PI System for Critical Operations

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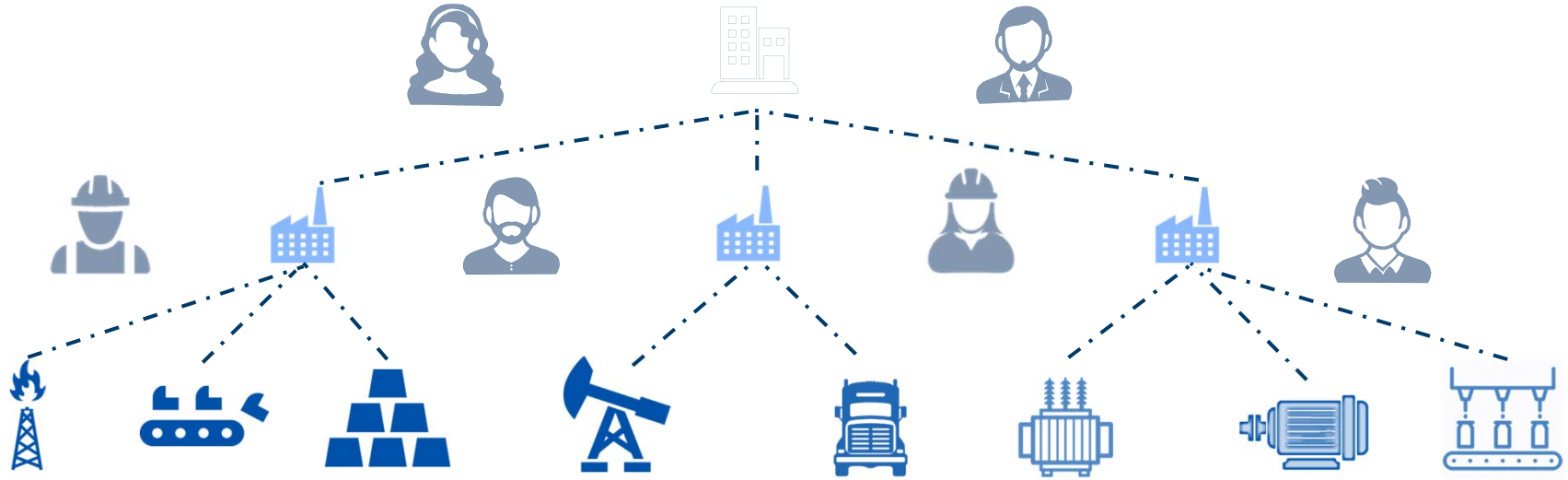
Seamless Infrastructure

The PI System: Enhance & Deliver for Operations

- The System of Record
- Empowering operational experts



Keeping the PI System Secure & Reliable

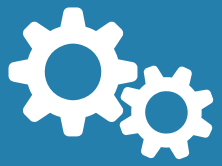
- Complex architecture
- Multiple unique projects
- 3rd party applications
- Monthly patching/reboots
- Exhaustive testing & validation

