docker

Aviation Stack
REST API

Fetch JSON every X seconds

OpenSky
REST API

Fetch JSON every 11 seconds

Producer

kafka

Aviation Stack
Topic

OpenSky
Topic

Aviation Stack
Consumer 1

OpenSky
Consumer

PostgreSQL
Database

Bronze Layer

- Raw JSON data ingested
from Kafka Topic

- Minimal schema
- No validation or cleaning

- Open table per source API

Silver Layer

- Cleaned and parsed
records

- Schema applied, nulls/
types handles

- Duplicate removal, basic
deduplication

Gold Layer

- Modeled facts &
dimensions (snowflake
schema)

- Optimized for BI & ML
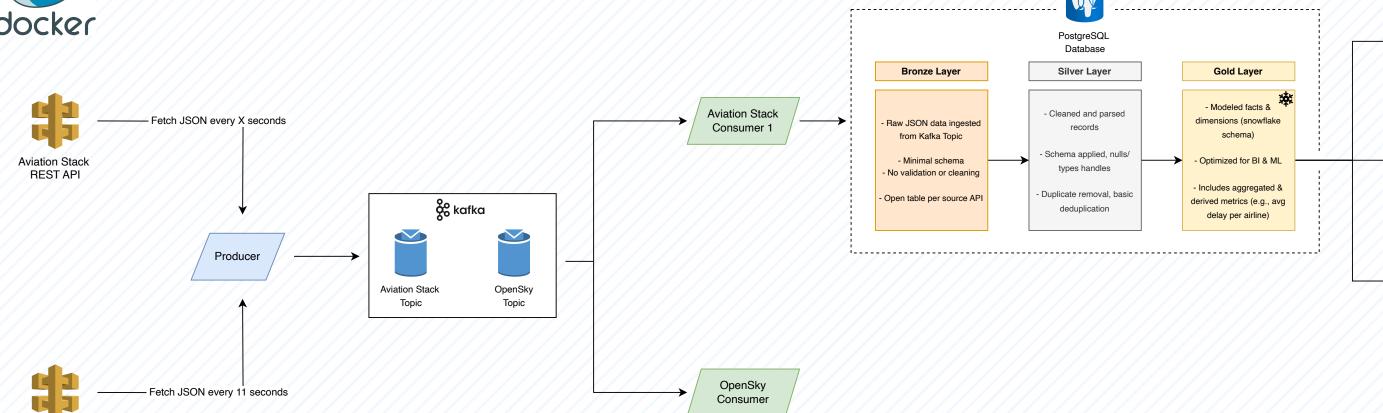
- Includes aggregated &
derived metrics (e.g., avg
delay per airline)

BI & Reporting

Ad-hoc
SQL Queries

Predictive Modeling