AVEVA PI WORLD

Gasmed: Natural gas measurement intelligence at YPF

A Natural Gas Measurement Intelligence and real-time decision support solution

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YPF S.A.

Integrated Energy Company

- Founded in 1922
- Oil & Gas Exploration, Production, Transportation, Refining
- Integrated: Upstream, Midstream, Downstream
- Electric Power Generation
- 20,000 employees

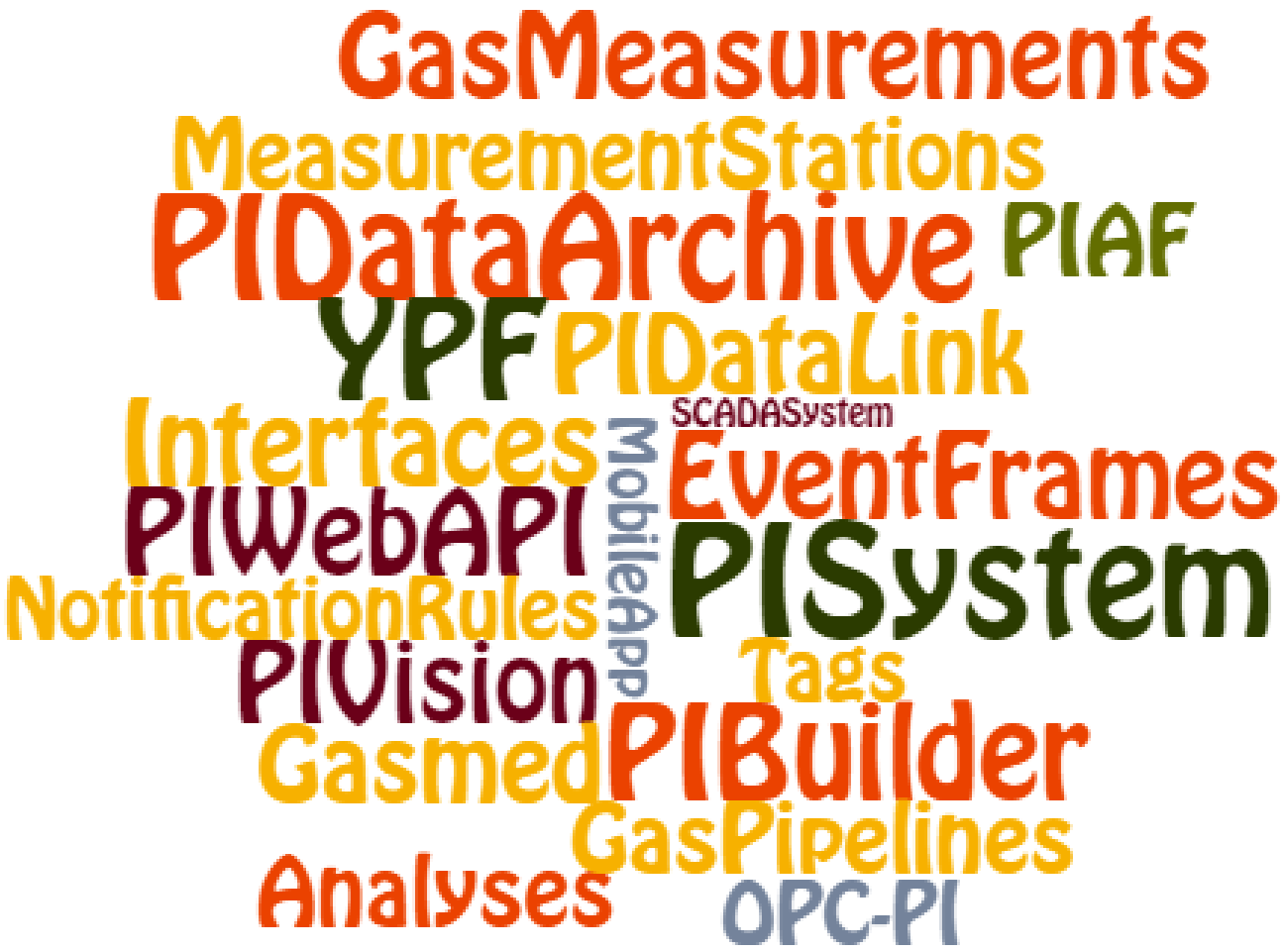
- https://www.ypf.com/

YPF main headquarters located in Buenos Aires City

OIL & GAS

Topics

- The Business Challenge
- The Solution – Gasmed
- Results - Maintenance & Business Impact
- Next Steps
- Summary



