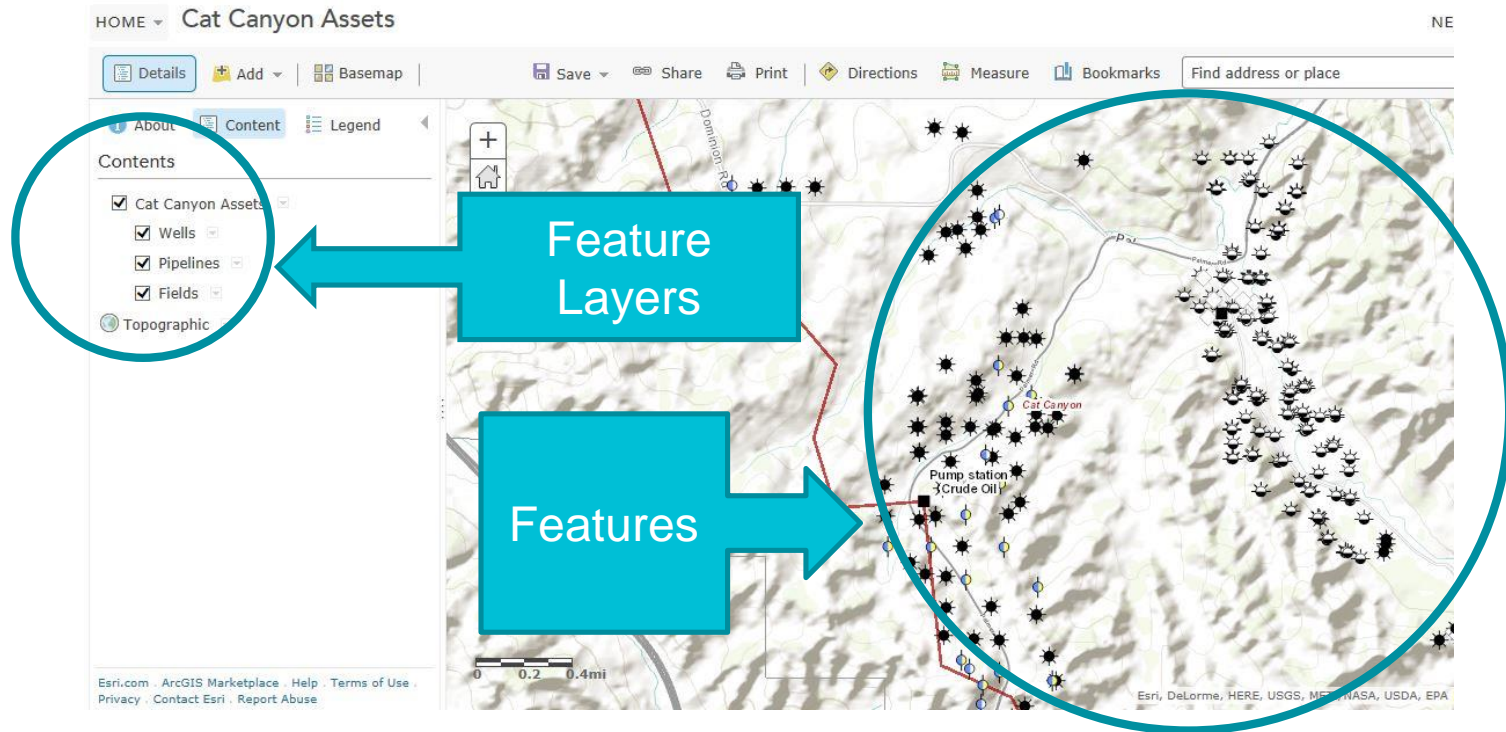
Connecting Space and Time

- Serve assets for mapping as features
- Add dynamic features to maps
- Dig deeper into historical data from a feature
- Spatial aggregation provided with the map
- PI and ArcGIS provide new ways to monitor assets, including heat maps

Why are layers important



What's on a Map



What Data is in the PI System?

The image displays two screenshots of the OSIsoft PI System software interface, illustrating the relationship between data elements and templates.

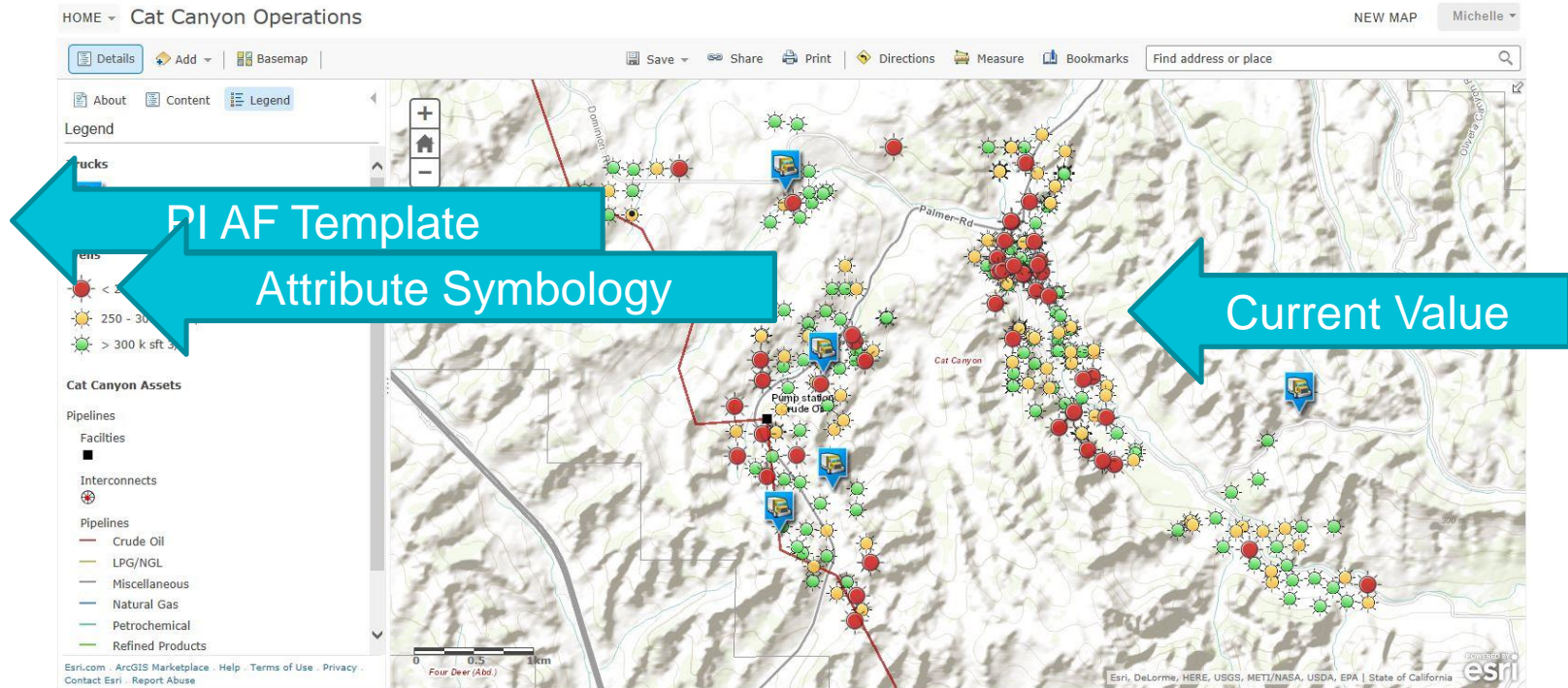
Left Screenshot (Elements View):

