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PI Integrator for Esri ArcGIS:
A Journey Through Time and Space

Presented by **Elizabeth Ammarell,** Product Manager

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The Past:
Where We Started

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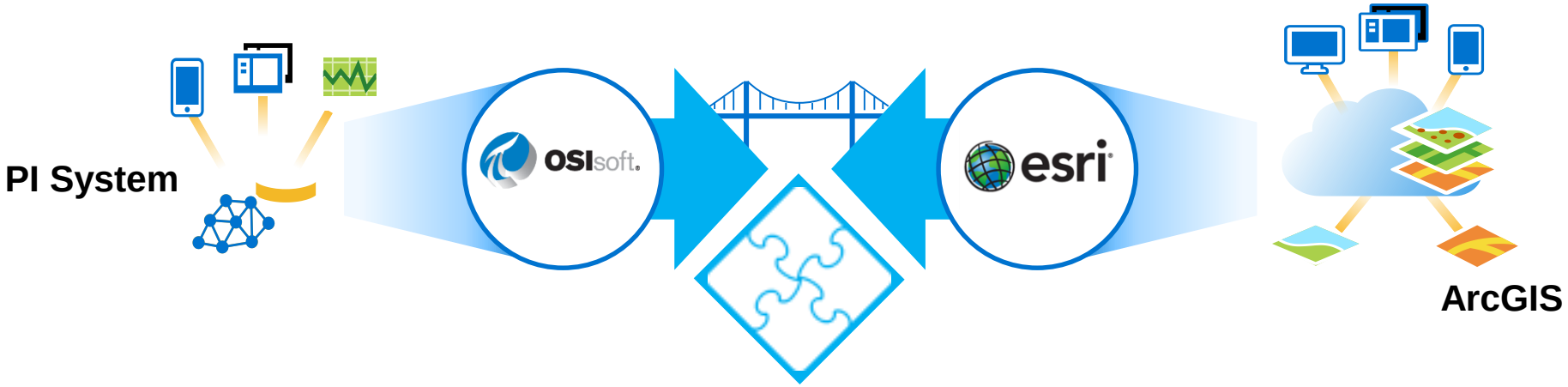
Two companies, one vision

Use data to reveal insights, process improvements and business value.



Transform your data.
Transform your world.

The Science of Where

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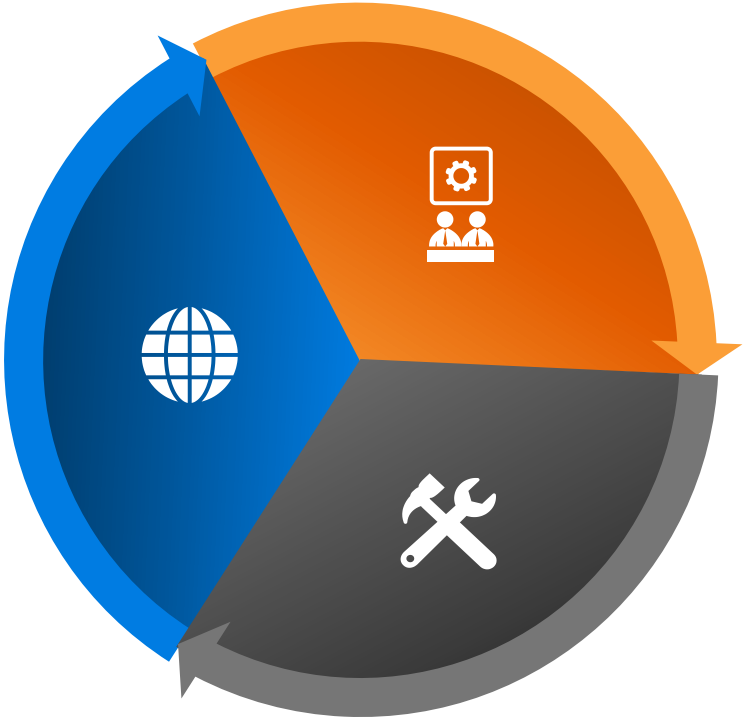
Why need PI Integrator for Esri ArcGIS?



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To leverage space and time data together

Provide geospatial **situational awareness**

Enable **real-time spatial analytics**

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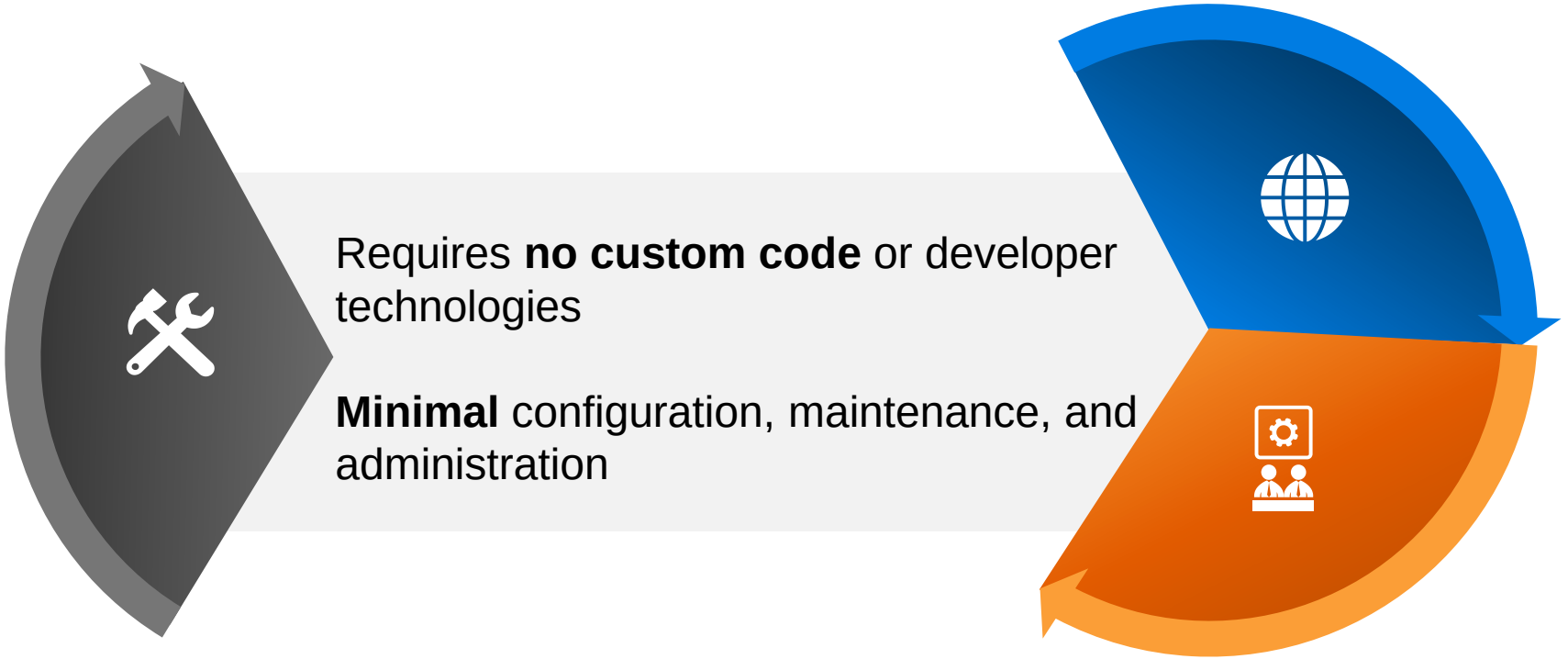
To provide a self-service solution without custom code



