

APACHE ICEBERG

Apache Iceberg open-source table format that brings reliability, flexibility, and high performance to large-scale data lakes, making big data analytics as seamless as SQL.



Why Apache Iceberg Stands Out ?

Revolutionizing data lake architecture for modern analytics.

Schema Evolution

Supports flexible schema changes without rewriting entire datasets, ensuring seamless updates.

Time Travel

Allows querying historical versions of data for audits, rollbacks, or debugging.

ACID Transactions

Ensures data integrity with atomic commits, making reads and writes reliable at scale.

Separation of Storage

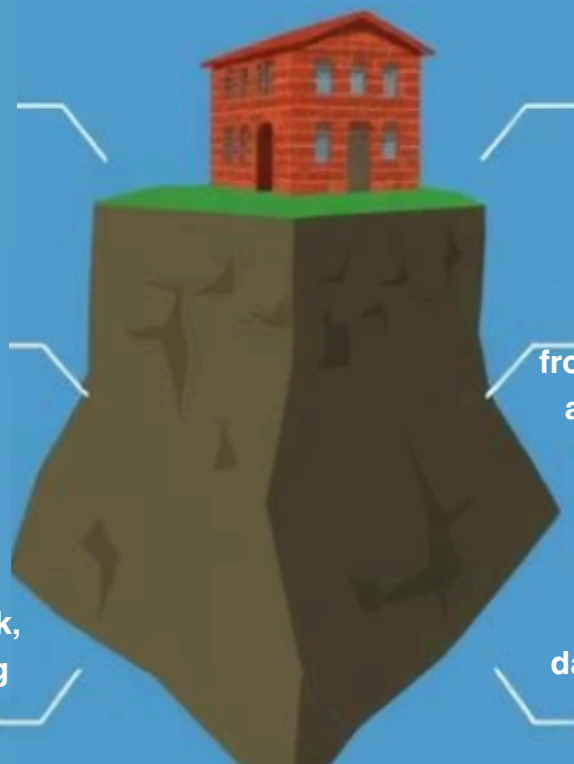
Decouples processing engines from storage, enabling multi-engine access without data duplication.

Compatibility Across Tools

Integrates with engines like Spark, Trino, Flink, and Hive, supporting diverse analytics workflows.

Scalability

Optimized for petabyte-scale datasets, with performance tuning for big data environments.



Staged Workflow Comparison

Traditional Data Lake

Apache Iceberg

Data
Ingestion

01

Raw Parquet/CSV files without
metadata tracking

Structured tables with built-in
metadata management

Data
Modification

02

No native update/delete support,
requires full file rewrites

ACID-compliant, enables
efficient in-place updates

Query
Execution

03

Full table scans are common, slowing
down performance as data grows

Partition pruning & metadata
filtering for faster scans

Historical
Access

04

No built-in time travel, versioning
needs manual snapshots or backups

Built-in time travel enables
instant historical data query

Business Use Cases



Time Travel Queries

Identify user drop-offs before/after content drops

e.g. Use time travel to analyze listener behavior over time.

NETFLIX

Churn & Engagement Tracking

Identify user drop-offs before/after content drops

e.g. Did viewer engagement drop after the launch of Stranger Things?



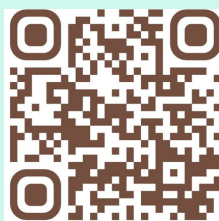
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