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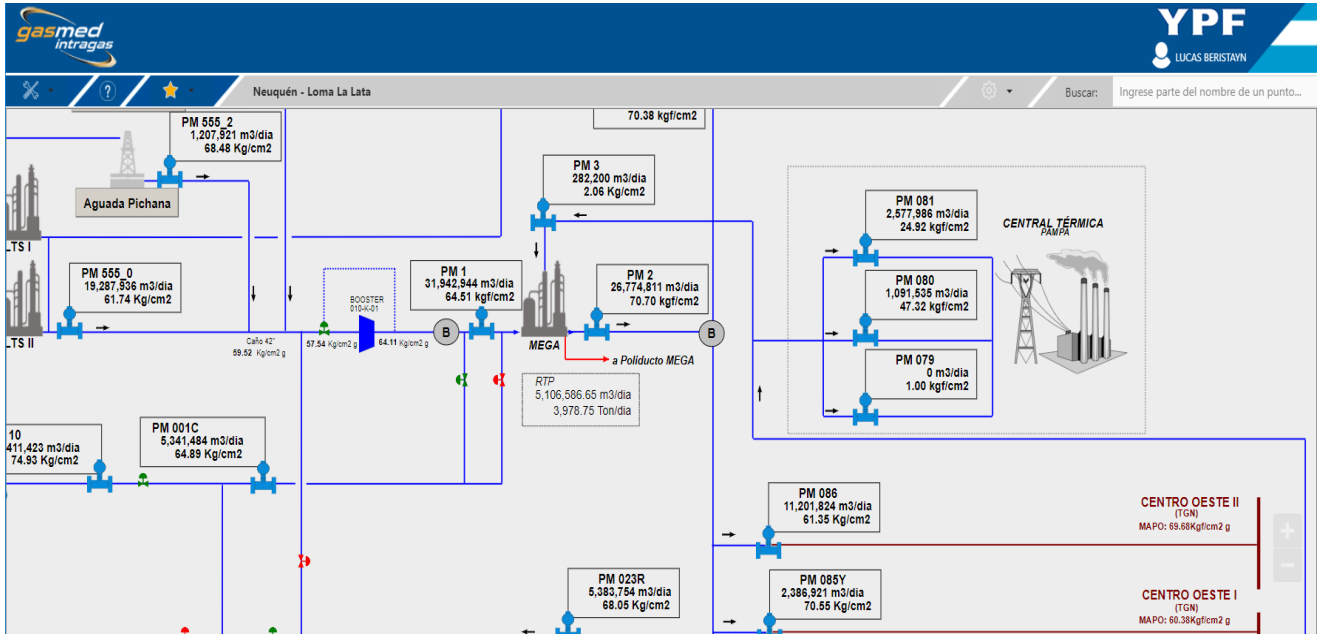
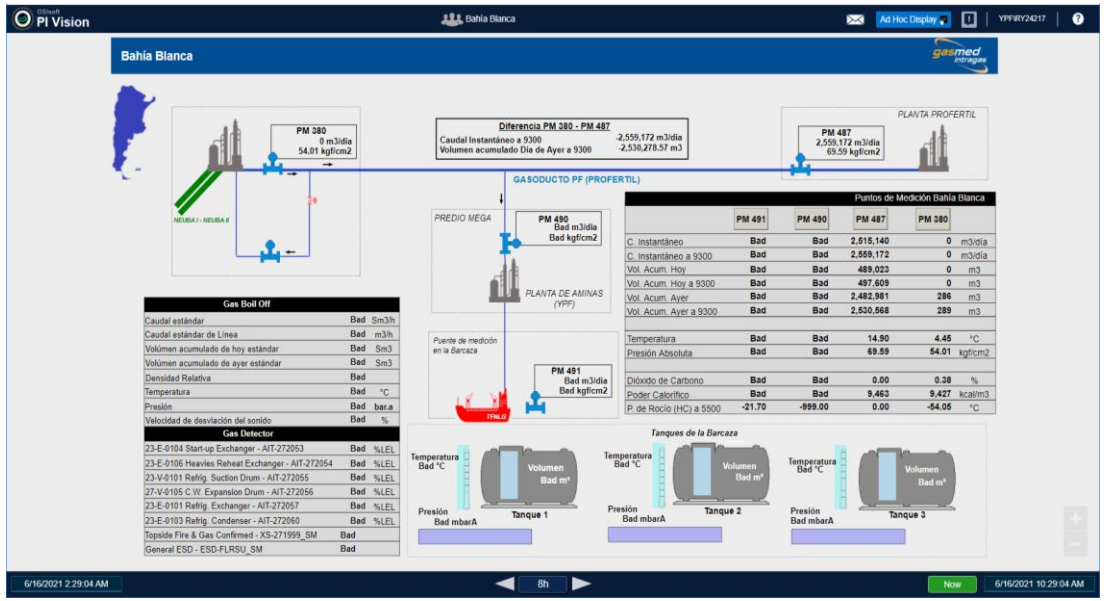
The Business Challenge

