Accelerating Cloud Innovation for NOAA: GAMA-1 Demonstrates Multi-Cloud Data Replication at Scale

How GAMA-1's initiative sets a new bar for mission-ready cloud transformation across federal agencies

WASHINGTON, DC, UNITED STATES, June 5, 2025 /EINPresswire.com/ -- In a groundbreaking demonstration of technical agility, innovation, and partnership, GAMA-1 Technologies has successfully validated multi-cloud data replication of NOAA's satellite and environmental datasets across AWS, Azure, and Google Cloud Platform (GCP). This pioneering effort, led by GAMA-1's Chief Technology Officer, Gian Dilawari, in collaboration with NOAA/NESDIS ACIO-S and the NESDIS Innovation Hub (NIH), offers a powerful model for how federal agencies can accelerate digital transformation, even amid access constraints and operational uncertainty.

> " This project exemplifies the heart of GAMA-1's mission, to deliver innovative, secure, and scalable cloud solutions that meet our federal partners where they are and accelerate where they need to go."
>
> *Gustavo Gamarra*

The Challenge: Building Resilient, Multi-Cloud Data Ecosystems

NOAA's NESDIS office faced a critical need: develop a broker system to replicate near-real-time, reprocessed, and historical datasets from AWS to other major cloud platforms. With the increasing urgency to modernize infrastructure and ensure resiliency through platform redundancy, NESDIS required a working prototype that could scale securely, cost-effectively, and with minimal latency. However, progress was threatened by delays in acquiring formal cloud access credentials. Rather than pausing momentum, GAMA-1 saw opportunity in adversity.

The Pivot: A Company Mission-Driven Commitment to Innovation

Gian Dilawari, recognizing the risk to NOAA's mission timeline, made a decisive move. GAMA-1 funded simulated environments using free-tier Azure and GCP accounts and equipped their team with on-demand and video cloud training. Within three weeks, this investment paid off. The GAMA-1 team:

- Gained hands-on experience with Azure and GCP cloud-native services
- Designed and tested broker architectures for both batch and near-real-time data pipelines
- Transferred over 97 TB of real NOAA satellite data from AWS NODD into Azure and GCP environments using services like Azure Data Factory and GCP

Storage Transfer Service

These were not lab-based simulations, this was NOAA data, brokered across platforms using real credentials, validated configurations, and repeatable methods.

The Architecture: Proven, Scalable, and Ready for Operations

Mission-Ready for Government Transformation

The GAMA-1 solution demonstrates how federal data workflows can be abstracted from single-vendor lock-in and re-architected for resiliency:
- Event-driven models using AWS SNS/SQS and Lambda functions to initiate cross-cloud transfers
- Azure Data Factory pipelines with five-minute polling for near-real-time replication
- CLI and SDK-based batch transfers using tools like azcopy, boto3, and gsutil for scalable bulk operations
- Cloud-native automation for metadata GOES18 data extraction to the AWS NODD, with over 43 million records processed via SageMaker containers

This success reflects not only GAMA-1's technical prowess but also its cultural commitment to collaboration, agility, and rapid delivery.

The Impact: Setting a New Standard for Federal Cloud Modernization

GAMA-1's work with NESDIS is more than a technical case study, it's a strategic roadmap for CIOs and IT leaders across government who face similar challenges. The outcomes speak volumes:
- Weeks of lead time saved compared to waiting on formal cloud access
- Hands-on, multi-cloud training embedded into operational delivery
- Validated architectural blueprints for both real-time and historical data replication
- Trust earned through proactive problem-solving and mission alignment

As NOAA expands its open data mission, these broker functions will be instrumental in delivering life-saving environmental intelligence with speed and reliability. From climate resilience to emergency preparedness, the ability to operate seamlessly across cloud providers is no longer optional, it's essential.

Why This Matters for Every Federal CIO

This initiative underscores a broader lesson: innovation in the federal cloud space doesn't require perfect conditions, it requires a partner who is mission-ready, resourceful, and unafraid to lead. GAMA-1 Technologies is that partner.

As agencies contend with modernization mandates, budget constraints, and evolving mission needs, the GAMA-1 approach provides a replicable model:
• Invest in people first—enable hands-on cloud fluency
• Lead with architecture—leverage cloud-native services, not custom overhead
• Deliver fast—demonstrate value even before formal projects kick off

ABOUT NESDIS PROGRAM: The NOAA Open Data Dissemination (NODD) program is a cornerstone of NOAA's cloud data strategy, enabling scientists, developers, and the private sector to access near real-time and historical environmental datasets via a scalable, cloud-native platform. NODD supports a wide range of mission-critical use cases, from weather forecasting and satellite product development to climate analysis and prototyping. Complementing this capability, the NESDIS Innovation Hub (NIH) provides a secure, AWS-based cloud environment that empowers NOAA teams to explore advanced technologies, including artificial intelligence (AI), machine learning (ML), and Generative AI (GenAI). Together, NODD and NIH form a robust ecosystem for innovation, experimentation, and data-driven decision-making across NOAA and its partners.

Ready to Learn More?

Whether you're exploring cross-cloud data strategies or seeking trusted support to operationalize your agency's digital future, GAMA-1 stands ready.
Contact us to learn how we can accelerate your agency's transformation journey.
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