- The **Elements** tree on the left lists various data points, including **ActiveWell**, **APINumber**, **AssetName**, **Bottom H...**, **Bottom H...**, **CountyNa...**, **FieldNa...**, **Flow Rate**, **Geometry**, **Geometry...**, **Hydrostat...**, **LeaseName**, **OBJECTID**, **OperatorNa**, **TypeText**, and **Well_Type**.
- The main table displays data for **CE-08300101**, with columns for **Name** and **Value**. The data includes **ActiveWell** (Y), **APINumber** (08300101), **AssetName** (CE-08300101), **Bottom H...** (304.04745483398), **Bottom H...** (263.12661743164), **CountyNa...** (Santa Barbara), **FieldNa...**, **Flow Rate**, **Geometry**, **Geometry...** (-13394080.3099847), **Hydrostat...** (333.31280517578125), **LeaseName** (Bell), **OBJECTID** (4), **OperatorNa** (Clancy Energy), **TypeText** (Oil & Gas), and **Well_Type** (OG).
- A blue circle highlights the **Elements** tree, and a blue arrow points from the **Templates** label to the **US Oil Well template** in the right screenshot.

Right Screenshot (Template View):

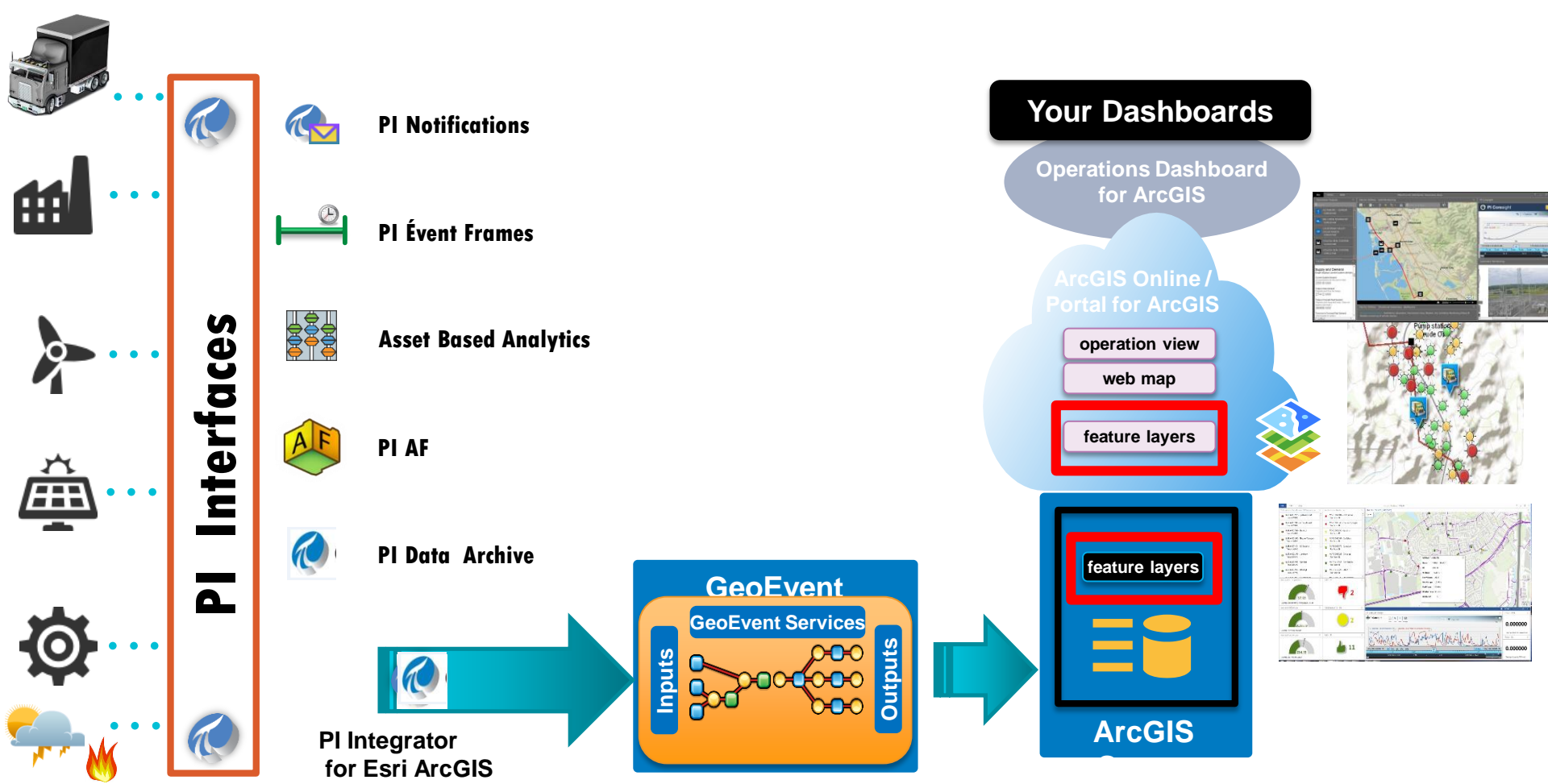
- The **Library** tree on the left lists various templates, including **Analysis Categories**, **Attribute Categories**, **Element Categories**, **Reference Type Categories**, **Table Categories**, **Element Templates**, **MaintenanceVehicle**, **Event Frame Templates**, **Model Templates**, **Transfer Templates**, **Enumeration Sets**, **Reference Types**, **Tables**, and **Table Connections**.
- The main window displays the **Cat Canyon template** configuration, with columns for **Name** and **Description**. The data includes **ActiveWell**, **APINumber**, **AssetName**, **Bottom Hole Pressure**, **Bottom Hole Temperature**, **CountyName**, **FieldName**, **Flow Rate**, **Flow Tubing Pressure**, **GeometryLatitude**, **GeometryLongitude**, **Hydrostatic Head**, **LeaseName**, **OBJECTID**, **OperatorNa**, **TypeText**, and **Well_Type**.
- A blue circle highlights the **US Oil Well template** in the **Library** tree, and a blue arrow points from the **Elements** label to the **ActiveWell** element in the left screenshot.

PI System Data Animates the Map

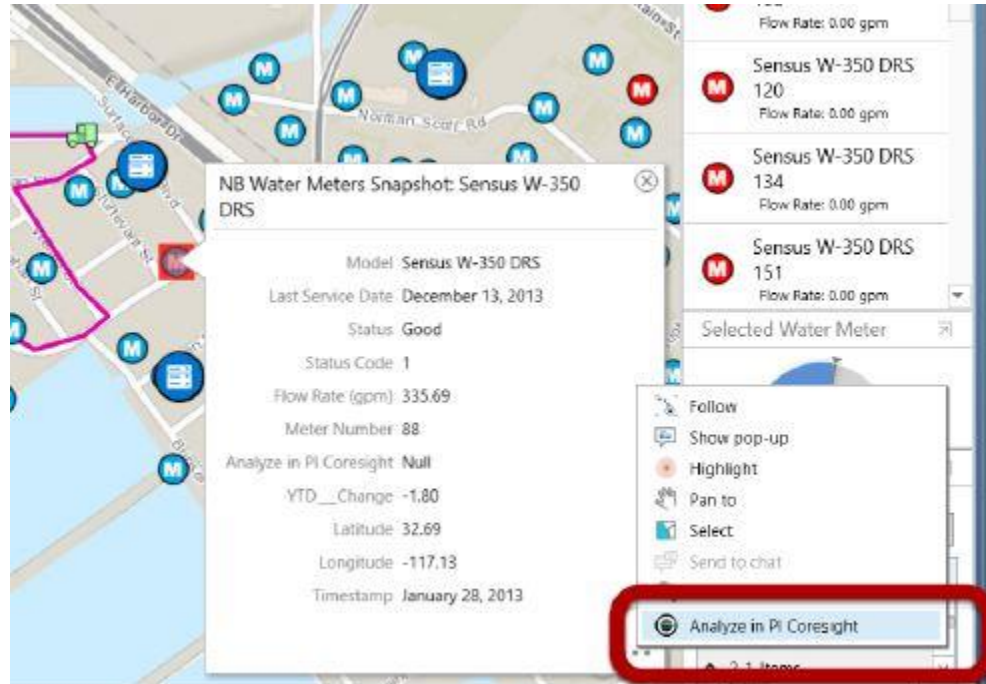


How PI System enhances ArcGIS

- Change color, size or icon based on PI System value
- Live PI AF Attribute values in ArcGIS 'pop up'
- Track location of movable assets in real time
- Launch PI Coresight in context
 - Ad Hoc Trend
 - PI ProcessBook Viewer Display (coming soon)