Focus Areas

Harden
the core

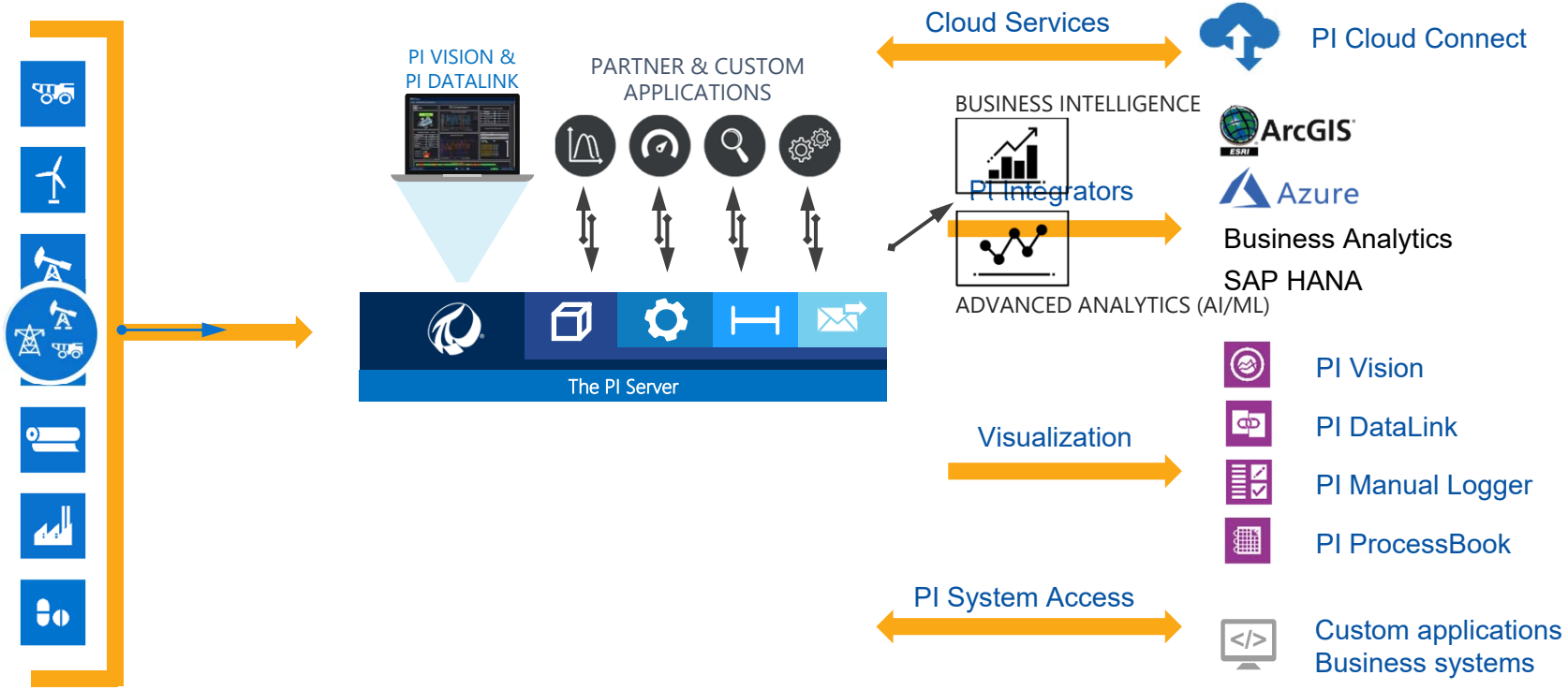
Focus on **security** & **reliability** of data infrastructure

Ease
the management



Bring more **manageability** & **control** to deployments

PI System



Data is Everywhere

Times-series data stored and available forever

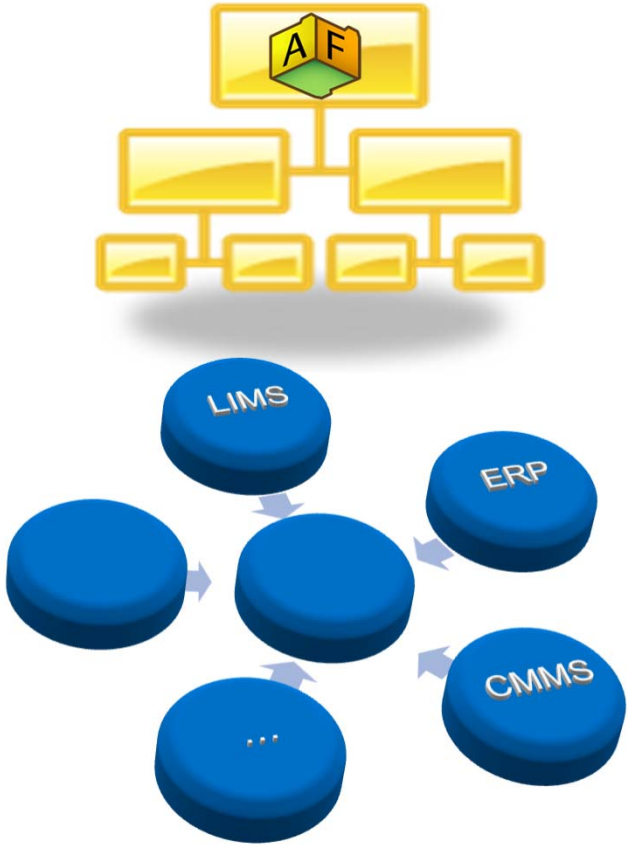
Storage schema optimized for maximum throughput

