

PI System for Critical Operations and Advanced Analytics

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Keeping the PI System Secure & Reliable

- Complex architecture
- New projects
- Exhaustive testing & validation
- 3rd party applications
- Downtime



PI System - 2019 and Beyond

Harden
the core



Focus on **security** &
reliability of
data infrastructure

Ease
the management



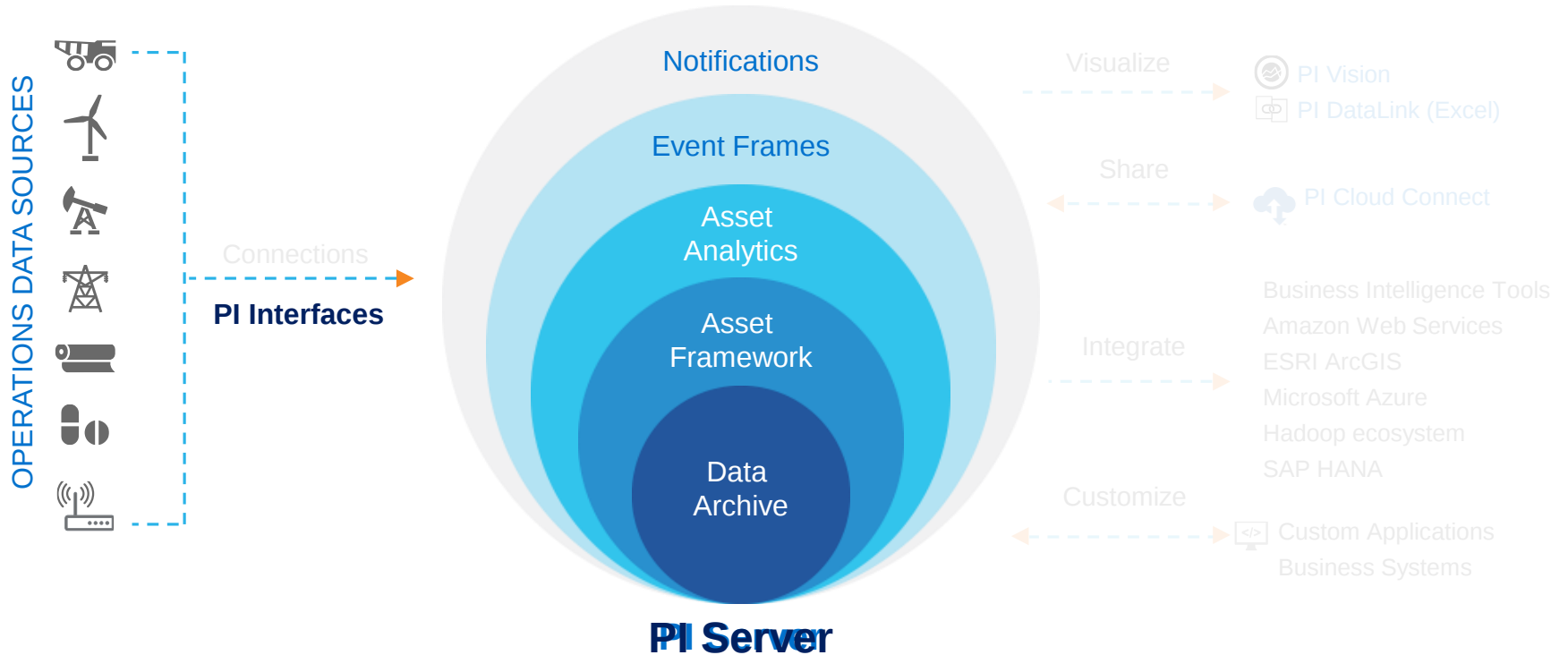
Bring more
manageability &
control to
deployments

