CSCI E-103

Data Engineering for Analytics to Solve Business Challenges

BI Analytics & Data Visualization

Lecture 06

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Harvard Extension, Fall 2025

Agenda

- History of Data warehouses and why they are still popular for BI use cases
- Business Intelligence(BI) & Business Analytics(BA)
- JDBC connection to retrieve data
- KPIs: Concurrency & Latency Requirements
- Data Visualization
- Using the Lakehouse architecture for facilitating BI

- Lab
  - BI Reporting Dashboard

Review

- Main differences between Lakes & Warehouses?
- What are some ways of hydrating a Data Lake?
- Data Silo Vs Data Swamp?
- What are the 3 phases of the medallion architecture? What is the significance and why is it important?
- ‘Data as a product’ by decentralized domain centered teams is an example of a ________ architecture?
- Access data wherever it resides - cloud, on-prem, edge etc is an example of a _____ architecture?

Questions that we’ll look at tonight

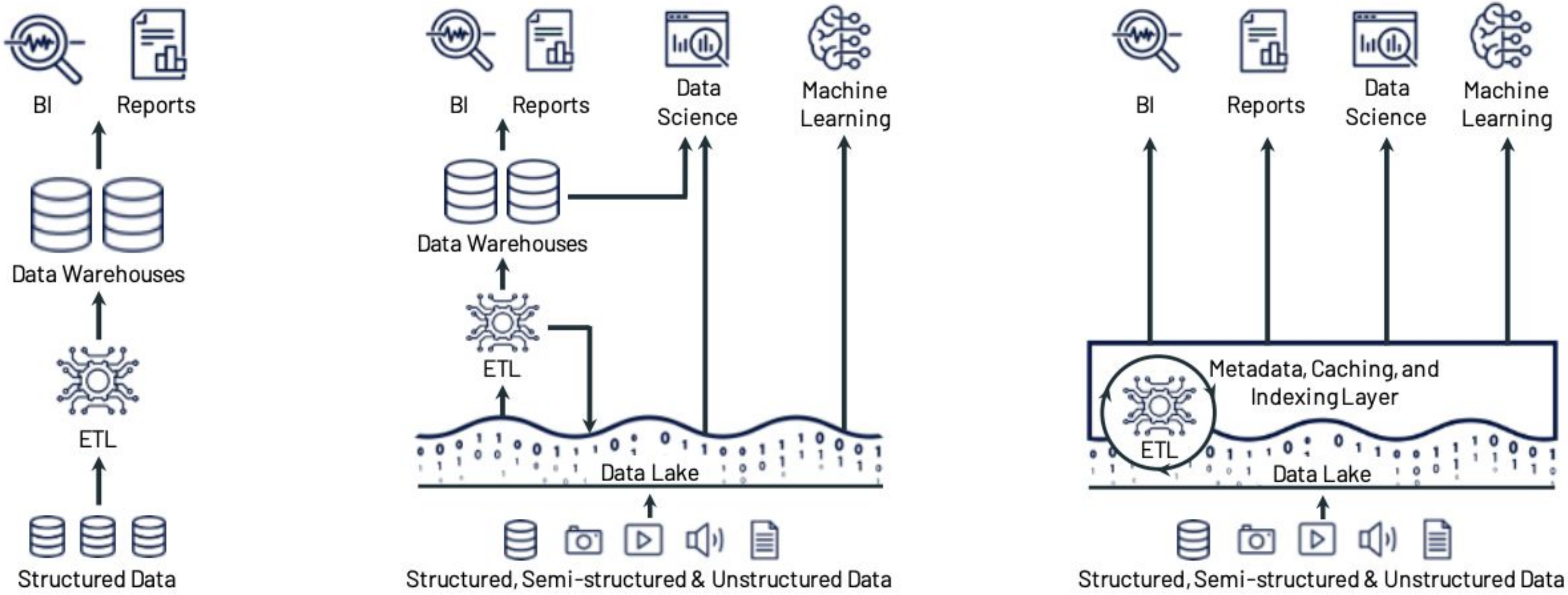
- What is BI?
- Name a few popular Warehouses
- Name a few popular BI Tools
- Who is the primary data persona for consuming BI data?
- What is the primary skill set of a BI persona?
- How is BI different from AI?

Data Lake Vs Data Warehouse

	Data Lake		**Data Warehouse**	
(Dimension)	**Pro**	**Con**	**Pro**	**Con**
Storage	Open-format All File Types	Lower quality Coarse file-level access to data	More reliable Fine-grained access control	Mostly structured Proprietary format
Compute	More economical especially for larger datasets	Operational complexity	Easy to Use High concurrency, low latency	Expensive to scale Limiting historical datasets
Consumption	Rich ecosystem of tools/frameworks	BI use cases are not first class	Pro-sql	Limited to no ML & streaming use cases

Lakehouse gives you the best characteristics of Lakes & Warehouses
<u>Performance</u> of a Warehouse with the <u>economics</u> of a Lake
*Leading to the important metric **<u>price-performance</u>***

Lakehouse architecture

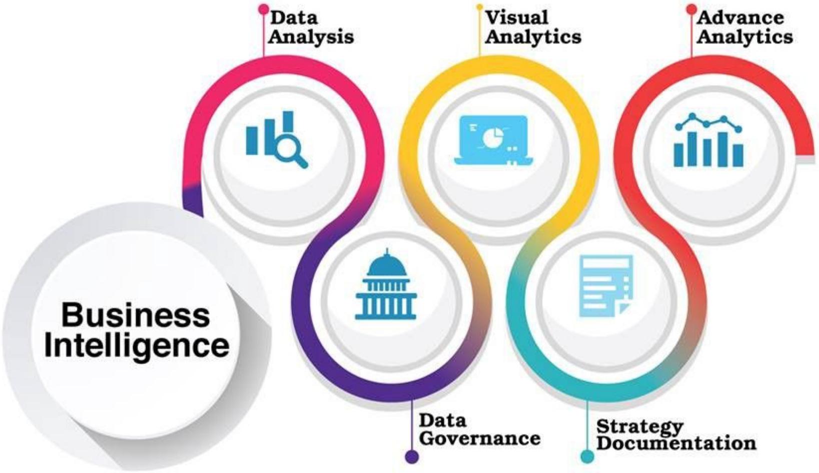


(a) First-generation platforms.

(b) Current two-tier architectures.

(c) Lakehouse platforms.

Business Intelligence (BI)

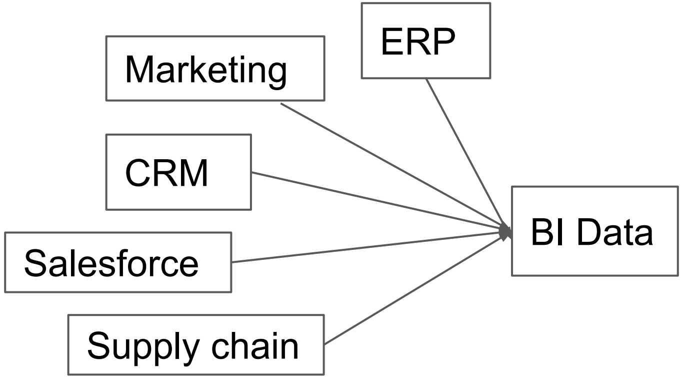


“Data is what you need to do Analytics.
Information is what you need to do Business”
John Owen, a theologian.

Refers to technologies, applications and practices for the collection, integration, analysis, and presentation of business information to support better business decision making.

Examples

- Contact and Interaction Analytics
- Closed Deal Analysis
- Website Traffic



real time reporting, dashboards, and analysis.

Data Store Evolution

1

2

3

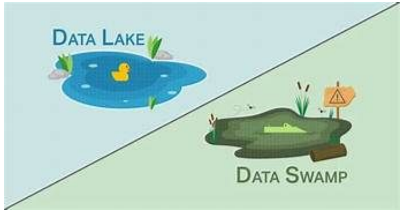
4

NotOnlySQL

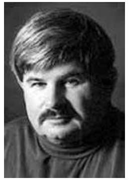
Data As a Service
Data As a Product

5

6



Data Mesh/Fabric: Distributed data architecture, under centralized governance and standardization



Bill Inmon: Father of DW
uses ER model in enterprise data warehouse and dimensional model for data marts only

Ralph Kimball: Father of DW
Proposed dimensional model such as star schemas or snowflakes to organize the data

Doug Cutting and Mike Cafarella
Creators of Hadoop

The Evolving Landscape of Business intelligence

1999
Data remains controlled by IT departments; reports need to be requested. QlikView reaches version 5.0, strengthening its Memory Associative approach, but the necessary hardware support limits the scope of the applications.