Millions of data streams supported per instance

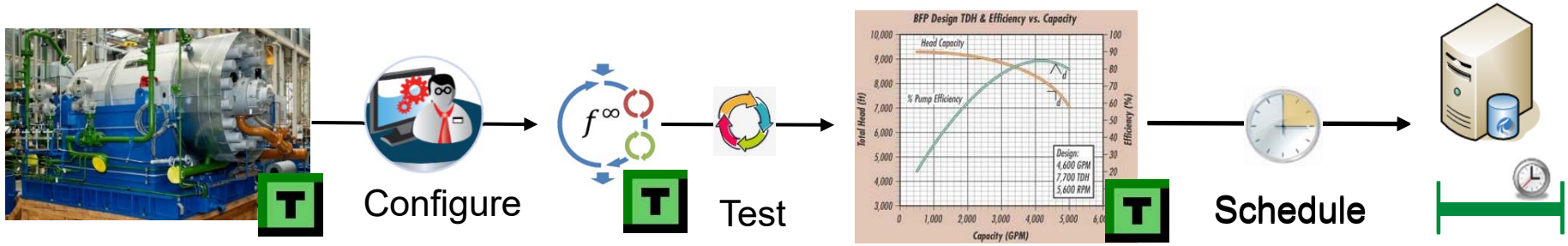
All of this with minimal maintenance needs

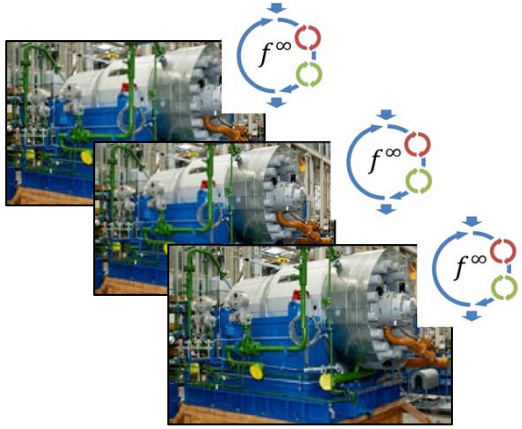
Asset Context

- Organize your assets data in a hierarchical, scalable, secure, and extensible database
- Model data from different PI Servers
- Relate non time-series data sources
- Integrate with analyses and notifications tools

