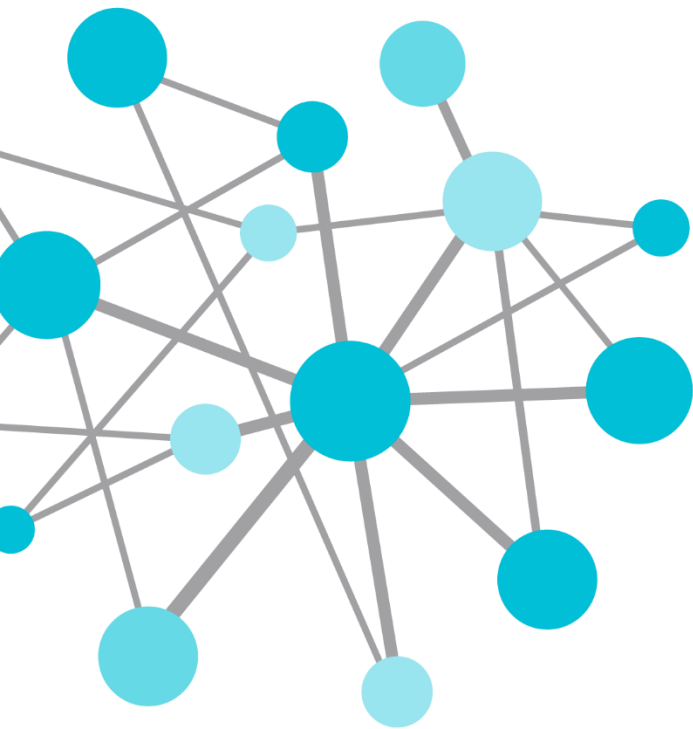


Enhanced Decision-Making Through Integration of Real-time and Business Data



Presented by

Ernest Garner
Tara Willis



Chevron – GOM Business Unit

Safety Share



USB drives are portable, convenient and easy to use to download and upload documents and files to computers, devices, and printers. Unfortunately, USB drives are a security risk if not handled properly.



Tips:

- ♦ Build awareness by teaching users about USB acceptable use, Virus scanning, and security controls in place to protect the information system and network.
- ♦ Practice safe information protection behaviors when using a USB drive or external hard drives by quickly executing a virus scan after you transfer files to your device. Additionally, before using USB drives on computers execute a virus scan each and every time.
- ♦ Prohibiting the use of all removable media is not required; however, it is possible to disable the USB Mass Storage service in the Microsoft Windows Registry without disabling the USB ports. Set the USBSTOR "Start" value to "4" locally or through group policy where possible.

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Who we are...

- Overview
 - Largest leaseholder in the Gulf of Mexico
 - Over 500 structures spanning from Corpus Christi, TX to Mobile, AL
 - Onshore facilities in Louisiana and Alabama
 - Main headquarters in Covington, LA
 - 6 shore bases
- Process Control Network Overview
 - Over 600 PCN servers, workstations and support machines
 - Over 650 Control Systems
 - Over 30 PCN Applications and 170 Utilities
 - 25 historical databases
 - 7 Firewalls, 150 routers and switches, 220 wireless radios

Chevron – Gulf of Mexico Business Unit Enhanced PI System Project Background

- Challenges with existing custom applications
 - Required significant development support
 - Difficult to leverage functionality to other assets (not scalable)
 - PI System functionality was no longer supported in newer releases
 - Performance was slow
- Identified Gaps
 - Unable to deliver new solutions without a stable infrastructure
 - Minimal standard tools and governance
 - Limited ability to support new assets
- Opportunities Identified
 - Stable real-time data structure needed
 - Easier real-time data access for the user community
 - Standard tools and systems for new solutions

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PI System Data Granularity Issues

- Vendor historians unable to feed high frequency data to PI Data Archive. Separate projects were identified to address this limitation.



