Datalake y DataWarehouse

BASES DE DATOS PARA IA

QUE ES UN DATAWAREHOUSE?

- CONTIENE INFORMACIÓN DE BASES DE DATOS TRANSACCIONALES
- SUMA INFORMACIÓN EXTERNA PARA VISTAS 360
- ORIENTADO A BIG DATA
- DATA ESTRUCTURADA DEL TIPO RELACIONAL
- ACID COMPLIANCE ES MENOS ESTRICTO
- AYUDA A CONSEGUIR INSIGHTS DE NEGOCIO EN INTELIGENCIA DE NEGOCIOS O BUSINESS INTELLIGENCE (BI)

Google BigQuery

CARACTERÍSTICAS

- SUBJECT ORIENTED:

  SE ORIENTA A SOLUCIONAR PROBLEMAS DE NEGOCIO CON DATOS

- INTEGRADO:

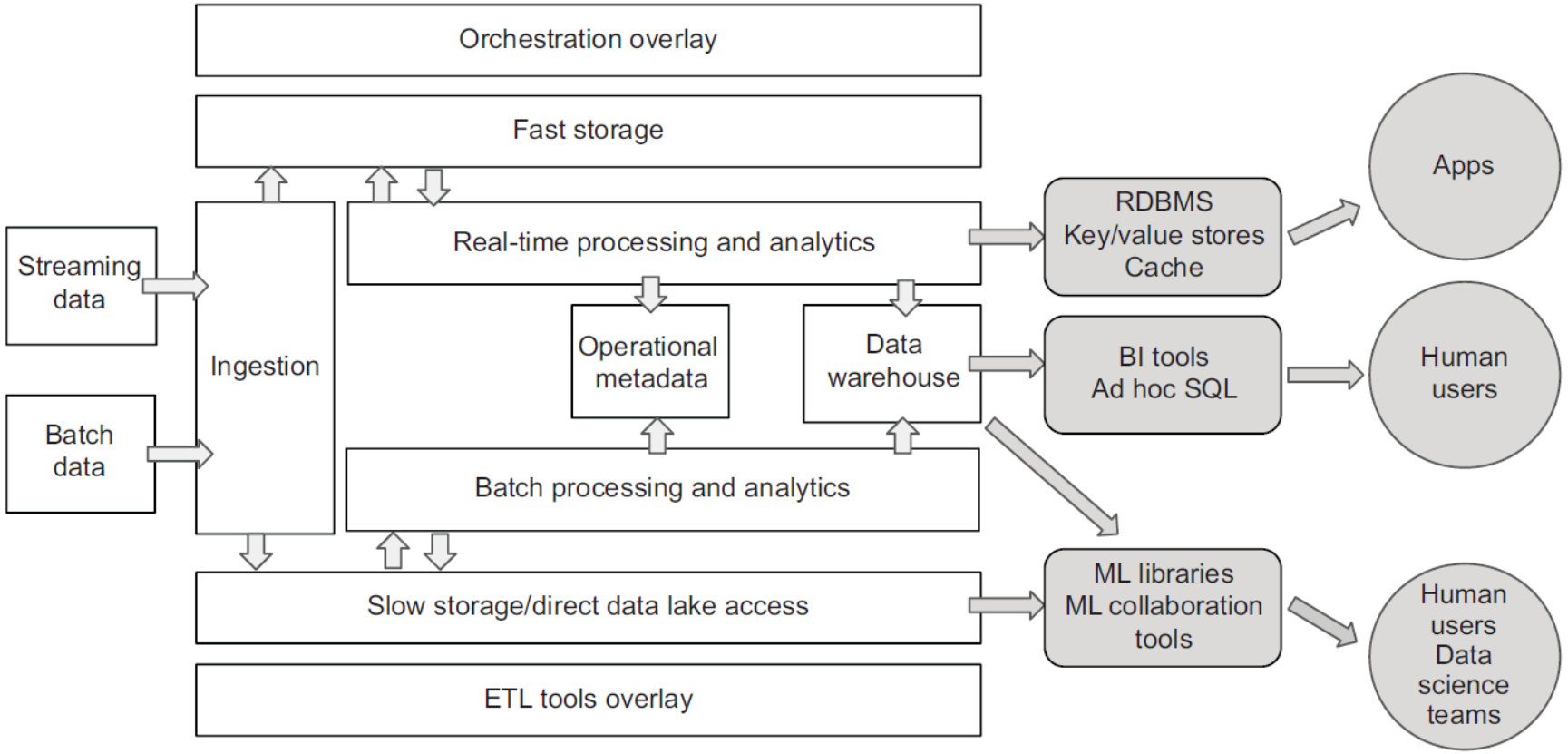
  RECIBE INFORMACIÓN DE DIFERENTES LUGARES CON EL FIN DE INTEGRARLOS

- VARIANTE EN EL TIEMPO

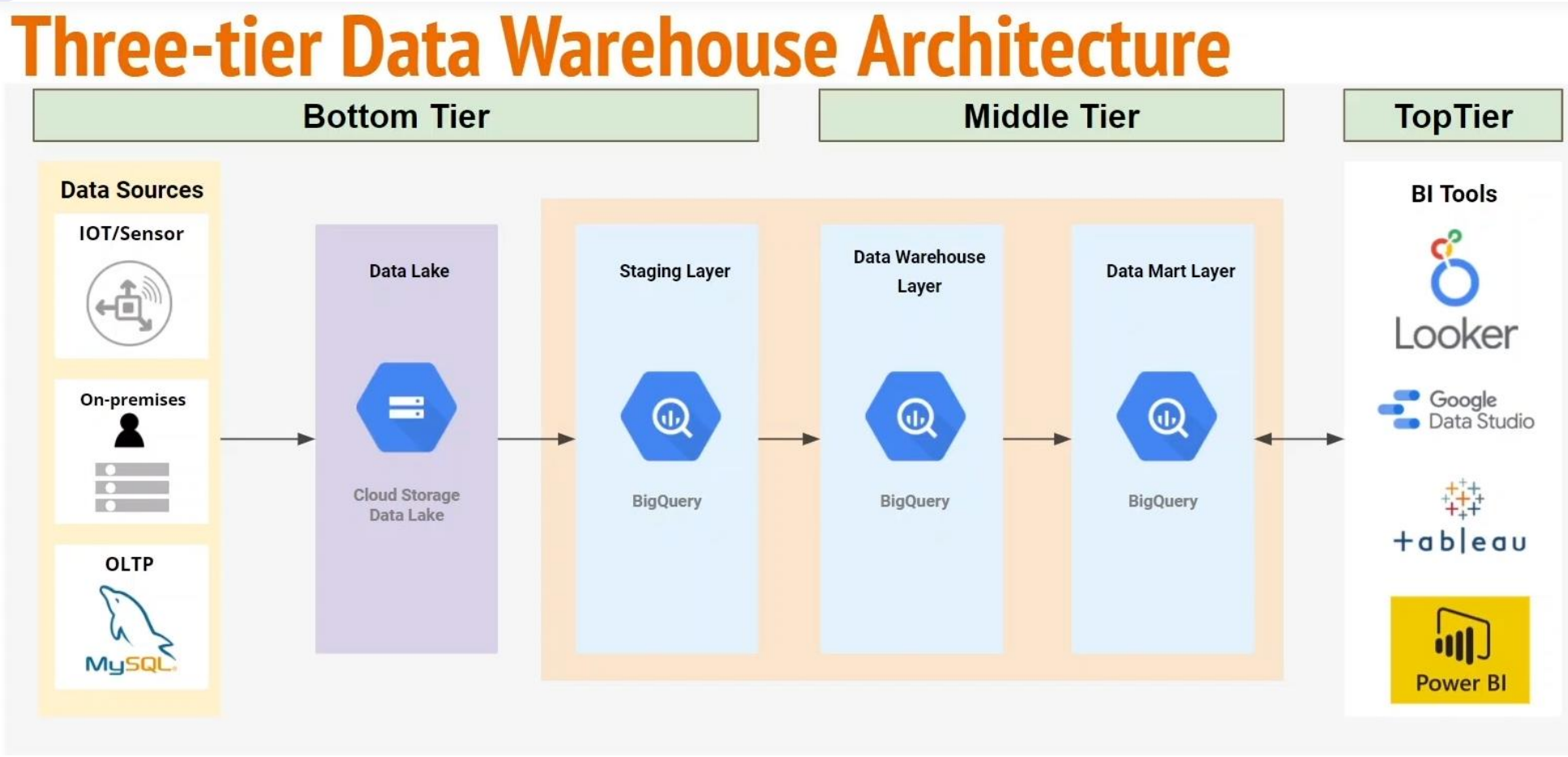
  SE GUARDA INFORMACIÓN CON CIERTA FRECUENCIA (DIARIO, SEMANAL) Y SE GUARDA LA INFORMACIÓN HISTÓRICA