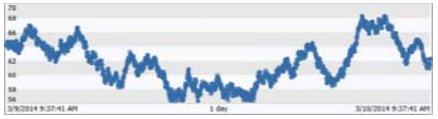


Streaming Analytics

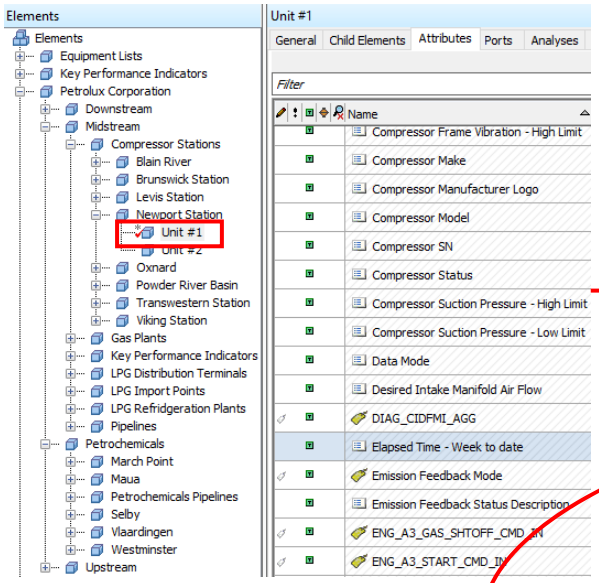


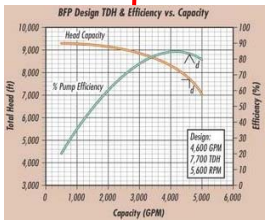


Backfill/Recalculate



Solve Meaningful Problems



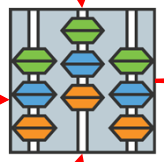


Engineering

Context

Recalculation

Domain Expertise



Capture important events

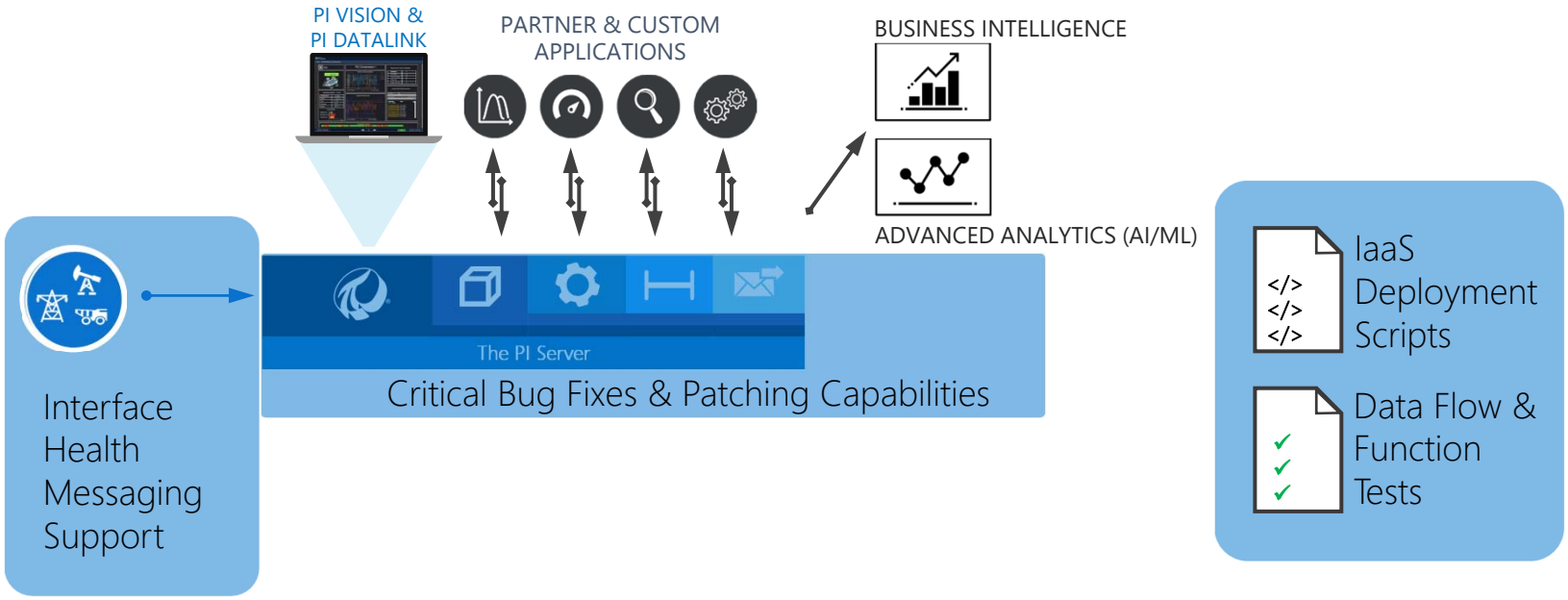
Data quality, data cleansing

Situational Awareness

Notifications

KPI and Reports

PI Server 2018 SP2



