CASE STUDY



AILOS
SISTEMA DE COOPERATIVAS

INDUSTRY
Financial Services

PROFILE
The Ailos financial system includes Central Ailos, 14 credit unions, and an insurance brokerage. As one of Brazil's leading cooperative financial systems, it serves more than 1.8 million members across eight states through a network of 352 service branches. With BRL 31.5 billion in total assets, it provides digital accounts, checking accounts, credit card options, personal loans, business credit, and financing to individuals and businesses.

"By leveraging Databricks on AWS for engineering workloads and Denodo's AI Data Layer for unified data access, we created a modern data platform that combines scalable processing, zero-copy data delivery and business agility."

— Diogenes Sato, Data Coordinator, Cooperativa Central Ailos

Ailos Leverages Denodo on AWS to Drive Digital Transformation and Modernization

Recognized as one of Brazil's leading cooperative financial systems, Ailos operates with a vision to "expand cooperativism, inspiring and including millions of people, seeking to be the best financial institution that promotes economic and social development."

At a time when most traditional financial institutions are behind on their modernization and transformation efforts, Ailos implemented Denodo on AWS to enhance operational efficiency and data-driven decision-making.

Ailos shifted from legacy architecture to a modern data platform, powered by AWS, Databricks, and Denodo

Business Need

As Ailos grew, it dealt with more operational complexity and a growing number of financial products. Universal connectivity, governed access, and modern data management became more important than ever. The team faced the following challenges:

Data silos and fragmentation: Business data was distributed across multiple platforms, systems, and cooperatives, creating integration challenges and limiting consistent access to trusted information. Managing data across Central Ailos, affiliated cooperatives, and multiple business domains created integration complexities and made it difficult to provide consistent, trusted, and governed access to information.

Legacy architecture constraints: Ailos relied on an on-premises environment based on Oracle technologies and SAS for analytics and machine learning. While effective for traditional reporting workloads, the environment was not designed to support enterprise-wide data democratization, self-service analytics, and the growing demand for data-driven decision-making across the organization.

Regulatory and security risks: Compliance with Brazil's General Data Protection Law (LGPD) required robust controls for protecting sensitive information, including personal and financial data. Ailos also needed to strengthen governance, access controls, auditing capabilities, and security policies such as OAuth and credential management.

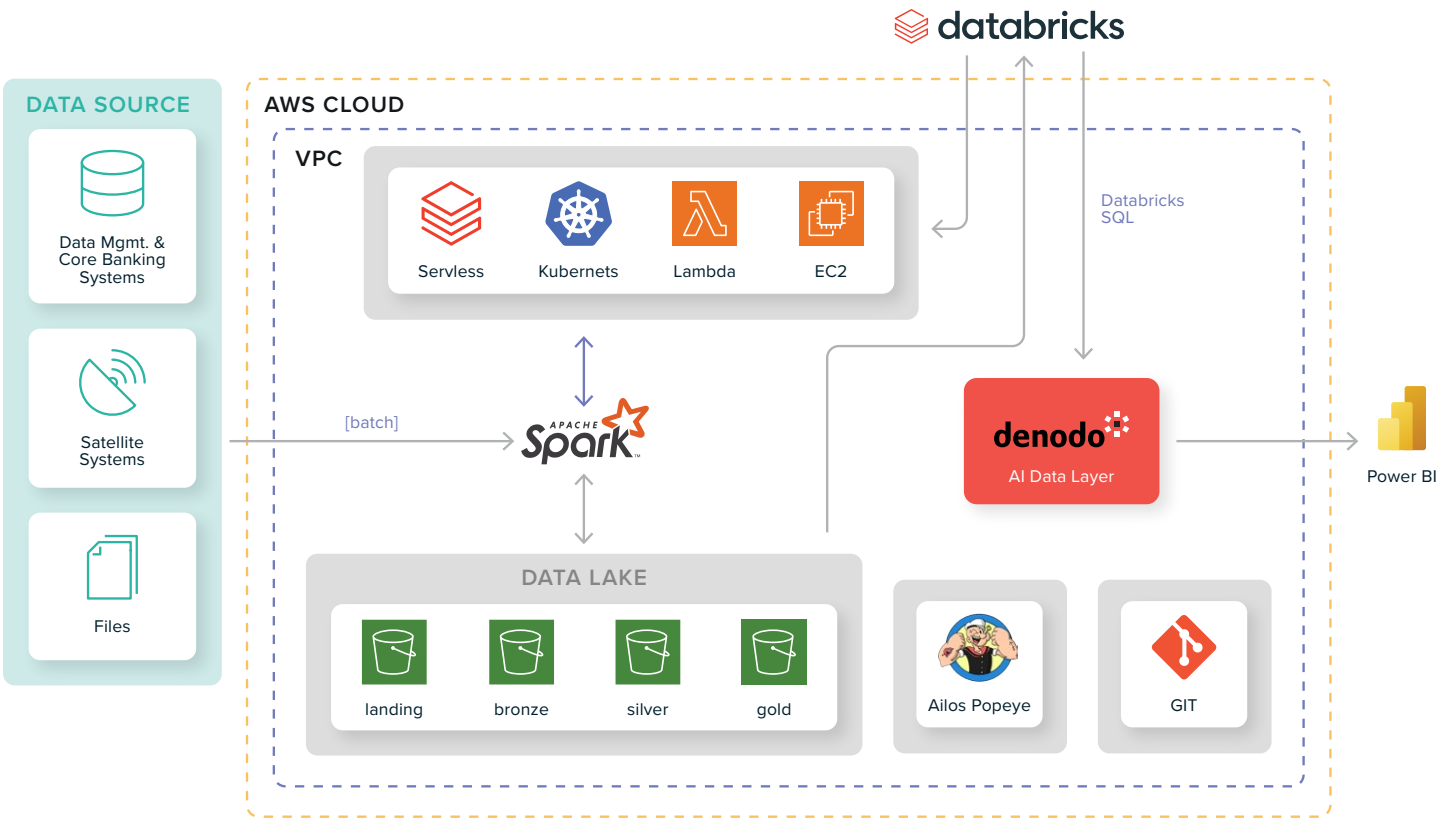
The company needed a modern, scalable, and resilient data platform capable of accelerating data democratization, enabling self-service analytics, supporting a data-driven culture across Central Ailos and its affiliated cooperatives, and ensuring compliance with strict regulatory and security requirements.