- NO ES VOLATIL:
  - NUEVOS DATOS ENTRAN SIN QUE VIEJOS DATOS SE BORREN

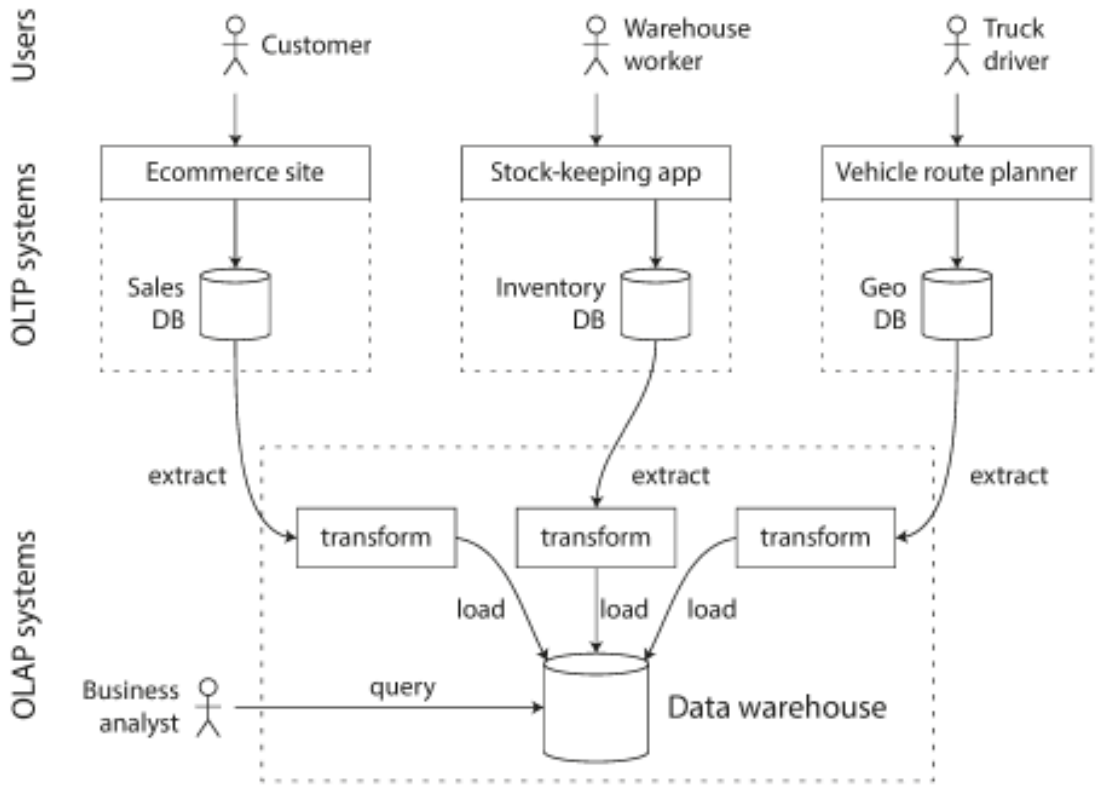
Arquitectura general de un DataWarehouse



COMO SE VE UN DW?



Proceso de ETL



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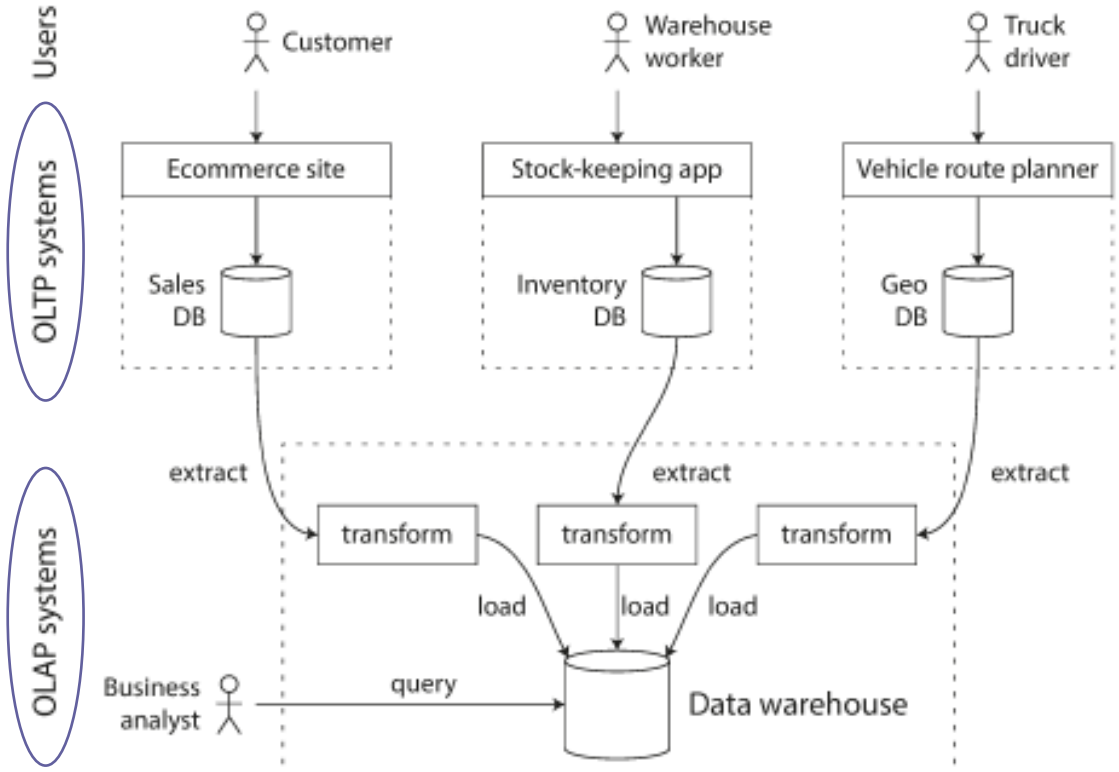