Drill into your PI System data directly from the map



Esri Operations Dashboard: Mash Up PI Tools with Maps & Widgets





DEMO

Transformator Olie Temp.

- MSR 6 005 955 - Sporthal
Temp: **41.50 °C**
- MSR 6 003 943 - Nieuwe
Tijningen
Temp: **41.01 °C**
- MSR 6 007 404 - SK Courtine
Temp: **41.01 °C**
- MSR 6 003 935 - Spelwerdstraat
Temp: **38.82 °C**
- MSR 6 003 942 - Achter de Wiel
Temp: **38.82 °C**
- MSR 6 003 926 - De Vergt
Temp: **38.55 °C**

Gemiddelde Olie Temp.



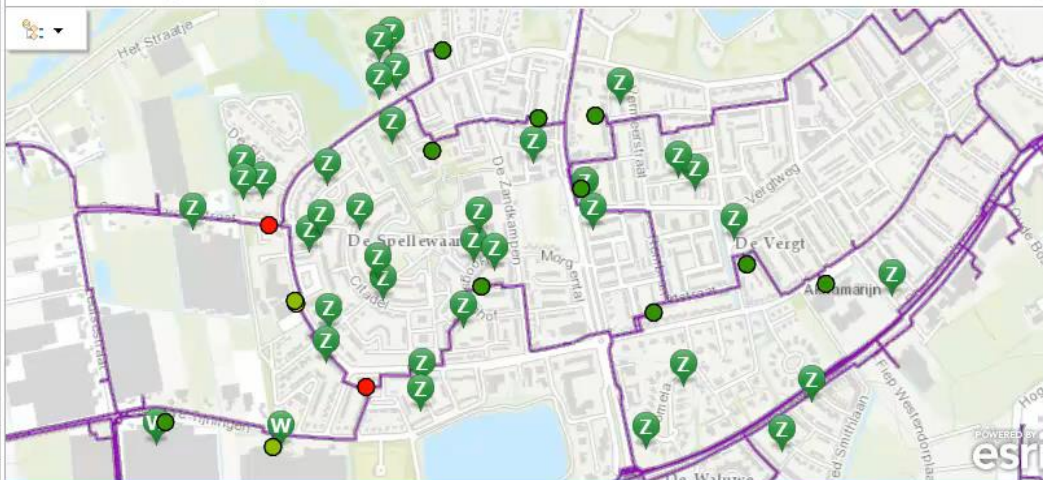
Selectie: Middenspanning

No Data

Selectie: Laagspanning

No Data

LiveLab - Stations (dashboard)



PI CoreSight - Trendgrafiek



Vermogen - WKK

0

Vermogen - PV

0

Onderstations - Risicofactor

- MSR 6 007 404 - SK Courtine
Risk Factor: **91**
- MSR 6 003 943 - Nieuwe
Tijningen
Risk Factor: **91**
- MSR 9 001 067 - De Schans
Risk Factor: **44**
- MSR 9 002 370 - Cambium
Risk Factor: **36**
- MSR 6 003 946 - Kloetijn
Risk Factor: **31**
- MSR 6 003 933 - Hooimijt
Risk Factor: **28**