Historical data in Vendor
5 seconds granularity

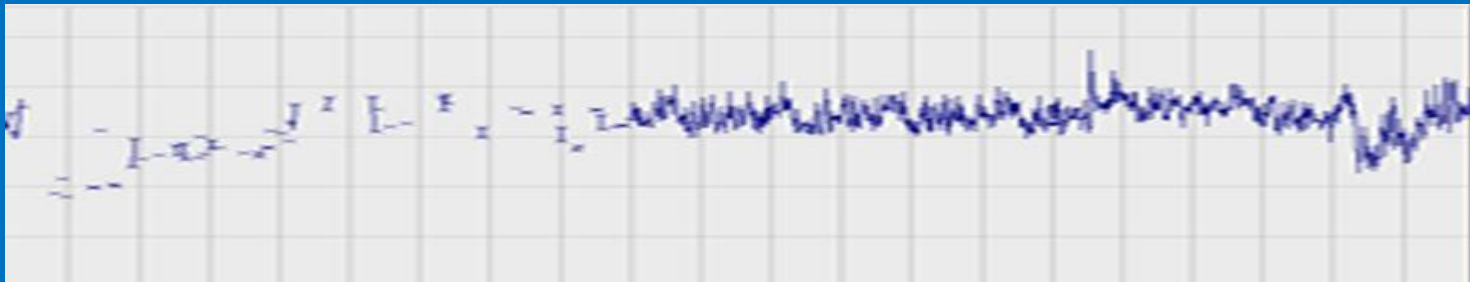
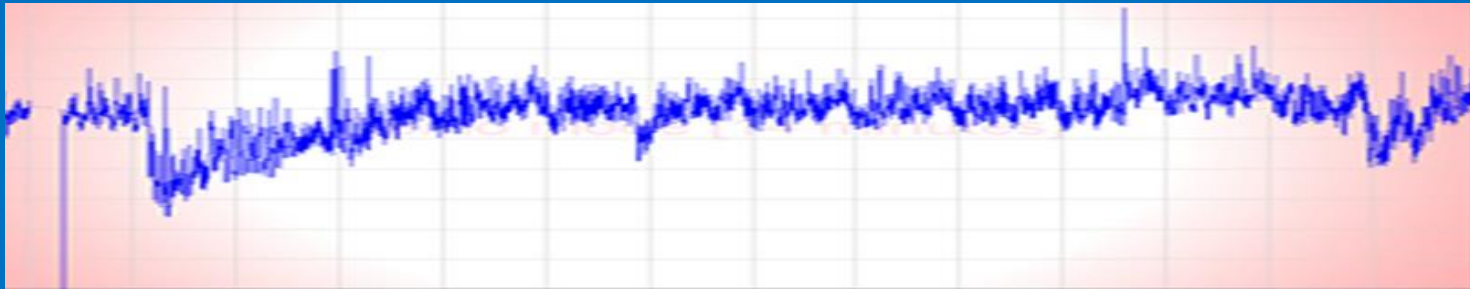