Row Oriented Storage vs Column Oriented Storage

OLTP
ONLINE TRANSACTION PROCESSING

Data in logical table

X	Y	Z
x1	y1	z1
x2	y2	z2
x3	y3	z3

Row-oriented storage on disk

All columns of a given row are stored together

OLAP
ONLINE ANALYTICAL PROCESSING

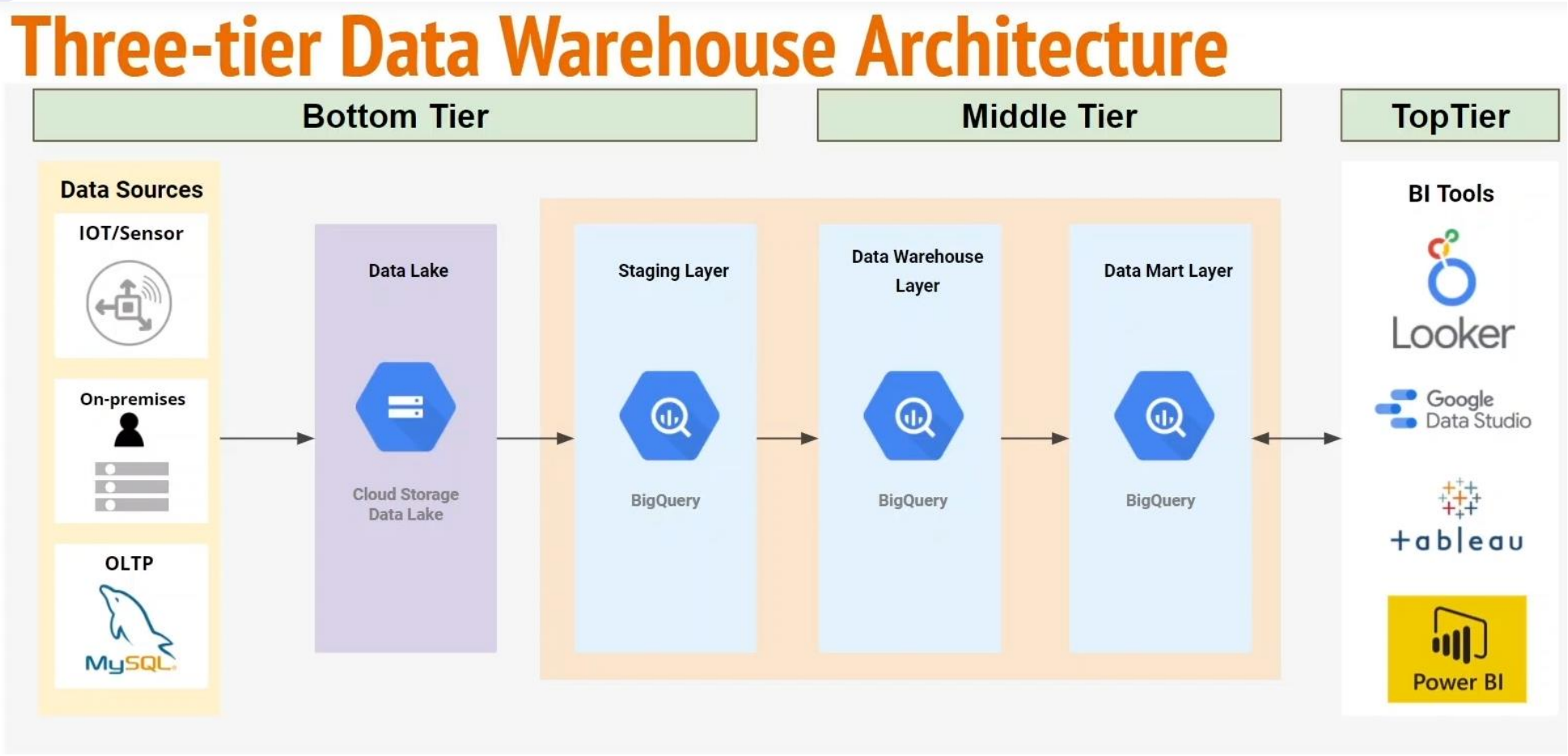
Data in logical table

X	Y	Z
x1	y1	z1
x2	y2	z2
x3	y3	z3

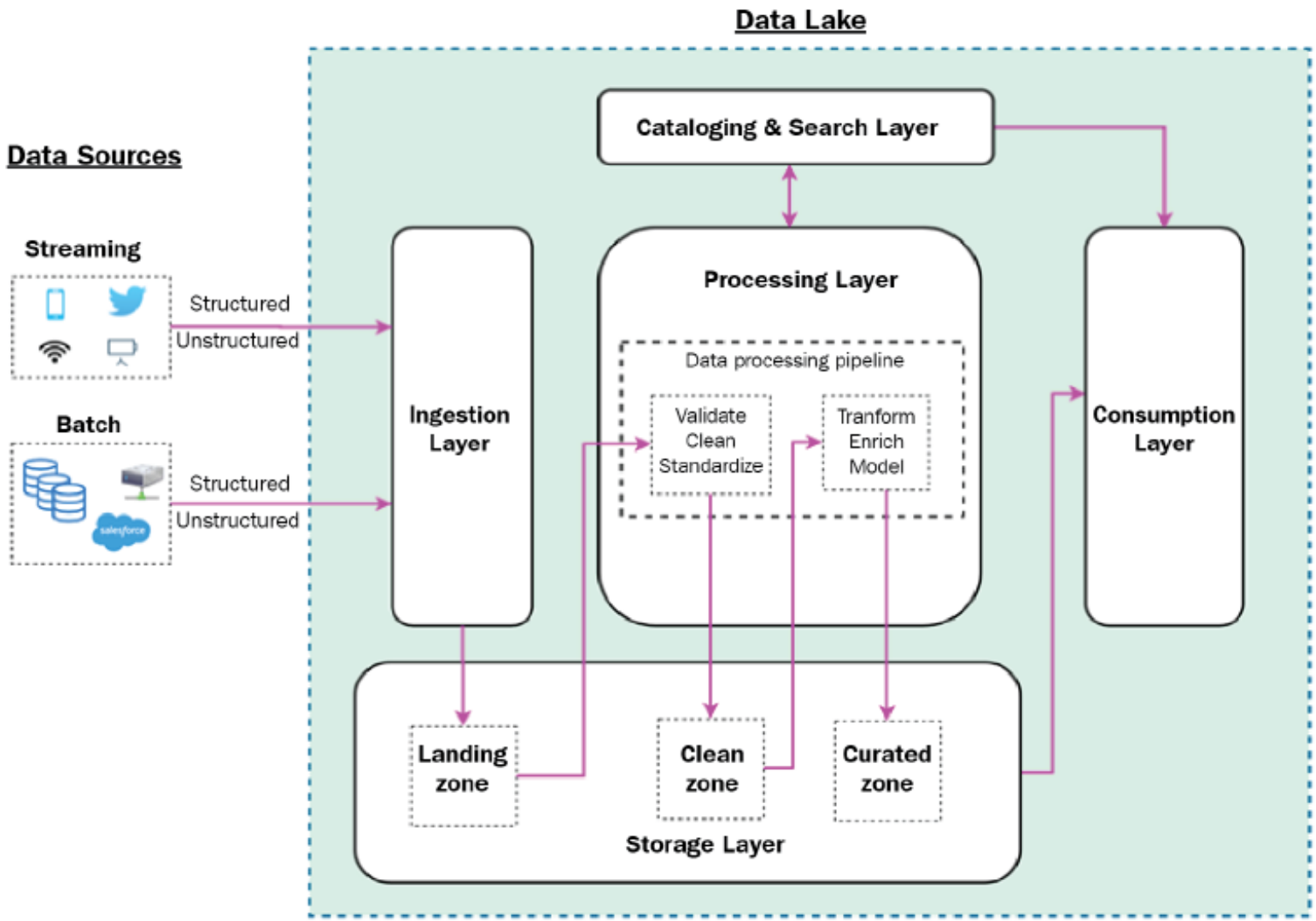
Column-oriented storage on disk

For a set of rows (a.k.a. "chunk"), all values of per column are stored together

COMO SE VE UN DW?

