CASE STUDY: NETWORK OPTIMIZATION

Introduction

A global upstream operator sought to transform the operations for one of their mature onshore gas fields by enhancing the efficiency of its vast network of over 1,000+ production wells and associated surface infrastructure.

Facing challenges in maintaining operational efficiency and maximizing asset productivity, the operator grappled with the complexities of managing billions of daily data points generated by remote, aging infrastructure. These challenges often led to delays in decision-making and a reliance on manual interpretations by engineering teams, limiting potential gains.

To address these obstacles, the operator partnered with Xecta, leveraging its cutting-edge Production Surveillance & Optimization technology. This collaboration aimed to revolutionize the operator's approach to field management, enhance operational efficiency, and set a new standard for upstream asset optimization.

Customer Objectives

- **Enhance operational efficiency** across 1,000+ production wells.
- **Maximize asset productivity** by optimizing surface infrastructure.
- **Streamline decision-making** processes with real-time data insights.
- **Reduce reliance on manual interpretations** by engineering teams.

1st Year Results

$10+ million
Optimization opportunities identified & realized

5x
ROI on deployment

13 Workflows
Automated & self-calibrated daily

Billions of Data Points
Processed daily for real-time insights

About the Company

Global E&P Operator
(Onshore & Offshore)

$5+ Billion
(Annual Revenue)

3,500+ Employees
(6 Continents)

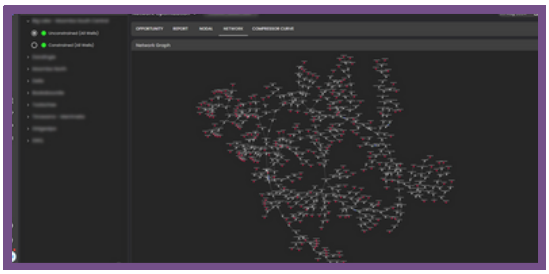
Challenges

The operator managed a complex network of wells and pipelines in a challenging remote environment, where aging infrastructure and declining production rates added layers of complexity. The massive volume of data generated by mixed vintage equipment often resulted in inconsistent formats and data silos, hindering efficient decision-making. Managing this network required a continuous overview of 40,000 interdependent elements spanning subsurface reservoirs, well hydraulics, and surface gathering constraints.

Traditional methods struggled with real-time performance monitoring, often relying on manual data analysis, which led to inefficiencies. Additionally, the operator faced significant challenges in identifying and prioritizing optimization opportunities across its asset base, resulting in suboptimal production performance.

Xecta Solution

Xecta provided a comprehensive solution to these challenges by creating a cognitive digital twin of the operator's assets, enabling continuous, automated monitoring and optimization, covering everything from reservoirs to surface networks.



Key features of the deployment include:

- **Rapid Deployment & Scalability:** Implementation and scaling to full-field operations in under six months, covering 1,000+ gas wells and 3,000+ miles of pipeline across 48,000 square miles. Data ingestion and validation are handled through Xecta's ProdX platform, natively deployed on AWS and leveraging services such as Amazon EC2, S3, and RDS to efficiently process and cleanse large volumes of field data for downstream applications.

- **Hybrid Models:** Leveraged AI's ability to imitate past performance and domain physics to simulate potential actions, automating complex engineering calculations. Models processed billions of data points daily, handling noisy, inconsistent information, and adapting to real-time conditions for accurate insights.

- **Automated & Integrated Workflows:** Implementation of 13 highly integrated workflows that codify expert reasoning, focusing on well remediation, surface gathering network optimization, and maximizing field uptime. This guided autonomous system reduced manual model upkeep, allowing engineers to focus on high-value tasks, resulting in significant cost savings and increased operational efficiency.

Impact

- **$15+ million** in optimization opportunities identified, resulting in **$10+ million** in free cash flow and operational savings in the first year alone, **boosting production efficiency** and financial performance.
- **13 automated workflows** implemented, cutting manual effort and saving hundreds of man-hours, allowing engineers to focus on high-value tasks and manage larger fields **without increasing headcount**.
- Integrated diverse data sources, **processing billions of data points daily**, transforming inconsistent formats into actionable insights, and overcoming significant data challenges.
- **Efficient management** of over 1,000+ wells, 3,000+ miles of pipelines, and 40,000 interdependent elements, **enhancing operational oversight** and **decision-making**.

Conclusion

The partnership between the upstream operator and Xecta showcases the transformative potential of advanced digital technologies in the oil and gas sector. Xecta's Production Surveillance & Optimization technology not only addressed the operator's immediate challenges but also provided a sustainable framework for continuous improvement and optimization.

Built on a modern architecture, Xecta's technology can adapt to future industry needs, handling various complexities and scaling as operational demands evolve. This case study exemplifies how innovative solutions can drive operational excellence and efficiency in the upstream industry, paving the way for future advancements.

About Xecta

Headquartered in Houston, TX, Xecta delivers next-generation production optimization and surveillance solutions worldwide. Xecta's advanced SaaS platform combines AI, physics, and cloud computing to integrate seamlessly with energy assets. Xecta's unique hybrid models offer unmatched accuracy and real-time performance monitoring, transforming asset management by automating complex engineering calculations and workflows. This innovative approach empowers operators to continuously maximize efficiency and optimize production.

Xecta's platform is powered by Amazon Web Services (AWS), the world's leading cloud computing platform. AWS offers a secure, scalable, and reliable infrastructure that allows us to provide our customers with the highest levels of performance and availability.