Extend
the reach

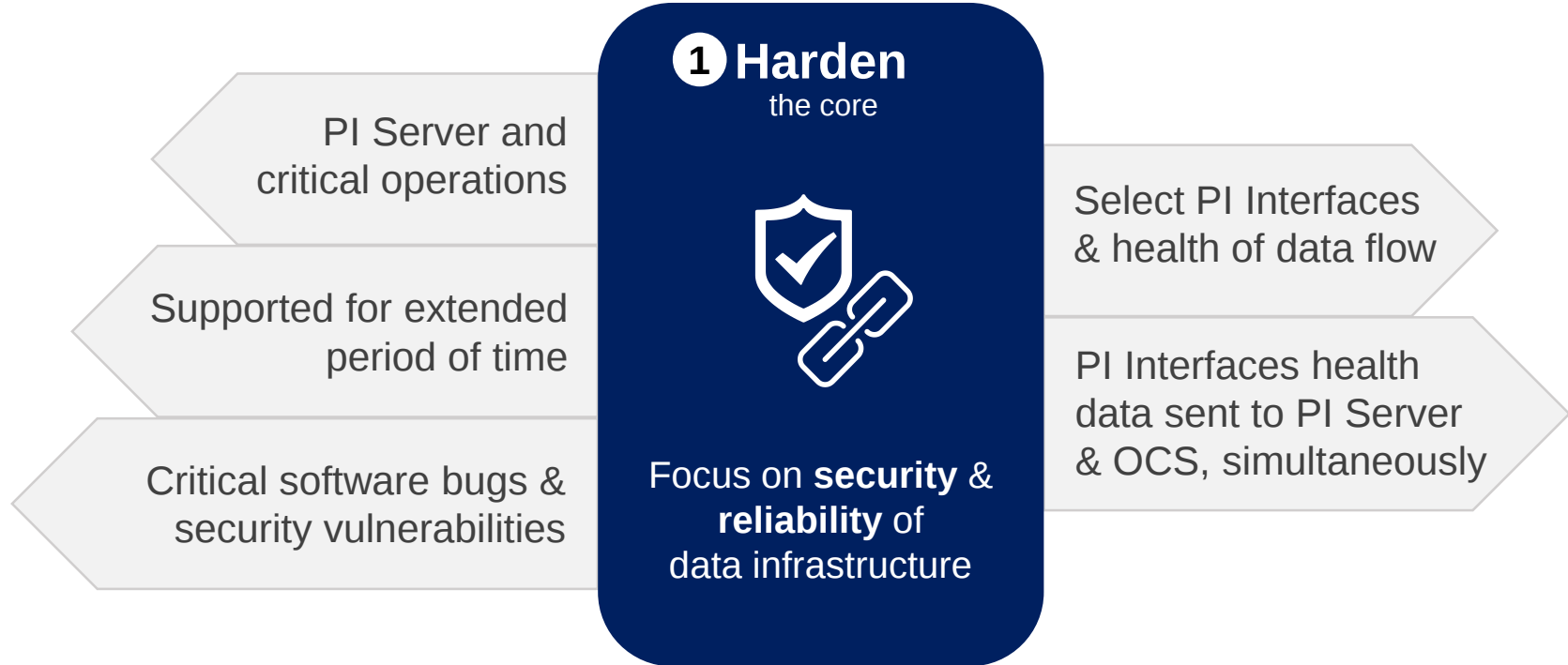


Grow
collection,
integration & access
capabilities

The System of the PI System



Hardening the Core of the PI System



Available Today

Storage

- Store high fidelity historical and future data at high ingestion rate
- System of record for time series data
- Storage limited only by disk
- High performance data retrieval regardless of time range
- Supports many users simultaneously
- Highly reliable and highly available

Assets and metadata

- Provide context to your data
- Allows common vocabulary
- Model physical or logical assets
- Establish relationship between assets
- Templates for standardization and governance
- Units Of Measure support
- High performance data access via SDK

Calculations and Events

- Near real time streaming calculation engine
- 150+ built in functions
- Configuration experience – ease of use
- Output to PI Points for reporting and trending
- Create event frames and rollups
- Send notifications based on events of interest
- Template support, fully integrated into AF
- Backfills and recalculations
- Auto-recalculation for late or out-of-order data
- High performance supporting hundreds of thousands of analyses

PI Server – Roadmap



Developing Now

Usability and Performance Improvements

Improved search performance, query PI Analysis Service runtime information, improved functions for calculations

Released

Improved Reliability

Focusing on bug fixes and quality updates.

Released

More Control over Upgrades and Deployments

Providing ways for system administrators to keep their PI System current on fixes for critical bugs and security vulnerabilities, without requiring additional resources.