Need for Operational Intelligence

- Very large and dispersed natural gas system with over 600+ meters, 10000+ miles of pipeline, and 300+ of gas plants gathering and processing over 1 billion ft3 of gas per day.
- Portfolio of old applications that were failing to meet growing needs of the organization
- Expand and preserve the amount of gas measurement data and information available
- Turn the gas measurement data into self-serve intelligence that would enhance our decision support capabilities leveraging the PI System and our Enterprise Agreement (EA) signed in 2018
- Share this gas measurement intelligence broadly across the company





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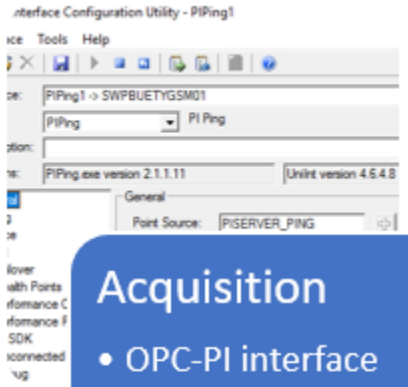
The Solution - Gasmed

Supervision and self-service information, intelligence, and decision support Solution

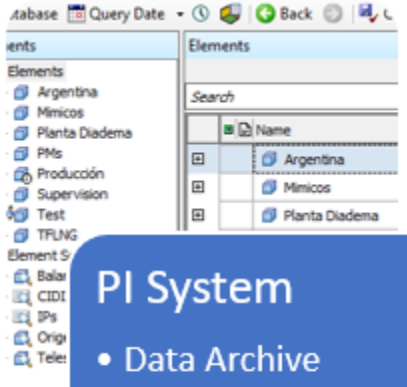
Measuring Station

- Flow meters
- Chromatographs
- Hygrometers



Acquisition

- OPC-PI interface
- Buffering



PI System

- Data Archive
- PI AF

Users

- PI Vision
- PI Web API
- Web app
- Mobile app
- PI to PI

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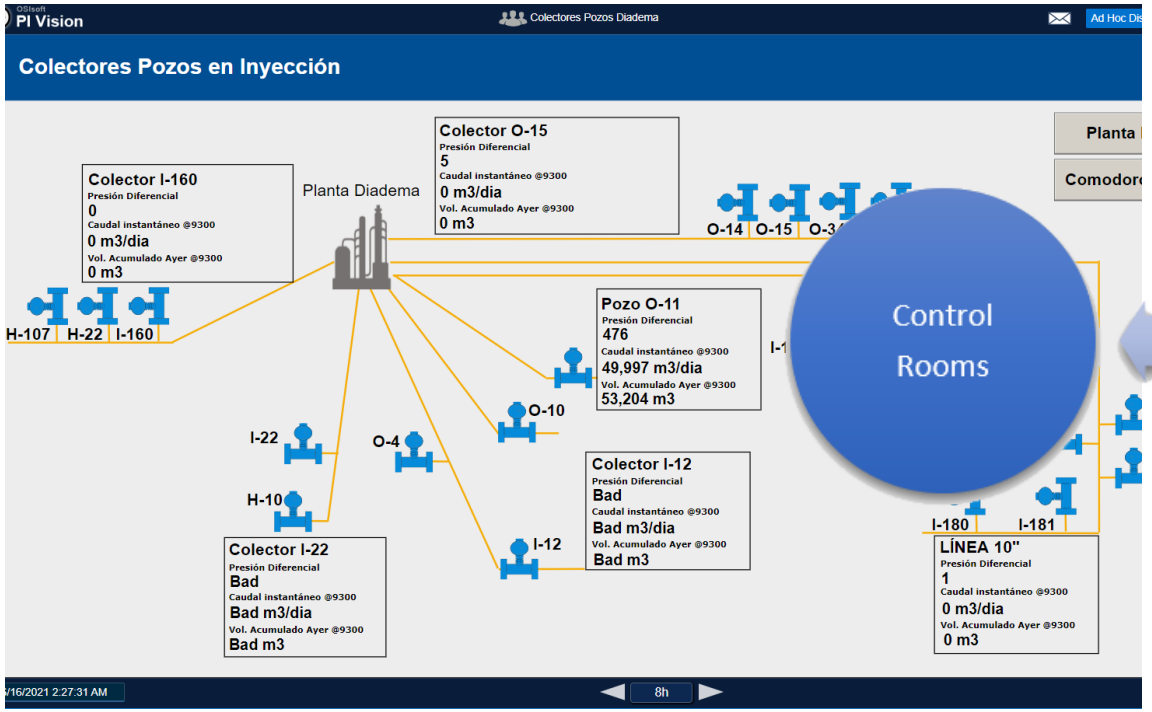
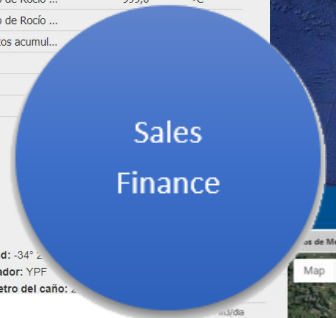
A Diversity of Stakeholders & Users