PI Server 2018 SP3+

Critical bug fixes

Improve data integrity

Better handle ungraceful shutdowns and abnormal operations

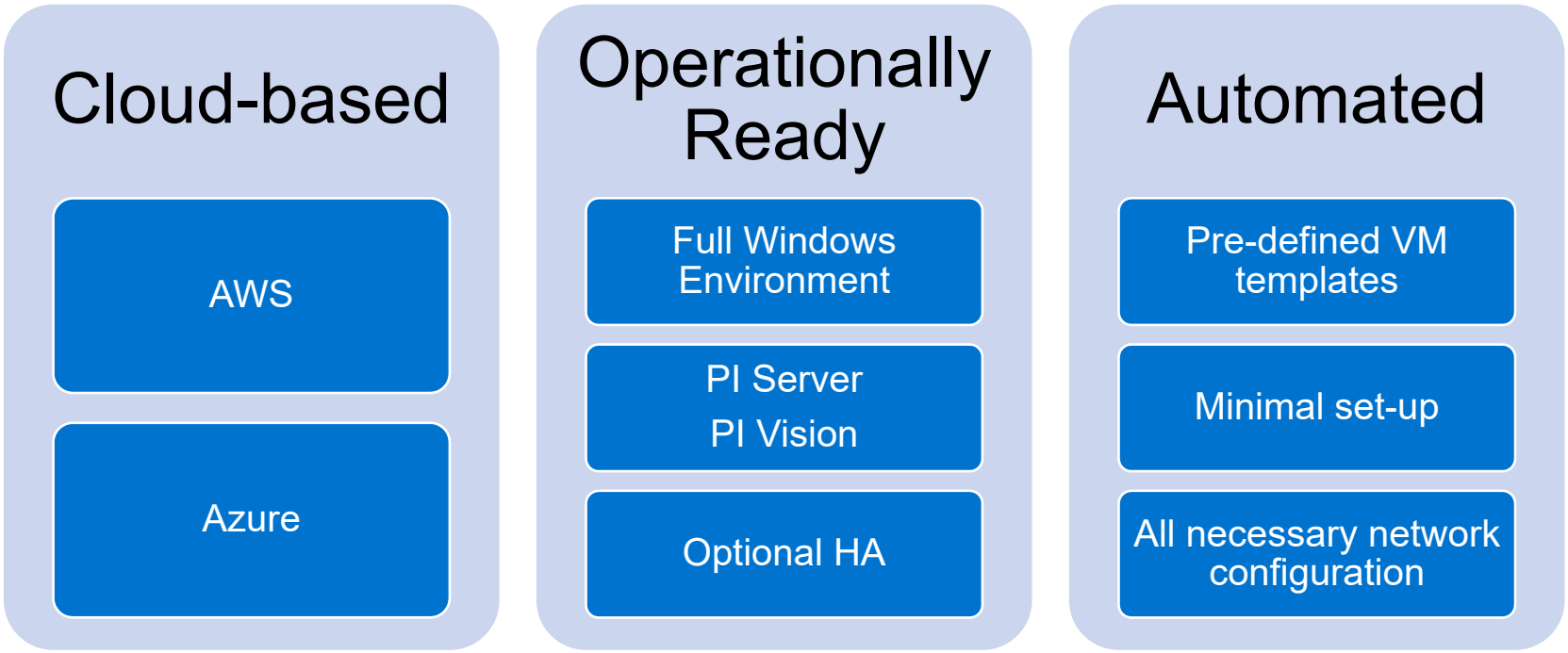
Security Improvements

Patching capabilities

Ease of adoption

Focus on reliability and manageability

PI System Deployment Samples



Portland General Electric

Diverse generation mix

16 major generation plants providing a cleaner energy future

First in the nation to transmit electricity long distance 14 miles (1889)