Considering Next

Performance and Memory Improvements

Improve performance for large number of concurrent clients

Support for Modern Authentication

Alternatives beyond Active Directory

Streamlined Deployment

Enabling users to deploy more PI Systems faster

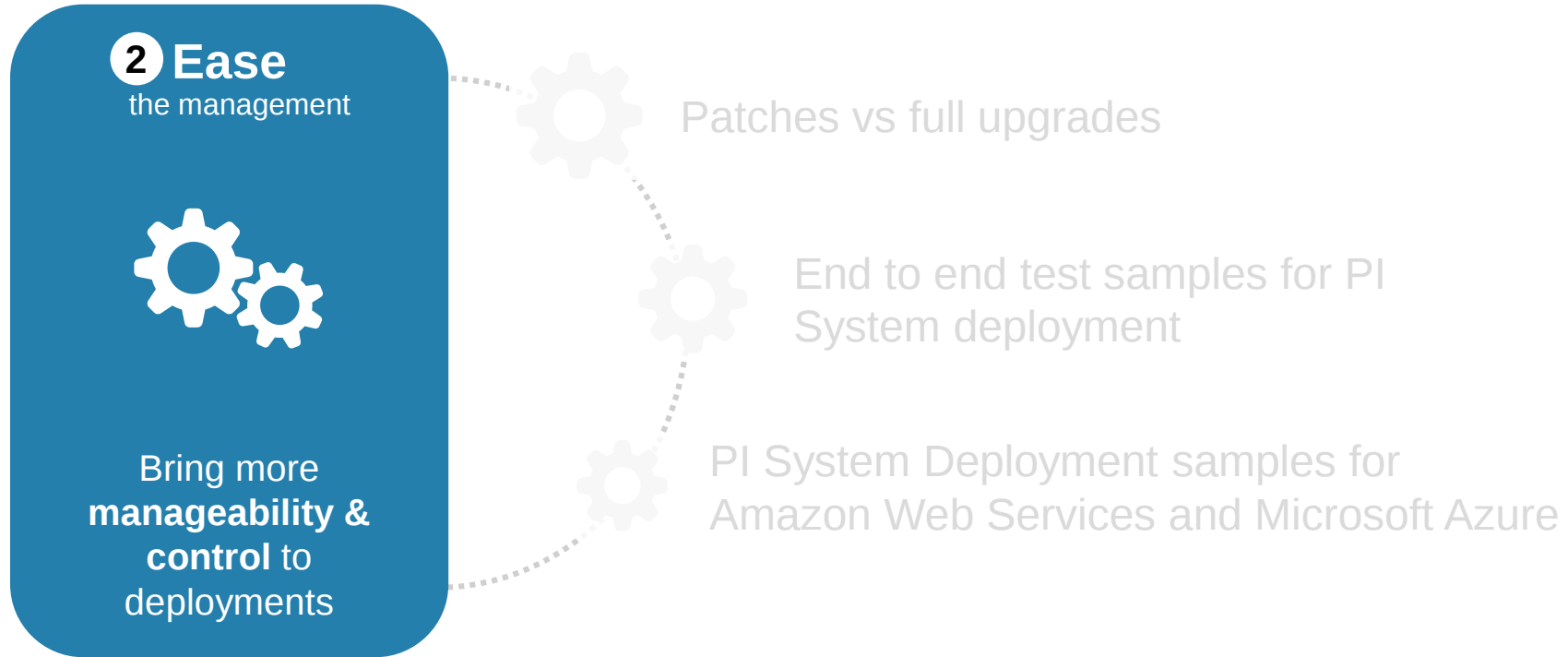


Researching Future

Manageability

Management of the configuration, deployment and maintenance of large number of PI System components

Easing Deployments & Improving Manageability



Test Latest Versions in Your Environment

PI System Deployment Tests

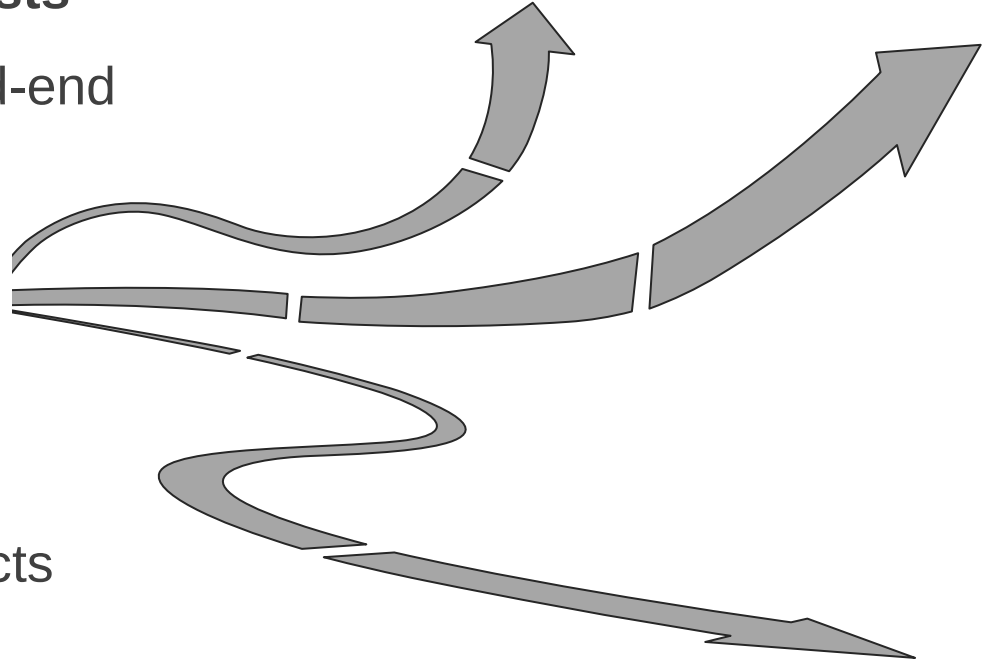


Framework and a set of end-end test samples

Expand to meet the testing needs of your PI System



Starting point for assessing deployments to the latest version of PI System products