Requires **no custom code** or developer technologies

Minimal configuration, maintenance, and administration

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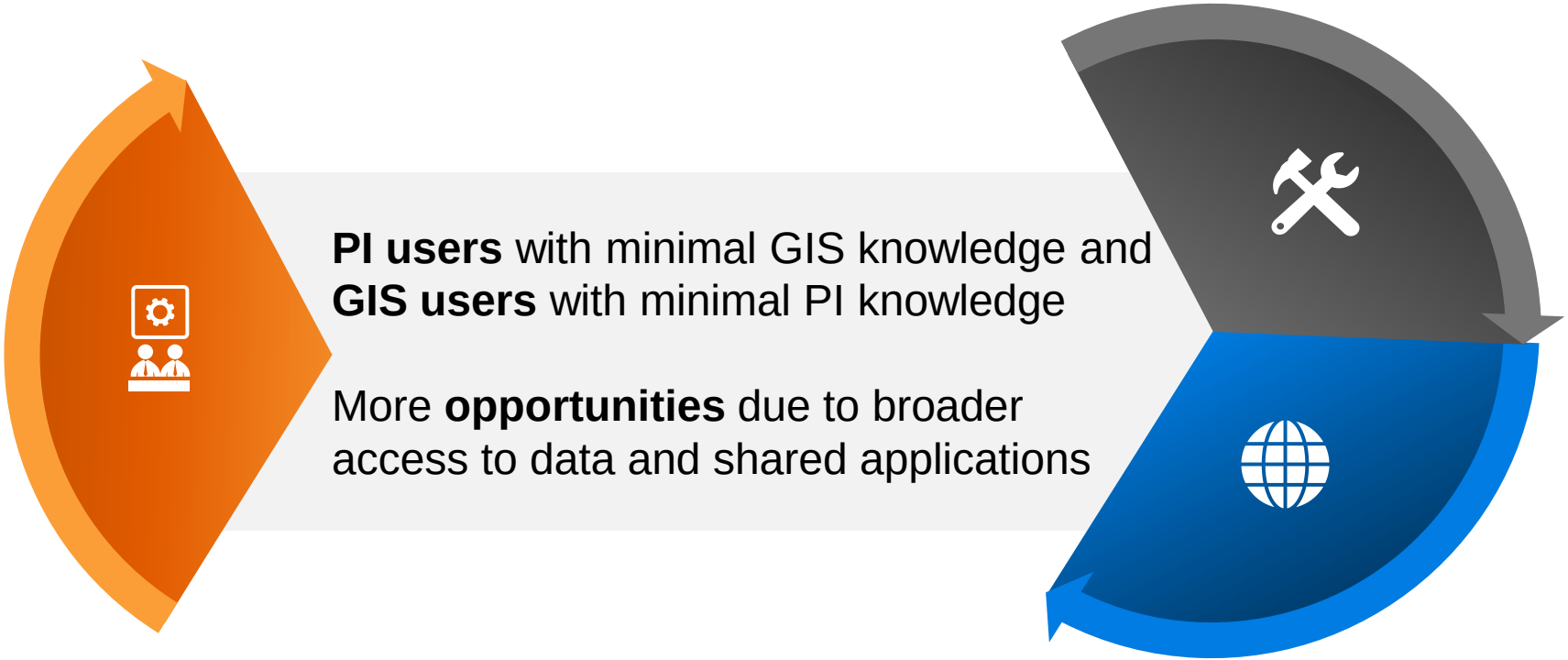
To bring together ArcGIS and PI System experts



PI users with minimal GIS knowledge and **GIS users** with minimal PI knowledge

More **opportunities** due to broader access to data and shared applications

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The Present:
Where Users Find Value

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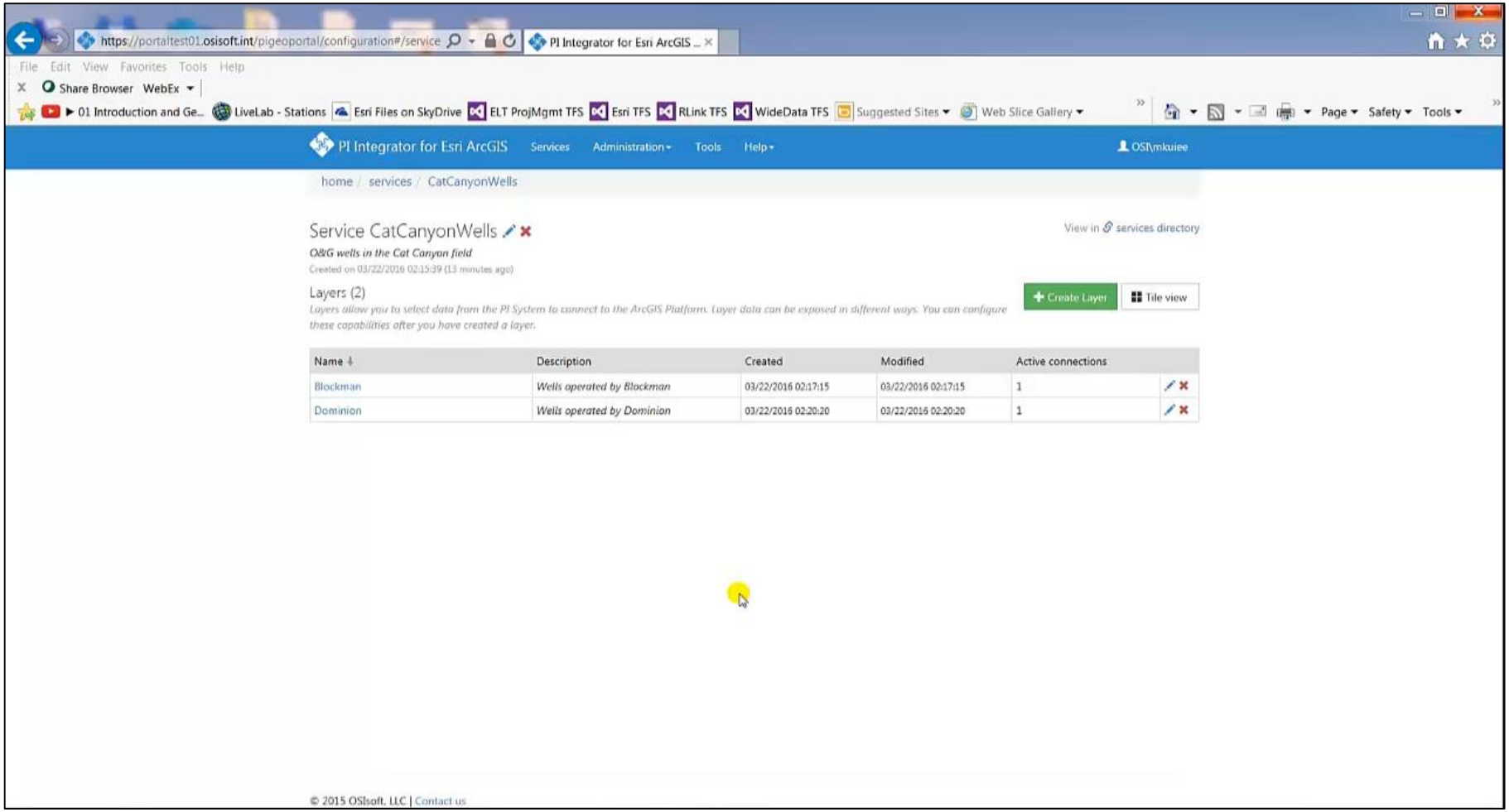

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Goal: **Improve the efficiency** of business workflows and **situational awareness** for Noble's upstream operations