PGE is Oregon's largest utility

We have the #1 voluntary renewable program in the country

We lead Oregon and our customers to a clean energy future

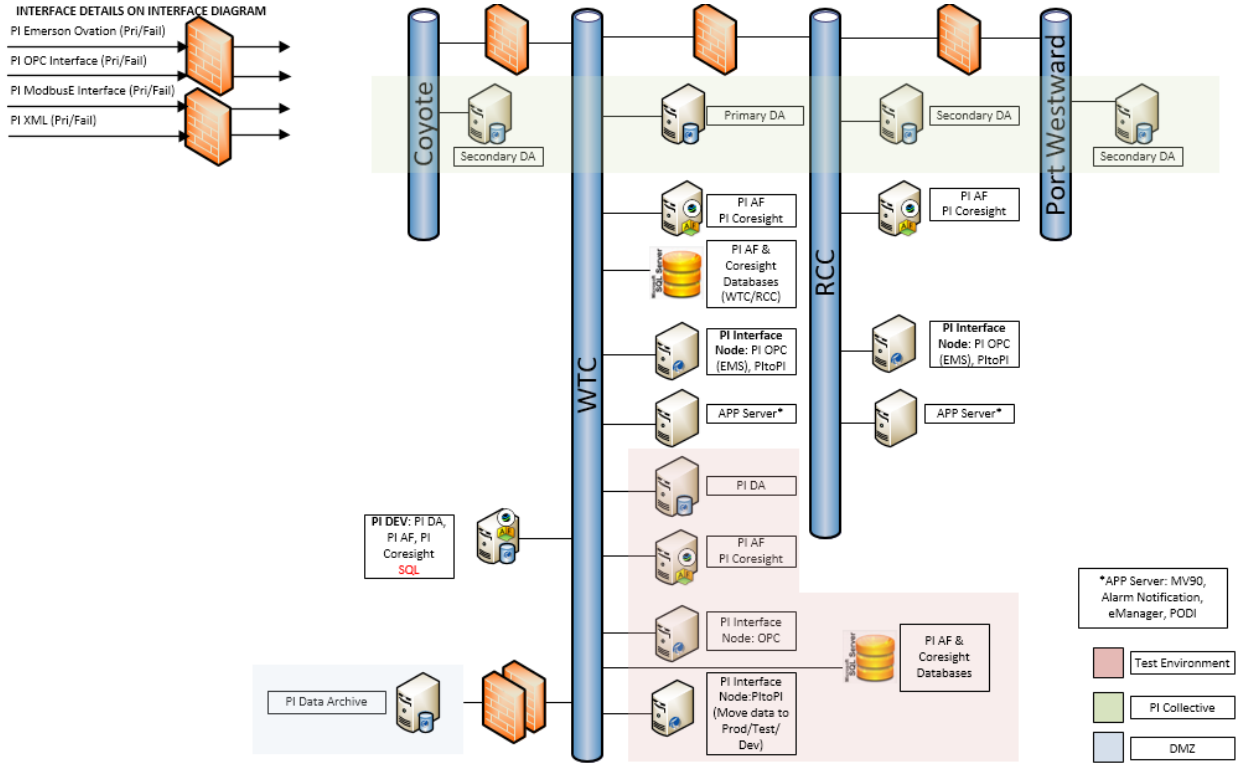
Our generation facility portfolio has a capacity of 3,837 MW