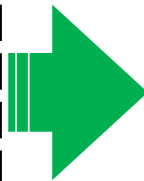
Recipe of the Test Samples



Modify configuration file



Download required assemblies
Import AF database onto target
PI System
Compile xUnit tests
Execute xUnit tests
Optionally uninstall AF database
from target PI System



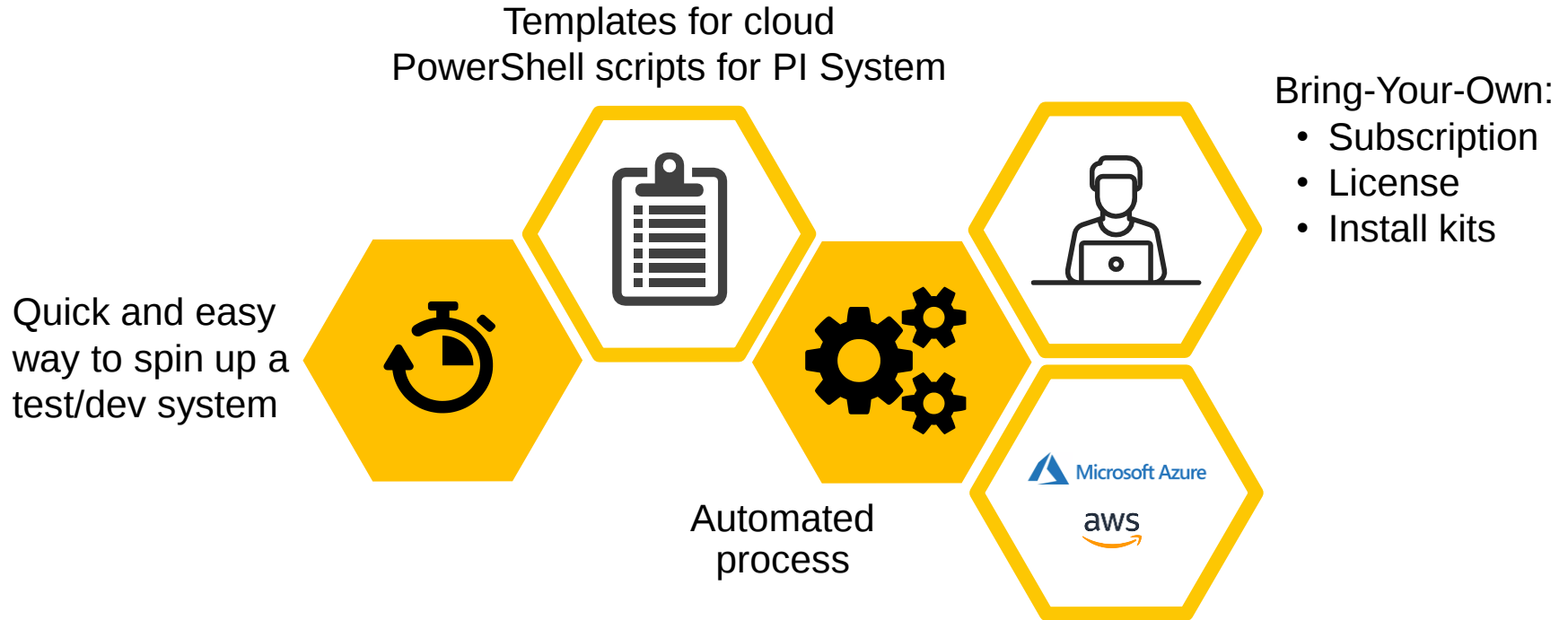
Assemblies Run
C:\DeploymentTests\PI-System-Deployment-Tests-master\source\bin\Release\OSIsoft.PISystemDeploymentTests.DLL

Summary
Tests run: [207](#) — Run time: **191.621s**, Finished: **08/30/2019 10:18:12**

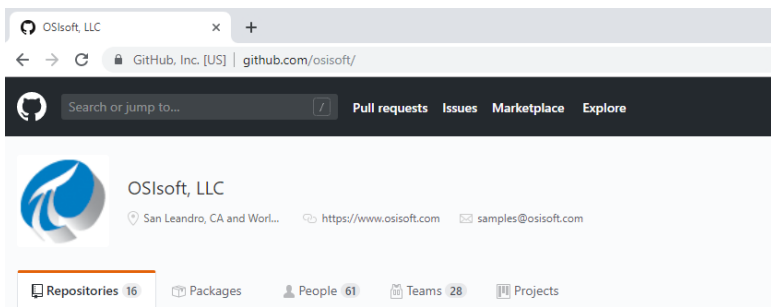
All tests
Click test class name to expand/collapse test details