Historical data
in PI Data Archive
60 seconds granularity

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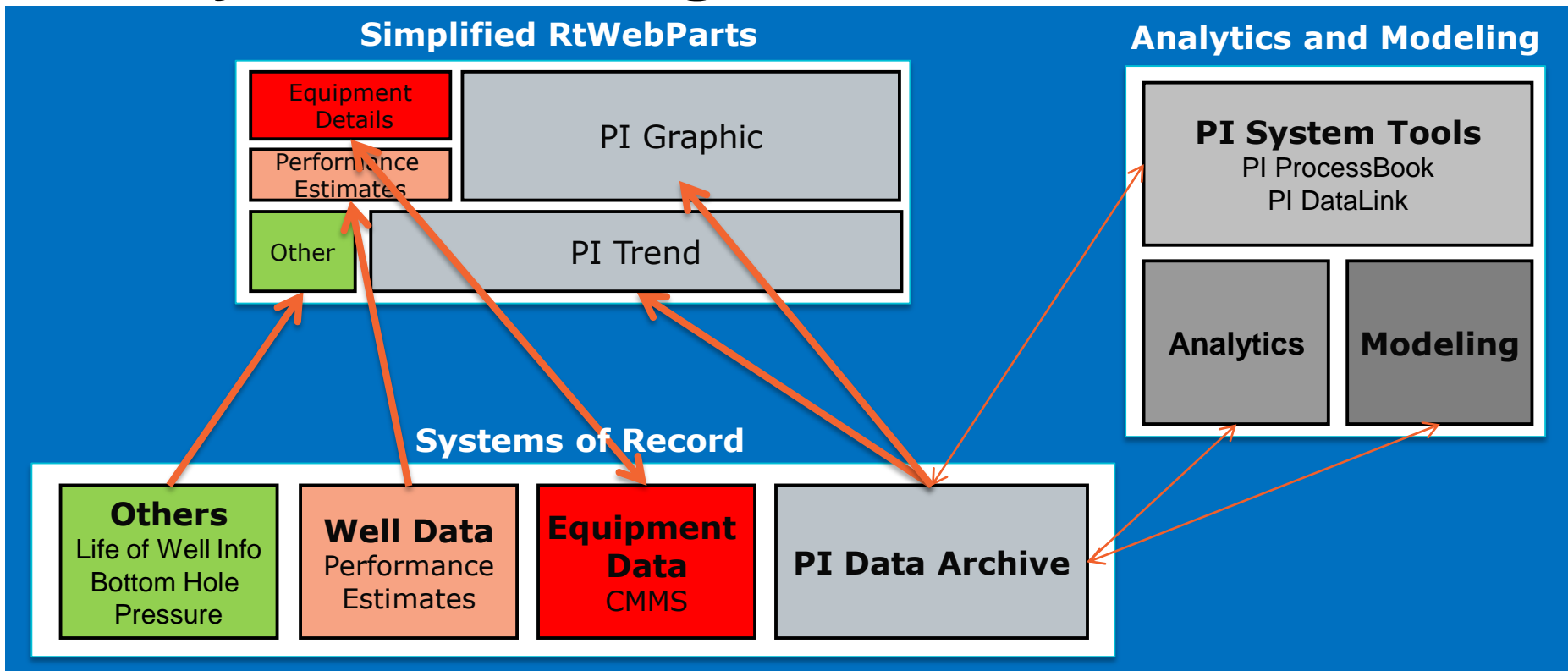
PI System Data Gap Issues

- Vendor historians unable to backfill data to PI Data Archive after network outage. Separate projects were identified to address this limitation in the PI System infrastructure.