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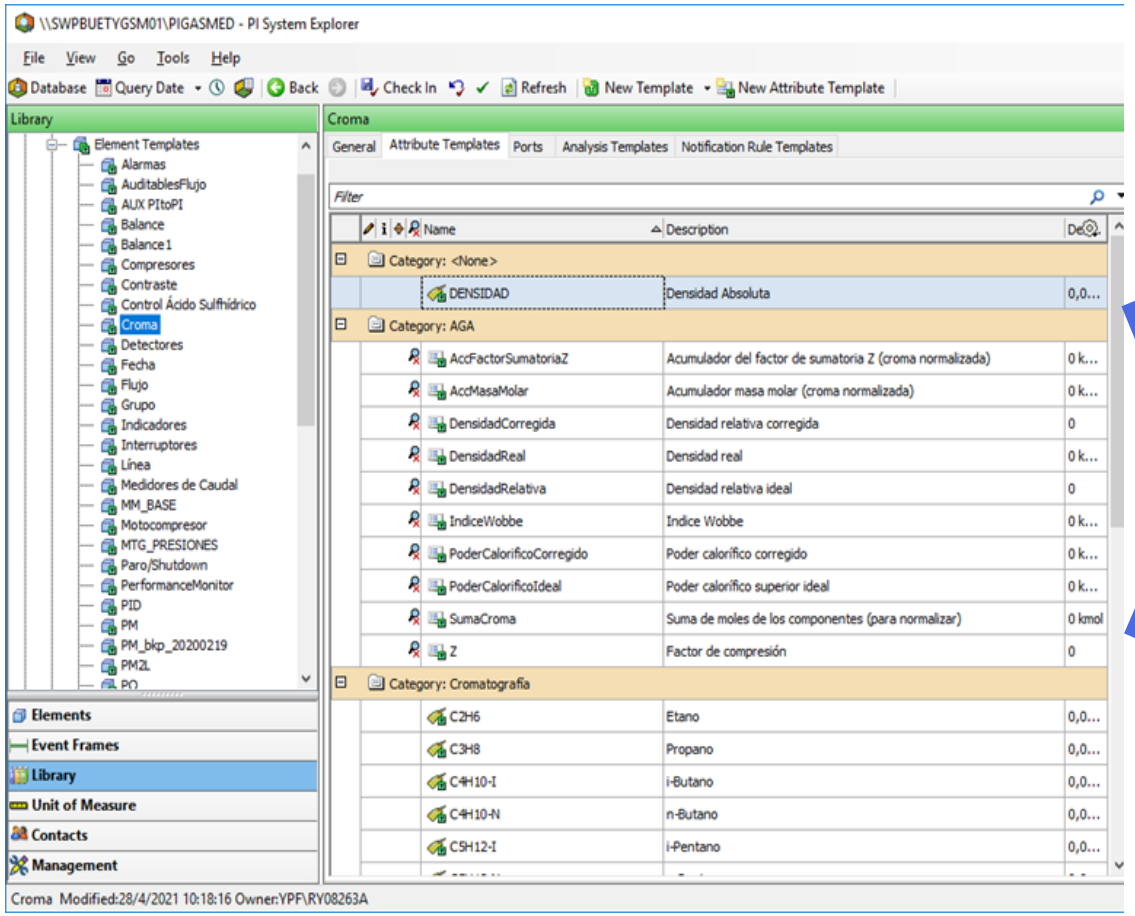
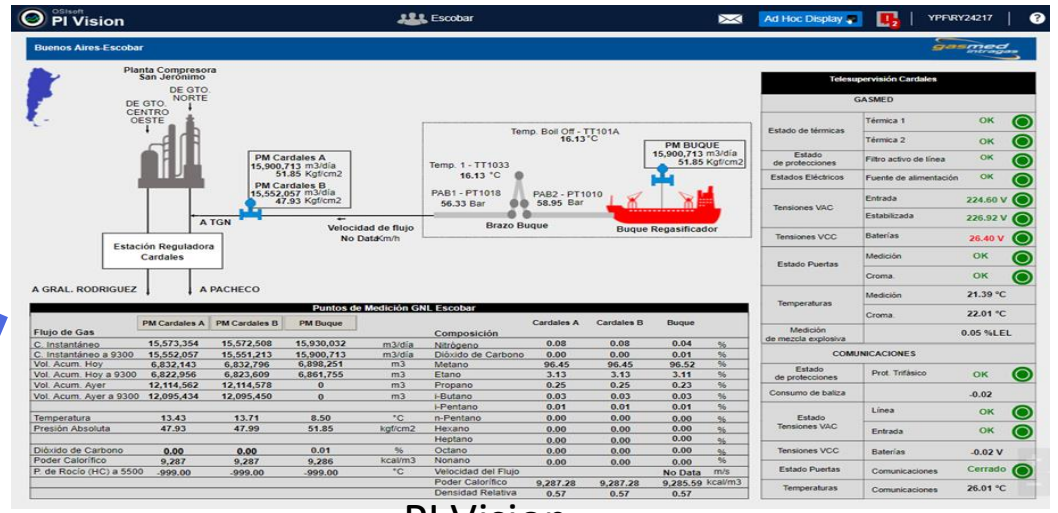