✓ OSIsoft.PISystemDeploymentTests.AFDDataTests (39 tests)	30.510s
✓ OSIsoft.PISystemDeploymentTests.AFPITests (11 tests)	4.193s
✓ OSIsoft.PISystemDeploymentTests.AFPluginTests (95 tests)	41.574s
✓ OSIsoft.PISystemDeploymentTests.AFTests (19 tests)	9.942s
✓ OSIsoft.PISystemDeploymentTests.AnalysisTests (13 tests)	48.713s
✓ OSIsoft.PISystemDeploymentTests.EFTests (8 tests)	2.693s
✓ OSIsoft.PISystemDeploymentTests.PIDAConnectionsTests (1 test)	0.244s
✓ OSIsoft.PISystemDeploymentTests.PIDAEventTests (3 tests)	4.322s
✓ OSIsoft.PISystemDeploymentTests.PIDAPointTests (3 tests)	0.032s
✓ OSIsoft.PISystemDeploymentTests.PIDATests (13 tests)	15.097s
✓ OSIsoft.PISystemDeploymentTests.PIDAUpdatesTests (2 tests)	31.258s

Flexibility in Where You Test Changes



<https://github.com/osisoft>



Pinned repositories

OSI-Samples

The OSISOFT samples are introductory, language-specific examples of programming against OSISOFT technologies. They are intended as instructional samples only.

★ 24 🍴 73

OSI-Samples-PI-System

The OSISOFT samples are introductory, language-specific examples of programming against OSISOFT technologies. They are intended as instructional samples only.

JavaScript ★ 1

OSI-Samples-OCS

These OSISOFT samples are specific examples of programming against OSISOFT Cloud Services. They are intended as instructional samples only.

JavaScript 🍴 1

OSI-Samples-OMF

The OSISOFT samples are introductory, language-specific examples of programming against OSISOFT technologies. They are intended as instructional samples only.

Java

<https://feedback.osisoft.com>

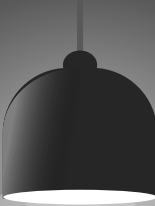
.....
If it is not shared on the feedback portal, it didn't happen!

Give feedback

Feedback forums

Edge Data Store 6 ideas	PI Connectors 228 ideas
Manageability 45 ideas	PI DataLink 85 ideas
myOSISOFT 77 ideas	PI Developer Technologies 100 ideas
NOC Services 41 ideas	PI Integrators 146 ideas
OSISOFT Cloud Services 100 ideas	PI Interfaces 173 ideas
OSISOFT GitHub 0 ideas	PI Server 830 ideas
OSISOFT Learning 38 ideas	PI Vision 913 ideas
OSISOFT Message Format (OMF) 16 ideas	RtReports 52 ideas
PI Cloud Connect 17 ideas	





➔ Product Booth

- PI System for Critical Operations
- Calculations & Events
- Data Management (AF)
- Data Management (Data Archive)

Partner & Product Expo – Hall H



➔ Tech Talks

Day 3 – 9:00 am
“Effortlessly deploying a PI System
in AWS”

Tech Talk – Congress Hall, K1

Day 3 – 10:45 am
“Effortlessly deploying a PI System
in Azure”

Tech Talk – Congress Hall, K1

Extending the Reach across the Enterprise

3 Extend the reach



Grow
collection,
integration & access
capabilities

Data
Collection



Increase
portfolio of
PI Connectors

Visualization



Enable data
insight

Developer
Technologies



Enable 3rd party
applications
writing data to
PI Systems via
OMF

Seamless
Infrastructure



Support data
needs from
edge to PI
System to cloud

Integration



Enable
business
intelligence
and advanced
analytics

Advanced Analytics for Critical Operations

What's happening?

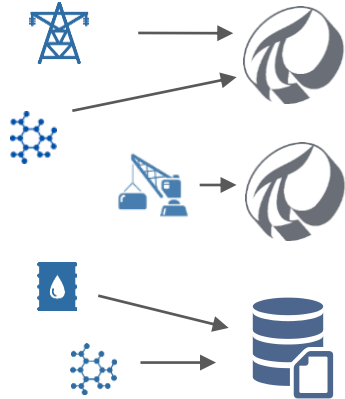
Why is it happening?

What's likely to happen?

How can I make it happen?

Challenge: Lost between OT data & IT tools

OT data



Which cloud platform?

How do I find a data scientist?

How do we scale?

What data do I need?



How do we get started?