The Solution

To address the limitations posed by legacy systems, the enterprise data and analytics team at Ailos engineered a modern, multi-vendor cloud data platform designed to prioritize flexibility, governance, scalability, and cost efficiency.

Diogenes Sato, the data coordinator at Cooperativa Central Ailos, tells us: “After a long phase of analysis, technical assessments, proofs-of-concept, and vendor evaluations, we combined four core technologies – AWS, Denodo, Databricks, and Power BI – to define our cloud data platform architecture.”

To support data operations at scale across Central Ailos and its affiliated credit unions, the internal engineering team developed a proprietary orchestration platform called Popeye. The platform enables the execution of independent data pipelines for each cooperative while maintaining centralized governance and monitoring. Today, Popeye orchestrates more than 16,000 daily pipeline executions across serverless, EC2, Lambda, Kubernetes, and Fabric environments, providing the scalability and flexibility required by the Ailos ecosystem.



As reflected in the simplified version of the reference architecture diagram above, on the left are external data sources such as data management and core banking systems from affiliated credit unions, satellite applications, external platforms, and file-based integrations. These serve as initial sources of information for the entire ecosystem, primarily via batch ingestion. This distributed landscape reflects the operational model of the Ailos System, where multiple organizations and business domains generate and consume data across a shared data platform.

Moving from left to right, we can see how the organization leverages a modern stack with high-performance components on the AWS Cloud, including complex Spark data processing, a multi-tiered data lake, and enterprise-grade data management integrations with Databricks and Denodo. As noted above, Ailos Popeye acts as a custom orchestrator along with GIT that serves as a version control orchestrator.

Denodo serves as the AI Data Layer, providing a governed, unified, and real-time access layer across the organization’s distributed data estate. It sits between enterprise data systems and the analytics and AI workloads that consume information. Databricks provides the platform’s core data engineering, transformation, and large-scale processing capabilities. It orchestrates complex processing tasks and uses Databricks SQL to query refined lake datasets, serving structured views directly to Denodo for seamless data virtualization.

Finally, on the extreme right side is the Power BI instance, a business intelligence tool, which consumes all necessary data directly from Denodo’s unified AI Data Layer for self-service analytics and reporting. This architecture allows business users across Central Ailos and its affiliated cooperatives to access trusted and governed information without requiring direct interaction with the underlying data processing and storage layers.

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Benefits

Central Ailos went through a major digital transformation initiative. It moved from a traditional, on-premises environment accessed by a small group to a modern, cloud-based, scalable platform used across the business. This enabled broader access to data, faster development of analytics solutions, better governance of data usage, and better preparation for future challenges. The key benefits are:



A highly scalable and democratized data platform: Today, the Ailos corporate data lake stores more than 500 TB of structured data, organized through a modern lakehouse architecture that provides governed access to trusted information across the organization. The platform supports a domain-oriented data architecture, enabling business teams across Central Ailos and affiliated cooperatives to consume and manage data through more than 25 data marts and 22 structured business domains.

The user adoption has also seen a significant uptick, growing from "about 200 data users to more than 2,000 users." This expansion reflects Ailos' successful data democratization strategy, extending governed access to trusted information across multiple business areas and affiliated cooperatives while significantly increasing the business value of the platform.



Risk mitigation and compliance: The AI data layer powered by Denodo and the native security features of AWS serve as the primary risk mitigation technologies enabling seamless compliance with LGPD or Lei Geral de Proteção de Dados (Brazil's federal data privacy law).

As part of its continuous data governance strategy, Ailos has also implemented enterprise-wide data anonymization initiatives to further strengthen privacy controls and regulatory compliance.



Faster Access to Trusted Data: By modernizing its data platform with AWS, Databricks, and Denodo, Ailos streamlined how data is processed, governed, and delivered to business users. The combination of cloud scalability, federated access, zero-copy data delivery, and modern processing capabilities reduced the effort required to access and prepare data, enabling faster analytics, greater business agility, and more efficient decision-making across Central Ailos and its affiliated cooperatives.

As part of its continuous data platform evolution, Ailos is evaluating new capabilities focused on artificial intelligence, metadata discovery, and analytical performance. These initiatives include advanced generative AI features within the Denodo Data Marketplace, integration with the Denodo AI SDK to improve metadata search and data discovery, and the adoption of Presto MPP to support high-performance analytical workloads at scale.

Ailos' transformation has been more than a technology modernization initiative. It has fundamentally changed how data is managed, shared, and consumed across Central Ailos and its affiliated cooperatives, establishing a scalable and governed foundation for long-term growth.

With an architecture designed for scale, the organization is building the capabilities required to support future business growth, expand data-driven decision-making, and continue delivering value through trusted and governed data.

> "Our data platform, built on AWS and powered by Denodo and Databricks, reflects years of collaboration, engineering excellence, strategic decisions, and continuous innovation. Today, it provides a scalable and governed foundation that empowers Central Ailos and its affiliated cooperatives to expand data-driven decision-making, accelerate innovation, and support future business growth."
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> — **Gustavo Jesse Knuppe, Data Analytics Manager, Cooperativa Central Ailos**