Results – Proactive Decision Support For all Stakeholders

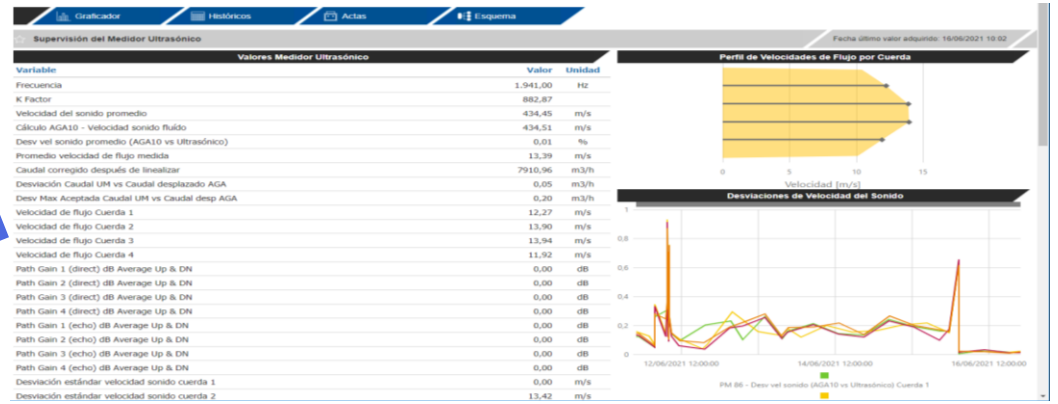
PI Asset Framework (PI AF) Underpins Gasmed