IT Tools



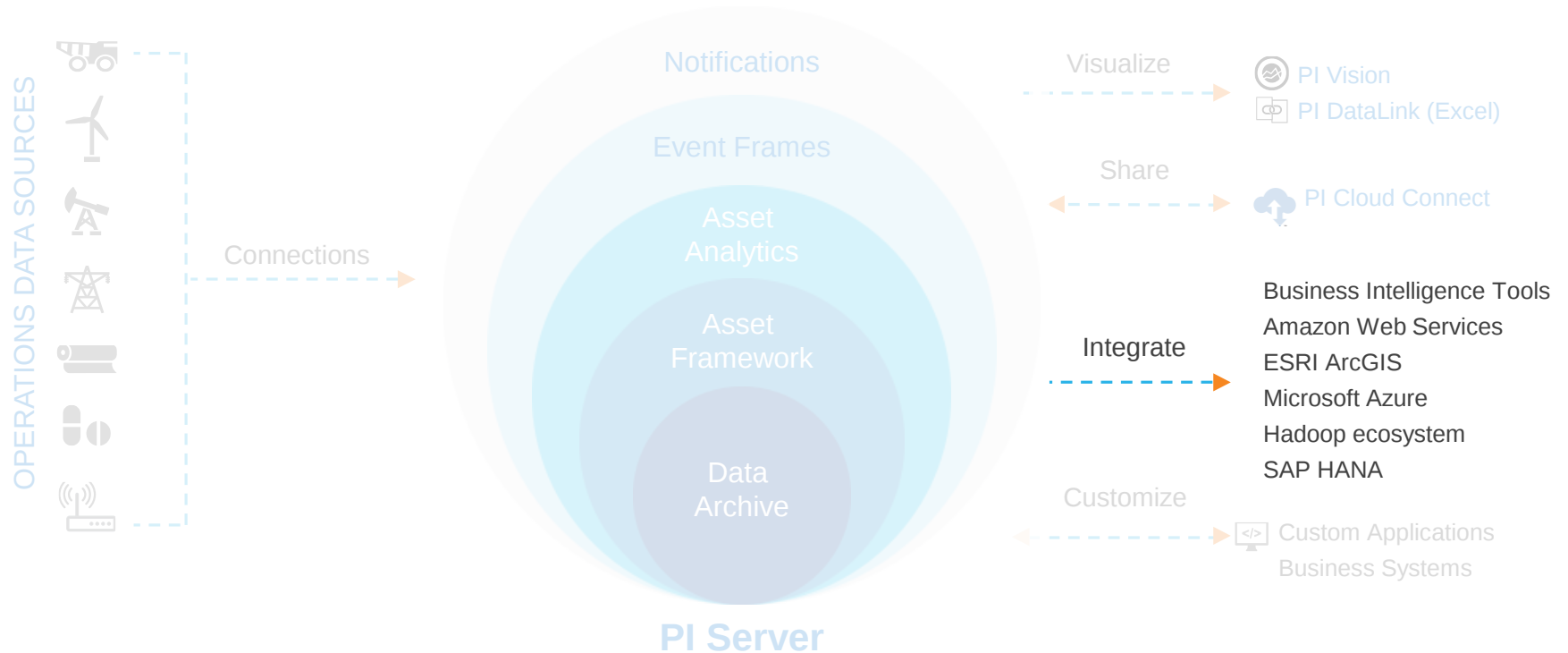
*PI Integrators speed the process that brings trustworthy data
to many unique analytics tools*