Risico > 50

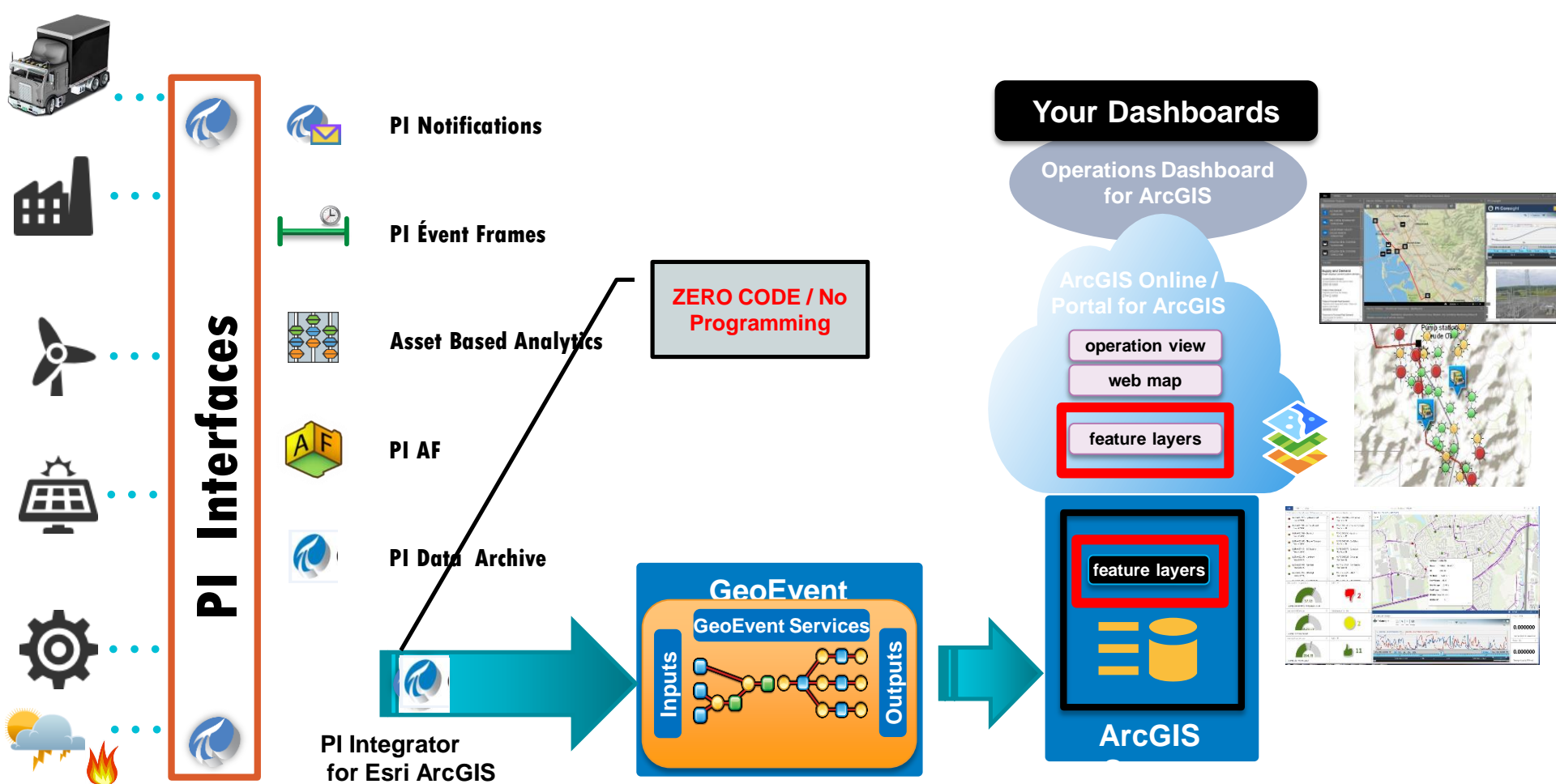


Risico 40 - 50



Risico < 40





Easy Steps

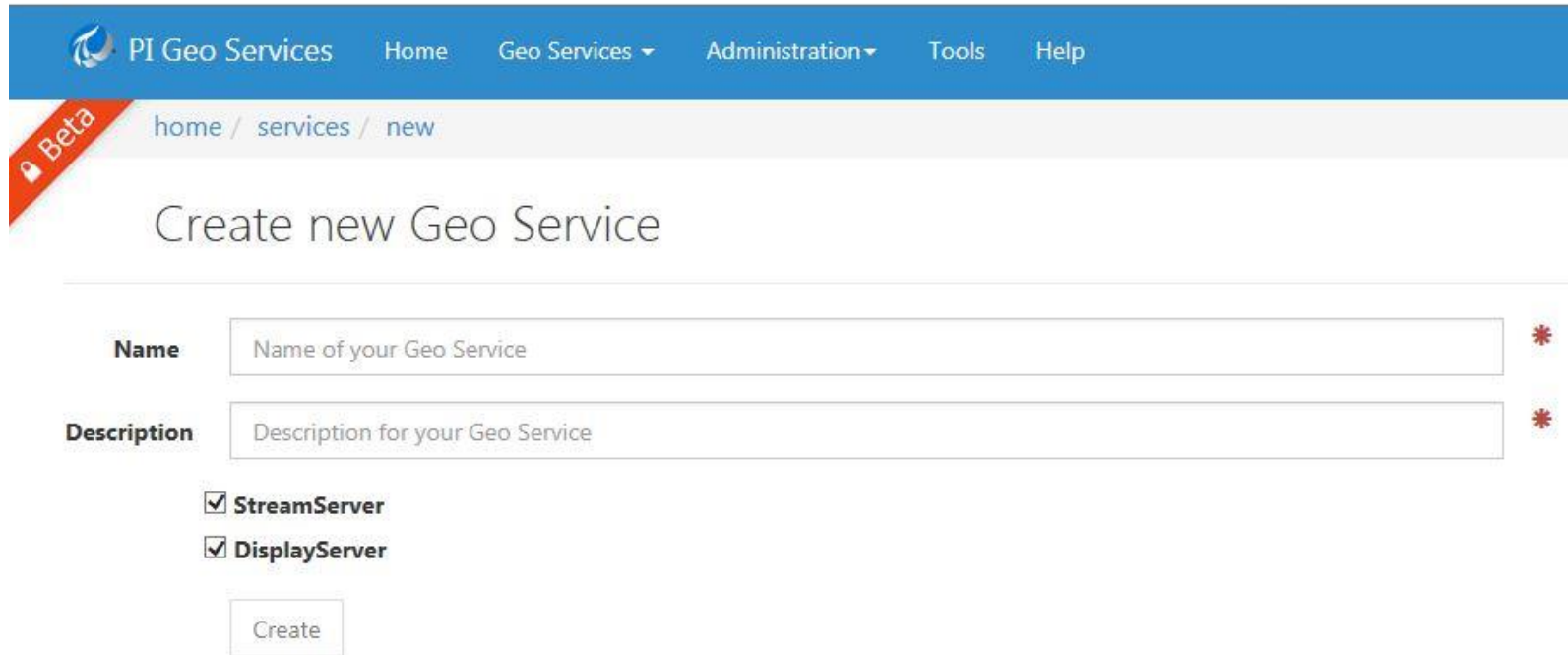
- Connect the dots
- Publish Your Layers
- Link PI Coresight
- Set Your Users Free

Set your users free to integrate



Portal Configuration Experience

Not a programming project! 😊



The screenshot shows the 'PI Geo Services' portal. The top navigation bar is blue with links for Home, Geo Services (with a dropdown arrow), Administration (with a dropdown arrow), Tools, and Help. Below the navigation bar is a breadcrumb trail: home / services / new. A red 'Beta' banner is on the left. The main heading is 'Create new Geo Service'. There are two required text input fields: 'Name' with placeholder 'Name of your Geo Service' and 'Description' with placeholder 'Description for your Geo Service'. Both fields have a red asterisk icon to their right. Below the description field are two checked checkboxes: 'StreamServer' and 'DisplayServer'. At the bottom is a 'Create' button.

PI Geo Services Home Geo Services ▾ Administration ▾ Tools Help

home / services / new

Beta

Create new Geo Service

Name *

Description *

☒ **StreamServer**

☒ **DisplayServer**

ArcGIS Connection Wizard




PI Integrator for Esri ArcGIS

Services

Administration ▾

Tools

Help ▾

 Kuiee, Michelle | Log Off

[home](#) / [services](#) / [AlohaNuiEnergy](#) / [SubsLeeward](#) / [connect-wizard](#)

Welcome to the ArcGIS Feature Service and GeoEvent Processor Configuration Wizard.

This wizard walks you through the steps to:

- Create a Feature Service for ArcGIS Online or for ArcGIS Portal
- Configure your ArcGIS GeoEvent Processor to stream the data defined in your PI Integrator for Esri ArcGIS layer

Before starting this configuration process, you should:

1. Have an ArcGIS Online or ArcGIS Portal account that has privileges to publish hosted Feature Services.
2. Verify that your ArcGIS GeoEvent Processor is running and is configured as a known ArcGIS GeoEvent Processor in PI Integrator for Esri ArcGIS.
3. Have administrator credentials for your ArcGIS GeoEvent Processor.
4. Ensure that your ArcGIS Online account or ArcGIS Portal account is registered as a Data Store in ArcGIS GeoEvent Processor.



DEMO

OSIsoft - The PI System Explorer (Administrator)

File View Go Tools Help

Database Query Date Back Check In Refresh New Template New Attribute Template Search Element Te...

Library

- Sample Vehicles
 - Categories
 - Analysis Categories
 - Attribute Categories
 - Element Categories
 - Reference Type Categories
 - Table Categories
 - Templates
 - Element Templates
 - Vehicle
 - Event Frame Templates
 - Model Templates
 - Notification Templates
 - Transfer Templates
 - Enumeration Sets
 - Reference Types
 - Tables
 - Table Connections

Elements

Event Frames

Library

Unit of Measure

MyPI

Notifications

Contacts

Vehicle

General Attribute Templates Ports Analysis Templates

Filter

Name	Description	Default Value
Driver		Jag Fel
Latitude		0 °
Longitude		0 °
Make		MandalMotors
Model		Corvette
Speed		0 km/h

Group by: ☐ Category ☐ Template

Name: Driver

Description:

Configuration Item: ☐ Indexed: ☐

Categories:

Default UOM: <None>

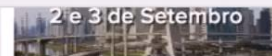
Value Type: String

Default Value: Jag Fel

Data Reference: <None>

Settings...