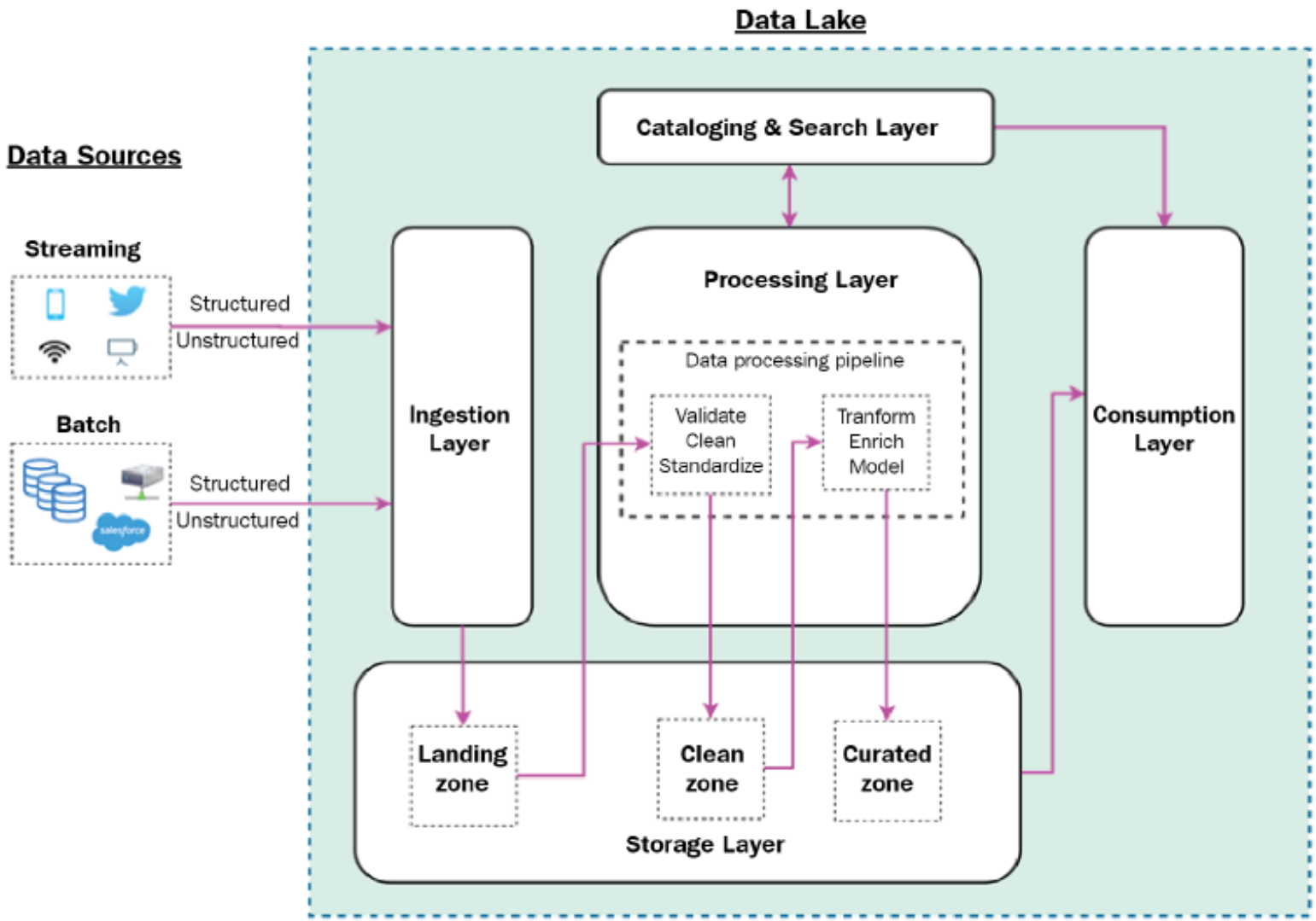


Data Lake Architecture



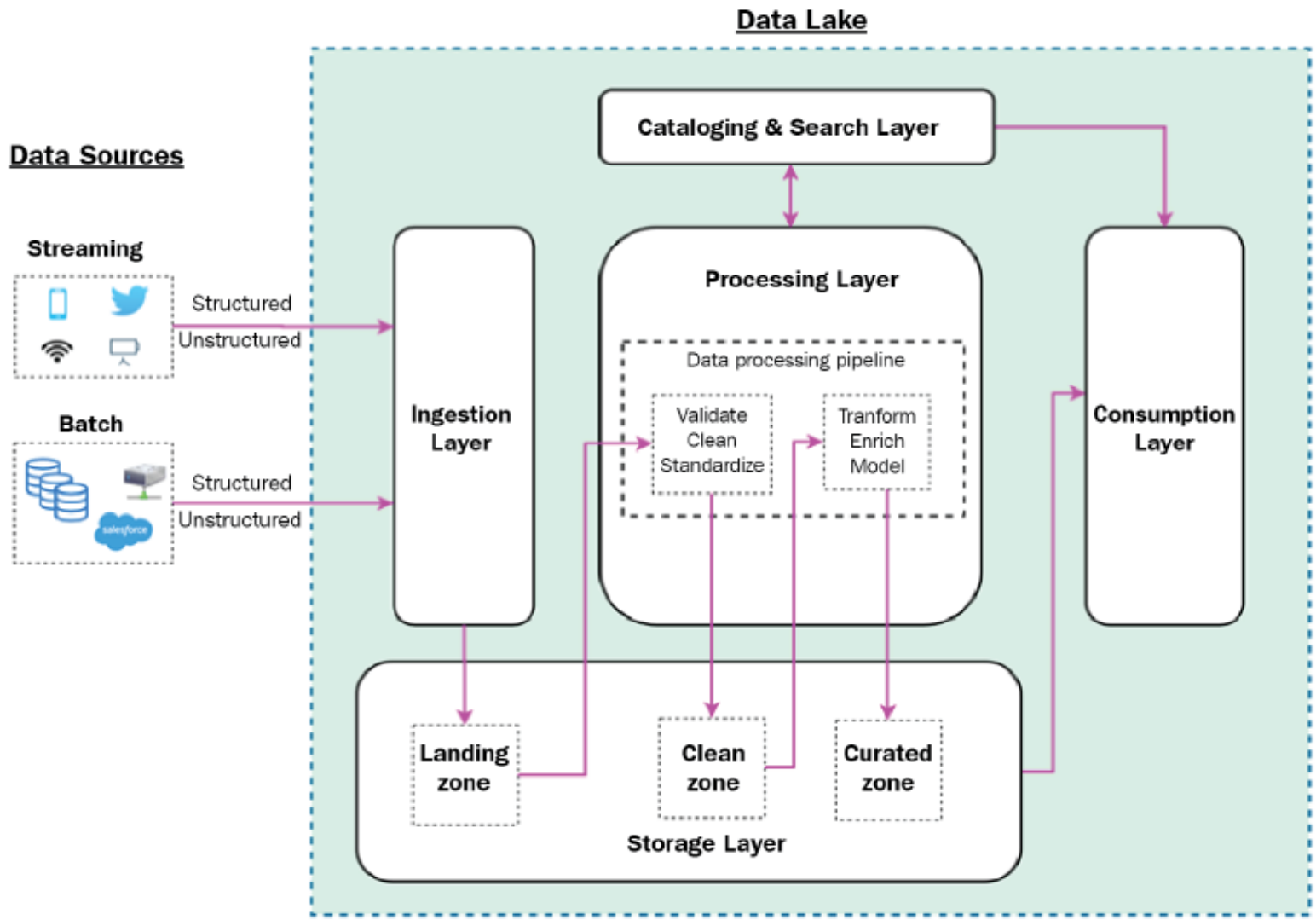
Data Lake Architecture

- LANDING ZONE:
  - Ingesta de datos
  - Se guarda “como vino”
  - Política de mantenimiento subjetiva



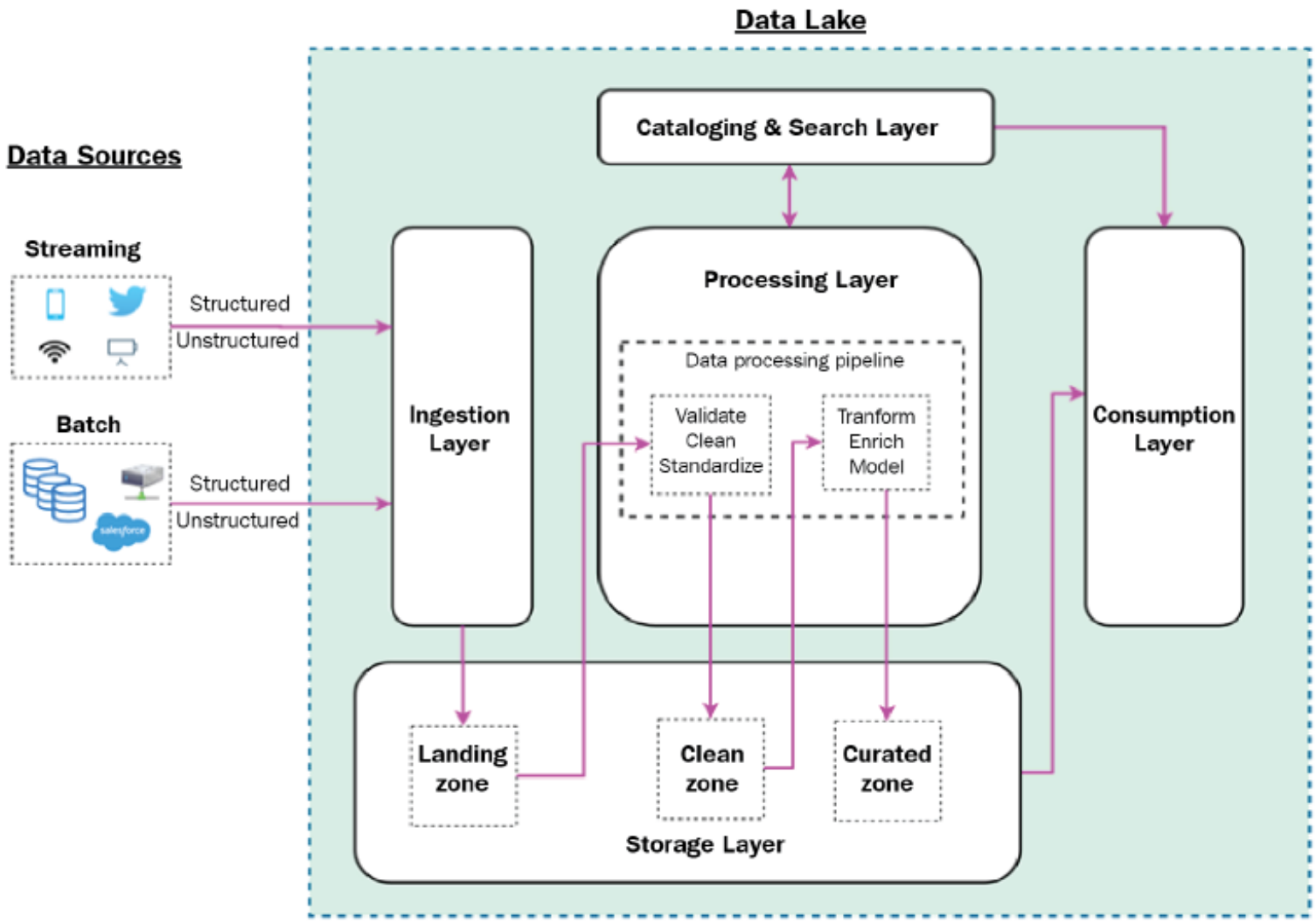
Data Lake Architecture

- CLEAN ZONE:
  - Se procesa de la landing zone
  - Se valida
  - Se limpia
  - Se optimiza el guardado (parquet)
  - Se enmascaran datos PII

