



# Real-Time Asset Intelligence & Remote Operations

## Case Study

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splunk>



partner  
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SaaS Architecture  
Competency

# High-value asset monitoring platform leverages AI & ML in SaaS platform

Discover how CloudGeometry helped Krypton Cloud implement a scalable cloud-native architecture on AWS, enabling real-time asset intelligence and remote operations for improved maintenance and cost reduction.



## INDUSTRY

Energy

## SOLUTION

Dataflow Integration, continuous data science pipeline management, real-time analytics

## CLIENT

Krypton Cloud  
**Acq. by Splunk**

Krypton Cloud devised a unique approach to apply IoT strategies to close the data divide between modern and legacy application sources. The goal: more timely, accurate insights to improve utilization of capital-intensive industrial assets with timely, accurate information for operational intelligence. Krypton turned to CloudGeometry to create a scalable cloud-native architecture deployed on AWS, so Krypton's customers could benefit by shifting from reactive to condition-based maintenance. That means better asset availability, avoiding unnecessary maintenance, and continued reduced costs.

## The Challenge

Avoiding costly downtime for large-scale equipment infrastructure depends on how well remote operations works with data-intensive alert streams. The complexity of data operations at SunPower's global Remote Ops starts with processing billions of data points per hour, ingesting streams from equipment types across hundreds of different manufacturers and collected by Krypton Cloud. At the same time, vital historical data needed to be reconciled across incompatible formats from legacy systems, to ensure analytics signals could be modeled with proper context. Using machine learning to drive AI diagnostics could give managers and field technicians alike a clear and actionable picture of the state of each piece of machinery and plant operation health as a whole.

### Continuous data flow management

[Kinesis](#) for Real-time data flow integration & management to rapidly recover from unexpected problems in source data.

### Data Transformation

Change data structures and types with functional expressions, within a data flow, using [S3 Athena](#) to keep costs low.

### Operationalize Machine Learning

Managed data integration and ongoing workflow for model building, training, and deployment with [AWS Sagemaker](#).





## The Solution

Krypton Cloud took advantage of a range of CloudGeometry services and expertise to build a SaaS platform that could [transform data integrated across their customers' global operations](#). This model-driven analysis of patterns that maximizes equipment utilization and streamlines physical plant service operations. Krypton Cloud relied on CloudGeometry experts to transform and enrich data across a wider range of sources across geographically distributed availability zones. Signal data was also aggregated every 15 seconds via Spark micro-batch processing. The data flows extended to historic data, cached in a heterogeneous data warehouse infrastructure that runs Amazon Aurora for SQL data and DynamoDB for non-SQL data sets.

For example, Krypton customer Sunpower also harnessed from [CloudGeometry dataflows, with data pipelines](#) adapted to profiles of specific equipment types. The ML engine uses this to check device health data, discover anomalies and flag them to operators and technicians. [Data Integration services provided by CloudGeometry](#) generated continuously up-to-date datasets and fed a unified analytics dashboard to [display health status](#) for power plants across the planet.

## The Benefits

With a [data-driven real-time analytics pipeline](#) at the heart of its global remote operations, Krypton Cloud successfully delivered machine learning for its customers to unlock the power of IoT for clear ROI. Operations data delivered reliably yields continuously up-to-date insights revealing equipment anomalies sooner and ensuring they are fixed at far less cost.

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# Technology Solutions & Services

to build, optimize and run your cloud software and operations.



## TECHNOLOGY SOLUTIONS

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### APPLICATION MODERNIZATION

Transform Legacy Systems for Future-Ready Innovation

### CLOUD COST MANAGEMENT

Optimize Cloud Spending for Maximum ROI and Efficiency

### 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

## FOUNDATION SERVICES

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### 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

### 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

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### 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

### CLOUD-NATIVE OPERATIONS

Streamline Operations with Advanced Cloud-Native Practices

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

## AI/ML & DATA SERVICES

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### AI/ML & DATA

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

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

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Montenegro

Tel Aviv

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

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

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Amazon Redshift

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CLOUD NATIVE  
COMPUTING FOUNDATION

GENERAL MEMBER  
**LF** AI & DATA  
GENERATIVE AI COMMONS



**Expert**  
**Platform Engineering**  
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