- Esri President, Jack Dangermond, Delivers Keynote at OSIsoft Users Conference 2014
- OSIsoft Drives the Power of Data – Decision Ready in Real-time at the

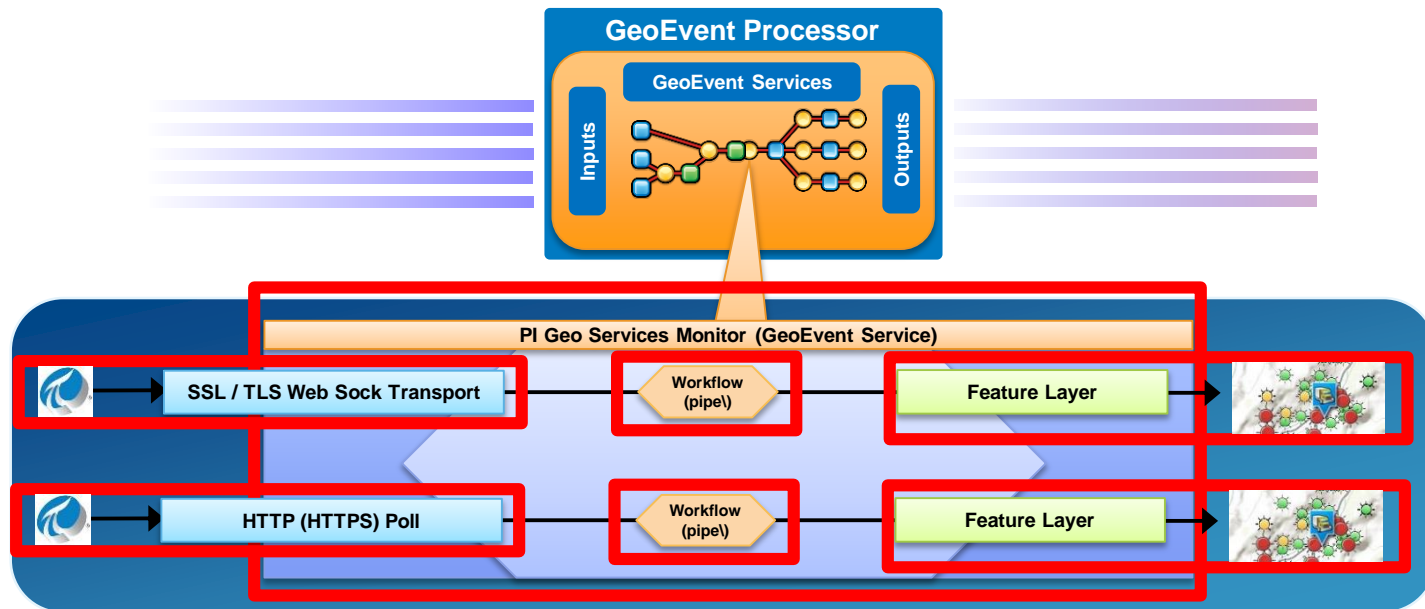


We do the work for you with each layer


- Automatic Configuration
 - ArcGIS GeoEvent Processor Input Connector
 - ArcGIS GeoEvent Processor Output Connector
 - ArcGIS GeoEvent Processor Workflow
- Create PI Coresight Endpoint

Stream Service

Configuration Results






PI Coresight End Point Created

 **PI Geo Services** Home Geo Services ▾ Administration ▾ Tools Help

Kuiee, Michelle Log Off

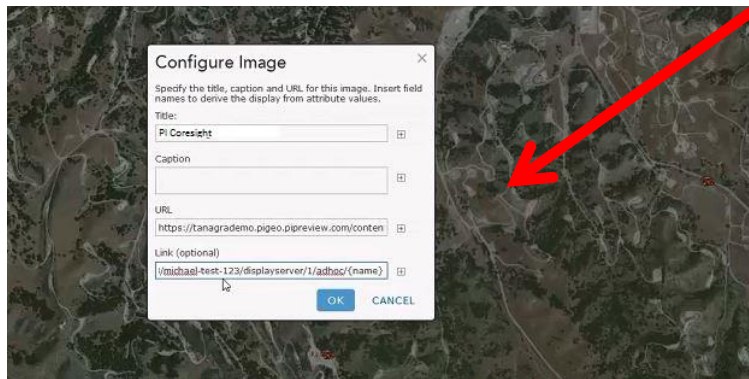
Sharing

Ad hoc display	https://tanagrademo.pigeo.pipreview.com/api/services/michael-test-123/michael-test-123/displayserver/0/adhoc/	
AF Button Image	https://tanagrademo.pigeo.pipreview.com/content/img/display/analyse-af.png	 Analyze
OSIsoft Button Image	https://tanagrademo.pigeo.pipreview.com/content/img/display/analyse-osisoft.png	 Analyze
Coresight Button Image	https://tanagrademo.pigeo.pipreview.com/content/img/display/analyse-coresight.png	 Analyze

Embed PI Coresight in to ArcGIS Visualization

- Display Pop-ups OR
- In Esri ArcGIS Operations Dashboard

PI Coresight



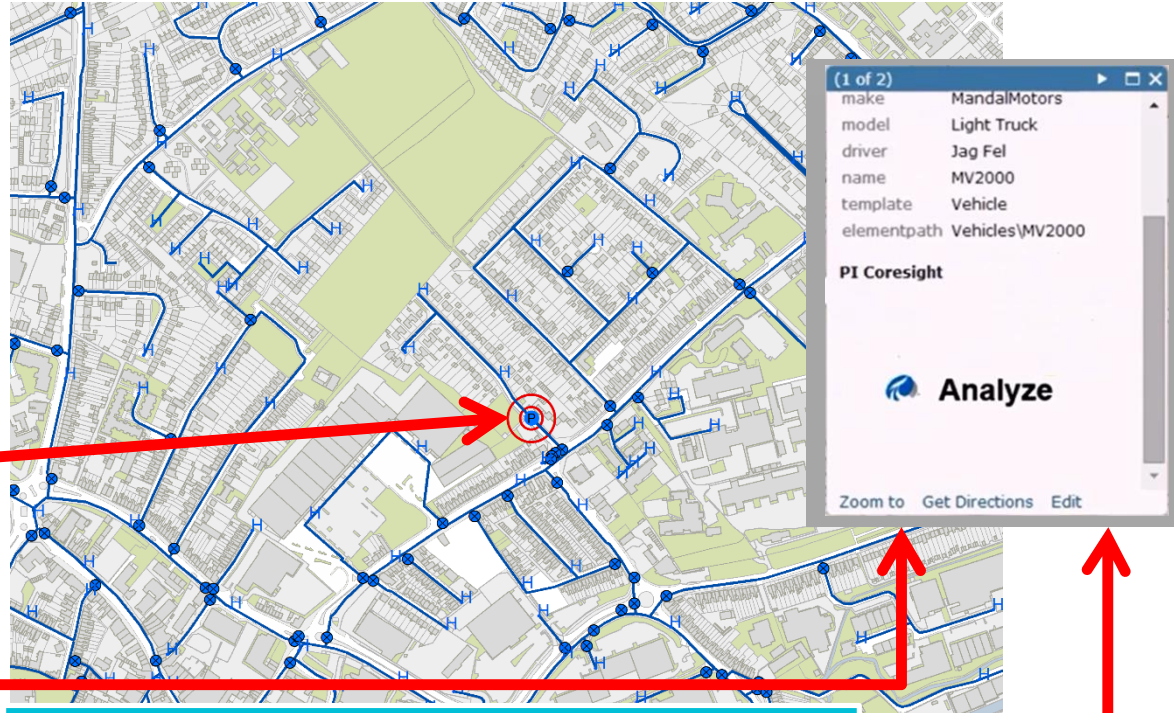
Esri Operations Dashboard

Integrated Real-time Information



Operator clicks on the Asset on GIS display

Real-time information from the PI System for this Asset is displayed



Further information is available - single click to access



No PI AF Databases Configured?