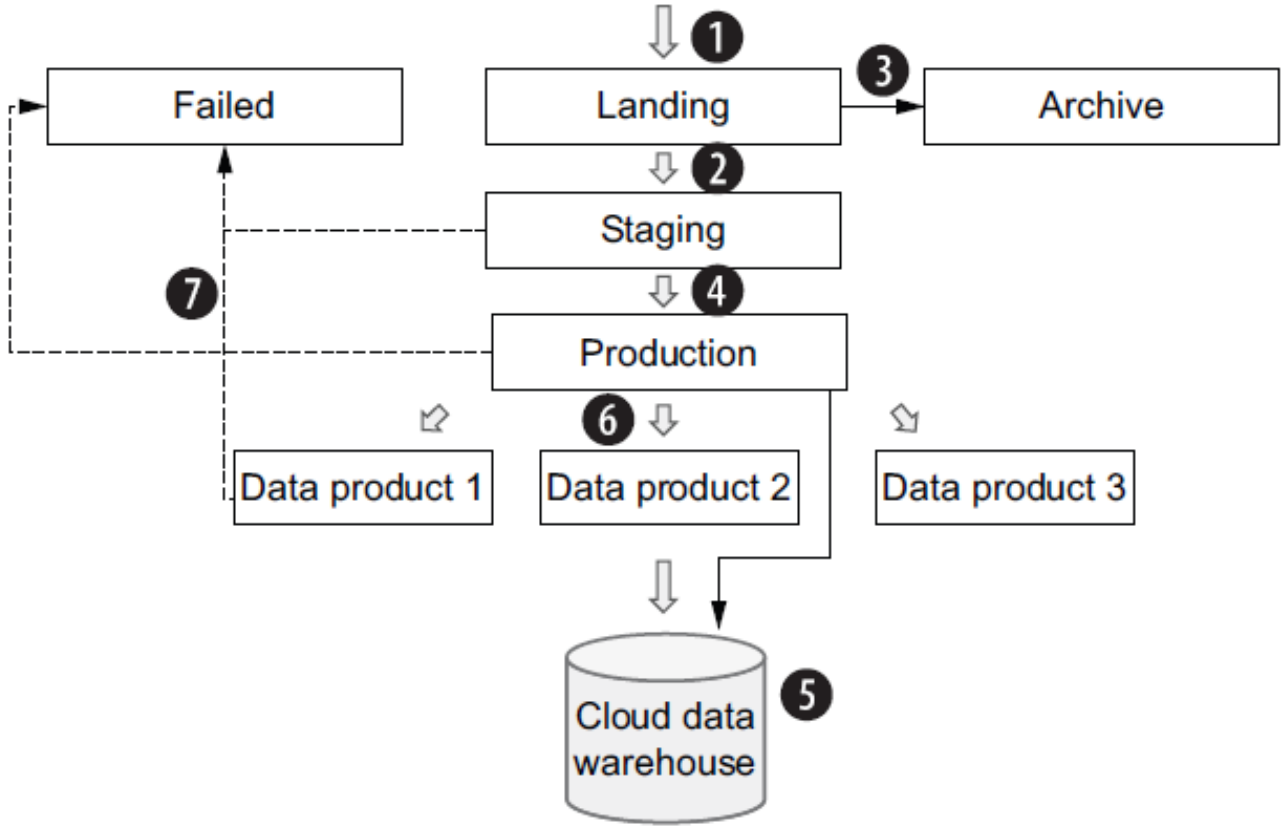


Data Lake Architecture

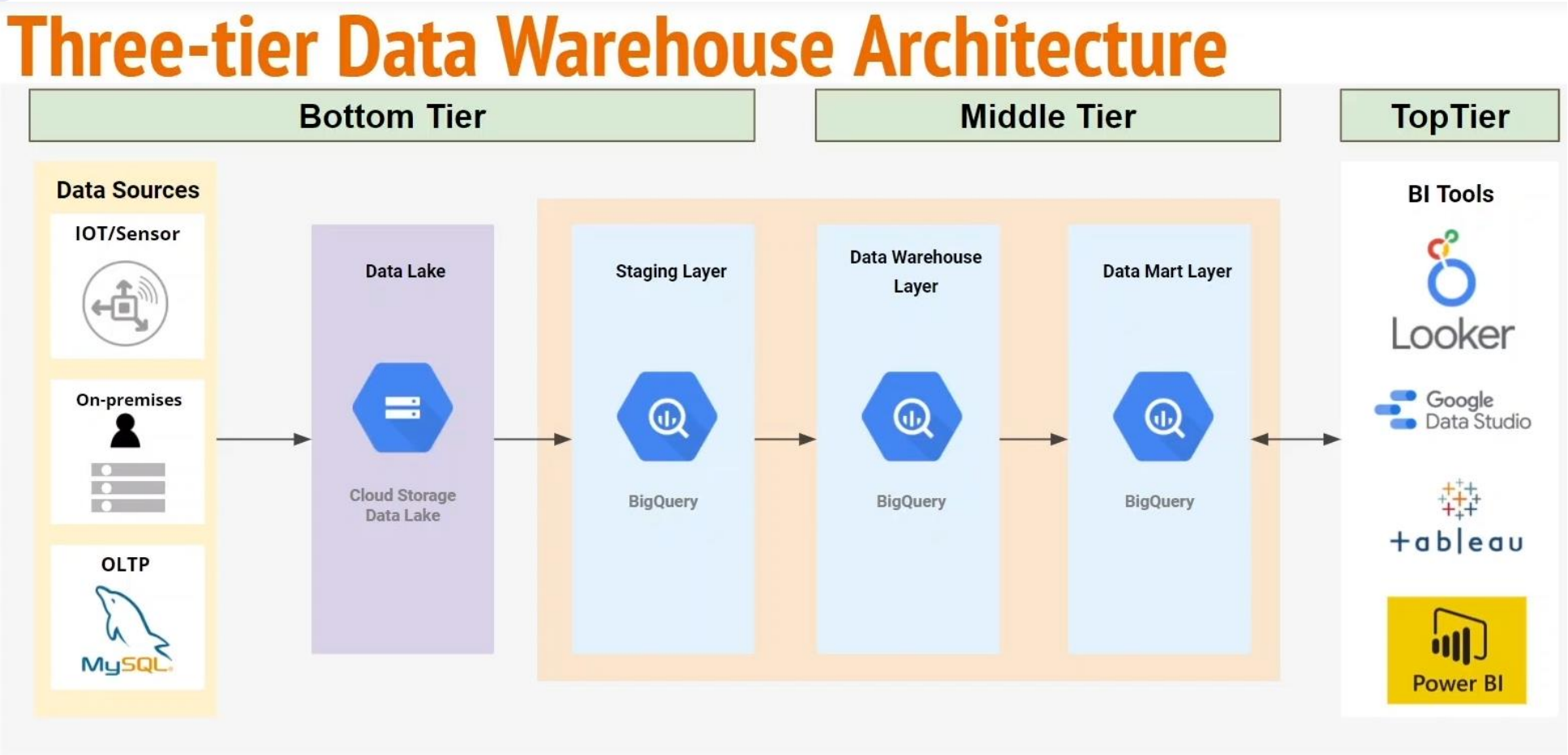
- CURATED ZONE:
  - Se refina con información externa/extra
  - Se agrega validación y lógica de negocio
  - Se cataloga para hacer gobierno