Result: A **standard visualization tool**

- Remote asset status
- Production rates
- Weather data
- One map includes details for every location

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Goal: Reduce water loss and **optimize manual process** for monitoring leaks

WHITE HOUSE UTILITY DISTRICT

Result: GIS-centric water loss management

- Automated KPI calculation and data update to ArcGIS
- Access to historical zone and meter details
- Daily review process shortened to 15 minutes
- 2016 water loss savings of $500,000

"…spending more time finding leaks and managing staff, **rather than managing the data**."
-Carl Alexander,
GIS Manager

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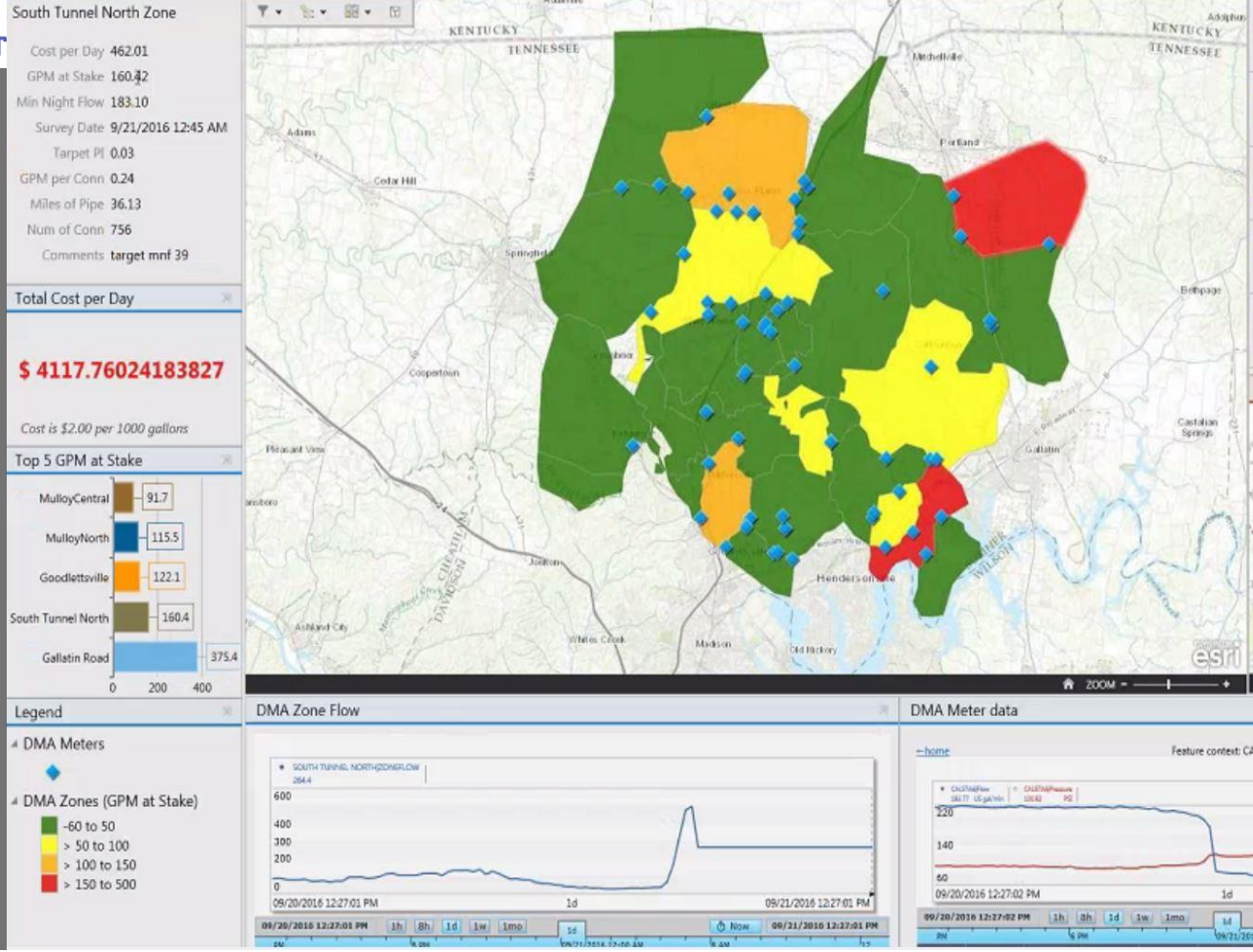
WHITE HOUSE UTILITY DISTRICT

90,000 people served

2016 Water Loss Savings $500,000



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The Future:
Where We Can Go

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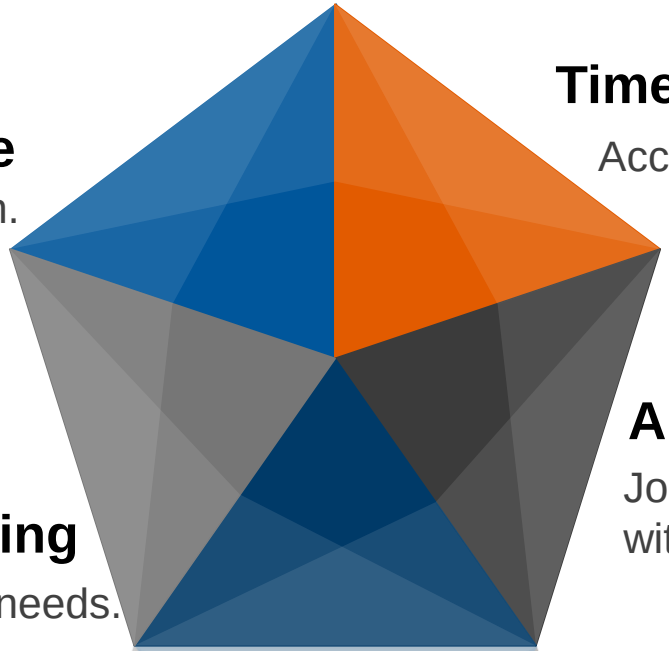
Looking forward to 2017 release…in testing now!



Architecture

Simplified to ease administration.

Time-enabled Maps

Access historical PI System data.

Augmented Feature Layer

Join operational data
with existing ArcGIS layers.

Tiered Product Offering

Deployment options to suit your needs.

Manageability

Delete ArcGIS items from the Integrator.

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Looking forward to 2017 release

Architecture
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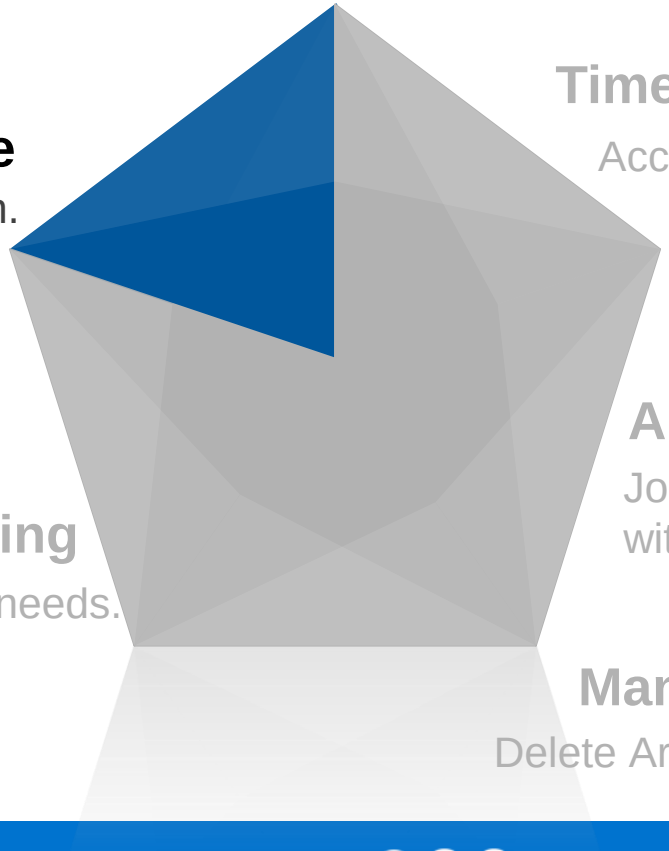