Esri Map Extractor

- Concepts
 - Map Features can represent a PI AF Element
 - Feature Layers can be represented as PI AF Template
- The Map Extractor builds PI AF templates and elements from features on a map



DEMO

Asset Extractor

- Glossary
 - Map Feature can represent an AF Element
 - Feature Layers can represent a subset of AF Elements derived from a template
- The Asset Extractor builds AF templates and elements from features on a map in context (Esri calls this the extent)

What we have developed?

- Wizard-based configuration experience
- Ability to use the ArcGIS Asset listing to create the PI AF Element Structure
- Ability to invoke and embed PI Coresight displays from within ArcGIS

Configuration Portal Web App



PI Geo Services Home Geo Services Administration

home / services / new

Create new Geo Service

Name

Description

☒ StreamServer

☒ DisplayServer

PI AF Asset Extractor

PI Geo Services

PI Asset Extractor for Esri ArcGIS

Extract your Esri ArcGIS map features as PI AF assets

Load features

Read assets automatically from a Feature Layer URL

This should be an address to an ArcGIS Feature Layer, exposed via MapServer or FeatureServer. If you wish, it may include an Esri-designed query (to restrict elements, e.g. to only Wells in Texas).

Address

No features loaded yet

Or, manually provide feature JSON (advanced) >>

PI Coresight Endpoint Creation

PI Geo Services Services Administration Tools Help

home / services / AlohaNuiEnergy / SubsLeeward

Layer SubsLeeward

Substations on the leeward coast
Created on 05/01/2014 07:52:16 (2014-05-01T19:52:16Z)

All Features Fields StreamServer **DisplayServer** ArcGIS

This layer is exposed as a DisplayServer within the services directory

Configuration

PI Coresight Server

☒ Allow ad-hoc PI Coresight displays

Sharing

Ad hoc display

AF Button Image

PI Integrator for Esri ArcGIS

- Automatic Configuration of GeoEvent Processor
- Send PI System Current Values to ArcGIS Platform
- Analyze historical data with PI Coresight
 - Ad Hoc Trends
 - Processbook Displays via PB Viewer
- Jump Start PI AF with Map Extractor

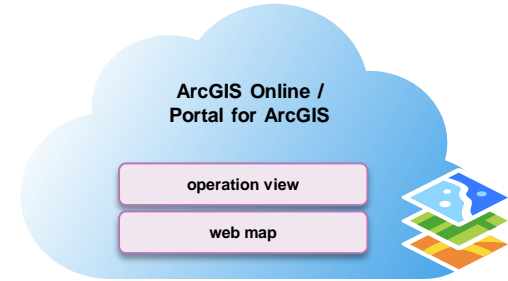
How Do You Want It?