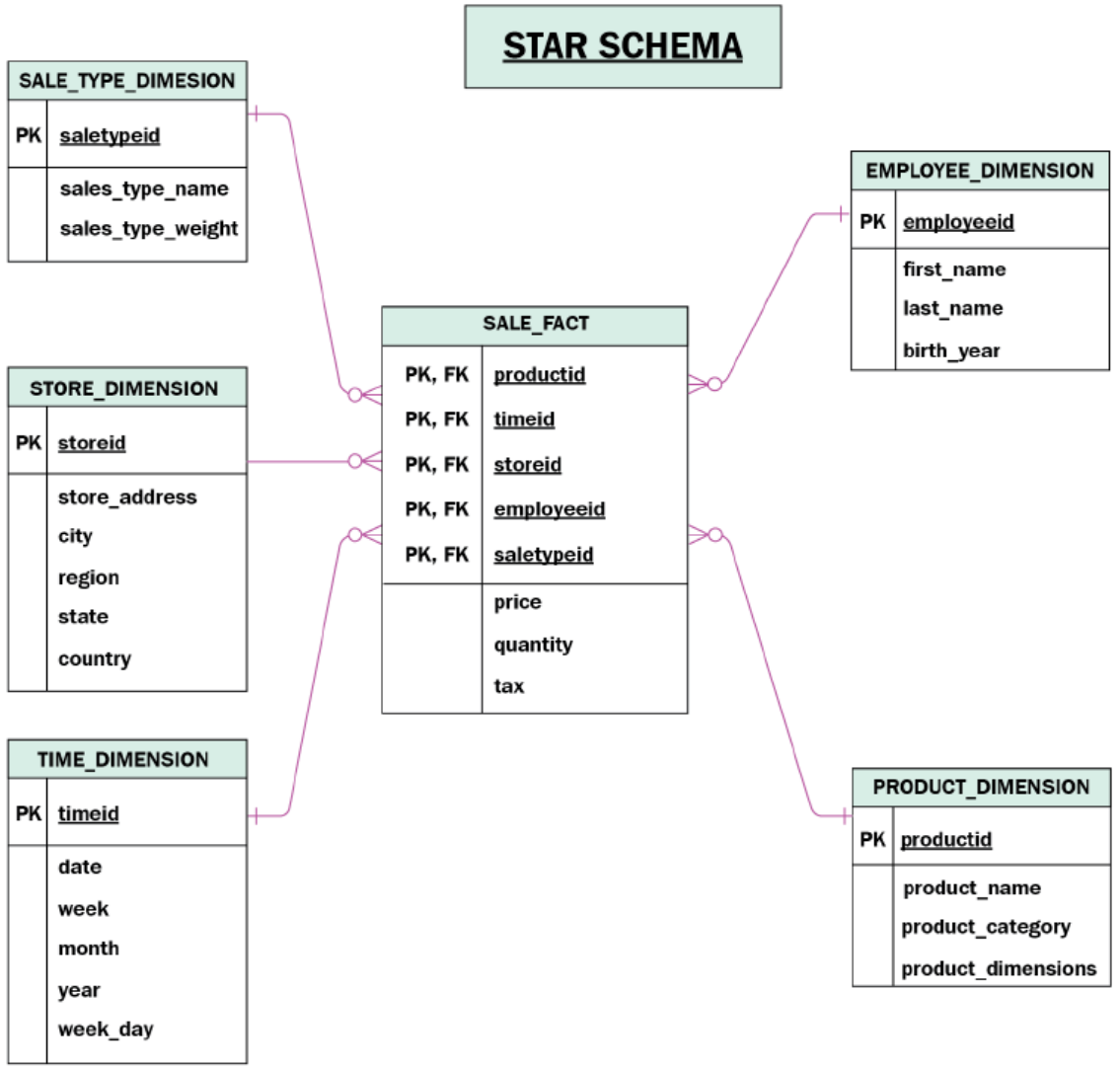
Pasos de ELT al DataLake



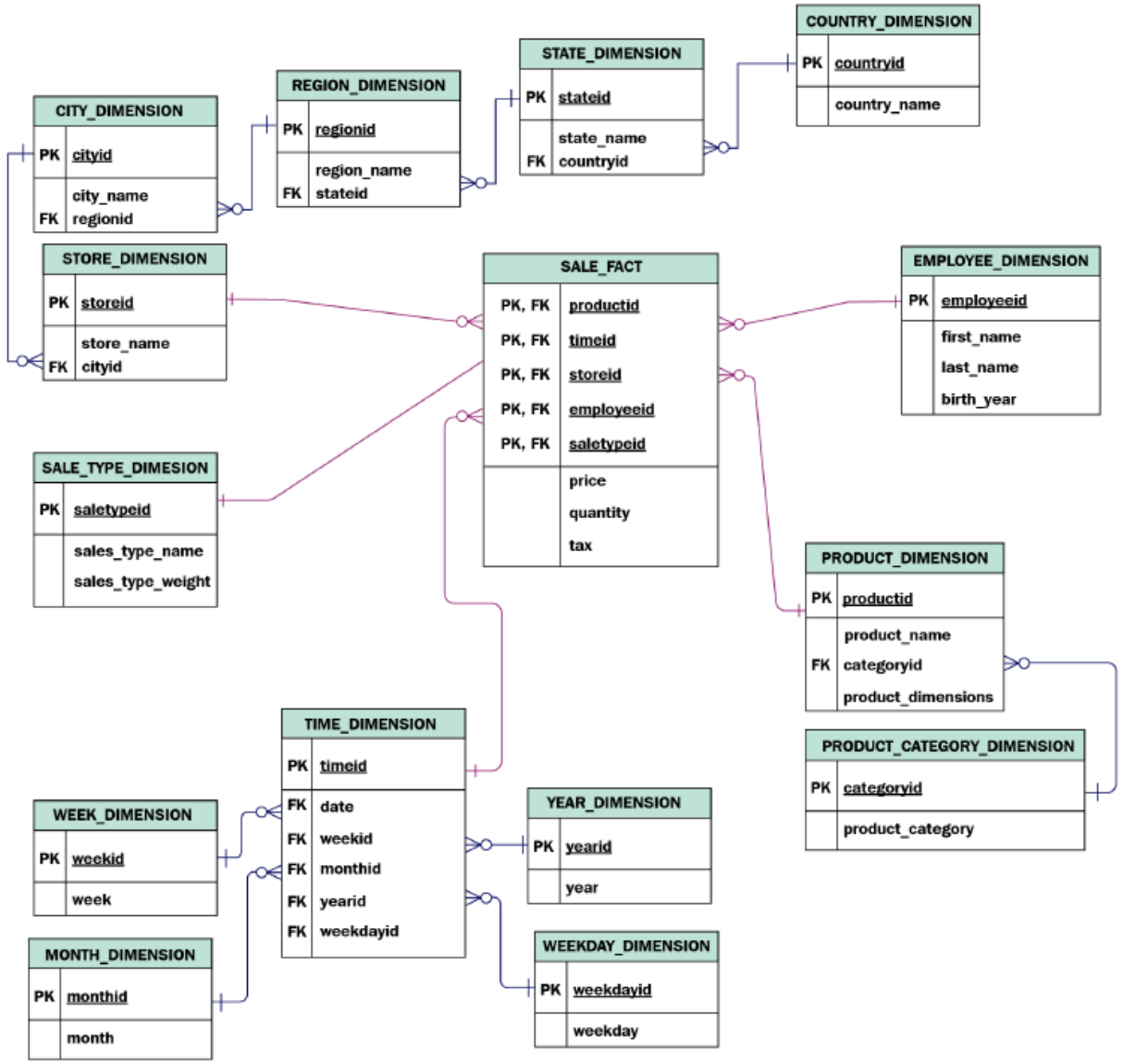
COMO SE VE UN DW?