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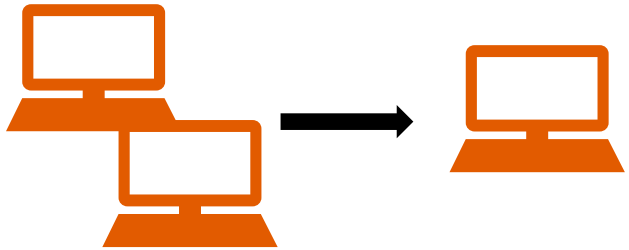
Simplified Integrator architecture

PI Integrator for Esri ArcGIS **Application Server**

+

PI Integrator for Esri ArcGIS **Data Relay**

PI Integrator for Esri ArcGIS



- Merged Data Relay and Application Server
- Requires single executable and installation
- Removed dependency on Microsoft IIS
- Application runs as a self-hosted web service

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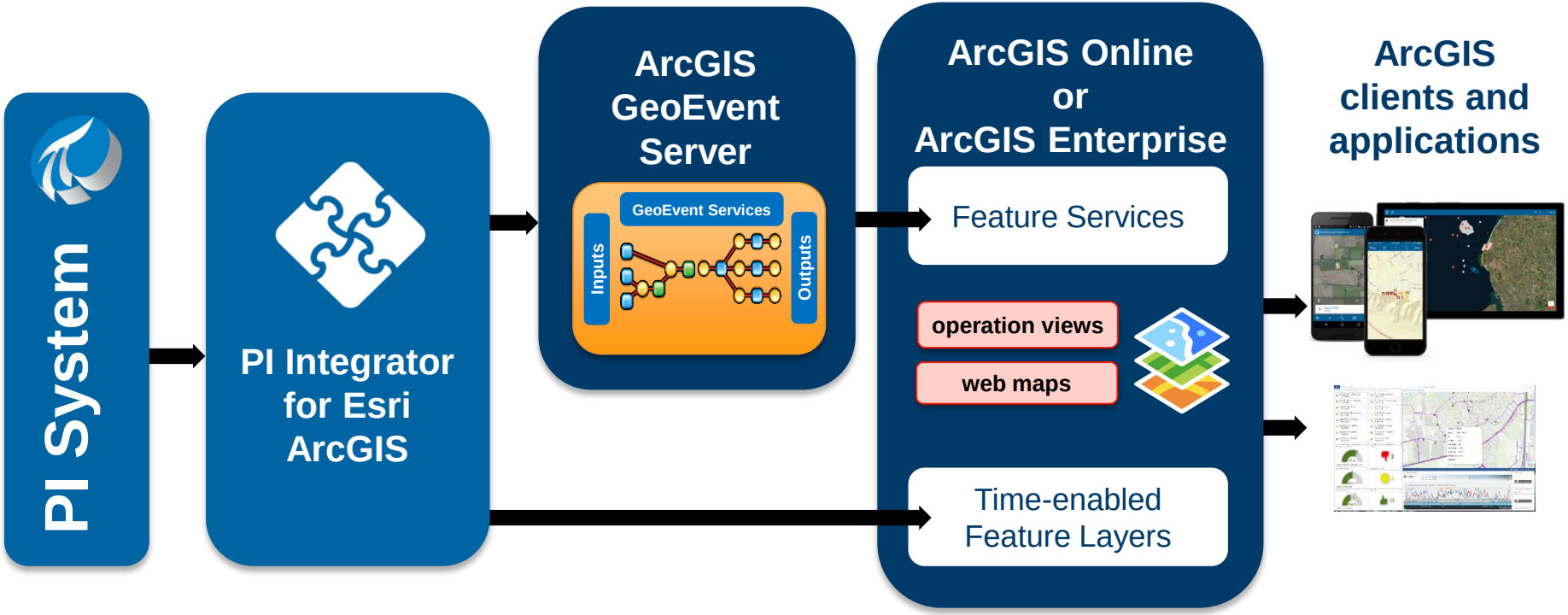
Two data flows from PI System to ArcGIS enable more integration patterns



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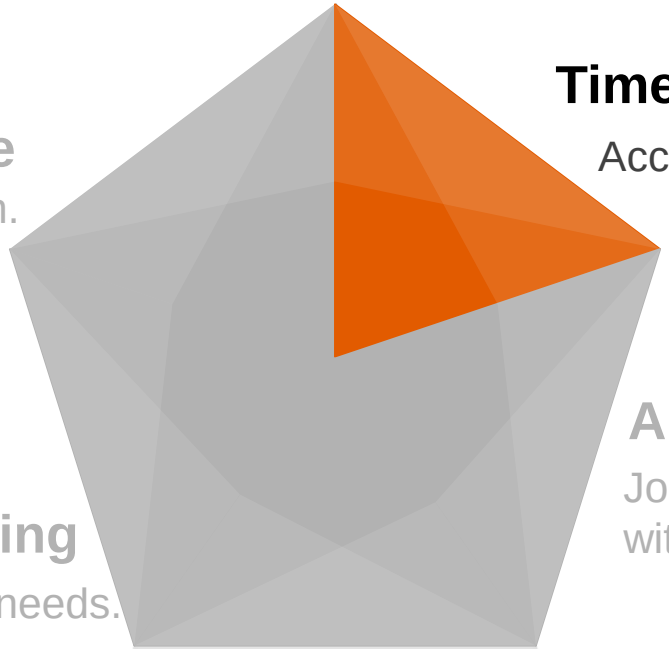
Looking forward to 2017 release



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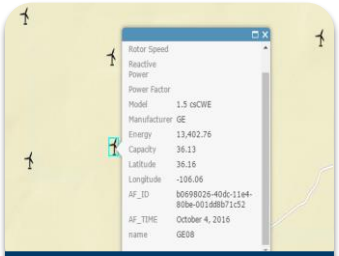
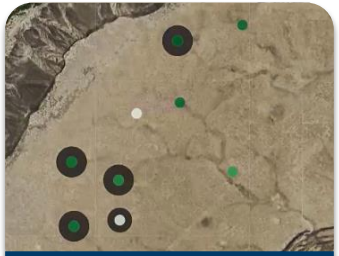
Time-enabled maps reveal insights hidden in the data