2003
The introduction of the 64-bit computer brings the power of QlikView to the forefront of modern BI post OLAP technologies

2004
Tableau 1.0 is released, joining QlikView among pioneering self-service BI tools

2006
Amazon creates Amazonn Web Services, the start of cloud computing

2007
Apple introduces the iPhone, opening up the possibility of mobile BI
IBM buys Cognos, SAP purchases Business Objects and Oracle acquires Hyperion

2010
Microsoft embeds Power Pivot into Excel, extending BI to ordinary business users

2012
Led by Tableau and Qlik, data visualizations help open up BI to self-service users

2015
Microsoft launches Power BI, further cementing self-service software's lead role

2016
Augmented analytics features start a new era of BI aided by machine learning

2019
Salesforce acquires Tableau, Google purchases Looker and Sisense buys Periscope.
AI, machine learning and natural language features are all becoming standard

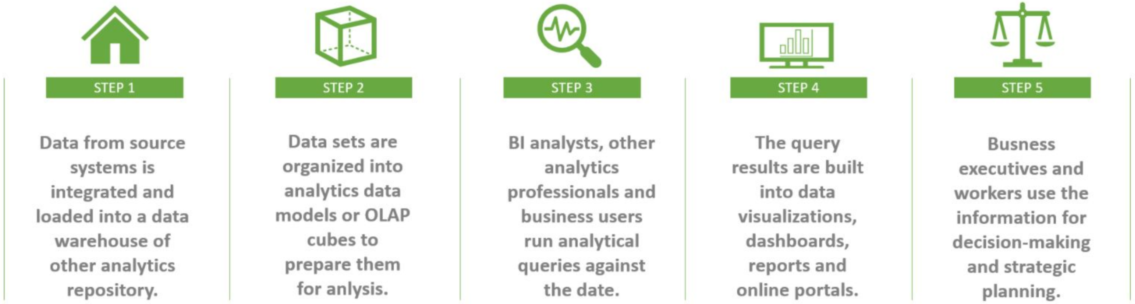
2020
Vendors expand low-code/ no-code, mobile BI and multi-cloud capabilities

BI Process for primarily <u>descriptive</u> analysis, trend towards <u>prescriptive</u>

Analyze data & present actionable insights to business stakeholders for decision making

- Self-Service Capabilities,
- Usage monitoring,
- Performance optimization,
- Security controls

Data storytelling features show data in an easy-to-grasp way



STEP 1

Data from source systems is integrated and loaded into a data warehouse of other analytics repository.

STEP 2

Data sets are organized into analytics data models or OLAP cubes to prepare them for anlysis.

STEP 3

BI analysts, other analytics professionals and business users run analytical queries against the date.

STEP 4

The query results are built into data visualizations, dashboards, reports and online portals.

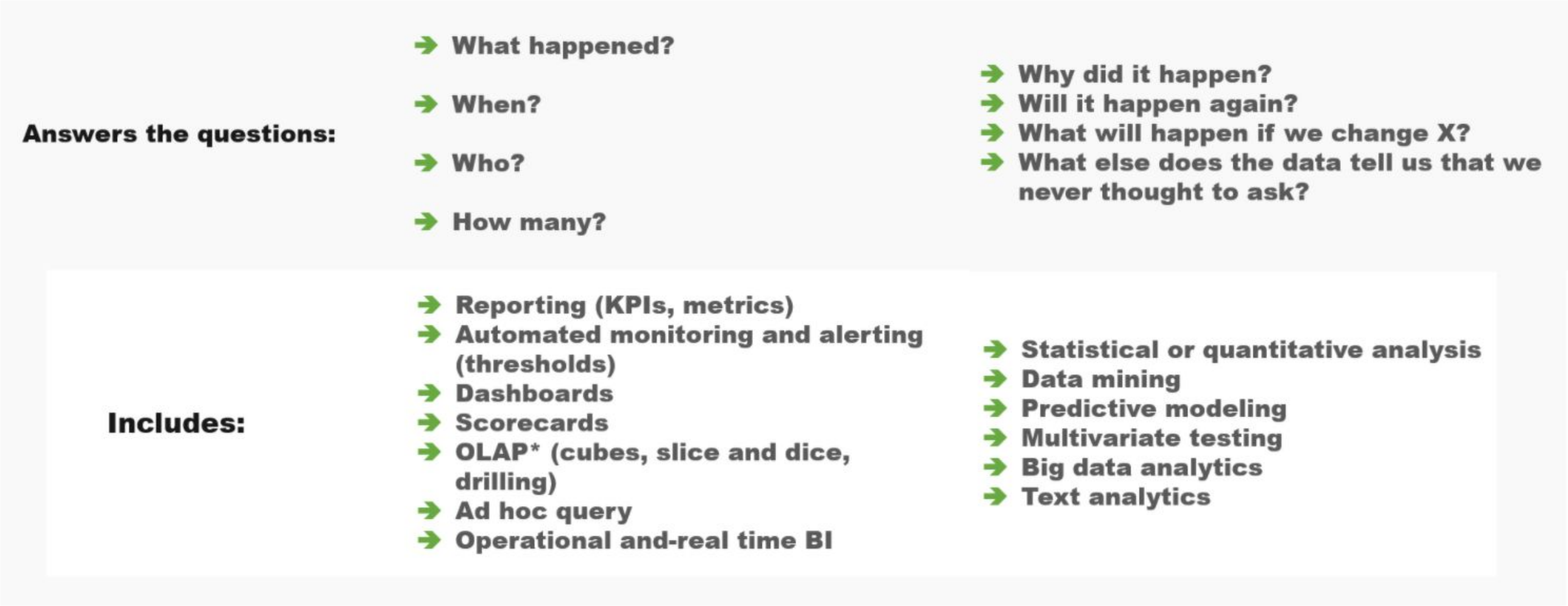
STEP 5

Busness executives and workers use the information for decision-making and strategic planning.

Business Intelligence (BI) vs Business Analytics (BA)

BI uses past+current data to address the what & how

BA uses past data to explain present and predict future addressing the why & what next



Answers the questions:	→ What happened? → When? → Who? → How many?	→ Why did it happen? → Will it happen again? → What will happen if we change X? → What else does the data tell us that we never thought to ask?
Includes:	→ Reporting (KPIs, metrics) → Automated monitoring and alerting (thresholds) → Dashboards → Scorecards → OLAP* (cubes, slice and dice, drilling) → Ad hoc query → Operational and-real time BI	→ Statistical or quantitative analysis → Data mining → Predictive modeling → Multivariate testing → Big data analytics → Text analytics

Where is the BI data?

- **BI Analyst** is a different persona as compared to Data Engineer & Data Scientist
  - Primarily skilled in sql
- BI data is **curated**
- BI data is typically stored in enterprise Data Warehouses or in specialized Data marts
- In recent years, Data Lakes have also been added to that list
  - Initial curation of data before it is pushed to a Warehouse
  - BI tools can now directly tap into all the data in the Data Lake (Lakehouse)
- Improvement in data democratization efforts is allowing for better
  - Self-service BI
  - Data Discovery
  - Data Mining for better what-if predictive scenarios

