

Data Engineering & DevOps for Data Science and Advanced Analytics

Case Study







partner network SaaS Architecture Competency

AI-Driven Industrial IoT Solutions

Data converged across industrial equipment — from aircraft engines to assembly line robots — drives streamlined analytics to track up-to-the-minute asset health.



GE Digital

INDUSTRY

Industrial Enterprise

SOLUTION

Cloud-native architecture, IIoT streaming at scale, Enterprise integration

CLIENT

GE Digital



GE Digital

GE Digital, a pioneer in the Industrial IoT (IIoT) landscape, wants to harness the power of IoT data streams to drive digital transformation across various sectors of the global economy. This task involves integrating vast amounts of data from diverse sources, ensuring real-time processing and providing actionable insights, all while maintaining data security and scalability.

The Challenge

GE Digital needed a resilient and scalable SaaS architecture to manage and integrate IoT data, including real-time data ingestion, processing, and integration with various systems. The company also needed to ensure data security, especially in multi-tenant environments where competitors might share the same platform. Complicating matters further, the rapidly evolving landscape of signals, sensors, and analytics demands agility and flexibility.

And all of this existed against the need for monetizing digital products and business models via IoT while ensuring seamless integration with enterprise IT. Real-time Insights Achieve faster access to data, providing actionable insights across physical plants, customers, and platform partners.

Operational Efficiency Automate IIoT workload deployment, reducing onboarding time for new industrial customers.

Data Science Automation Continuously assess data science roadmap, provide foundation both for data-driven innovation both agile and reliable



GE Digital

The Solution

To improve GE Digital's control over both the structure and direction of its architecture. CloudGeometry instituted multiple AI Machine Learning improvements, including:

- **Advanced Analytics and Machine Learning:** Leveraged Python and AI to provide real-time insights from the data, enabling GE Digital to achieve data-driven efficiency, productivity, and profitability. Specifically, these changes enabled predictive maintenance, anomaly detection, and optimization algorithms.
- Data Pipeline Logic and Integration: AWS Sagemaker services provided a flexible data pipeline that integrates event data for downstream analytics, ranging from BI dashboards to machine learning models, enables data guality checks, and data enrichment, as well as drift detection and automated retraining alerts & triggers.
- Real-time Stream Processing: Unified edge sensors and centralized systems use real-time stream processing, employing AI for real-time decision-making & event predictions.
- Multi-Tenancy and Data Security: A secure multi-tenant application platform makes it possible for multiple customers and groups to share the same platform. It also provides the opportunity for future AI algorithms to provide intrusion detection, access control, and threat analysis.
- Automation & Orchestration: Kubernetes provided a platform for deployment, scaling, and orchestration, enabling AI to optimize resource allocation based on predicted workloads.

The Benefits

Transitioned to a future-proof technology strategy, GE Digital is now able to scale & manage IoT data integration effectively and enjoy continuous, rapid introduction of new features and improvements, optimizing software changes with high velocity and confidence.

Real-time Insights Achieve faster access to data. providing actionable insights across physical plants, customers, and platform partners.

Operational Efficiency

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Data Science Automation

Continuously assess data science roadmap, provide foundation both for data-driven innovation both agile and reliable



CloudGeometry

Technology Solutions & Services to build, optimize and run your cloud software and operations.

TECHNOLOGY SOLUTIONS

APPLICATION MODERNIZATION

Transform Legacy Systems for Future-Ready Innovation

CLOUD COST MANAGEMENT Optimize Cloud Spending for Maximum ROI and Efficiency

FOUNDATION SERVICES

CLOUD INFRA & OPS

Robust Infrastructure Solutions for Seamless Operations

- DevOps as a Service
- Managed Cloud Operations
- Cloud Spend Optimization
- Resilience, Continuity & Backup
- AWS Well-Architected

AI & DATA

Achieve breakthrough automation and analytic insights via cutting-edge data strategies

SECURITY AND COMPLIANCE

Reinforce your cloud infra, workload, operations, and development end-to-end

MODERNIZATION & MIGRATION

Smooth Transitions to Modern Architectures with Minimal Disruption

- Application Modernization
- Kubernetes Adoption
- AWS Database Migration
- Data Engineering Operations
- Data Integration
- Data Migration
- Cloud Migration & Adoption

ADVANCED SERVICES

CLOUD-NATIVE DEVELOPMENT

Build Scalable, Resilient Applications with Cloud-Native Technologies

- CI/CD
- Multi- Platform App Design & Development
- Cloud-Ready Teams
- Enterprise SaaS Modernization
- Multi-Tenancy SaaS
- B2B Customer Success Engineering

AI/ML & DATA SERVICES

AI/ML & DATA

Leverage Advanced Analytics and Machine Learning to achieve exponential acceleration in the ROI of your data assets

CLOUD-NATIVE OPERATIONS

Streamline Operations with Advanced Cloud-Native Practices

- Platform Engineering
- Workload Management
- Monitoring & Observability
- Infrastructure Management

- AI/ML Engineering for Data Analytics
- Generative AI
- Traditional ML for Data Analytics
- AI/ML Development and and Data Science
- Data Engineering for MLOps



CloudGeometry

San Francisco

CloudGeometry delivers expert technical services, helping our clients unlock the full potential of cloud-native open source tooling and commercial platform technologies.

New York

With roots in Silicon Valley, we've seen firsthand what works (and what doesn't). Count on CloudGeometry to accelerate application modernization, Kubernetes adoption, developer enablement, secure multi-tenancy, AI/MLOps, DevOps automation and more.

- As AWS Advanced Consulting partners, our certified solution architects and platform engineers help address the range of challenges facing enterprise innovators and venture funded startups alike.
- The Cloud Native Computing Foundation has accredited us as a Kubernetes Certified Service Provider.
- We serve as charter contributors to the Linux Foundation Data & AI Commons (LF Data & AI), supporting a diverse, sustainable ecosystem for open source data and AI technologies.

Over the last decade, we've built and deployed hundreds of big, fast full-stack apps with well-engineered cloud infrastructure across industries: Financial Services, Industrial Automation, Healthcare, AdTech, Consumer-grade Mobile, smart devices, and more.

From enterprise upgrades to data engineering to cloud-native scale-out, CloudGeometry helps you plot the shortest path across all dimensions of modern cloud software engineering.



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SaaS Amazon Kinesis AWS Lambda Amazon Redshift AWS Database Migration Service







CloudGeometry

Expert Platform Engineering & DevOps

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AI & Machine Learning Data Services

Open Source



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