Review historical data when alarms are triggered

Validate and compare asset routes



Investigate incident cause and effect

Evaluate conditions across various regions

Combine data sources and tools

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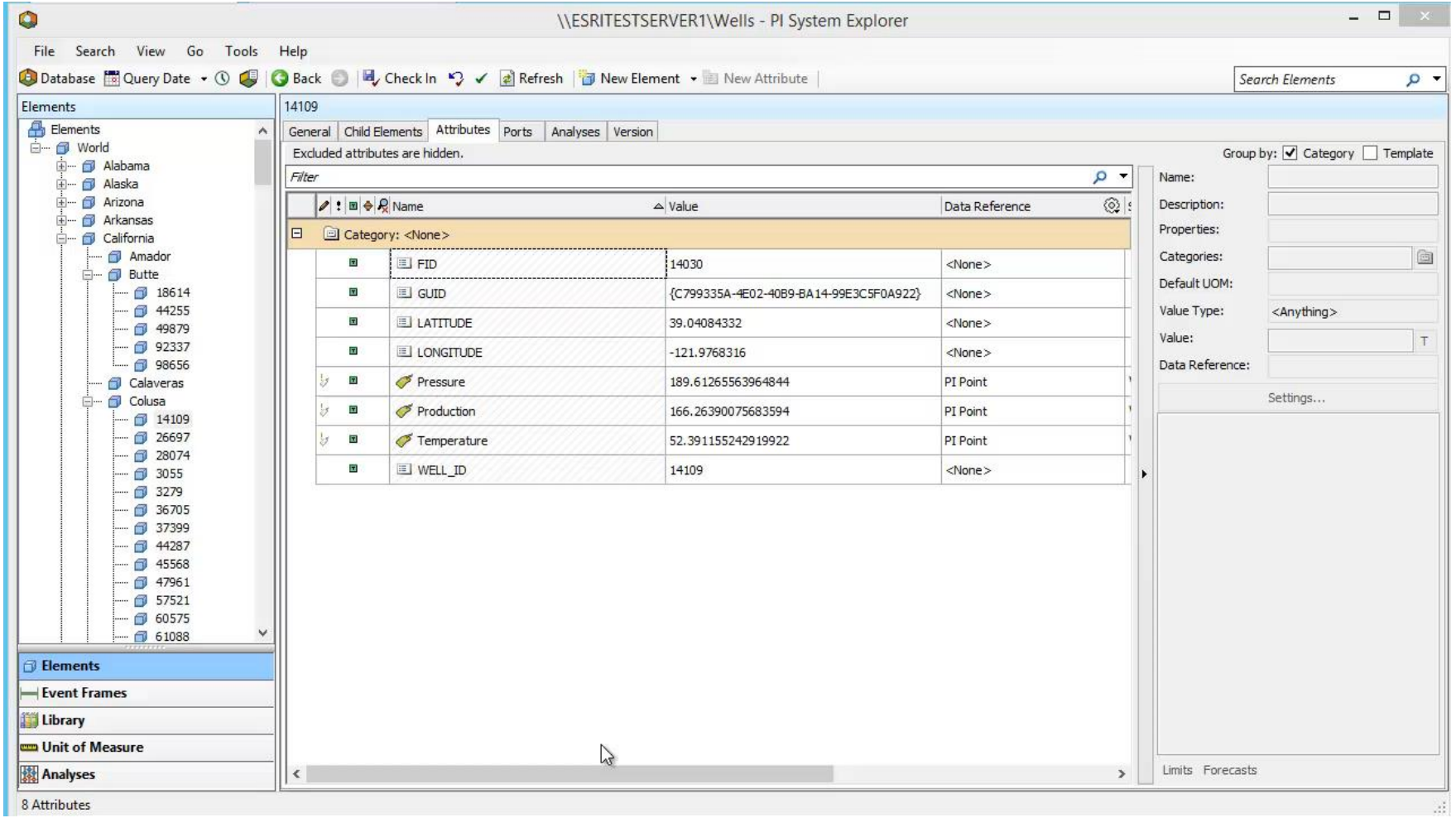

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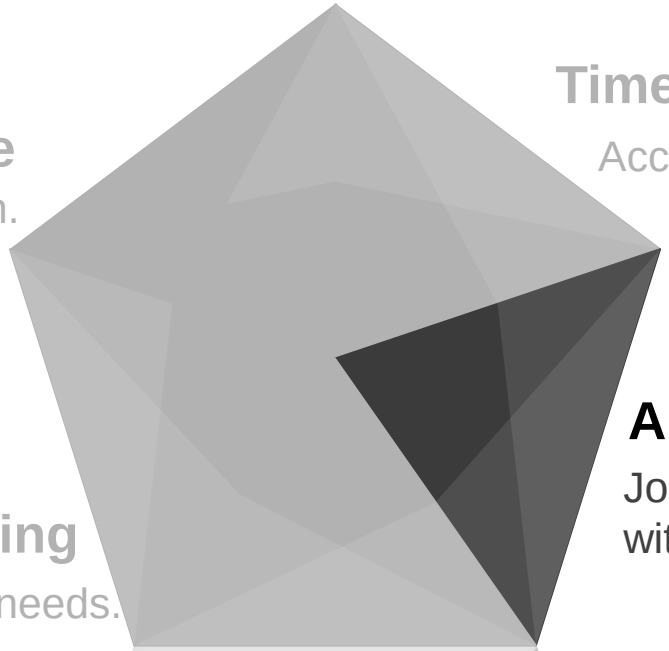
Looking forward to 2017 release



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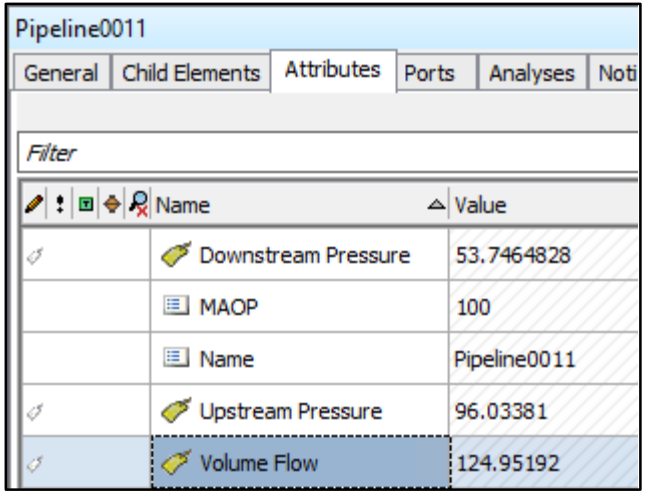
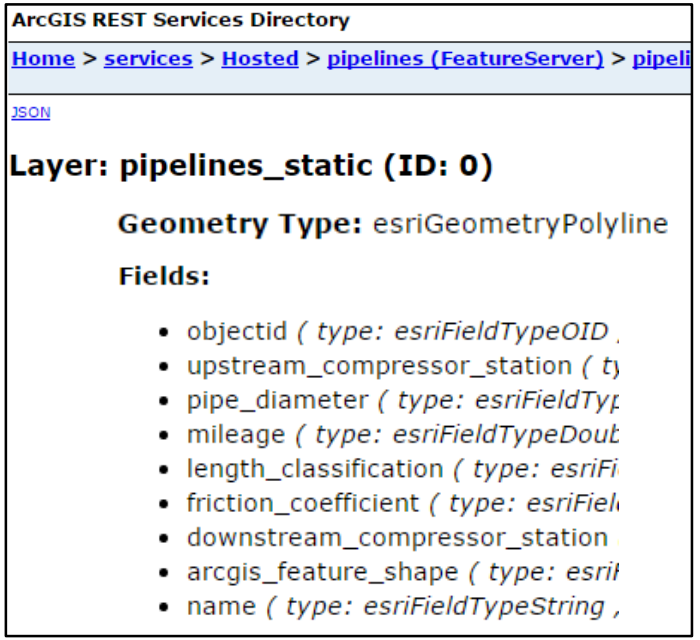
Augmented feature layers combine PI data with geometry from ArcGIS into a single time-enabled layer