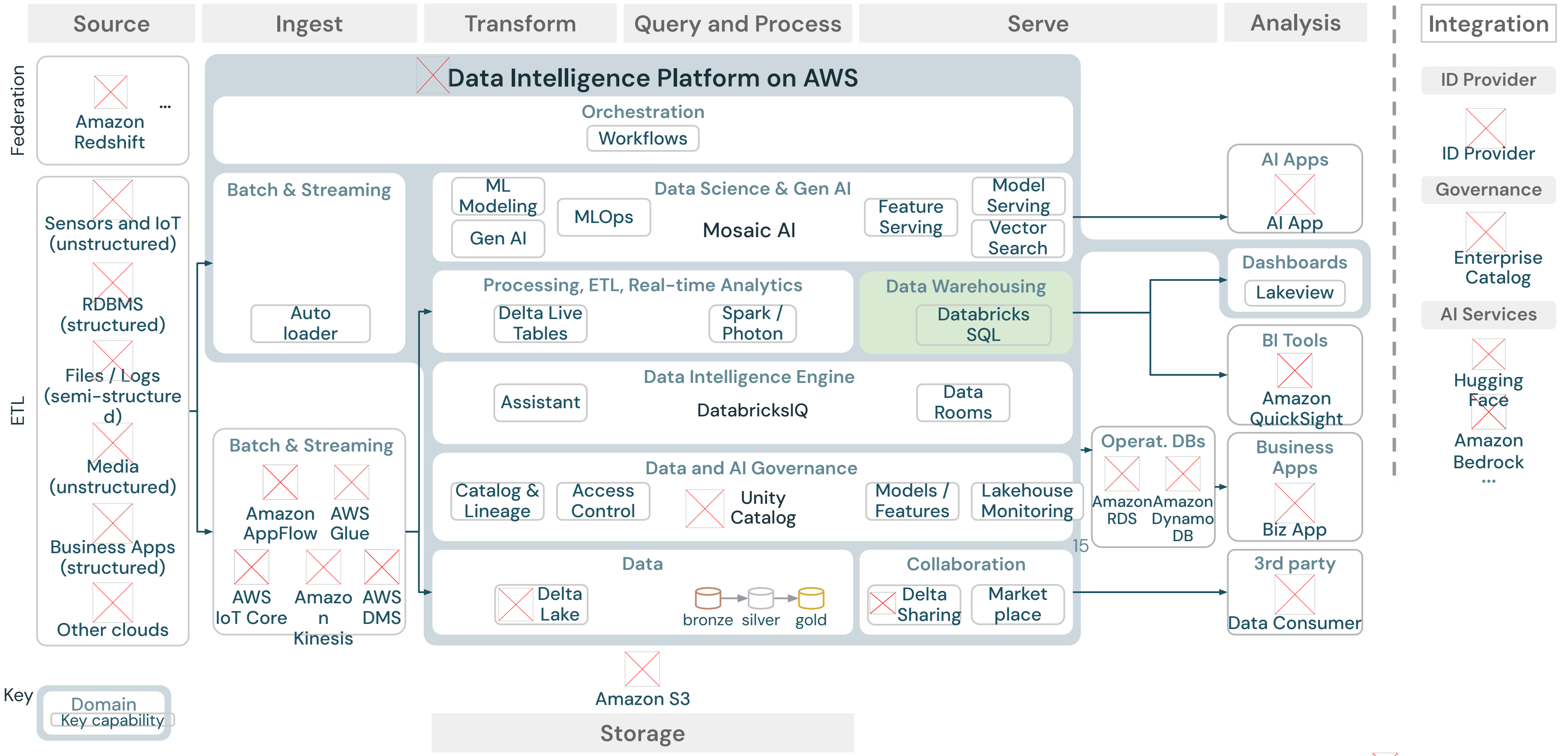
Warehouse Terminology

Catalog	Stores Metadata
Database/Schema	Namespace
Table	Data with storage ● Managed ● UnManaged/External
Keys/Indexes/Constraints	● PK, FK (not enforced, just for relationship understanding) ● Identity columns ● Surrogate Keys Vs natural keys ● Constraints for data quality
View	Virtual table (hydrated by a query)
Federated Query	Cross Data-Store Boundaries Push down predicates
Materialized View	Pre-computed to facilitate faster access (more frequent access)
Stored Procedure/UDF	Logic Encapsulation
Semantic Data Model	Relationships captured using business terminology Vs referential constraints

Components of good BI

Data Collection	Business data of any nature, that lies scattered across flat files, feeds, databases, cloud storage and business applications is gathered for further analysis and reporting.
Data Preparation	Data collected from different sources goes through a sequence of steps : integration, modelling, cleansing, preparation and enrichment, before organizing it into an analytics-ready format.
Intelligent Analytics	Derive maximum value out of the available data, by doing analysis to uncover insights about - 1.what had happened 2. why and how did it happen and even go ahead to predict 3. What might happen.
Data Visualisation	Analytical insights can be made easily consumable through dashboards and reports, that shall be built with an easy-to-use drag-and-drop interface.
Sharing and Collaboration	The insightful reports and dashboards can be shared with each other, for collaborative analytics and informed decision-making.
Data Governance	Who has access to what information
Strategy Documentation	Centralized Data Catalogs
Ease of Use, Implementation & Integration	Data democratization; How long to implement a BI solution; Integration with existing technology stack

Databricks Data Intelligence Platform on AWS



Source | Ingest | Transform | Query and Process | Serve | Analysis

Integration

Federation

Amazon Redshift
...

ETL

Sensors and IoT (unstructured)
RDBMS (structured)
Files / Logs (semi-structured)
Media (unstructured)
Business Apps (structured)
Other clouds

Data Intelligence Platform on AWS

Orchestration
Workflows

Batch & Streaming
Auto loader

Batch & Streaming
Amazon AppFlow
AWS Glue
AWS IoT Core
Amazon Kinesis
AWS DMS

Data Science & Gen AI
ML Modeling
Gen AI
MLOps
Mosaic AI
Feature Serving
Model Serving
Vector Search

Processing, ETL, Real-time Analytics
Delta Live Tables
Spark / Photon

Data Warehousing
Databricks SQL

Data Intelligence Engine
Assistant
DatabricksIQ
Data Rooms

Data and AI Governance
Catalog & Lineage
Access Control
Unity Catalog
Models / Features
Lakehouse Monitoring

Data
Delta Lake
bronze
silver
gold

Collaboration
Delta Sharing
Market place

Amazon S3

Storage

Operat. DBs
Amazon RDS
Amazon Dynamo DB

AI Apps
AI App

Dashboards
Lakeview

BI Tools
Amazon QuickSight

Business Apps
Biz App

3rd party
Data Consumer

ID Provider
ID Provider

Governance
Enterprise Catalog

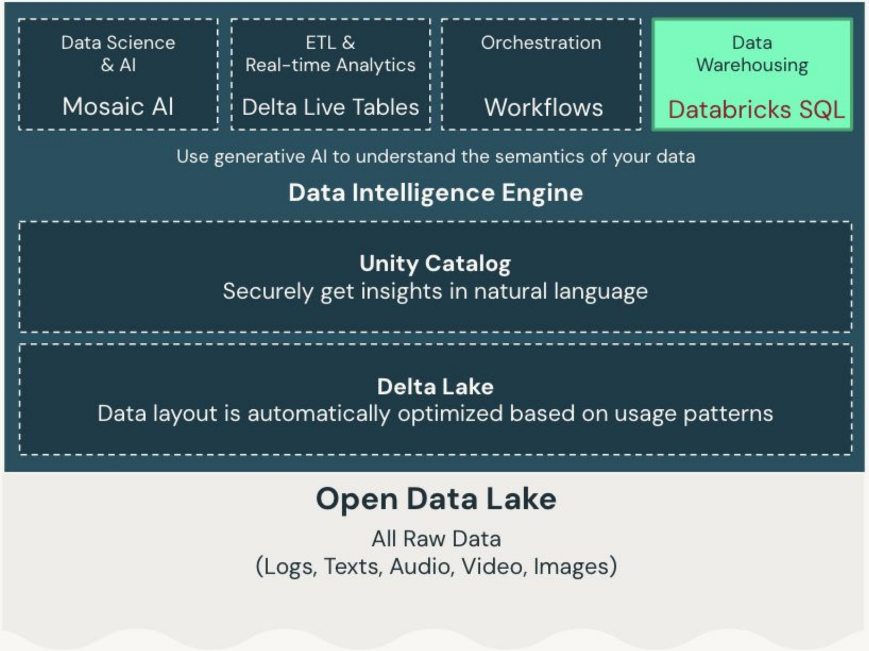
AI Services
Hugging Face
Amazon Bedrock
...

Key
Domain
Key capability

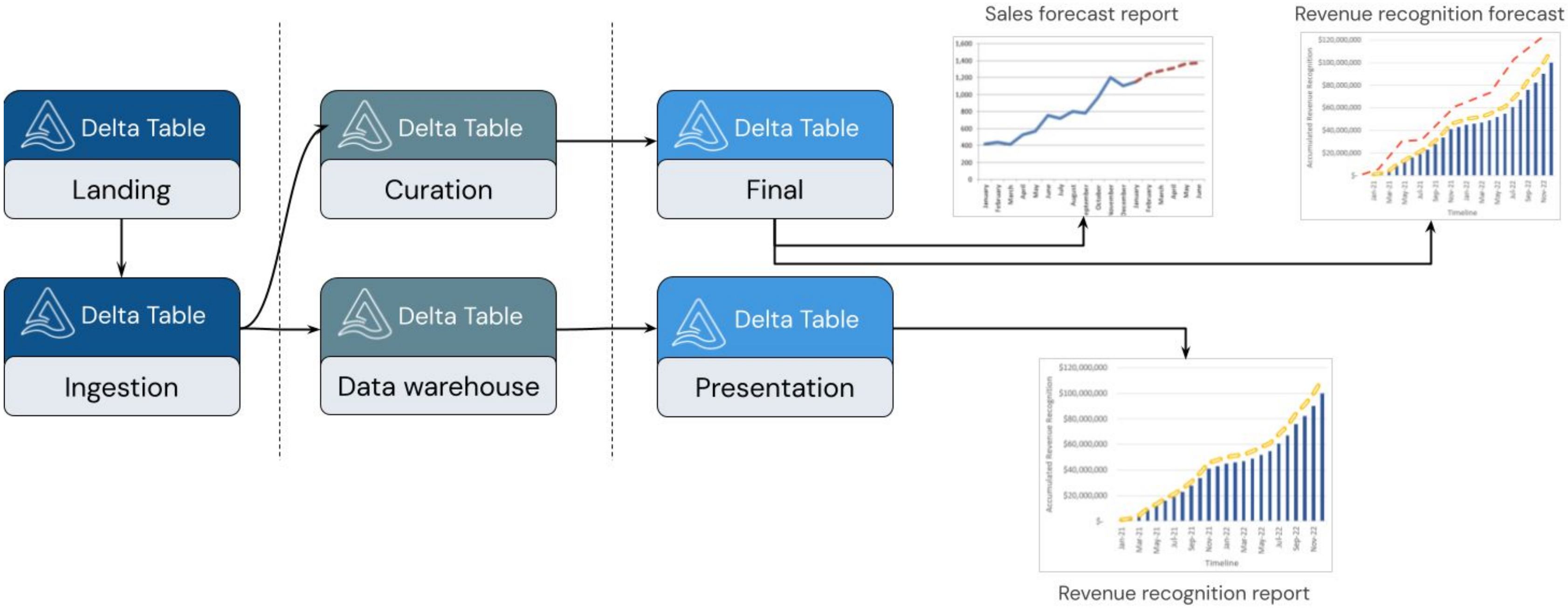
Databricks SQL

Delivering analytics on the freshest data with data warehouse performance and data lake economics