PI Vision

PI Web API



YPF Developed Web Interface

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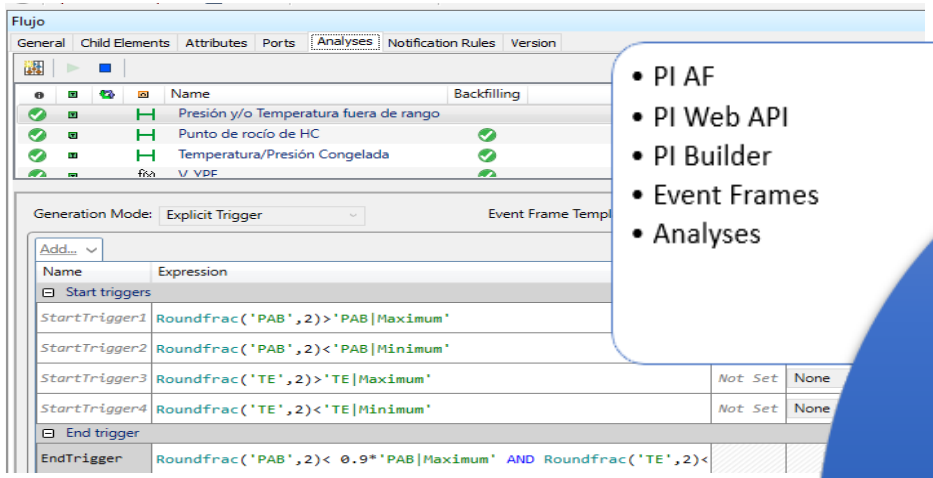
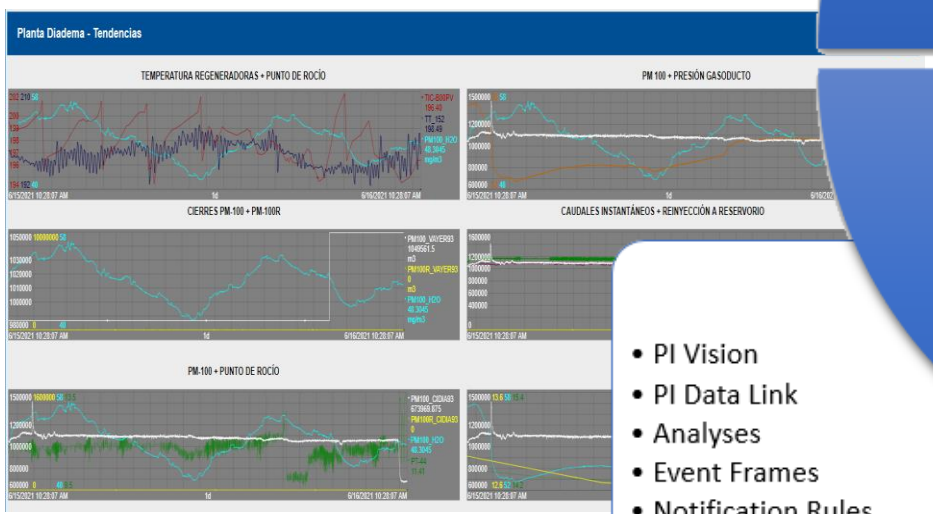
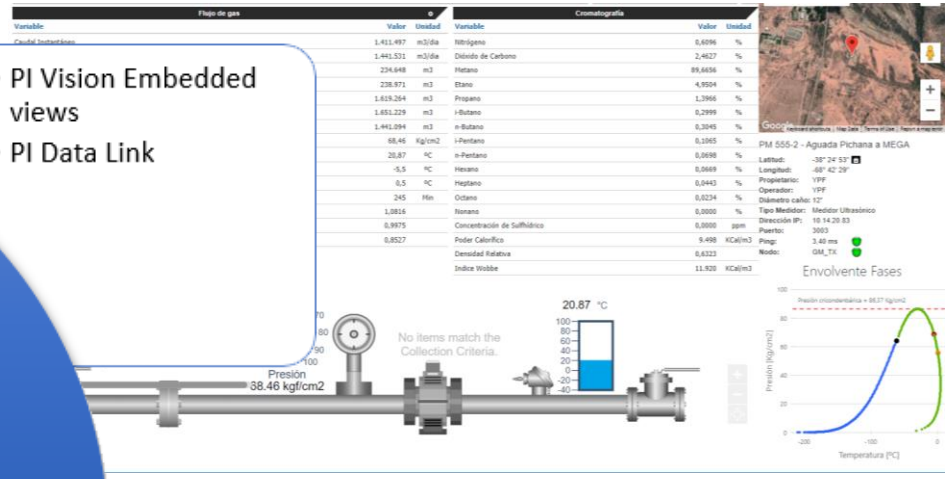
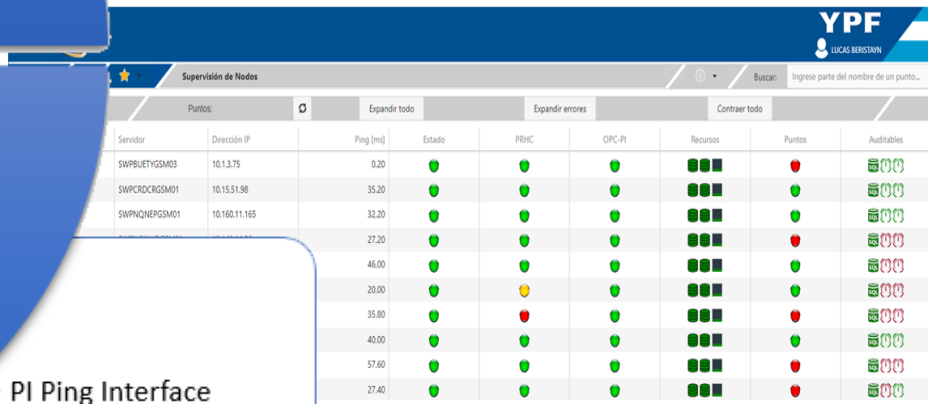
PI Tools & Services