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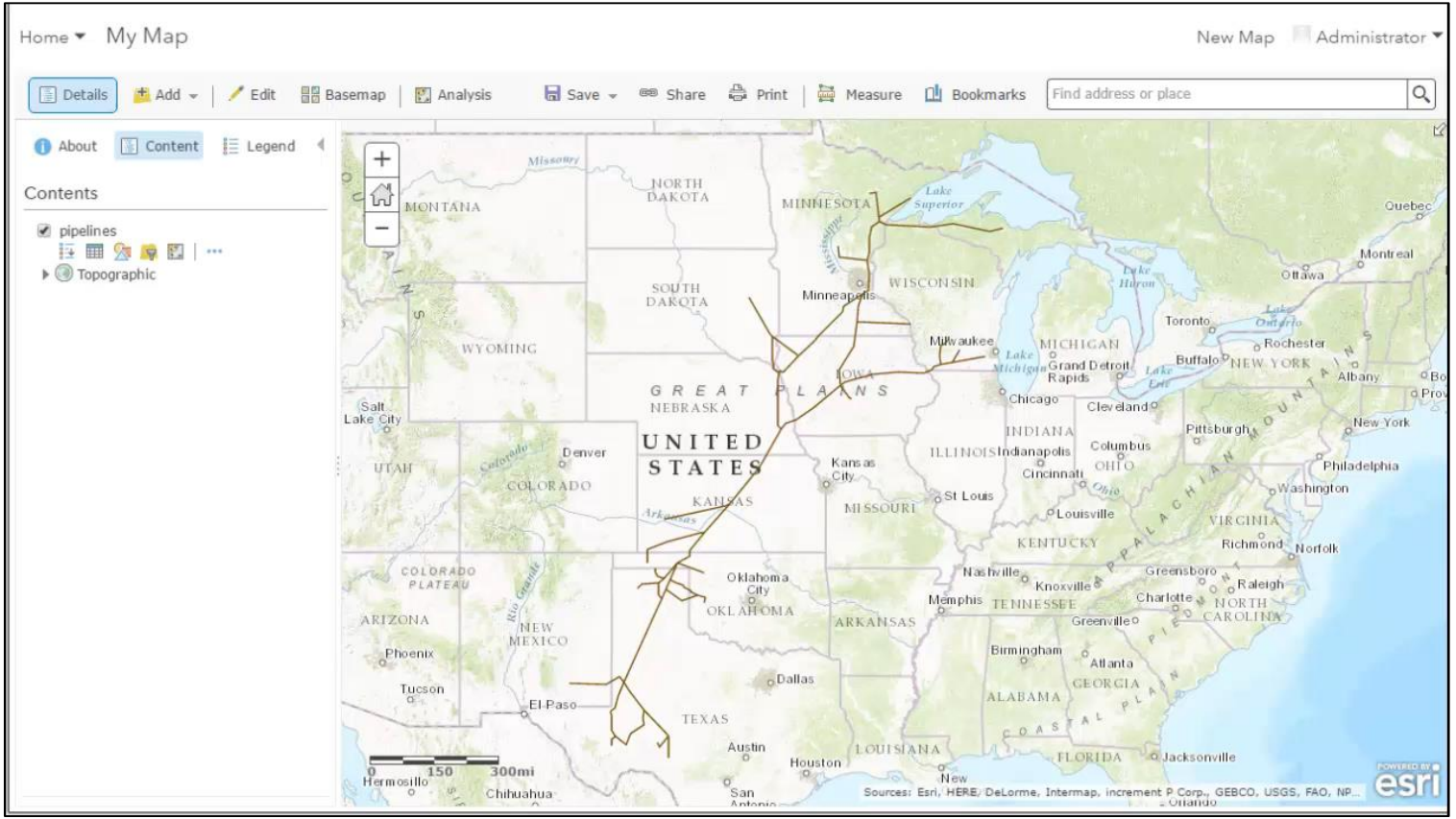
Create an augmented feature layer



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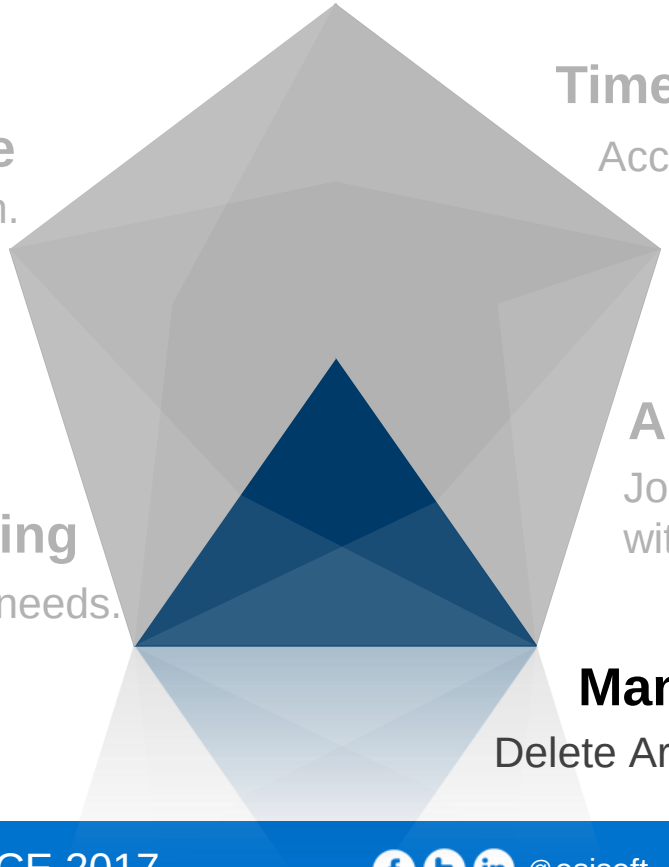
Looking forward to 2017 release



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Manageability

Delete ArcGIS items from the Integrator.

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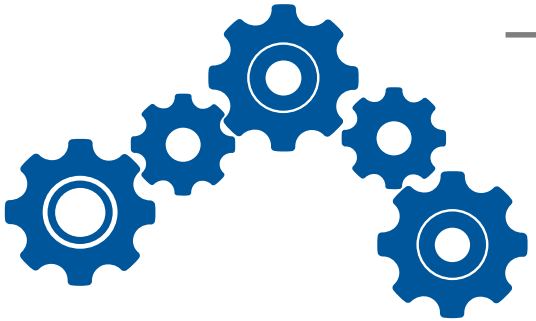
Improved system manageability

Delete Integrator-created ArcGIS objects from the Integrator

No need to log into ArcGIS Online or Portal for ArcGIS

No need to log into GeoEvent Server Manager



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Click to delete Integrator layer

Service Power Generation Service ✖

Power Generation Service

Created on 02/20/2017 09:51:14 (17 hours ago)

Layers (1)

Layers are used to select PI System data to connect to the ArcGIS platform. You can configure multiple layers within a single service.

+ Create Layer | Tile view

Name	Description	Created	Modified	Time-enabled	GeoEvent	
Wind Turbines Layer	*Wind Turbines Layer*	02/20/2017 09:54:03	02/20/2017 09:54:03		✔	✖

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Locate ArcGIS feature service

home / services / Power Generation Service / Wind Turbines Layer / delete-wizard

1. Feature Service Environment 2. GeoEvent Server Environment 3. Confirmation 4. Summary

✔ Portal for ArcGIS credentials verified.

✔ **Feature service** 'power_generation_service' was found

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Locate GeoEvent Server objects

home / services / Power Generation Service / Wind Turbines Layer / delete-wizard

1. Feature Service Environment **2. GeoEvent Server Environment** 3. Confirmation 4. Summary

✔ You are connected to GeoEvent Server **dpnagis105m1 GeoEvent**.