- Home for data analysts
- Use ANSI SQL to query data
- Built on open foundation
- Broad Integration with other BI tools like Tableau or Power BI
- Partner connect to aid data hydration
- Better price / performance than other cloud data warehouses
- Simplify discovery and sharing of new insights
- Simplified administration and governance – setup catalog, discover data, view lineage
- Lakeview Dashboards
- AI/BI Genie space


Data Science & AI
Mosaic AI
ETL & Real-time Analytics
Delta Live Tables
Orchestration
Workflows
Data Warehousing
Databricks SQL
Use generative AI to understand the semantics of your data
Data Intelligence Engine
Unity Catalog
Securely get insights in natural language
Delta Lake
Data layout is automatically optimized based on usage patterns
Open Data Lake
All Raw Data
(Logs, Texts, Audio, Video, Images)

Data modeling for Data Warehouse



Delta Table

Landing

Delta Table

Ingestion

Delta Table

Curation

Delta Table

Data warehouse

Delta Table

Final

Delta Table

Presentation

Sales forecast report

Revenue recognition forecast

Revenue recognition report

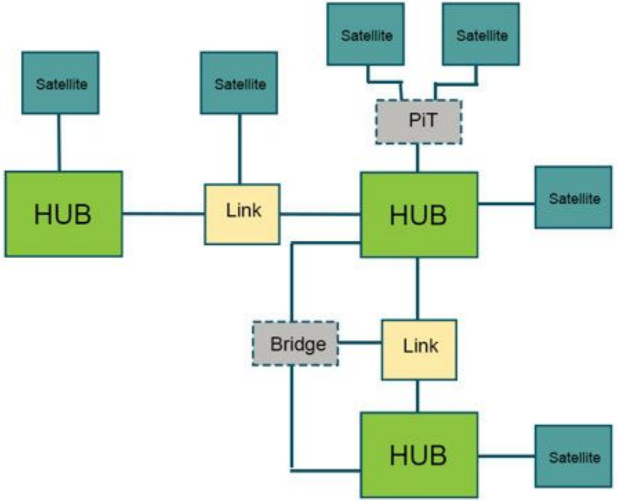
Modeling for the Warehouse

Link

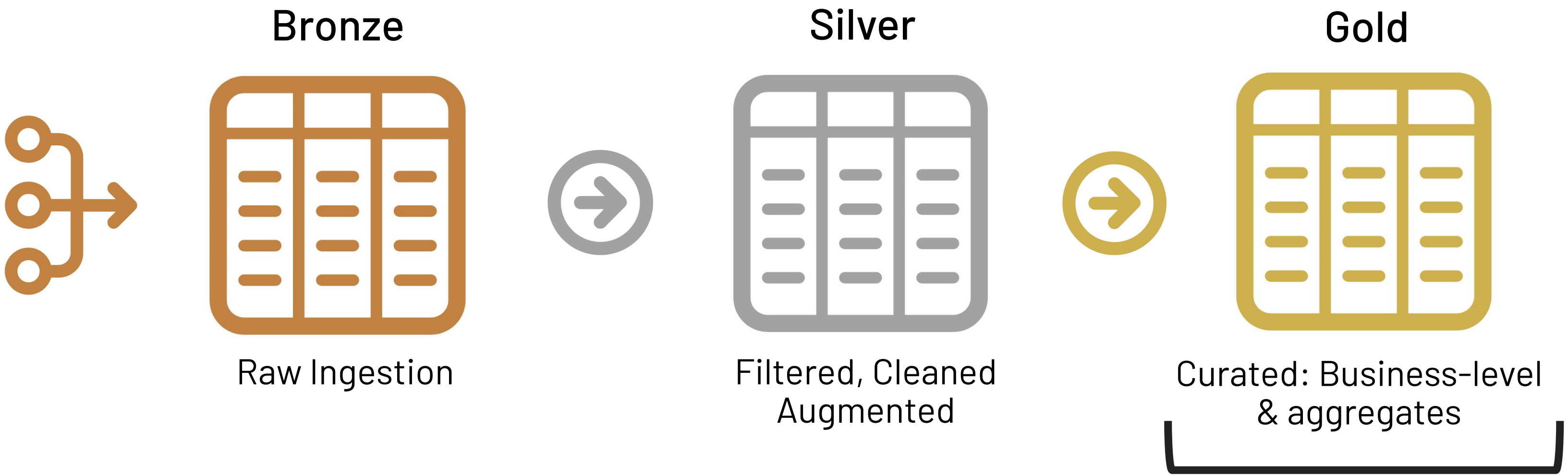
- Approach
  - Understand relations aka OOP - Is a,Has a … Nouns & Verbs
  - Semantic -> Logical -> Physical
- Patterns
  - 3 NF (normalization)
    - Tight referential integrity
  - Dimensional Modeling Star Schema Snowflake Schema
    - Facts
    - Dimensions
    - *Query-optimized to support BI*
  - Data Vault (more flexible/adaptable)
    - Hub (core business concepts, eg. ids)
    - Links (PK/FK between Hubs)
    - Satellite (descriptive attributes)
    - Dimensional Model on top
    - *Adaptable to change, supports data integration and governance*

A subscription business integrating customer, product, and transaction data from disparate sources This involves creating **Hub tables** for core entities (e.g., customers, products), **Link tables** for relationships (e.g., customers purchasing products), and **Satellite tables** for detailed, time-varying attributes of those entities.

This model enables rapid integration of new data sources by adding new Satellite tables without disrupting the existing structure and allows for robust historical tracking and an ELT process for greater agility.



A few different approaches



Bronze

Raw Ingestion

Silver

Filtered, Cleaned Augmented

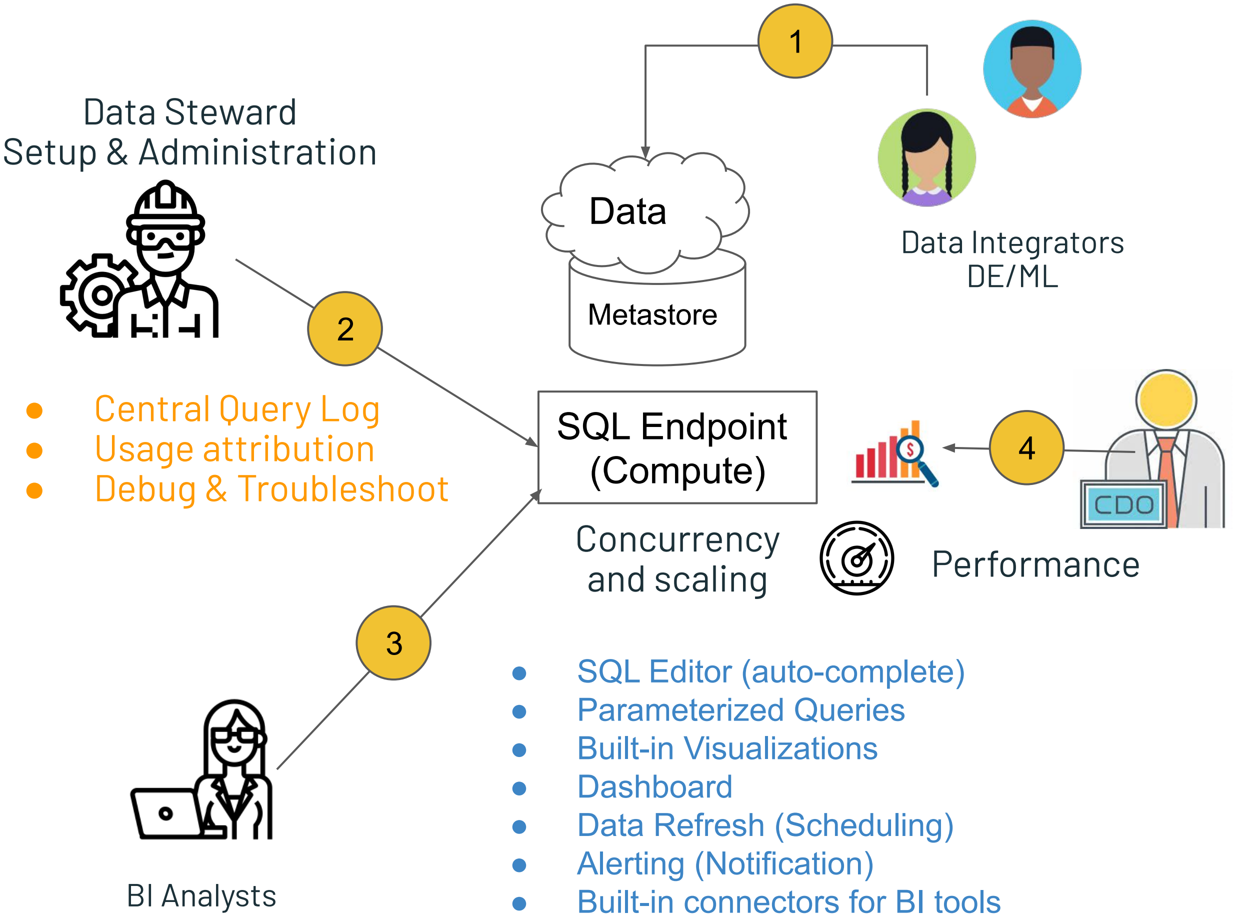
Gold

Curated: Business-level & aggregates

Expose & Query Gold Tables

- Data engineering or “analytics engineering” curates & provides access to curated / gold level tables to the rest of the organization.
- Usually follows best-practices with proper modeling. (e.g. Kimball, denormalized reporting or mixed)
- Works well for less-technical users, as well as serving external users (e.g. companies selling data / insights)
- In this model, end-users typically do less self-service / “last-mile” ETL and rather rely on curated assets.