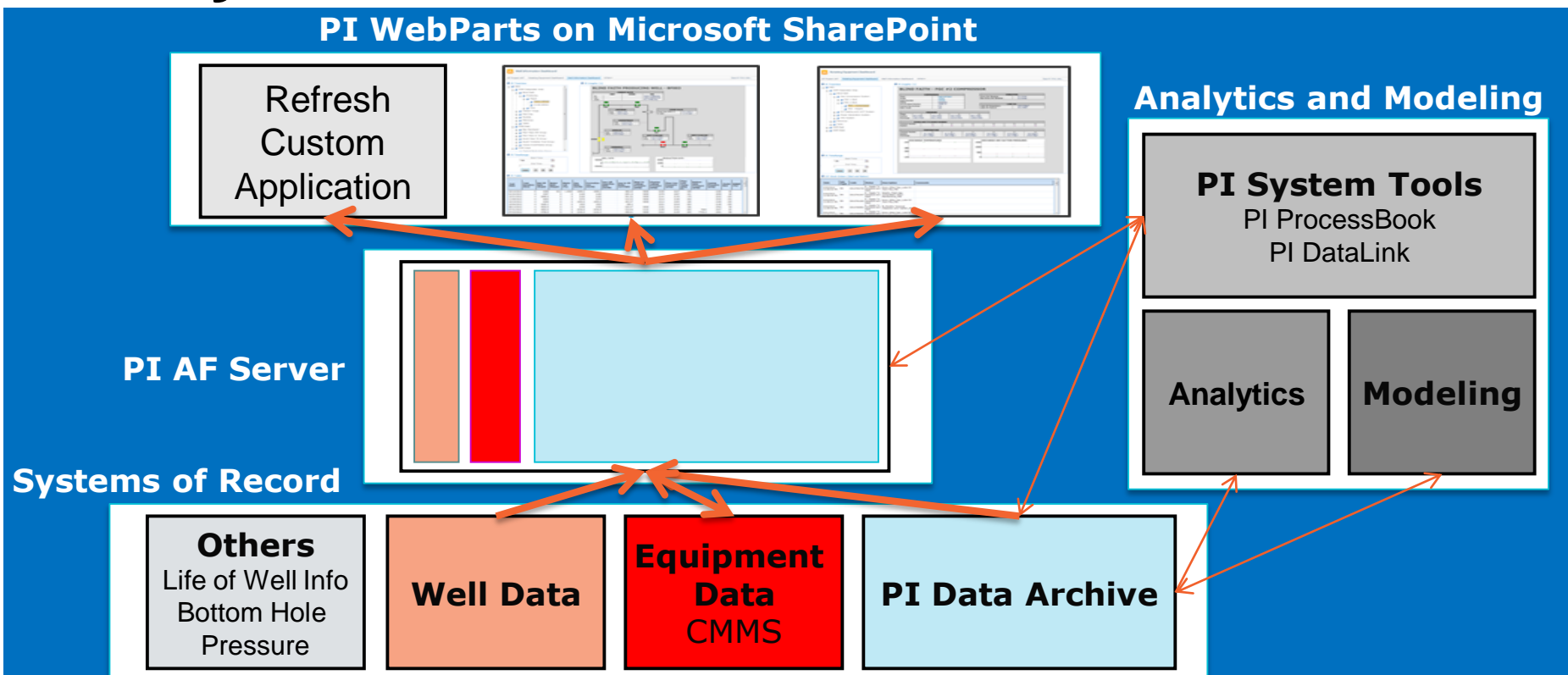
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PI System Existing Solutions



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PI System 2010 Solution



Chevron – Gulf of Mexico Business Unit Governance and Sustainability

- Governance Process
 - To ensure ongoing data integrity, Chevron implemented a governance process that defined roles, responsibilities and out lined process and procedures to enable timely access to data
- Standards documentation
 - Tag Standard
 - Element Standard
 - Graphic Standard
 - Performance Equation Standard
 - Templates
- Developed detailed administration manuals for the PI System
 - Step by Step Installation Manual
 - Disaster Recovery Protocol
 - Monitoring Program
 - Recommended Operations and Maintenance

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Tag Standards

- Comprehensive tag standard
 - Common tag names and descriptors
 - Over 1200 attributes defined
- Applied to all tags in central PI Server
- Enable utilization of templates in PI AF server for common wells and equipment
- Enable users to exploit element relative displays in Microsoft SharePoint and PI ProcessBook
- Minimize confusion to user community of tag naming conventions in the PI Data Archive and PI AF
- Retain tag name in InstrumentTag attribute to reference source in control system

[Asset Code]_[Well Name]_[Medium]_[Tag Bits].[Type Code]