- PI AF
- PI Web API
- PI Builder
- Event Frames
- Analyses

System Administrators

Users

- PI Vision Embedded views
- PI Data Link

Experts

- PI Vision
- PI Data Link
- Analyses
- Event Frames
- Notification Rules

Monitoring

- PI Ping Interface
- Performance Monitor Interface
- PI RDBMS Interface

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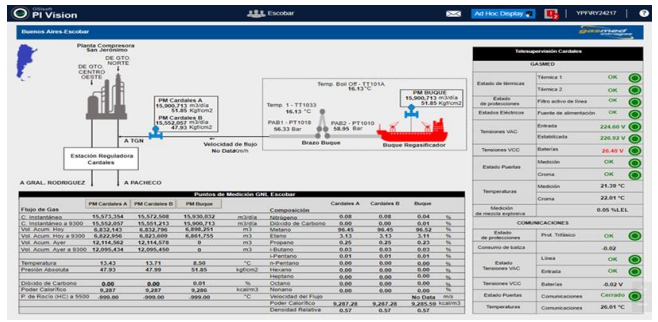

From Data to Gas Measurement Self-Serve Operational Intelligence

Challenge

- Need to preserve standards and naming conventions
- Large, disperse natural gas gathering and processing system
- Large volume, variety, and velocity of gas measurement data
- Existing gas measurement applications were failing to provide needed information to stakeholders
- Significant effort and reactive decision making resulting in significant lost business value

Solution

- Leveraged the PI System/PI AF using the Enterprise Agreement (EA) to gather, abstract, normalize, and contextualize gas measurement system data & meta data
- Evolved PI AF and PI Vision templates to provide self-serve access to gas measurement system
- Integrated with YPF developed web-based overlay to provide additional gas measurement system accessibility, reporting, and functionality including mobile

Benefits

- Significantly improved self-serve access to the gas measurement system operational intelligence
- Reduced system administration configuration and maintenance times
- Powerful decision support functionality for all stakeholders resulting in proactive, improved decisions across the complex gas measurement system
- Improved gas measurement decisions and accounting

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Next Steps

- Deeper analysis of our data
- AI & Machine Learning algorithms
- Power BI Reports
- GIS Data

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“A journey of a thousand miles begins with a single step”

Lao Tzu

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