Persona Handoffs



1

Data Integrators
DE/ML

Data

Metastore

2

Data Steward
Setup & Administration

- Central Query Log
- Usage attribution
- Debug & Troubleshoot

SQL Endpoint
(Compute)

Concurrency
and scaling

Performance

4

CDO

3

BI Analysts

- SQL Editor (auto-complete)
- Parameterized Queries
- Built-in Visualizations
- Dashboard
- Data Refresh (Scheduling)
- Alerting (Notification)
- Built-in connectors for BI tools

Data Integrators bring in the data

Data Engineers ETL and curate it

DS add ML insights

Administrators provide compute and data access

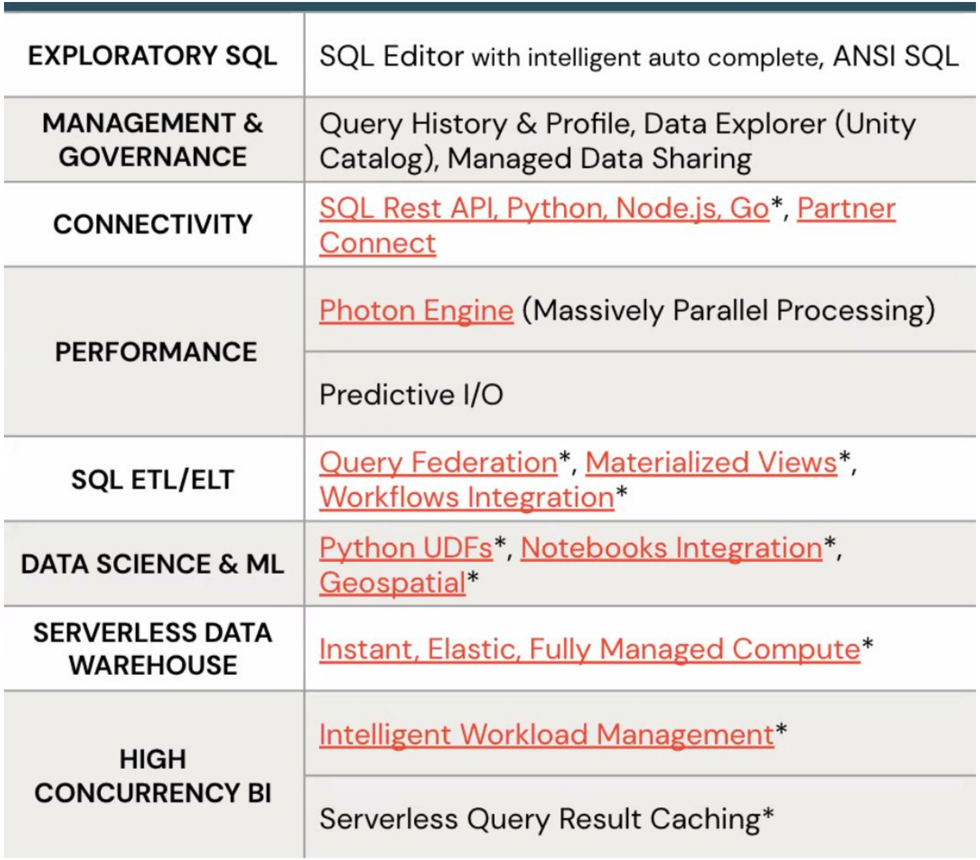
BI Analysts work off curated data

Executive business users consume the reports

Newer Capabilities of Warehouses

- Federated Data Warehouse
  - Join multiple sources jdbc/odbc or use true federation
- Virtual Data Warehouse
  - Views and materialized views (MV) on the data with ACL and caching
- Realtime Warehouse
  - Caching, Streaming tables, union of hot data and some cached immutable historical data
  - Eg. Create a real-time orders table that combines historical and hot data
- ETL despite support for federate & virtualize
  - Latency, low throughput from source, CDC
- Time series Data Warehouse
  - Create view that uses window function, order by (desc) key to return the first one
- Data Lake
  - Capture as much data, use metastore for definitions(schema, data loc, format, partitions)
- Schema Evolution
- Intelligent data warehousing
  - Access for everyone to ask questions of their data using natural language
  - Intelligent, automated management and tuning
  - Optimal TCO

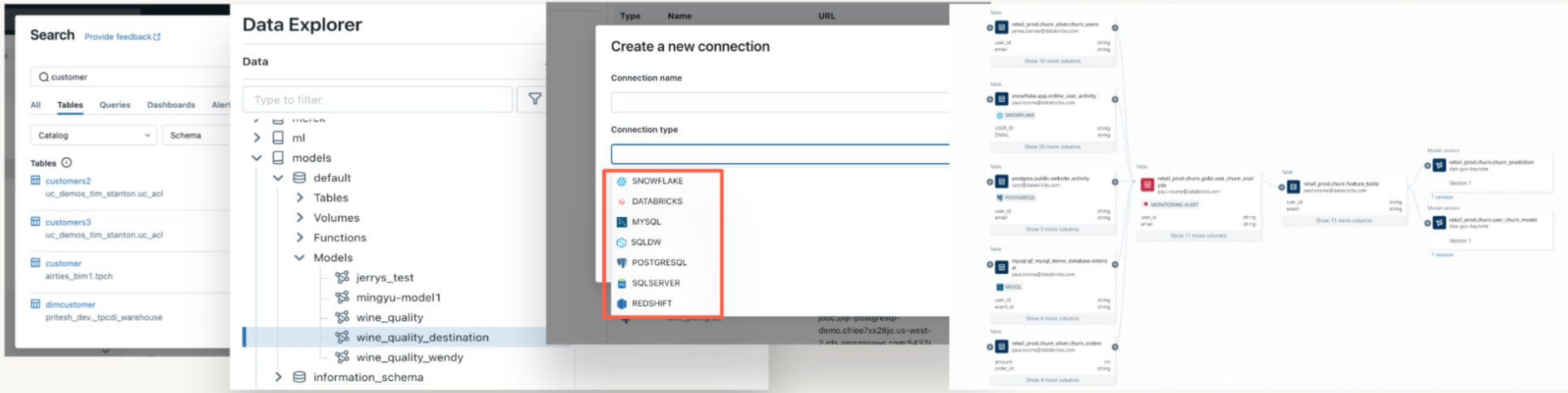
Databricks SQL Features



EXPLORATORY SQL	SQL Editor with intelligent auto complete, ANSI SQL
MANAGEMENT & GOVERNANCE	Query History & Profile, Data Explorer (Unity Catalog), Managed Data Sharing
CONNECTIVITY	SQL Rest API, Python, Node.js, Go*, Partner Connect
PERFORMANCE	Photon Engine (Massively Parallel Processing)
	Predictive I/O
SQL ETL/ELT	Query Federation*, Materialized Views*, Workflows Integration*
DATA SCIENCE & ML	Python UDFs*, Notebooks Integration*, Geospatial*
SERVERLESS DATA WAREHOUSE	Instant, Elastic, Fully Managed Compute*
HIGH CONCURRENCY BI	Intelligent Workload Management*
	Serverless Query Result Caching*

Governed and secured by Unity Catalog

Governance for all your data and AI assets


Search
Provide feedback
customer
All
Tables
Queries
Dashboards
Alert
Catalog
Schema
Tables
customers2
uc_demos_tim_stanton.uc_acl
customers3
uc_demos_tim_stanton.uc_acl
customer
airties_bim1.tpch
dimcustomer
pritesh_dev._tpcdi_warehouse
Data Explorer
Data
Type to filter
ml
models
default
Tables
Volumes
Functions
Models
jerrys_test
mingyu-model1
wine_quality
wine_quality_destination
wine_quality_wendy
information_schema
Type
Name
URL
Create a new connection
Connection name
Connection type
SNOWFLAKE
DATABRICKS
MYSQL
SQLDW
POSTGRESQL
SQLSERVER
REDSHIFT
jdbc://ql-postgresql-demo.chlee7xx28jo.us-west-2.rds.amazonaws.com:5432/
retail_prod.churn_silver.churn_users
snowflake.app.online_user_activity
postgres.public.website_activity
mysql.qf_mysql_demo_database.external
retail_prod.churn_silver.churn_orders
retail_prod.churn_gold.user_churn_pred
retail_prod.churn.feature_table
retail_prod.churn.churn_prediction
retail_prod.churn.user_churn_model
MONITORING ALERT
Version 1