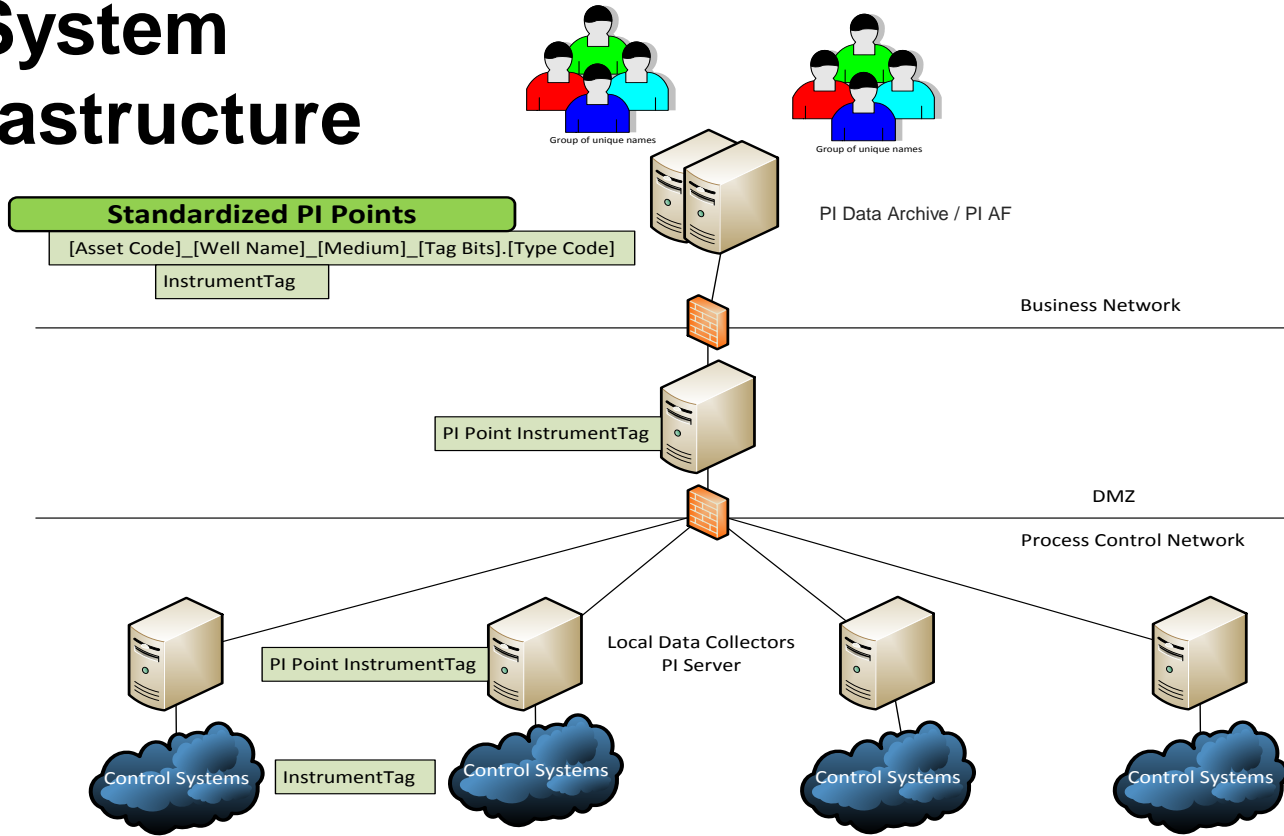
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PI System Infrastructure