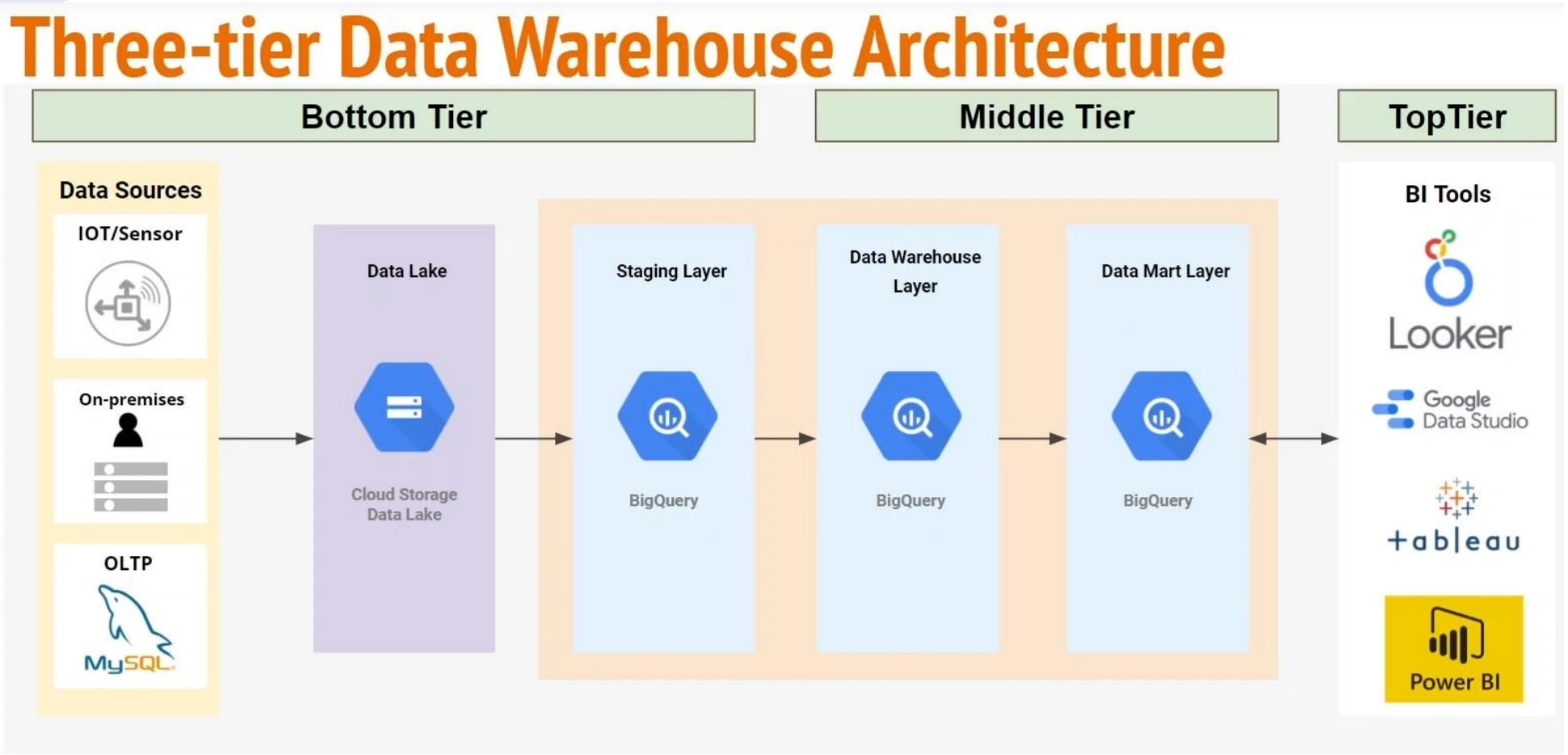
Dimensional Modelling
Star Schema



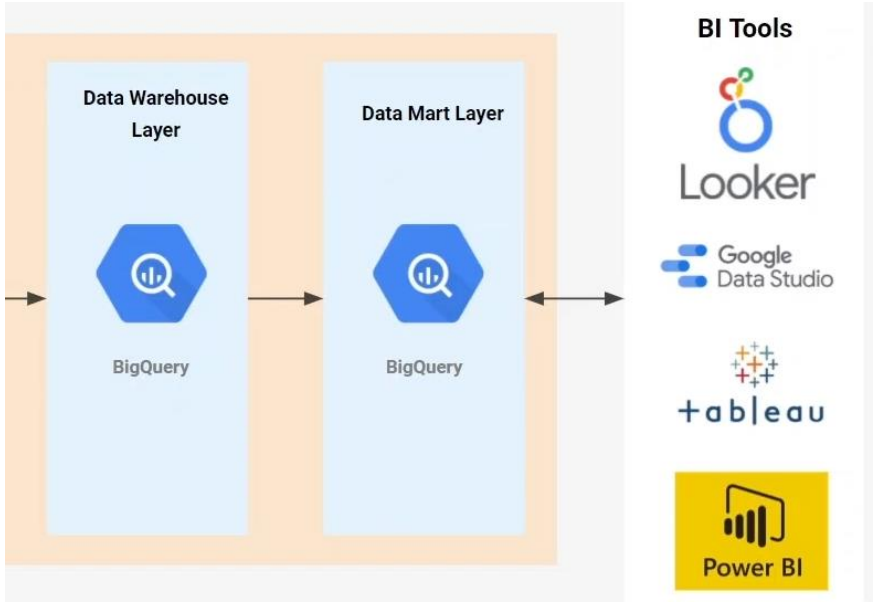
Dimensional Modelling - Snowflake Schema

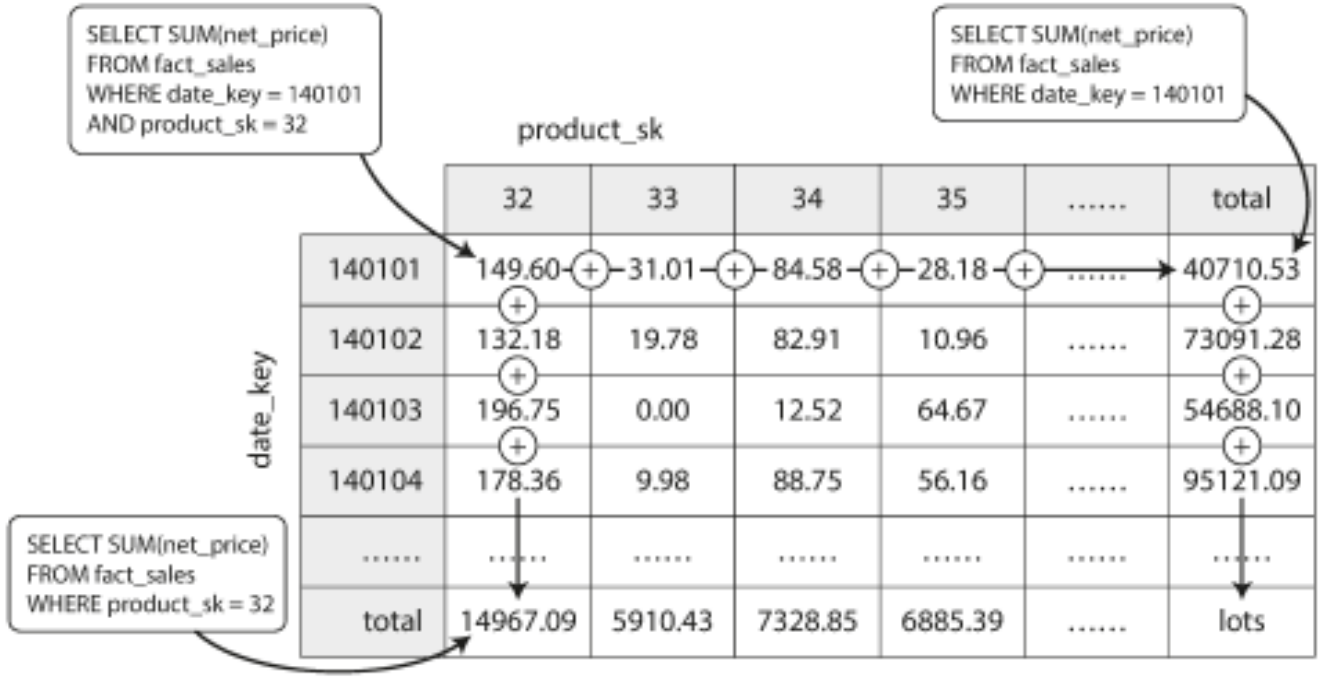


DATA MART

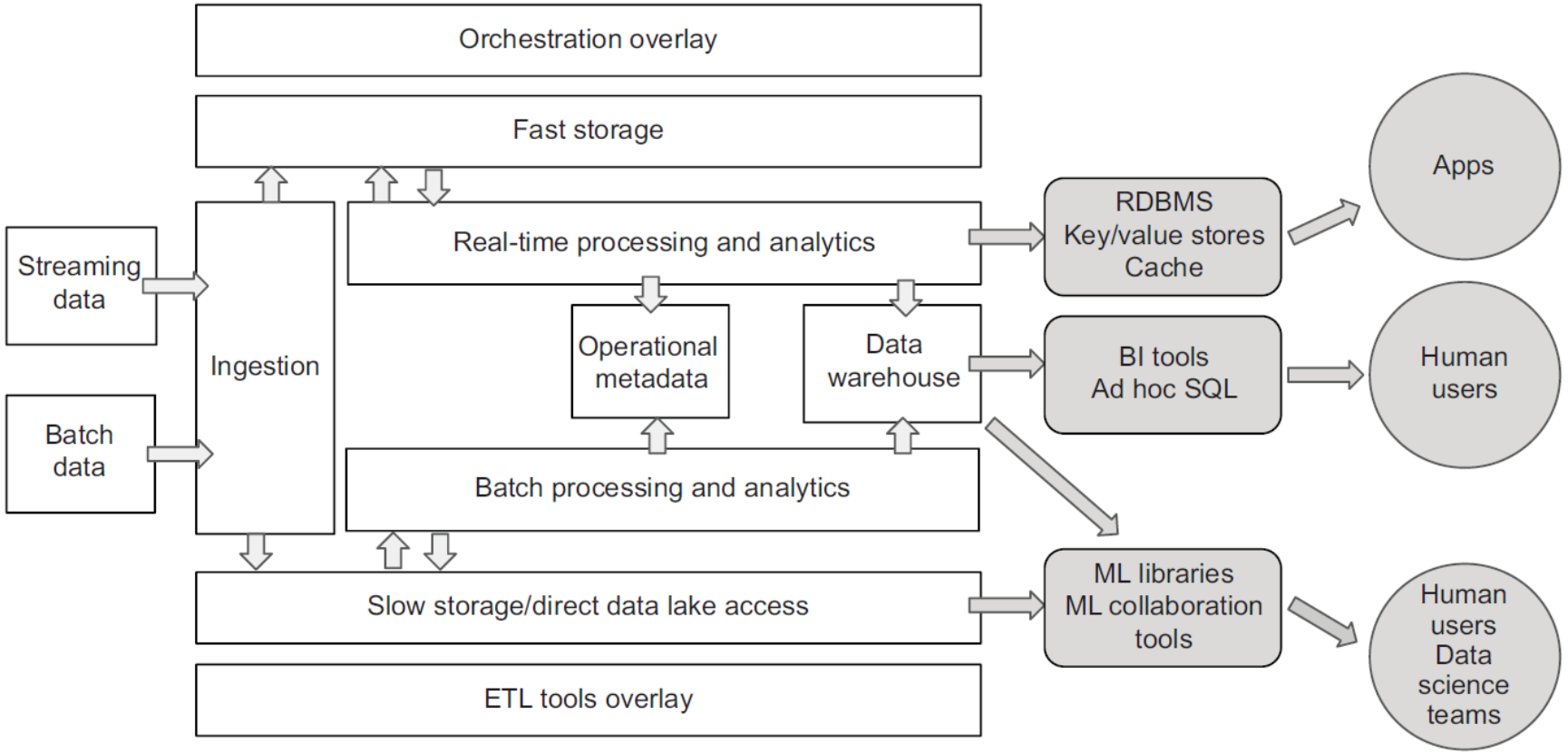

Three-tier Data Warehouse Architecture
Bottom Tier
Middle Tier
TopTier
Data Sources
IOT/Sensor
On-premises
OLTP
MySQL
Data Lake
Cloud Storage
Data Lake
Staging Layer
BigQuery
Data Warehouse
Layer
BigQuery
Data Mart Layer
BigQuery
BI Tools
Looker
Google
Data Studio
+ableau
Power BI