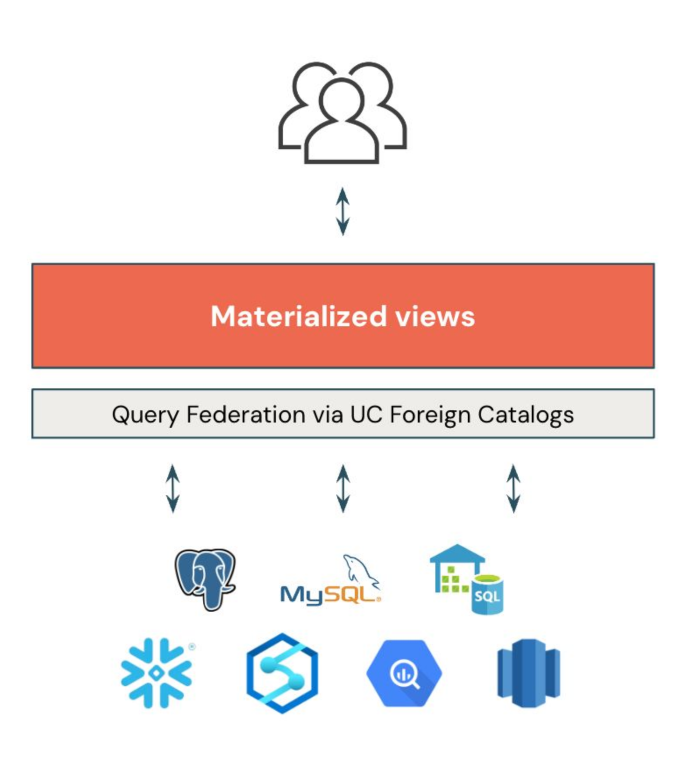
Simplified **data discovery**, **governance**, **federation**, **lineage**, and **compliance** with enhanced **security** and **auditing** with Unity Catalog and Databricks SQL

Simple and fast performance

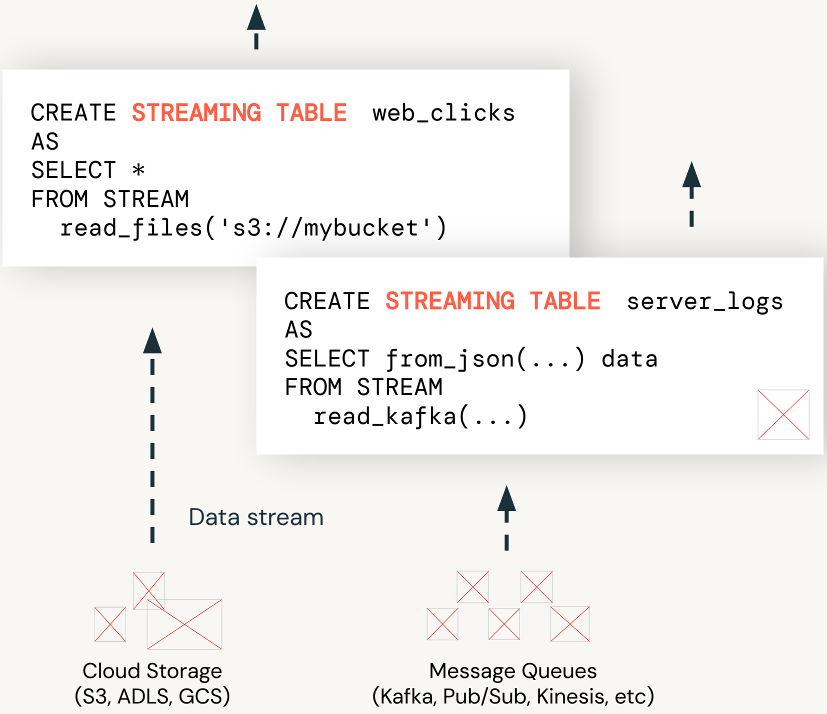
Accelerating federated workloads

Federation 💛 Materialized views:

- Consistent latency & concurrency for data outside of the Lakehouse
- Accelerate cross-source joins and complicated transformation logic
- Offload access to underlying databases via materialized views to avoid high/concurrent loads on operational databases



Simple streaming with SQL



```
CREATE STREAMING TABLE  web_clicks
AS
SELECT *
FROM STREAM
  read_files('s3://mybucket')
```

```
CREATE STREAMING TABLE  server_logs
AS
SELECT from_json(...) data
FROM STREAM
  read_kafka(...)
```

Data stream

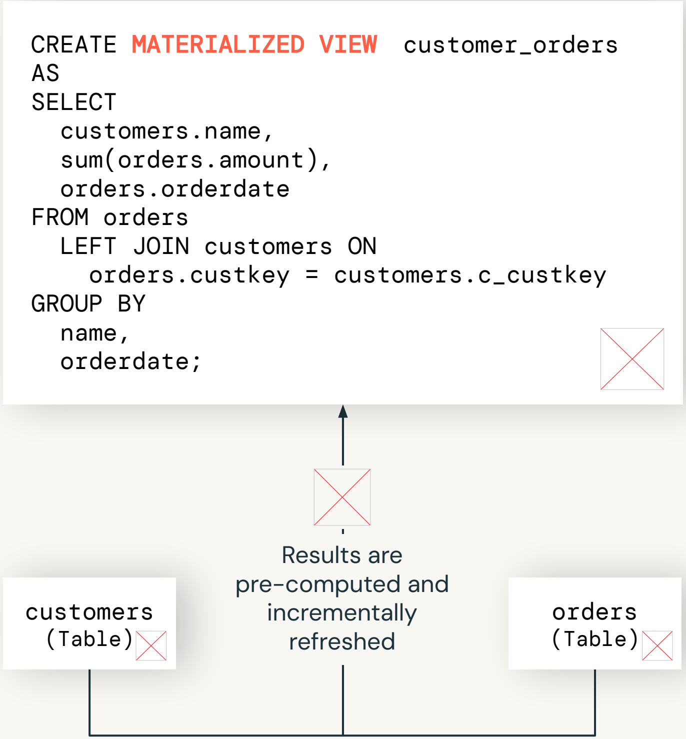
Cloud Storage
(S3, ADLS, GCS)

Message Queues
(Kafka, Pub/Sub, Kinesis, etc)

Benefits:

1. **Unlock real-time use cases.** Ability to support real-time analytics/BI, machine learning and operational use cases with streaming data.
2. **Better scalability.** More efficiently handle high volumes of data via incremental processing vs. large batches.
3. **Enable more practitioners.** Simple SQL syntax makes data streaming accessible to all data engineers and analysts.

Simple and fast BI with Materialized Views



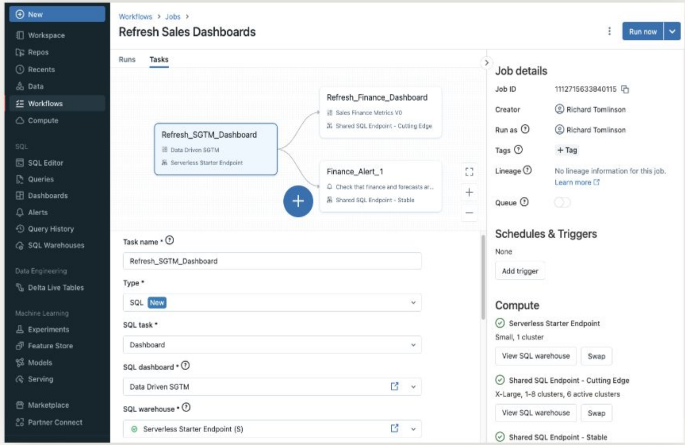
```
CREATE MATERIALIZED VIEW  customer_orders
AS
SELECT
  customers.name,
  sum(orders.amount),
  orders.orderdate
FROM orders
  LEFT JOIN customers ON
    orders.custkey = customers.c_custkey
GROUP BY
  name,
  orderdate;
```

Benefits:

1. **Accelerate BI dashboards.** Much faster to query data that is pre-computed vs querying base tables.
2. **Reduce data processing costs.** MV results are refreshed incrementally avoiding the need to completely rebuild the view when new data arrives.
3. **Improve data access control.** More tightly govern what data can be seen by consumers by controlling access to base tables.

Simple orchestration for your SQL and more

Queries, notebooks dashboards, alerts, and more!