- Two Versions Available
 - Cloud Services
 - On Premises

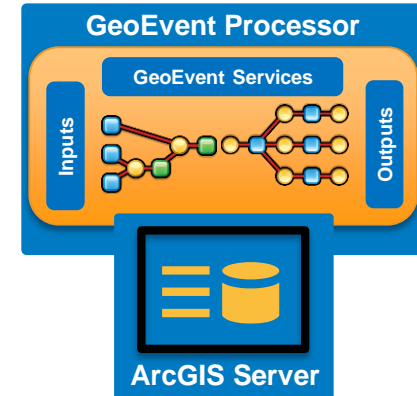
Cloud Architecture



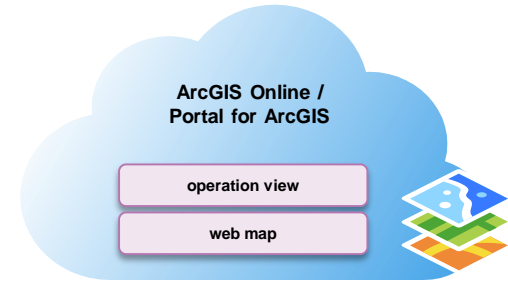
PI Integrator for
Esri ArcGIS



PI System

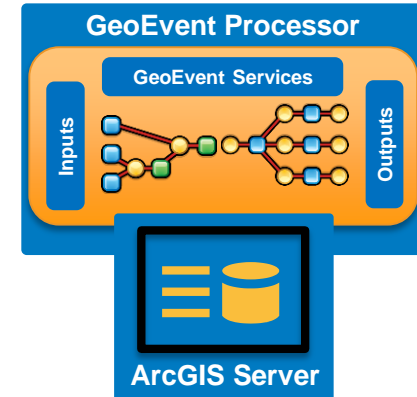


On Prem Architecture

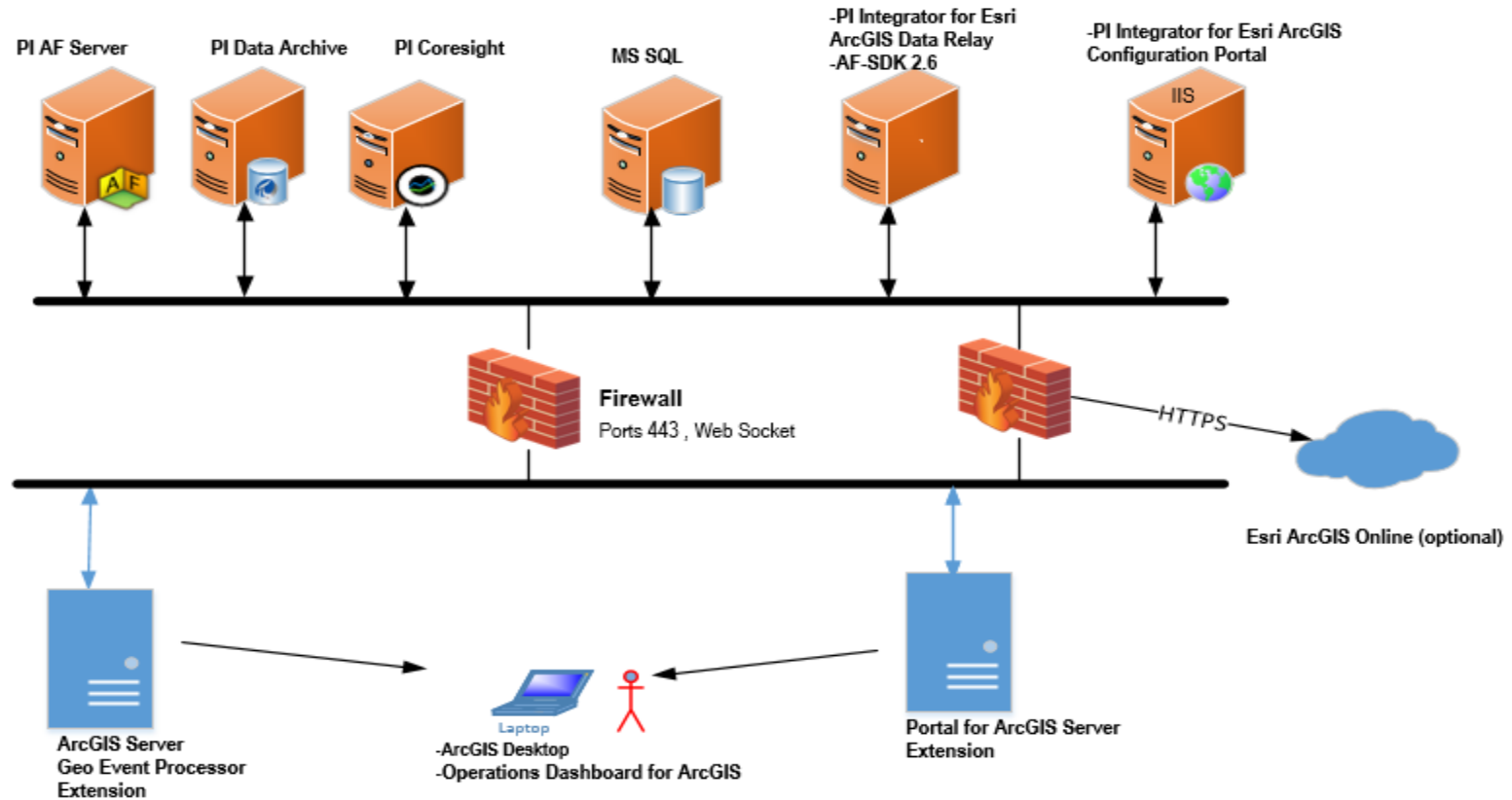


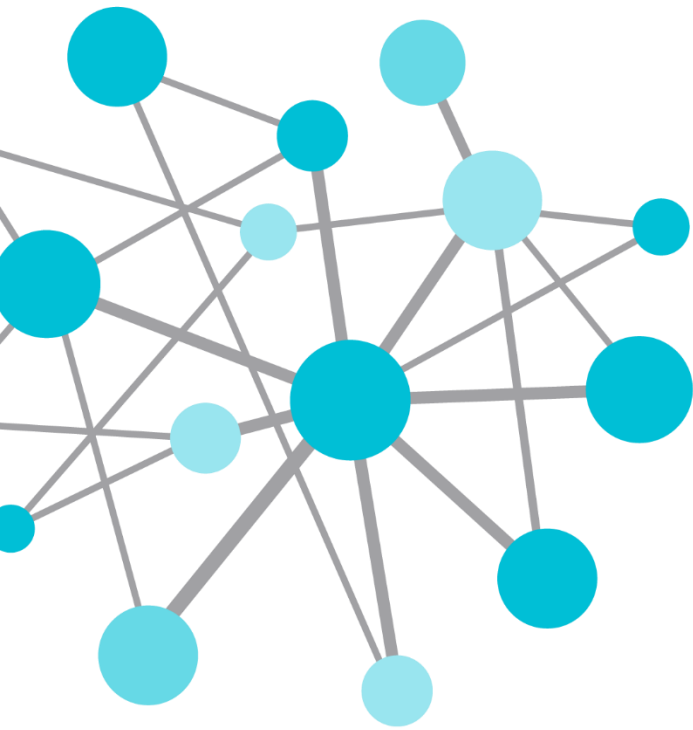
PI System

PI Integrator for
Esri ArcGIS



On-premises Architecture





Audience Poll

Which version of the integrator?

- The cloud version
- The on premises version
- Both version
- Neither

Your poll will show here

1

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Slide Show mode

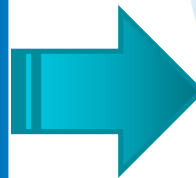
Still not working? Get help at pollev.com/app/help
or
[Open poll in your web browser](#)