Google Cloud



PI System



PI Integrators - 2019

02

EASE
management
of your PI
system

01

INCREASE
the scope and
value of your
data

03

SUPPORT
a seamless
infrastructure

INCREASE Scope & Value of Data

01

Native integration to
Google Cloud Platform:
Storage, BigQuery, Pub/Sub

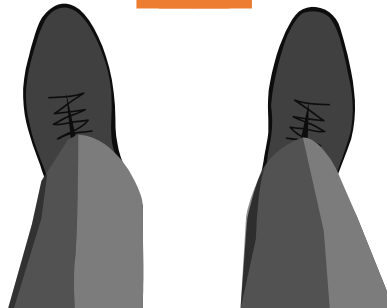
02

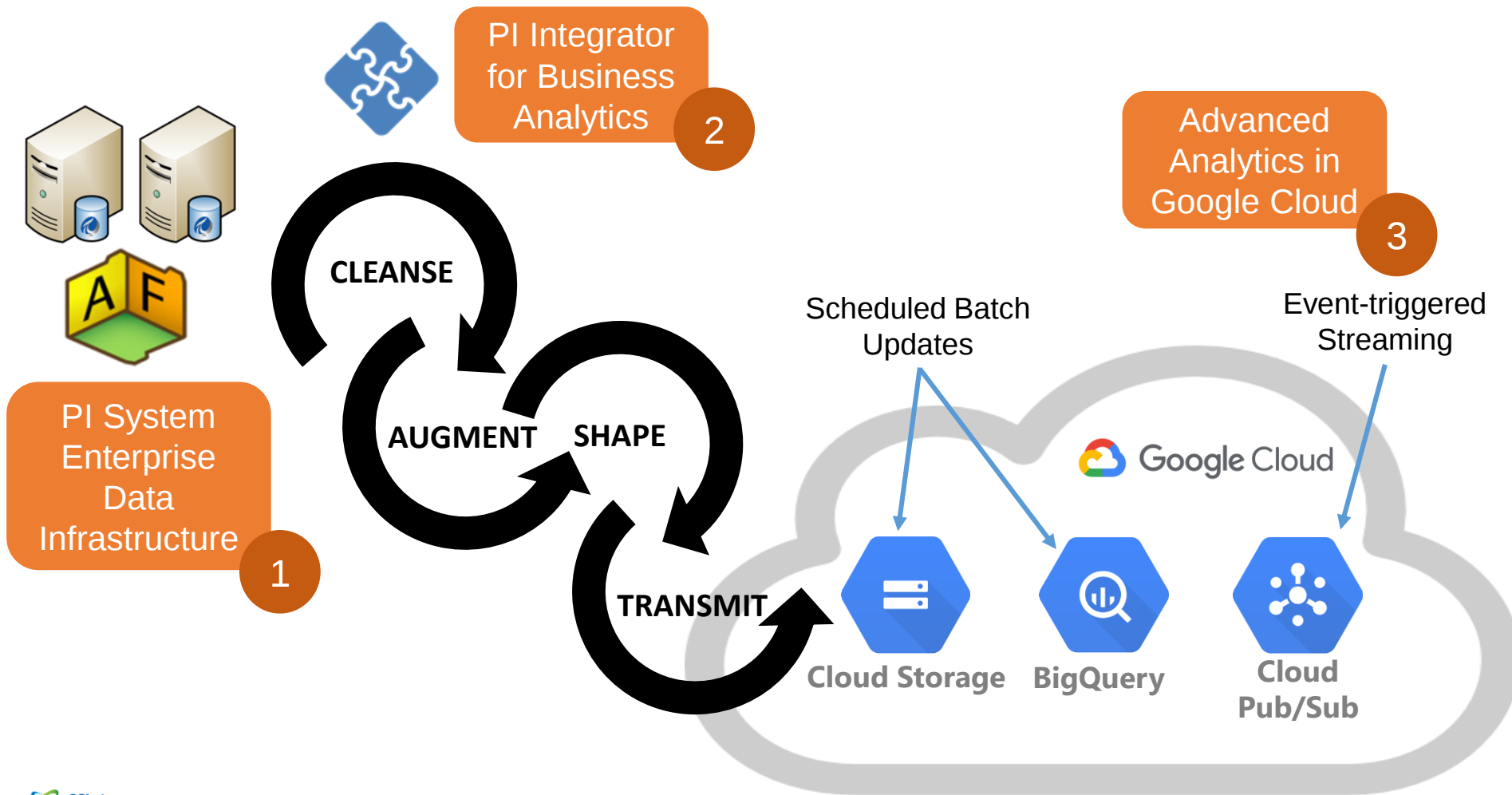
Native integration to
SAP HANA:
ODBC protocol

03

Updates to
existing targets:

- SQL
- HDFS & Apache Hive
- Azure Event Hubs
- Azure IoT Hub



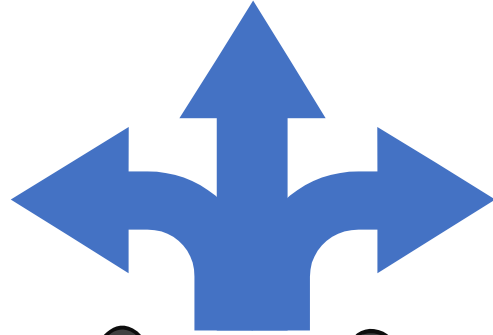


EASE Management of PI Systems

01 Support multiple deployments
with minimal server
requirements

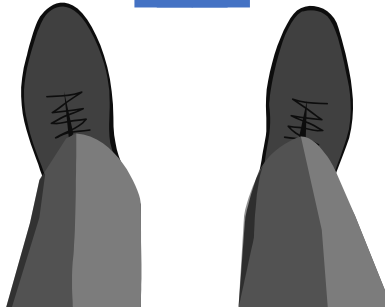
Authentication and
deployment updates

02

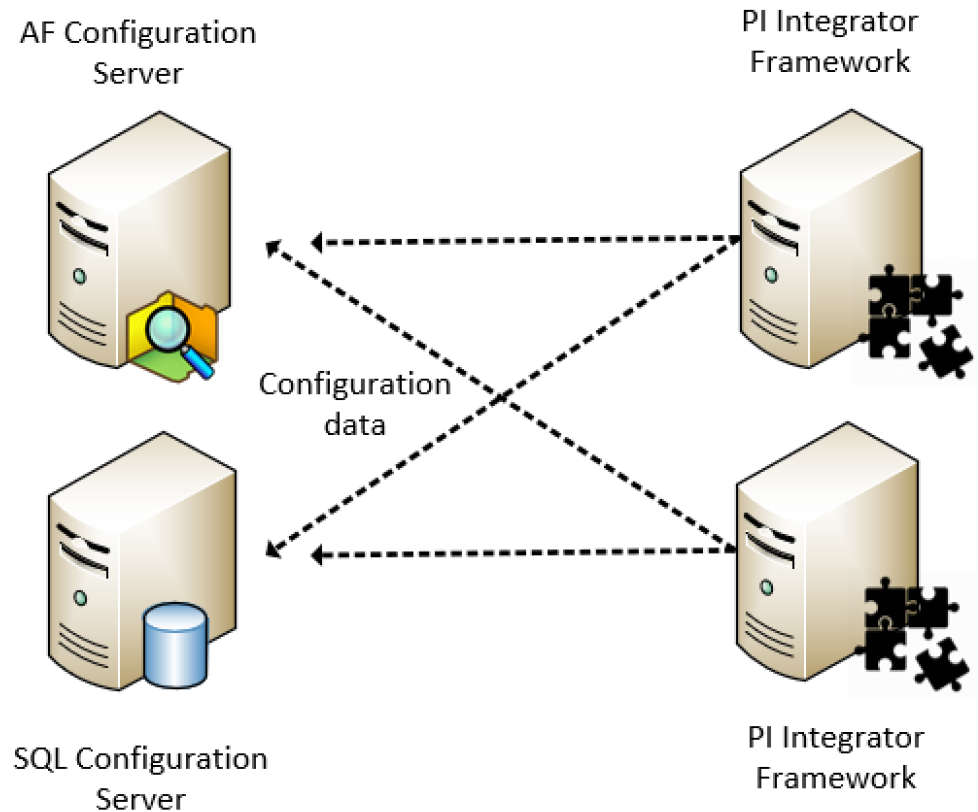


03

Auto-update views
when target
configurations change



Example Architecture of Multiple Deployments

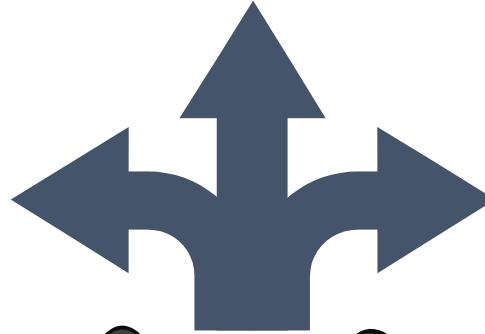


SUPPORT a Seamless Infrastructure

01 Improved reliability of updates to your data syncing to destination

Search multiple levels of AF attributes

02



03

Continuous compatibility testing against partner product software

Partner Products Software Compatibility Testing

OSIsoft Product	Partner	Partner Product	Partner Product Version
PI Integrator for Esri ArcGIS 2017 SP1	Esri	ArcGIS Enterprise & AGOL	10.7.1 & June 2019 Release

PI Integrators – Roadmap



Developing Now

PI Integrator for Business Analytics 2019

Native integration to Google Cloud Storage, Google BigQuery, Google Pub/Sub, and SAP HANA via ODBC standard.

BETA

SAP HANA IoT Integrator by OSIsoft 2017 SP1

Compatibility w/ latest SAP HANA releases, plus bug fixes

PI Integrator for Esri ArcGIS 2017 SP1

Compatibility with the latest releases and updates from Esri products



Considering Next

Updates to Existing Targets

Continuous improvements to currently supported writers based on user feedback.



Researching Future

Support for Modern Authentication

Streamlined Deployment

Last Updated: 2019-09

Roadmap themes: [Manageable Systems](#) | [Seamless Infrastructure](#) | [Increased Value & Scope of Data](#)

PI Integrators



Available Today

Native Integration

Integrate to AWS, Azure, Hadoop, Esri ArcGIS, SAP HANA

Easy Workflows

Prepare operational data shapes with a drag-and-drop UI

Data Governance

Schema registry with Kafka and Confluent Avro support

Diverse Destinations

Integrate to messaging hubs, data lakes, data warehouses, & BI tools

Iterative Workflows

Modify or start from existing data shapes

Authoritative Data

Change data capture mechanisms for Asset Views

Geographical Insights

Rewind through operational data while viewing an Esri ArcGIS map

Enhanced Filters

Organize data by Event Frame & Asset Framework templates

Performance Improvements

Distributed processing within a node to handle large workloads

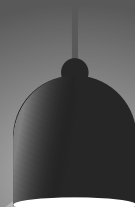
Last Updated: 2019-09



➞ Product Booth

Data Science
Enablement

*Partner and Product
Expo – Hall H*



➞ Customer Talks

PIVOT: Productivity Improvement
with operational Technology
Lonza – Food & Beverage

Impacts across the Organization:
Uniper's Digitization Journey with
OSIsoft EA deployment
Uniper – Power Generation



➞ Product Labs

Introduction to Data Science
Enablement with OSIsoft

Wednesday – 1:45pm – GT:J1

Essential Data Preparation Skills for
using PI System data in Analytics

Thursday – 1:00pm – GT:J2

Communicate with OSIsoft Product Managers



<https://feedback.osisoft.com>

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Contact Information



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Questions?

Please wait for
the **microphone**

State your
name & company



Please remember to...

Complete Survey!

Navigate to this session in
mobile agenda for survey