Refresh Sales Dashboards

Task name * Refresh_SGTM_Dashboard

Type * SQL New

SQL task * Dashboard

SQL dashboard * Data Driven SGTM

SQL warehouse * Serverless Starter Endpoint (S)

Job details

Job ID 1112715633840115

Creator Richard Tomlinson

Run as Richard Tomlinson

Tags

Lineage No lineage information for this job. Learn more

Queue

Schedules & Triggers

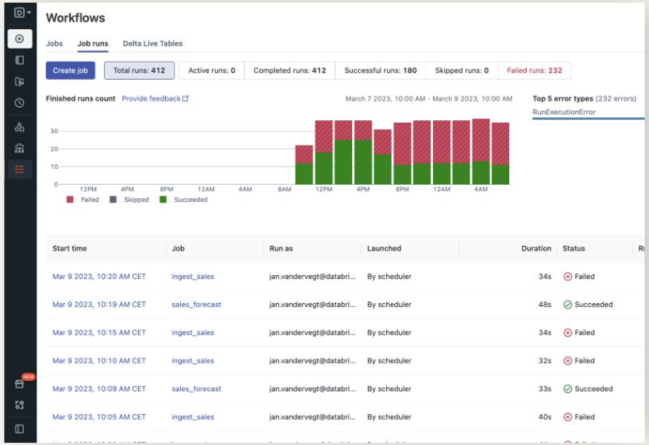
None

Compute

Serverless Starter Endpoint
Small, 1 cluster

Shared SQL Endpoint - Cutting Edge
X-Large, 1-8 clusters, 6 active clusters

Shared SQL Endpoint - Stable



Total runs: 412 | Active runs: 0 | Completed runs: 412 | Successful runs: 180 | Skipped runs: 0 | Failed runs: 232

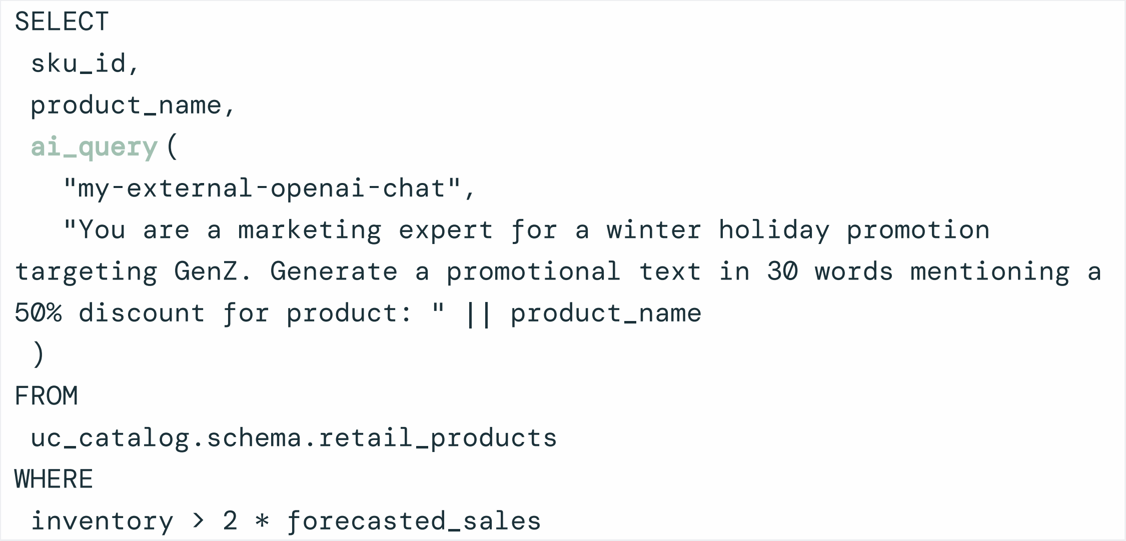
March 7 2023, 10:00 AM - March 9 2023, 10:00 AM

Top 5 error types (232 errors)

Start time	Job	Run as	Launched	Duration	Status	R
Mar 9 2023, 10:20 AM CET	ingest_sales	jan.vandervegt@databri...	By scheduler	34s	Failed	
Mar 9 2023, 10:19 AM CET	sales_forecast	jan.vandervegt@databri...	By scheduler	48s	Succeeded	
Mar 9 2023, 10:15 AM CET	ingest_sales	jan.vandervegt@databri...	By scheduler	34s	Failed	
Mar 9 2023, 10:10 AM CET	ingest_sales	jan.vandervegt@databri...	By scheduler	32s	Failed	
Mar 9 2023, 10:09 AM CET	sales_forecast	jan.vandervegt@databri...	By scheduler	33s	Succeeded	
Mar 9 2023, 10:05 AM CET	ingest_sales	jan.vandervegt@databri...	By scheduler	40s	Failed	

Automate and schedule Databricks SQL workloads with advanced workflow orchestration, reliable monitoring and observability

Simply access any LLMs directly in Databricks SQL

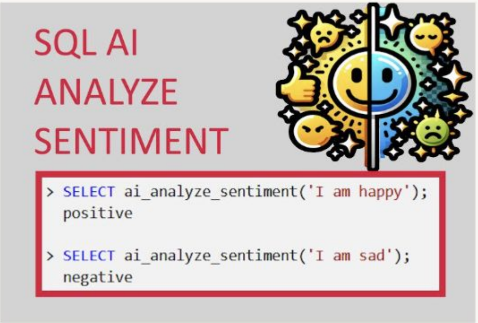


```
SELECT
 sku_id,
 product_name,
 ai_query(
   "my-external-openai-chat",
   "You are a marketing expert for a winter holiday promotion
targeting GenZ. Generate a promotional text in 30 words mentioning a
50% discount for product: " || product_name
 )
FROM
 uc_catalog.schema.retail_products
WHERE
 inventory > 2 * forecasted_sales
```

Integrate any LLMs in SQL to enrich data
and empower analysts to extract actionable insights

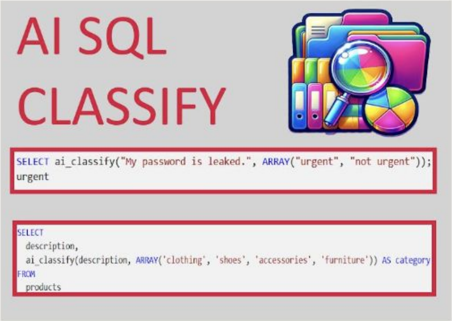
Simple help from AI in your SQL

Write SQL to get insight from unstructured text data via LLMs



SQL AI ANALYZE SENTIMENT

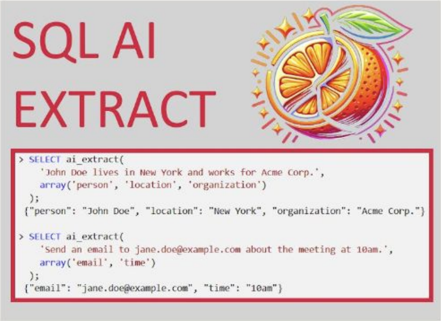
```
> SELECT ai_analyze_sentiment('I am happy');
  positive

> SELECT ai_analyze_sentiment('I am sad');
  negative
```



AI SQL CLASSIFY

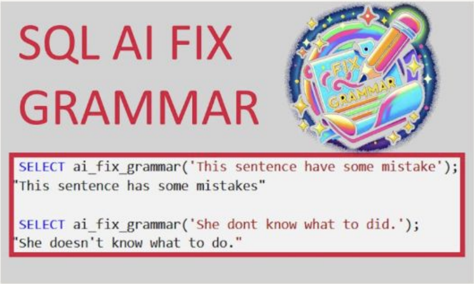
```
SELECT ai_classify("My password is leaked.", ARRAY("urgent", "not urgent"));
urgent
```

```
SELECT
  description,
  ai_classify(description, ARRAY('clothing', 'shoes', 'accessories', 'furniture')) AS category
FROM
  products
```



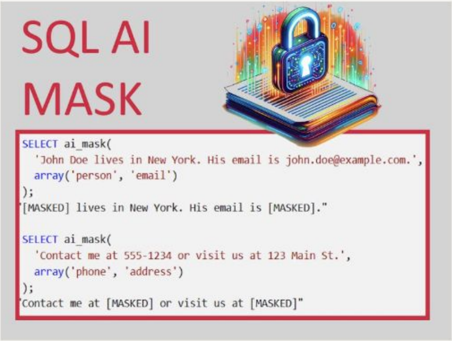
SQL AI EXTRACT

```
> SELECT ai_extract(
    'John Doe lives in New York and works for Acme Corp.',
    array('person', 'location', 'organization')
  );
 {"person": "John Doe", "location": "New York", "organization": "Acme Corp."}

> SELECT ai_extract(
    'Send an email to jane.doe@example.com about the meeting at 10am.',
    array('email', 'time')
  );
 {"email": "jane.doe@example.com", "time": "10am"}
```



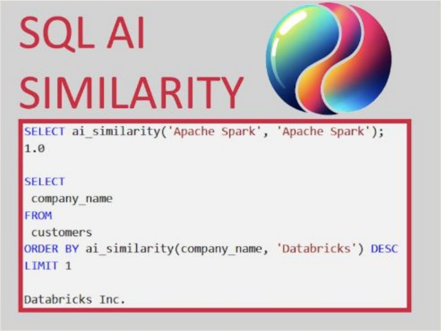
SQL AI FIX GRAMMAR

```
 SELECT ai_fix_grammar('This sentence have some mistake');
"This sentence has some mistakes"

 SELECT ai_fix_grammar('She dont know what to did.');
"She doesn't know what to do."
```