Requirements

PI Server
2014

for
Esri ArcGIS

Geo
Event
Processor
10.2.1



Your Dashboards

Operations Dashboard
for ArcGIS

ArcGIS Online /
Portal for ArcGIS

operation view

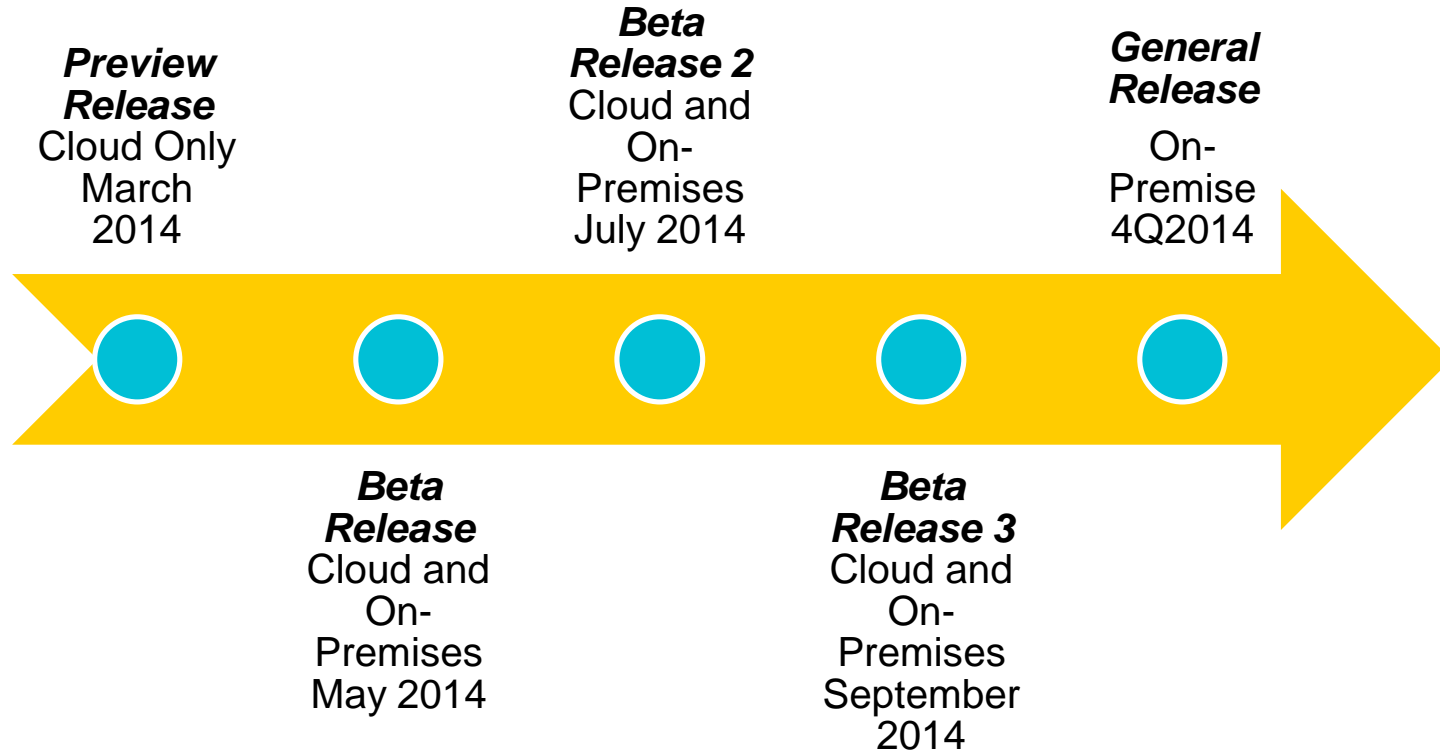
web map

feature layers

ArcGIS
Server
10.2.1



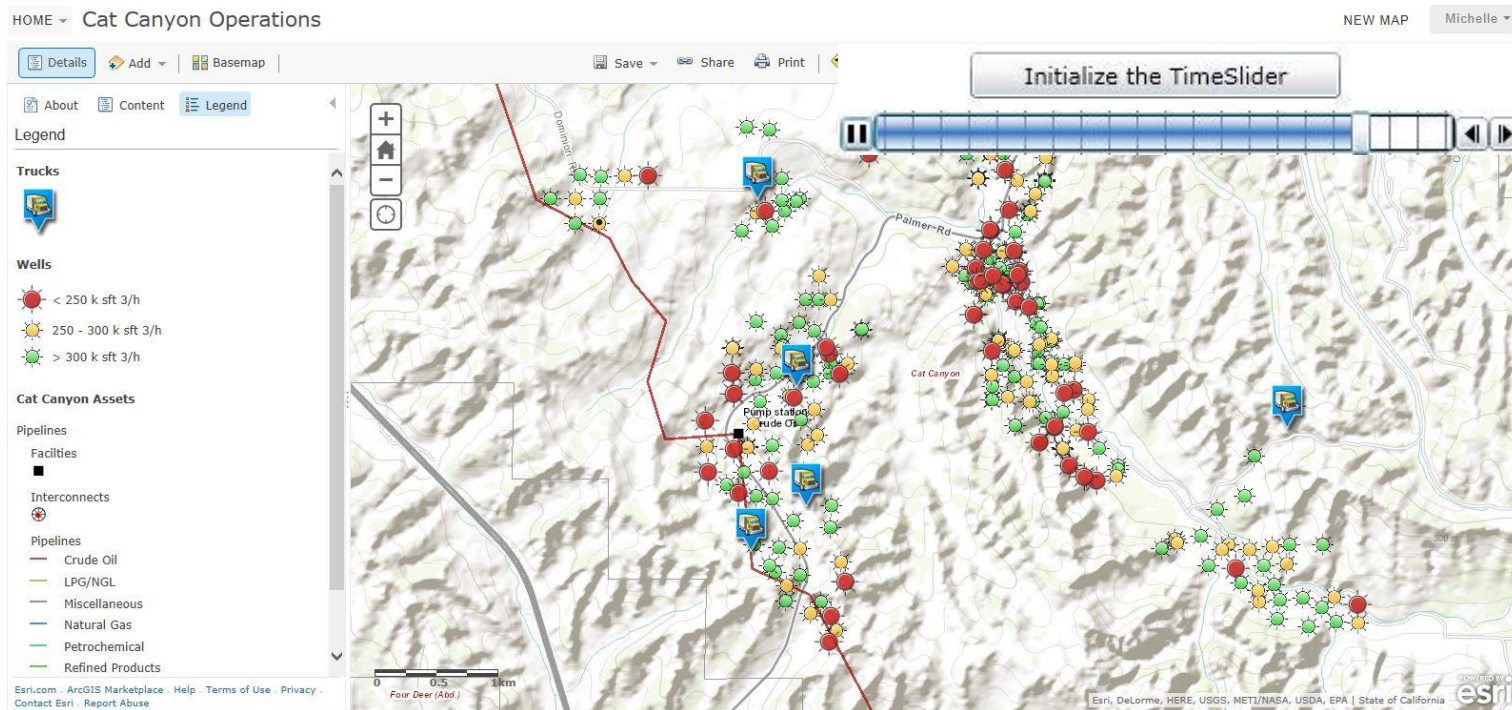
Timeline



Help Us Prioritize the Next Releases



Rewindable Maps



Create PI Event Frames on GeoFence or Trigger



Notification with PI System Data Near Location



From: PINotifications@pischool.com [<mailto:PINotifications@pischool.com>]

Sent: Friday, February 14, 2014 10:01 AM

To: Michael Jarvis

Subject: Montreal\\Tank03\\Notifications[Tank Overflow1] generated a new notification event.

Target: Substation 6-055-301

Start Time: 2/14/2014 10:00:30 AM Central Standard Time (GMT-08:00:00)

State: Overflow **Priority:** Normal



Attribute	Value	Timestamp
Phase B Med Voltage	10233.4178	2/14/2014 10: 30 AM CST (GMT-08:00:00)
Phase B Low Voltage	200.203269	2/14/2014 10: 30 AM CST (GMT-08:00:00)
Transformer Reactive Power	10662.885	2/14/2014 10: 30 AM CST (GMT-08:00:00)
Transformer Oil Temp	37.0970354832	2/14/2014 10:30 AM CST (GMT-08:00:00)

Actions:

[Acknowledge With Comment](#)

Open PI System Data Collection Near a Location



(Event) Template	Oven Inspection	
Asset	Oven 19	
Event Start	5/31/2013 11:45 AM	
Event End	In Progress	
(Attributes)	Timestamp	Value
Flue 1 Status	5/31/2013 11:45 AM	OK
Flue 2 Status	5/31/2013 12:32 PM	Heat gaps
Flue 3 Status		
Comment		
Photo	5/31/2013 11:45 AM	

Notify ArcGIS on Data Alarms / Events





Audience Poll

Help us prioritize the releases

- Replay history on the map
- Create an event frame from geo trigger
- Create a notification when nearing a location
- Open data collection page when nearing a location
- Notify ArcGIS of PI System alarms / events

Your poll will show here

1

Install the app from
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2

Make sure you are in
Slide Show mode

Still not working? Get help at pollev.com/app/help
or
[Open poll in your web browser](#)

When will you adopt PI Integrator for Esri ArcGIS?

- 2014
- 2015
- 2016
- Interested but don't have a time frame
- Not interested at this time

Your poll will show here

1

Install the app from
pollev.com/app

2

Make sure you are in
Slide Show mode

Still not working? Get help at pollev.com/app/help
or
[Open poll in your web browser](#)

Call to Action

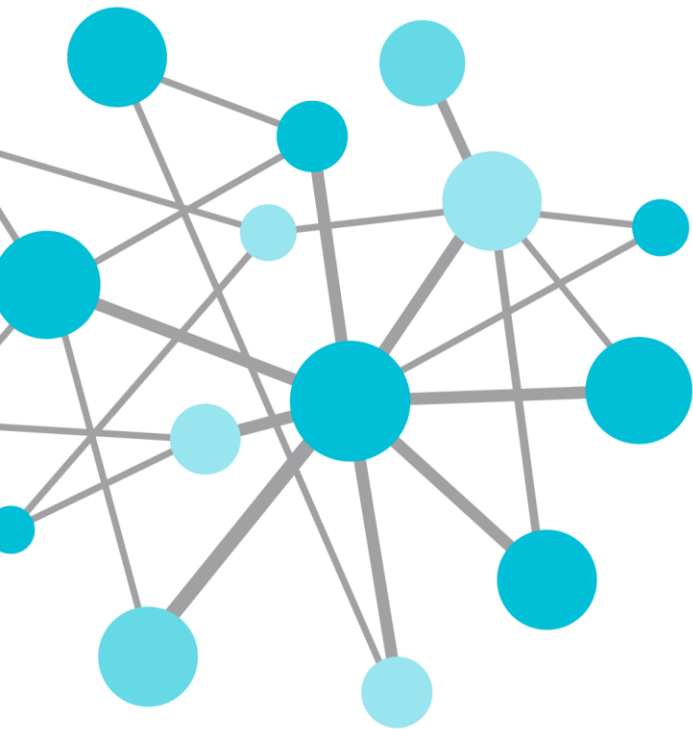
- Visit us in the Partner and Product Expo
- Sign up to be a beta customer
 - BetaIntegratorForEsri@osisoft.com
- Get the Esri GeoEvent Processor
- Contact your respective Account Managers

Contact Information

- Michelle Kuiee
 - Product Manager
 - michelle@osisoft.com
- Frank Batke
 - Senior System Engineer
 - frank@osisoft.com

EventMobi.com/EMEAUC14

- Please complete the session survey



THANK
YOU

Brought to you by  **OSI**soft.

Please don't forget to...

Complete the online survey for
this session

eventmobi.com/emeauc14



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#UC2014