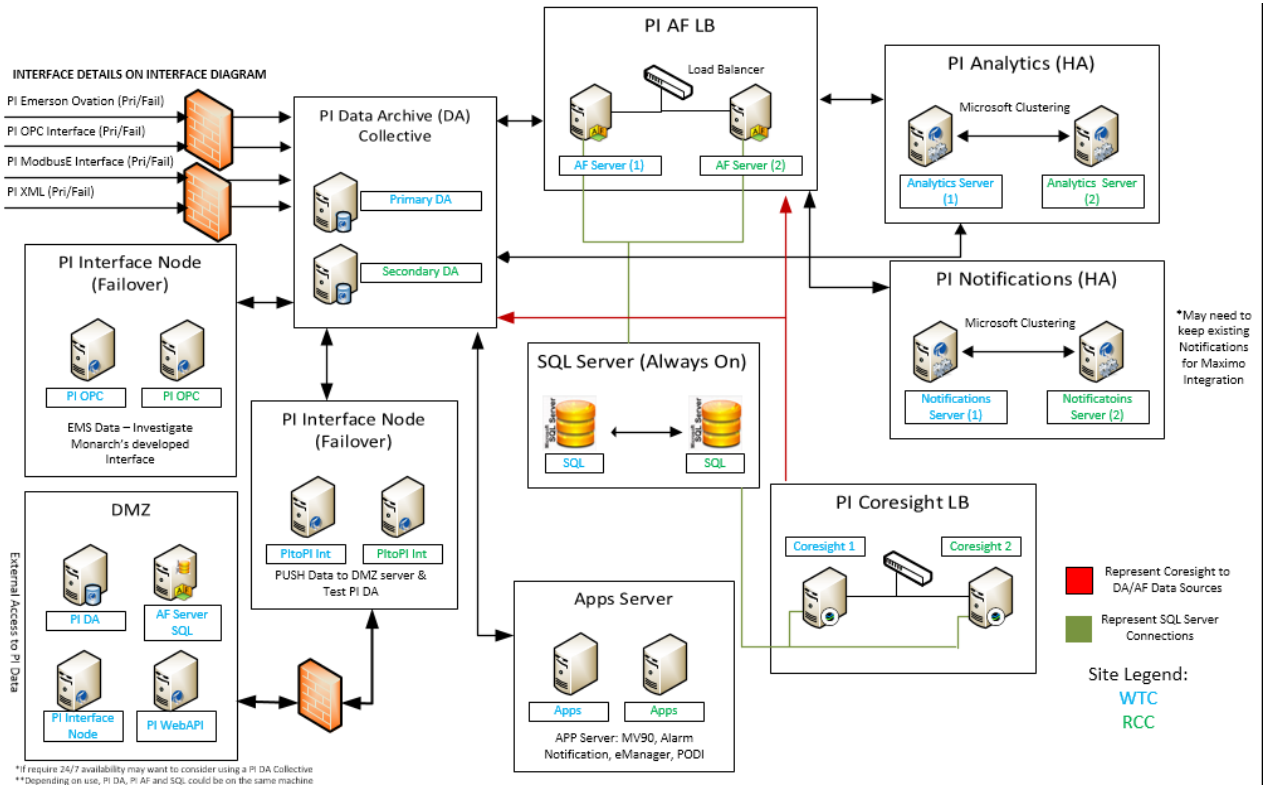
Recently joined California ISO EIM

PGE

Our PI System Architecture Journey

Portland General Electric





Business Use Cases

Portland General Electric

Wind Forecasts R/W

CHALLENGES

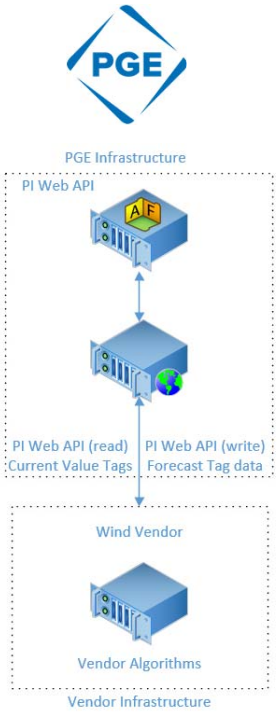
- Implement a secure method of two-way data exchange with our wind vendors
- Sharing files via traditional SFTP introduced latency

SOLUTION

- Create an AF Hierarchy in the vendor DMZ
- Expose PI Web API for Whitelisted IPs
- GET and POST for Read and Write

BENEFITS

- Substantial reduction of lag and improved accuracy of the forecast
- Configuration based rather than custom development saves time and money



> It's important to reduce the lag between actuals and the forecasts we send to CAISO so that the DOTs we receive from CAISO most closely follow our wind generation. The PI Web API solution substantially reduces our lag and improves the accuracy of our forecast.
>
> Charles Phillips, Meteorologist, PGE

Hydro Regulatory Reporting

CHALLENGES

- Timely regulatory reporting needs for Hydro Projects Breaker Cycling
- Existing solution cumbersome and time consuming, needed lot of manual work

SOLUTION

- Create an AF Hierarchy and setup Event Frames to capture Breaker Cycling events
- Setup a lightweight report in Excel that pulls the Event Frames

BENEFITS

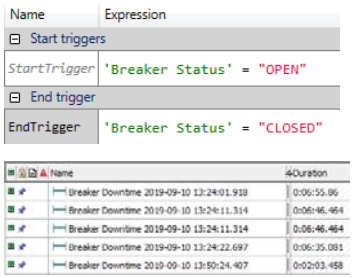
- Time savings of at least 24 labor hours every month
- Accurate regulatory reporting needing lesser manual intervention
- Cost savings

PGE

2015

CLICK HERE
To DOWNLOAD PI Data
And REFRESH Pivot Tables

2018



> About 5 years ago we started retrieving Breaker Open/Closed Status dates/times through the "raw" PI Data application Excel add-in. The Excel file was over 45 MB requiring over a minute to load the file and over 2 minutes to refresh the data. About 2 years ago we transitioned to PI Event Frames. This new method has considerably reduced the size of the Excel file with load and refresh times of less than 15 seconds. This has saved the Operators at the Hydro Projects about a 12 hours per project per month of verification & entry.

Ed Pinkos, Sr. Financial and Contract Administrator, PGE

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PI Server – Roadmap

Developing Now

Improved Reliability
Focusing on bug fixes and quality updates.

Security Improvements
Lockstep with industry best practices

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

Support for Modern Authentication
Alternatives beyond Active Directory

Researching Future

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

Last Updated: 2020-03

Roadmap themes: Manageable Systems | Seamless Infrastructure | Increased Value & Scope of Data

Communicate with OSIsoft Product Managers

https://feedback.osisoft.com

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

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