Data Mart Cubes

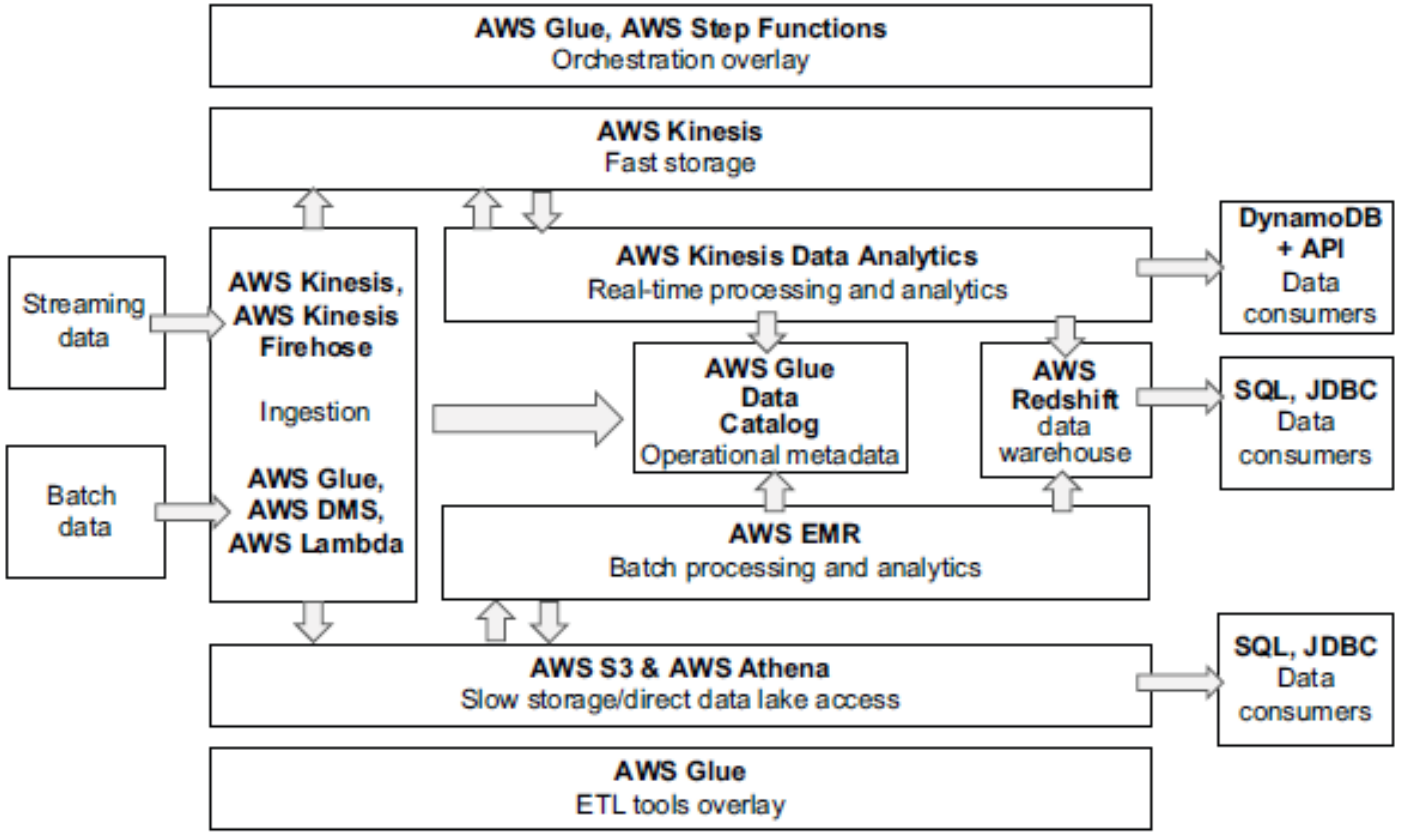




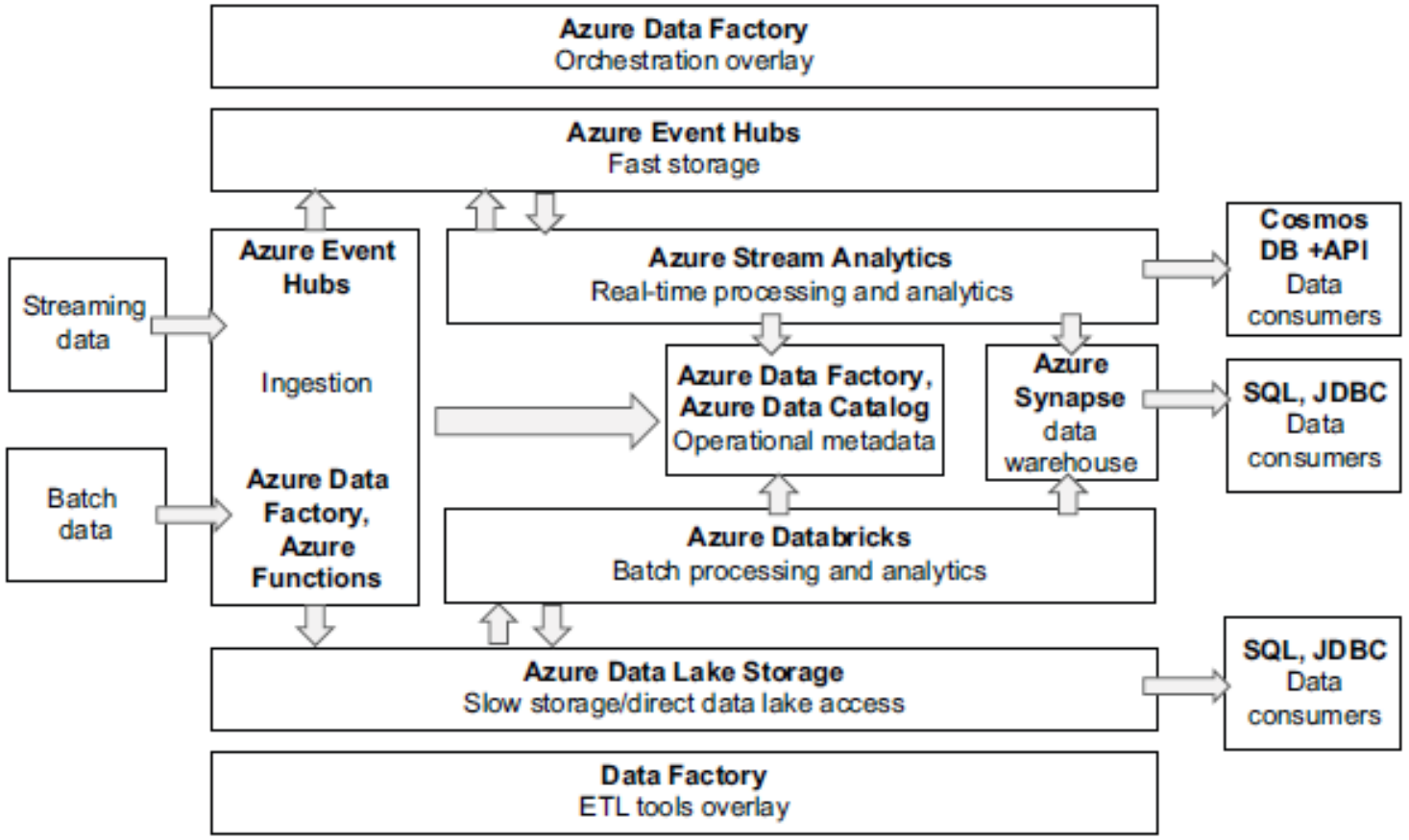
Arquitectura general de un DataWarehouse



Arquitectura general de un DataWarehouse - AWS



Arquitectura general de un DataWarehouse - AZURE



Arquitectura general de un DataWarehouse - GCP