✔ GeoEvent Server objects can be deleted from 'https://dpnagis105m1.osisoft.int:6143'

The following GeoEvent Server objects can be deleted from this layer:

Service: pigeo-power-generation-service-wind-turbines-layer-service

Input: pigeo-power-generation-service-wind-turbines-layer-ws-in

Output: pigeo-power-generation-service-wind-turbines-layer-fs-update-out

GeoEvent Defintion: pigeo-power-generation-service-wind-turbines-layer-ws-in

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Delete all discovered items

home / services / Power Generation Service / Wind Turbines Layer / delete-wizard

1. Feature Service Environment 2. GeoEvent Server Environment **3. Confirmation** 4. Summary

Status of the Layer Delete Wizard:

Feature Service Environment: 'power_generation_service' can be deleted from 'https://dpnagis105m1.osisoft.int/portal'

GeoEvent Server Environment: GeoEvent Server objects can be deleted from 'https://dpnagis105m1.osisoft.int:6143'

Integrator Environment: Layer ready to delete

After you click Delete, the process might take several minutes to complete. Do not close the browser or navigate away from this page until the process is complete.

Delete

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Deleted layer cleaned up

home / services / Power Generation Service / Wind Turbines Layer / delete-wizard

1. Feature Service Environment 2. GeoEvent Server Environment 3. Confirmation **4. Summary**

Delete Summary:

✔ **Feature Service:** 'power_generation_service' was deleted successfully for 'https://dpnagis105m1.osisoft.int/portal'

✔ **GeoEvent Server:** All GeoEvent Server objects for this layer were deleted successfully on 'https://dpnagis105m1.osisoft.int:6143'.

✔ **Layer:** 'Wind Turbines Layer' was deleted successfully for 'PI Integrator for Esri ArcGIS'

✹All objects associated with this layer have been deleted.

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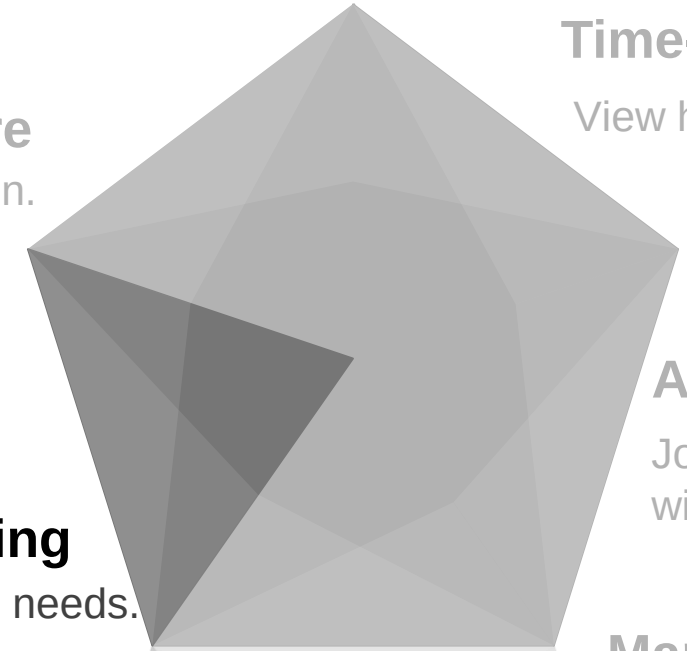
Looking forward to 2017 release

Time-enabled Maps

View historical PI System data.

Architecture

Simplified to ease administration.



Augmented Feature Layer

Join operational data
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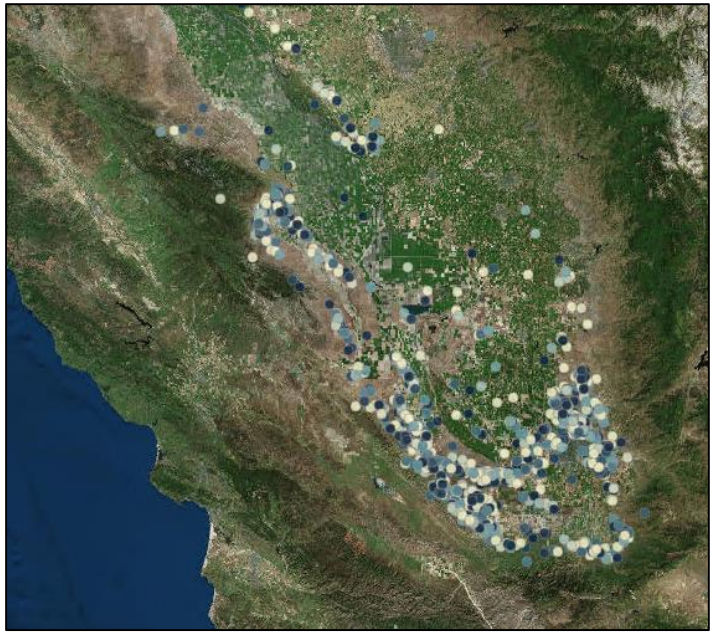
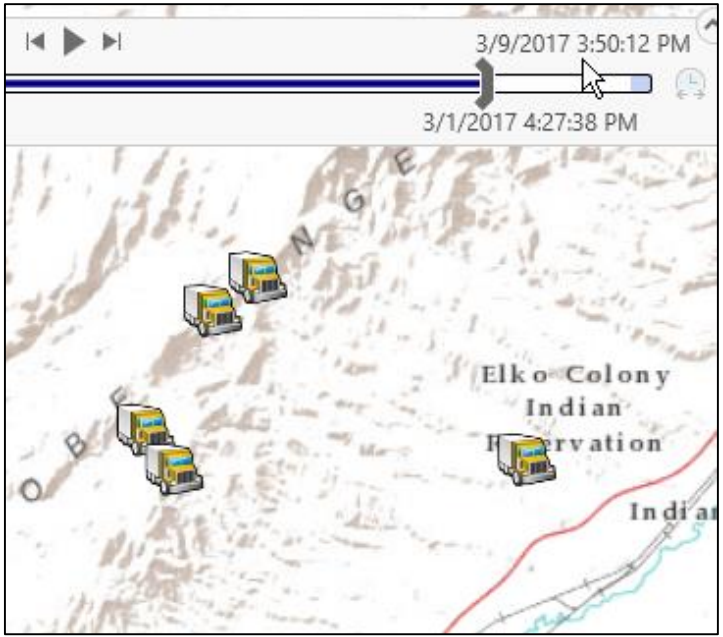
PI Integrator for Esri ArcGIS Basic

For visualization and simple use cases



Geospatial Situational Awareness



Time-enabled Maps

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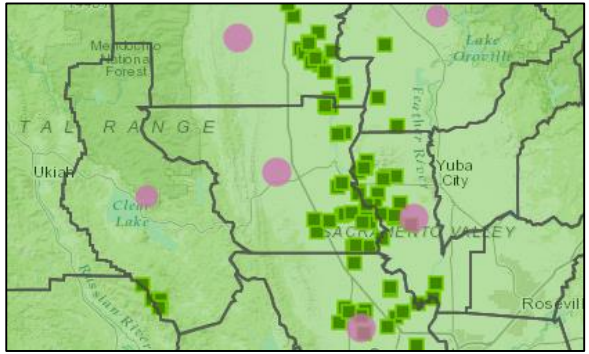
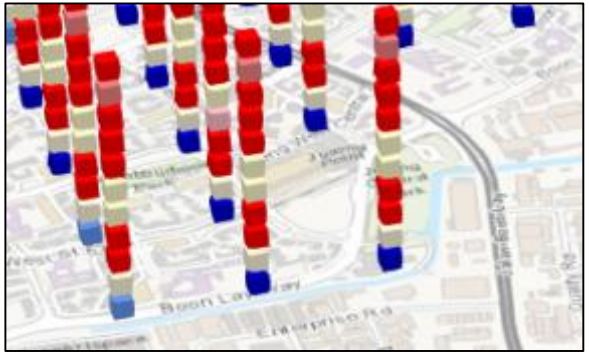
PI Integrator for Esri ArcGIS **Advanced**