SQL AI MASK

```
SELECT ai_mask(
  'John Doe lives in New York. His email is john.doe@example.com.',
  array('person', 'email')
);
"[MASKED] lives in New York. His email is [MASKED]."

SELECT ai_mask(
  'Contact me at 555-1234 or visit us at 123 Main St.',
  array('phone', 'address')
);
"Contact me at [MASKED] or visit us at [MASKED]"
```



SQL AI SIMILARITY

```
SELECT ai_similarity('Apache Spark', 'Apache Spark');
1.0

SELECT
  company_name
FROM
  customers
ORDER BY ai_similarity(company_name, 'Databricks') DESC
LIMIT 1

Databricks Inc.
```

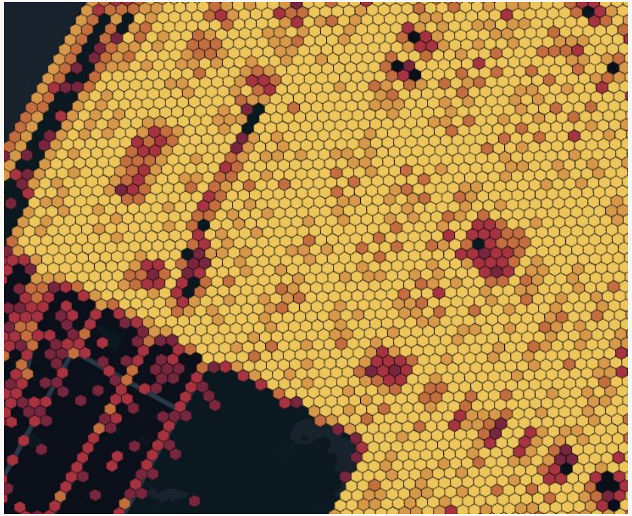
Geospatial support

Supercharge your geospatial processing

Efficient storage for spatial data in both large and small sizes

Fast SPATIAL JOINs and binning support

Easy to visualize and integrate with ML you don't need to switch betweens tools to maximize geospatial data value



Rideshare pick-up locations in New York City visualized in a Databricks Notebook using Kepler.gl

Databricks SQL is a complete data warehouse

Data engineering, ETL

Auto-loader
Materialized views
Streaming tables
Data lineage in UC
Lakehouse federation
PK/FKs, ERD in Catalog ANSI
SQL by default
Rich, Tabbed SQL Editor
Notebooks on SQL WH
SQL Execution API
Python UDFs
SQL session variables
Row level security
Column masking
Dark mode
Schema browser

Enterprise scale and perf

Serverless
Intelligent autoscaling
Adaptive routing
Predictive optimization
Predictive I/O
Results caching
Liquid clustering
100K+ user support
Query scheduler
SQL tasks in workflows
Statement history
System tables: WH events
System tables: Billing
System tables: Audit log

Native BI + DW ecosystem

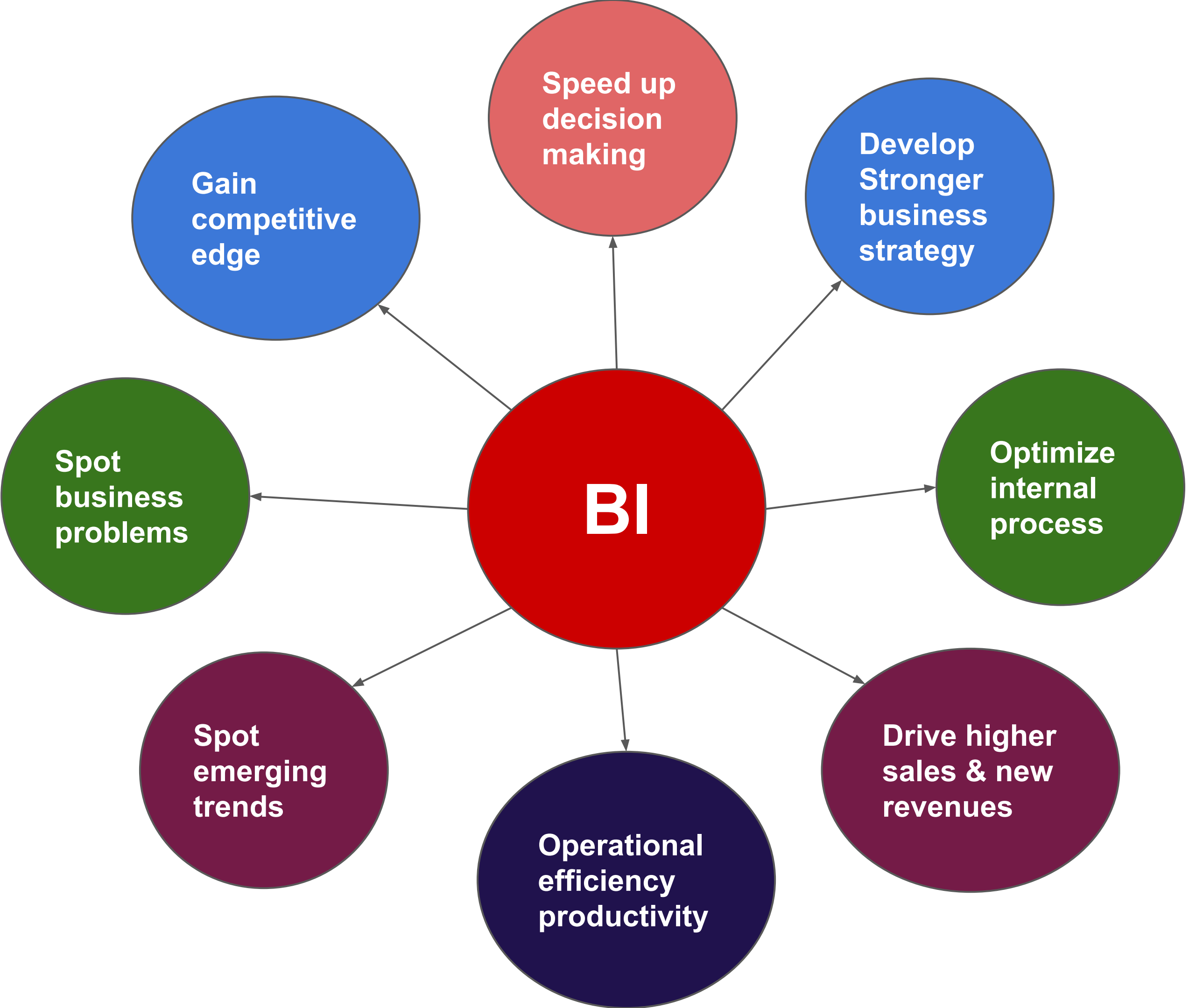
Lakeview
Databricks assistant for LV
Delta sharing
Data marketplace
Data rooms
Clean rooms
100+ Integrations
Partner connect (25+)
Power BI, Tableau
Publish to PowerBI Online
dbt: incremental models
dbt: materialized views
Fivetran
OAuth
Cloud Fetch fast results

Lab

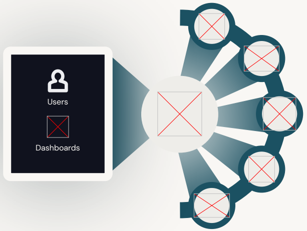
- Use the Databricks UI to create a catalog, schema, table, and view.
- Use the Databricks UI to upload data and create a managed table.
- Use the SQL Editor to complete multiple data analytics tasks.
- Create a data visualization associated with a query.
- Create an interactive dashboard.
- Create a refresh schedule and alert.
- Share data based assets in the Databricks DI Platform with others.

Appendix

Why BI?


BI
Speed up decision making
Develop Stronger business strategy
Optimize internal process
Drive higher sales & new revenues
Operational efficiency productivity
Spot emerging trends
Spot business problems
Gain competitive edge

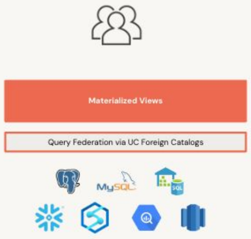
Simple migrations at your pace



CRAWL

with Lakehouse Federation

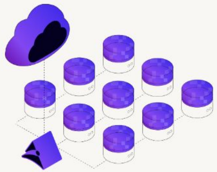
-Get your data in one place, but don't migrate… FEDERATE
-Based on which datasets your teams are moving and where business value is created, THEN migrate those over to Databricks



WALK

with Materialized Views

-Set up materialized views on top of the federated source data
-This will create a copy of the meta data in Delta Lake, relieving the pressure and cost on the source data system!



RUN

with Change Data Capture (CDC)

- CDC will only process the pieces of the data that CHANGED, making it SIMPLER and CHEAPER
-This is made possible by the Arcion acquisition and will replace the Materialized Views from WALK stage.

IN PRODUCTION TODAY

COMING SOON

ALL OF THIS IS POWERED BY UNITY CATALOG