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Enabling **data virtualization** for asset and wealth management giant

HCLTech implemented data mesh architecture with the Denodo platform setup

The client is a leading asset & wealth management company headquartered in Frankfurt, Germany. The company provides investment services in Europe, USA, Asia and other regions. They serve both retail and institutional clients offering mutual fund strategies, ETFs, private equity, real estate and infrastructure investments.

Organizations are seeing a rise in data consumers using self-service analytics tools, requiring a data virtualization solution that gives them faster access to data while maintaining security and governance controls.

HCLTech implemented the data mesh architecture approach enabled by Denodo. This approach provides a mix of data product thinking, decentralized data architecture, domain-oriented data ownership, distributed data-in-motion, self-service access and strong data governance. The client was also seeking effective, efficient and economic architecture as their operational cost was increasing with siloed data, preventing data-sharing.

The Objective:

The client wanted to setup the Denodo platform as part of their data modernization strategy, to provide data which is:

Curated	Domain-specific, yet consumable by the organization at large	Real-time, on-demand, and available in a self-service manner

Fully governed, safe, secure and trusted	Flexibly provisioned, based on the needs of different enterprise departments

The Challenge:

Increasingly, many new data sources have emerged with varied data that our client wanted to analyze. This includes traditional structured data in transaction databases, machine generated data such as Kafka message, unstructured data stored in json file format.

Sources apps in silos:

These data sources were stored in different applications working in silos. It was hard to understand the data sources as there was no integrated view of business.

Data integration pipelines for every new source:

For different analytical workloads, by using the legacy approach (ETL – extract, transform and load), they needed to create several data integration pipelines. There was an undeniable lag in data movement and more lead time required for designing and building data integration patterns via the ETL approach.

Slow data provisioning and response to changes:

It required longer development timelines, additional resources required for project development and support.

The users desired:

1. **Faster onboarding of products / services**
2. **Faster data delivery, real-time access**
3. **Data collaboration**
4. **Self-service data access**

The Solution:

Data mesh architecture- empowering data-driven business with a socio-technical approach involving people, process and technology.

HCLTech understands the architecture of data virtualization (DV) is extremely powerful in enabling data mesh architecture. A data mesh is a distributed, de-centralized data infrastructure in which multiple autonomous domains manage and expose their own data, called "data products," to the rest of the organization.

Leveraging the HCLTech - Denodo partnership, we successfully implemented the DV platform setup focusing on "data democratization" and "data citizenship" using Denodo 8 that offered all the capabilities necessary to build data mesh. It provides a common semantics layer to expose data

more quickly to the business as well as a dynamic data catalog for semantic search and enterprise-wide data governance. Some of the other features it provides are industry leading query acceleration supported by machine learning, automated infrastructure management for multi-cloud and hybrid-cloud scenarios. Along with that, embedded data preparation capabilities for self-service analytics, faster time-to-insight, better privacy and compliance, greater automation of data management processes and avoiding vendor lock-in are
other outcomes.

The Impact:

HCLTech assisted the client on their digital transformation journey by implementing data mesh architecture enabled by data virtualization. Data mesh intended to solve the problems of data availability and accessibility at scale. The client invested in a data virtualization setup allowing them to yield impressive benefits, including:

300% increase in business user productivity

80% reduction in development resources

50% time savings over traditional ETL processes

Zero replication and ensuring real-time data access

30% reduction in IT operational costs
Reduces cost of data integration across the organization and shortens the time to value through reuse of data products, that will ensure better productivity

10% acceleration of data delivery using data services – data marketplace –
Build data assets once and reuse them everywhere in different analytical workloads without replication

99.9% uptime applying cluster configuration in user acceptance testing and production environments such that there is near to zero downtime

Better data governance by ensuring reuse of high-quality data and allowing data access security policies to be defined on the DV object so they can be applied wherever that data is accessed, consumed and used

Easily scaled and resilient to outages – Since data is not centralized in a single location, it is more resilient to outages and can be easily scaled up with new products / services

Easier to track changes and implement fine-grained control over data access – The data could now distributed domain-wise in multiple virtual databases, each of which is responsible for a specific subject area / fund category, making it easier to track changes and ensuring data quality