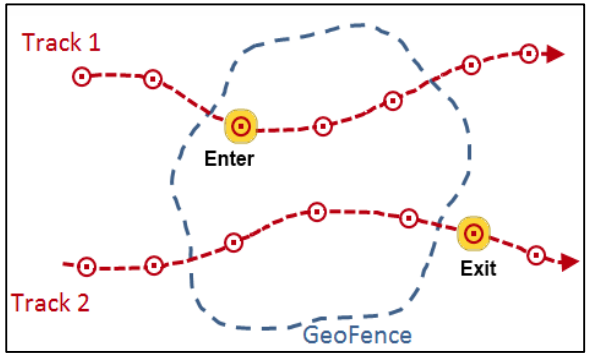
For enabling higher levels of integration and analysis



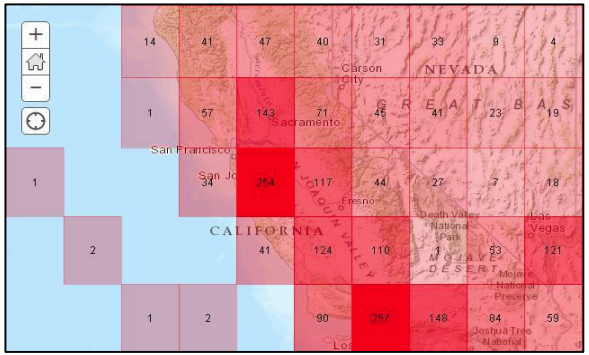
Spatial Aggregation



Spatiotemporal Aggregation



Real-time Geoprocessing



Spatial Analytics at Scale

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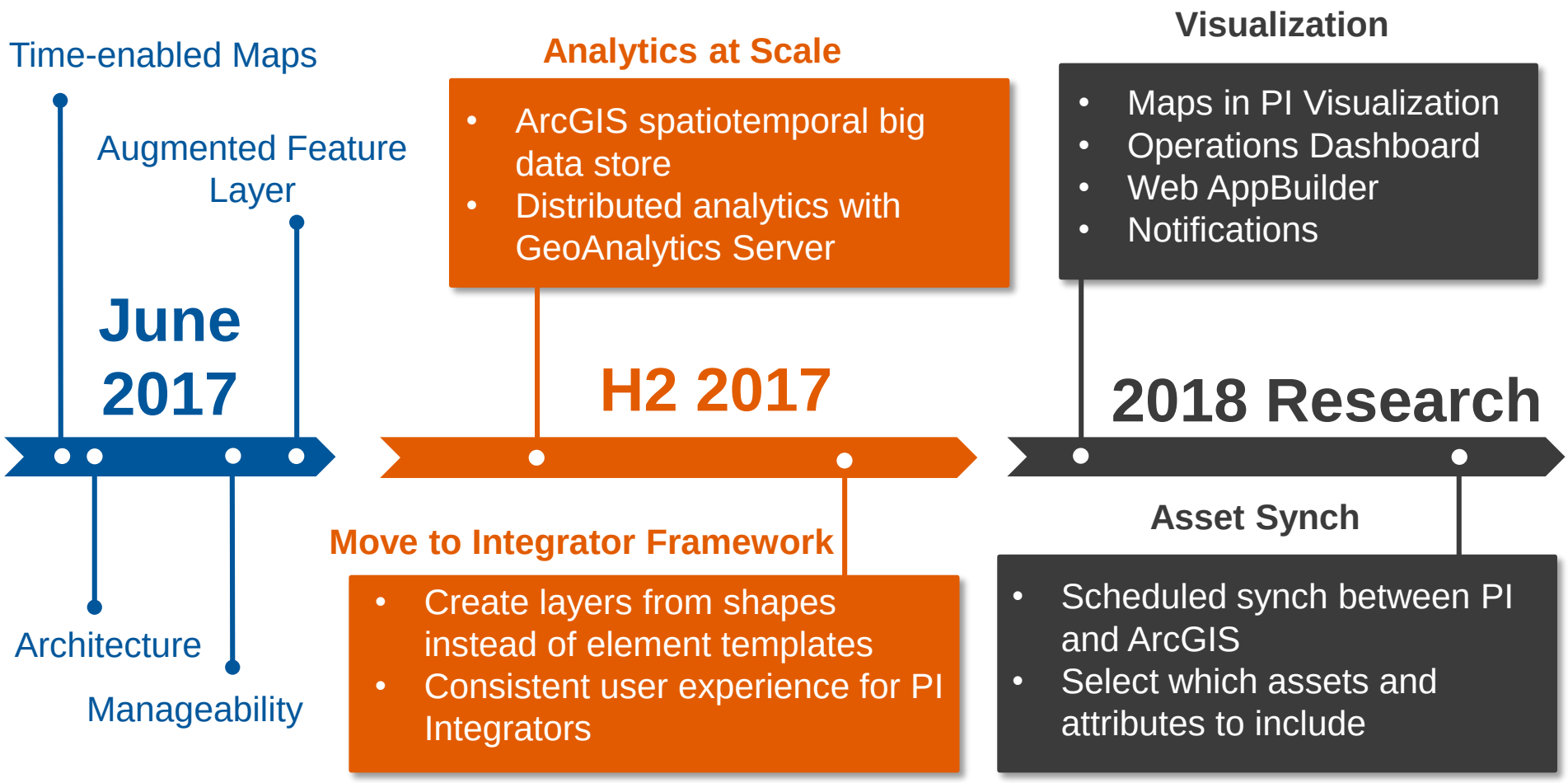

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What does this mean for you?

Options

Choose the right solution for your organization

Simplicity

Easier to deploy, to manage, and to use

Function

Time-enabled applications expand integration potential

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Does this interest you? Please contact us!

BetaIntegratorForEsri@osisoft.com

Looking for:

- potential early adopters
- feedback on CTP/Beta code
- input on roadmap initiatives

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Have an idea how to improve our products?

OSIsoft wants to hear from you!

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OSIsoft + Esri Integration – Additional presentations

White House Utility District	*Maximizing Operations Utilizing Real Time Spatial Information*
Peak Reliability	*Managing the Power Grid Using Maps, Real-time Data and Rosetta Stones*
ERCOT	*ERCOT's Use of the OSIsoft Ecosystem for the New Reliability Risk Operator Desk*
Noble Energy + CSE-Icon	*Building a Corporate AF Model and Realizing Value from Integrating Real-time Data with GIS*
PowerStream	*On the path to Intelligent Maintenance with the PI System*
IntegralGIS + PJM	*PJM Data Integration*
Adani Ports + ECGIT + VCS	*Adani Port's Integrated Information Management for Operational Excellence, Performance and Profit*

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Solve more problems, more efficiently

"…spending more time finding leaks and managing staff,

rather than managing the data."

-Carl Alexander,
GIS Manager

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Contact Information

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eammarell@osisoft.com

Product Manager

OSIsoft

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Questions

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

State your **name & company**

Please remember to…

Complete the Online Survey for this session

http://bit.ly/uc2017-app

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감사합니다

谢谢

Danke

Merci

Gracias

Thank You

ありがとう

Спасибо

Obrigado

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