Zero Copy Architecture in Salesforce Data Cloud

Zero-copy architecture in Salesforce Data Cloud refers to the ability to **access and analyze data from external sources (like Snowflake, Databricks, etc.) without physically moving or duplicating the data** into Salesforce.

Instead of copying the data into Salesforce, it is **queried in place**, allowing:

- Real-time insights
- Lower storage costs
- Better data governance

Understanding Zero Copy Architecture

Traditional ETL Approach

Extract, Transform, Load (ETL) processes:

- Physically copies data between systems
- Increases storage costs
- Introduces data latency issues
- Complicates governance and security

Zero Copy Architecture
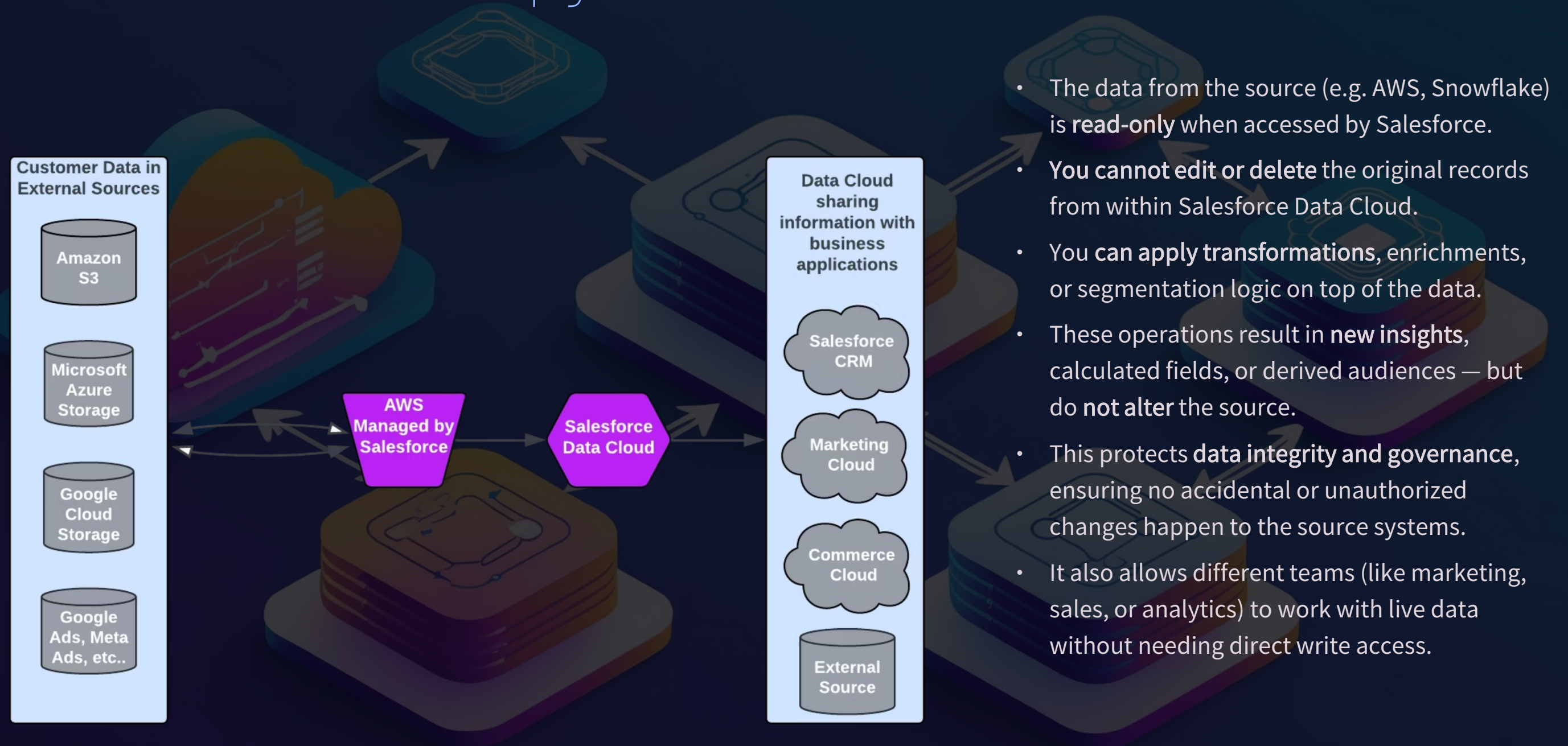
Modern approach that:

- Accesses data where it resides
- Queries external data in real-time
- Maintains single source of truth
- Simplifies compliance requirements

Visualization of Traditiction of Traditional ETL Data Architecture

Zero Copy Architecture in Action

Customer Data in External Sources

- Amazon S3
- Microsoft Azure Storage
- Google Cloud Storage
- Google Ads, Meta Ads, etc..

AWS Managed by Salesforce

Salesforce Data Cloud

Data Cloud sharing information with business applications

- Salesforce CRM
- Marketing Cloud
- Commerce Cloud
- External Source

Data Flow from External Sources to Salesforce Data Cloud

- The data from the source (e.g. AWS, Snowflake) is **read-only** when accessed by Salesforce.

- **You cannot edit or delete** the original records from within Salesforce Data Cloud.

- You **can apply transformations**, enrichments, or segmentation logic on top of the data.

- These operations result in **new insights**, calculated fields, or derived audiences — but do **not alter** the source.

- This protects **data integrity and governance**, ensuring no accidental or unauthorized changes happen to the source systems.

- It also allows different teams (like marketing, sales, or analytics) to work with live data without needing direct write access.

Data Governance, Security & Real-World Applications

Enhanced Data Governance & Security

With Zero Copy Architecture, customers maintain complete ownership and control of their data. External data remains in its original location, subject to the customer's existing security protocols and governance policies.

Infrastructure Clarification

While Salesforce leverages cloud infrastructure providers like AWS through Hyperforce, this is entirely separate from customers' own AWS data environments. All Salesforce-managed infrastructure is secure, encrypted, and isolated.

Real-World Example: Activating Snowflake Data in Marketing Cloud

A financial services company needs to create personalized marketing campaigns based on customer transaction data stored in Snowflake:

- Zero Copy enables direct querying of Snowflake data
- Marketing Cloud accesses insights without data duplication
- Campaigns leverage real-time information
- Sensitive financial data never leaves secure environment

Key Benefits

- Reduced storage costs
- Enhanced data security
- Real-time data access
- Faster time to insight
- Simplified compliance
- Single source of truth