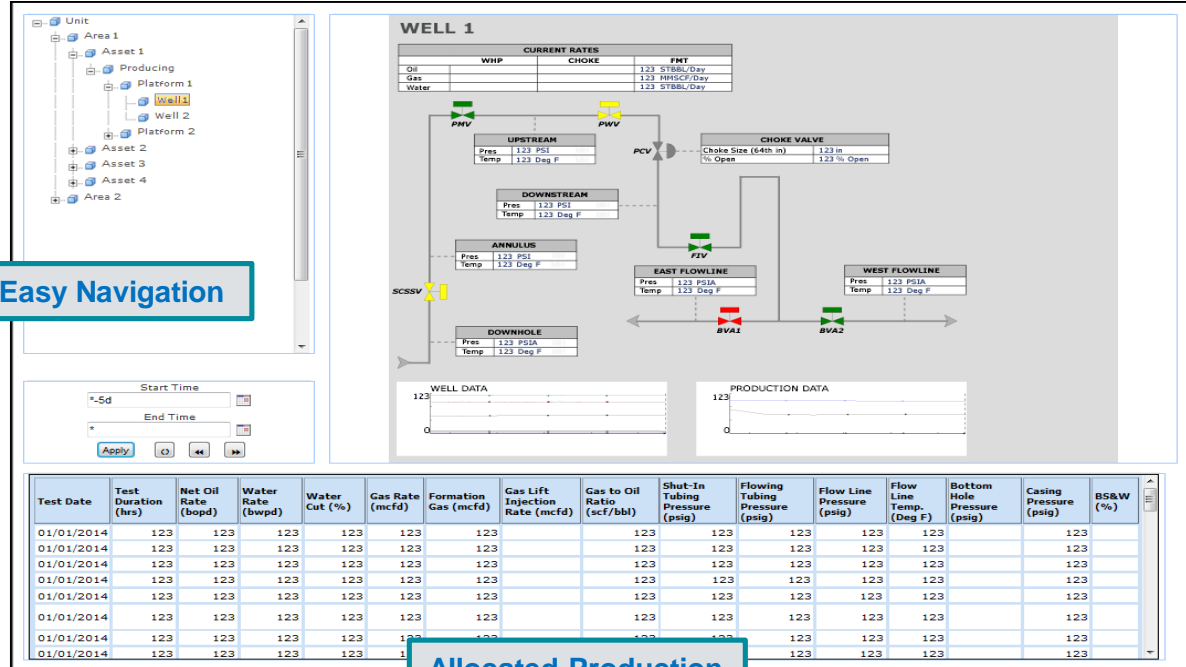
Group of unique names

Group of unique names



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Integrating Key Well Data with the PI System



Easy Navigation

Allocated Production
Well Tests

Project Benefits

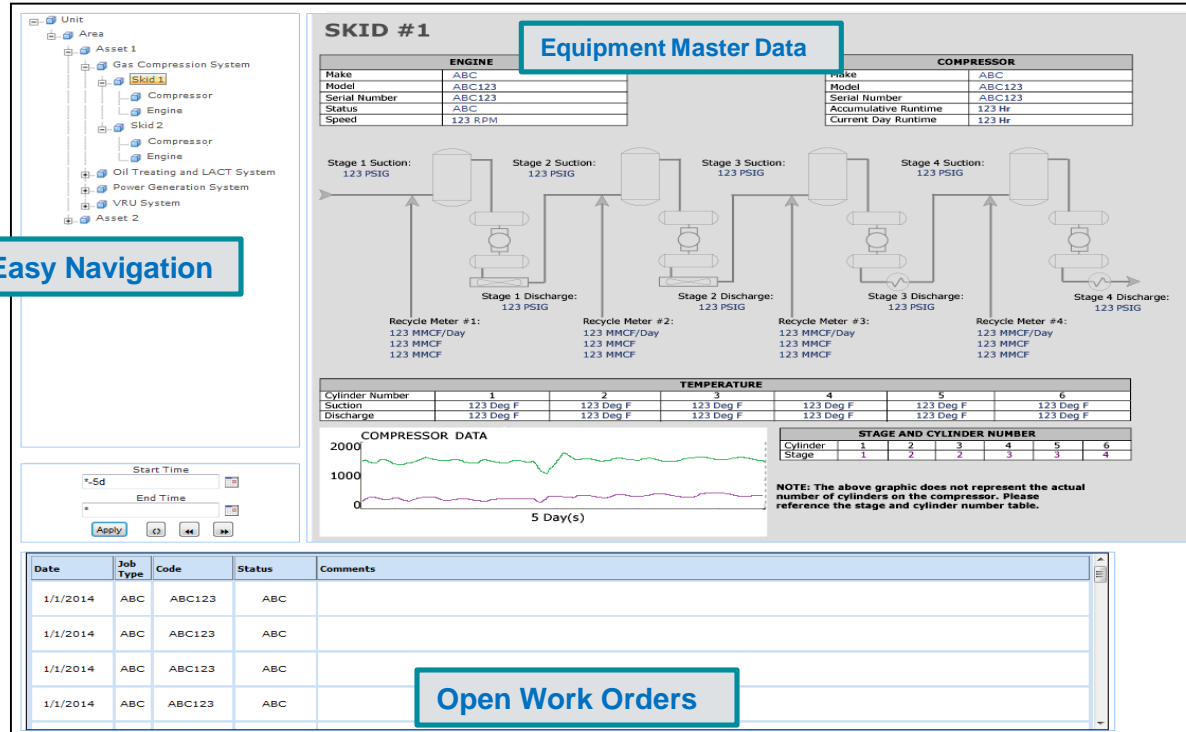
- Consistent, Reliable Real-time Data
- Standard Tags
- Graphic Templates
- Easy Navigation
- Allocated Production
- Well Tests
- Sustainable Support Model

