Analiza Paralela - Ciobanu_Matei

DATA WAREHOUSE AND DATA LAKE

A **data warehouse** and a **data lake** are two related but fundamentally different technologies. While data warehouses store structured data, a lake is a centralized repository that allows you to store any data at any scale. A data lake offers more storage options, has more complexity, and has different use cases compared to a **data warehouse**. A **data warehouse** is a relational database that stores data from transactional systems and business function applications. All data in the warehouse is structured or pre-modeled into tables. The data structure and schema are designed to optimize for fast SQL queries.

A data lake is designed to store raw, unstructured, semi-structured, and structured data at scale. It Focuses on storing data in its native format for future use, with no need to structure the data beforehand.

In conclusion **"DataHub Solutions"** being early in its data journey and having a strong focus on structured data analytics for business intelligence**,** a data warehouse is likely the best starting point. It will offer immediate benefits in terms of data organization, quality, and speed of access for analytics.

OLAP AND OLATP

OLAP

Designed for complex analytical queries that involve aggregating, analyzing, and summarizing large volumes of data. Supports decision-making processes, trend analysis, and business intelligence activities. OLAP databases process significantly more data, so their response times are slower. OLAP systems require massive amounts of data storage capacity to function. OLAP systems are business-facing and are used by data scientists, analysts, and business users such as team leads or executives. These decision-makers access data using analytics dashboards.

OLTP

Focused on managing and processing high volumes of short, transactional queries. Ensures the efficiency of day-to-day operations such as order processing, banking transactions, and customer relationship management. OLTP systems have relatively modest data storage requirements. OLTP systems are customer-facing and designed for use by frontline workers such as store clerks and hotel reservation specialists as well as online shoppers.

For "DataHub Solutions," a balanced approach that leverages both OLTP for transactional processing and OLAP for analytical processing will likely serve best. This dual approach enables efficient operation management while also supporting data-driven decision-making and strategic planning.