Deployed Well Statistics

- Over 700 Wells

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Integrating Key Equipment with the PI System



Project Benefits

- Consistent, Reliable Real-time Data
- Standard Tags
- Graphic Templates
- Calculations
- Easy Navigation
- Equipment Master Data
- Open Work Orders
- Sustainable Support Model

Deployed Equipment Statistics

- Over 180 Compressors, Pumps, Generators

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Best Practices and Lessons Learned

- Best Practices
 - Significant engagement with the user community and PI System administrators to design infrastructure and develop standards and governance
 - Extensive training implemented on several levels for a large user community
 - Standardized PI Tags has reduced the effort for future applications to access PI System data
- Lesson Learned
 - Latency issues between PI AF and SharePoint. Locate systems in same location if possible
 - Significant time and resources needed to properly identify and standardize data from control systems
 - PI WebParts needs to have its own dedicated farm and does not work well in shared SharePoint environments
 - PI System administrators need additional training in utilizing PI AF and PI WebParts
 - Transactional Data from other systems may need to be cached to improve data updates to user community

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Current and Future Projects

- PI System Infrastructure Upgrades (Ongoing)
 - Improving Data Gaps and Granularity by connecting to the Control Systems via vendor protocols
 - System Health monitoring
- PI System Data Additions (Ongoing)
 - Data gathering initiative to capture complete set of data from assets
- New PI System Workflows (Ongoing)
 - Identified several business driven initiatives to empower the user community with the new tool sets
- PI System Software Upgrade (Future)
 - Develop a Plan to Upgrade to new PI System versions
- PI Coresight (Future)
 - Analyze use cases for business

Ernest Garner

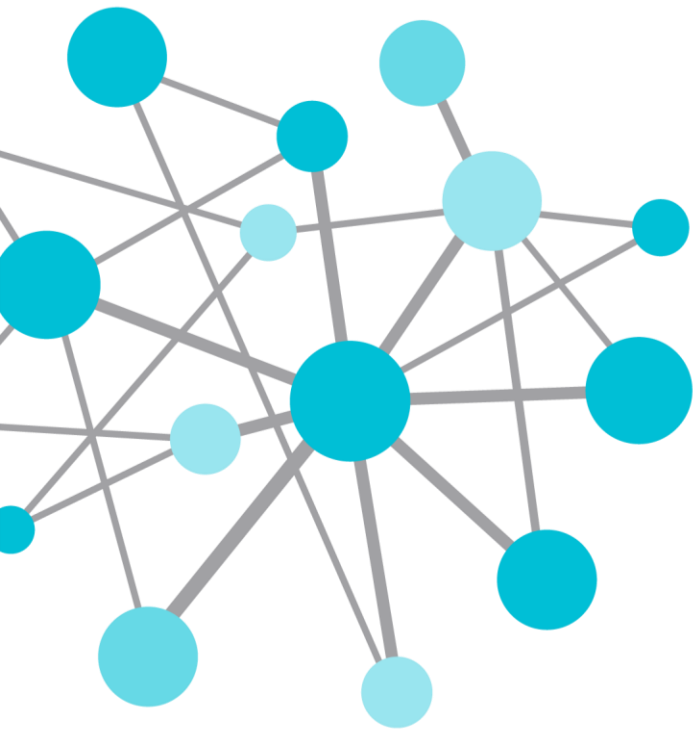
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Thank You!



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