



AWS SERVICES

PROJECT

Szabó Bence



DATA
ENGINEERING



PROJECT OVERVIEW

01 BUSINESS CASE

Defining the stakeholders and the business case that the project can serve.

02 DATA SOURCES

Identifying the integration of two data sources coming from an API.

03 KPIS

Defining KPIs to enhance product development.

04 PIPELINE

Architecting the automated serverless workflow that ingests, transforms, and warehouses data for analysis.

05 IMPLEMENTATION

Executing the program in a real scenario.

06 SCALABILITY

Further optimizations and services that could take the product to a next level.





Articulating the strategic imperative to merge historical market data with real-time sentiment for enhanced investment decision-making and risk management.



Leverage NLP sentiment analysis to optimize trading strategies and minimize portfolio losses.



Hobby traders, Quants and Portfolio Managers requiring automated, low-latency trading signals.



Scalable analytics engine and “Guardian” to semi-automate trading and help decision making.



DATA INGESTION



Stock Data

- **Source:** Alpha Vantage API
- **Nature:** Batch / Historical
- **Role:** Provides data for the "baseline" model for prediction
- **Format:** JSON



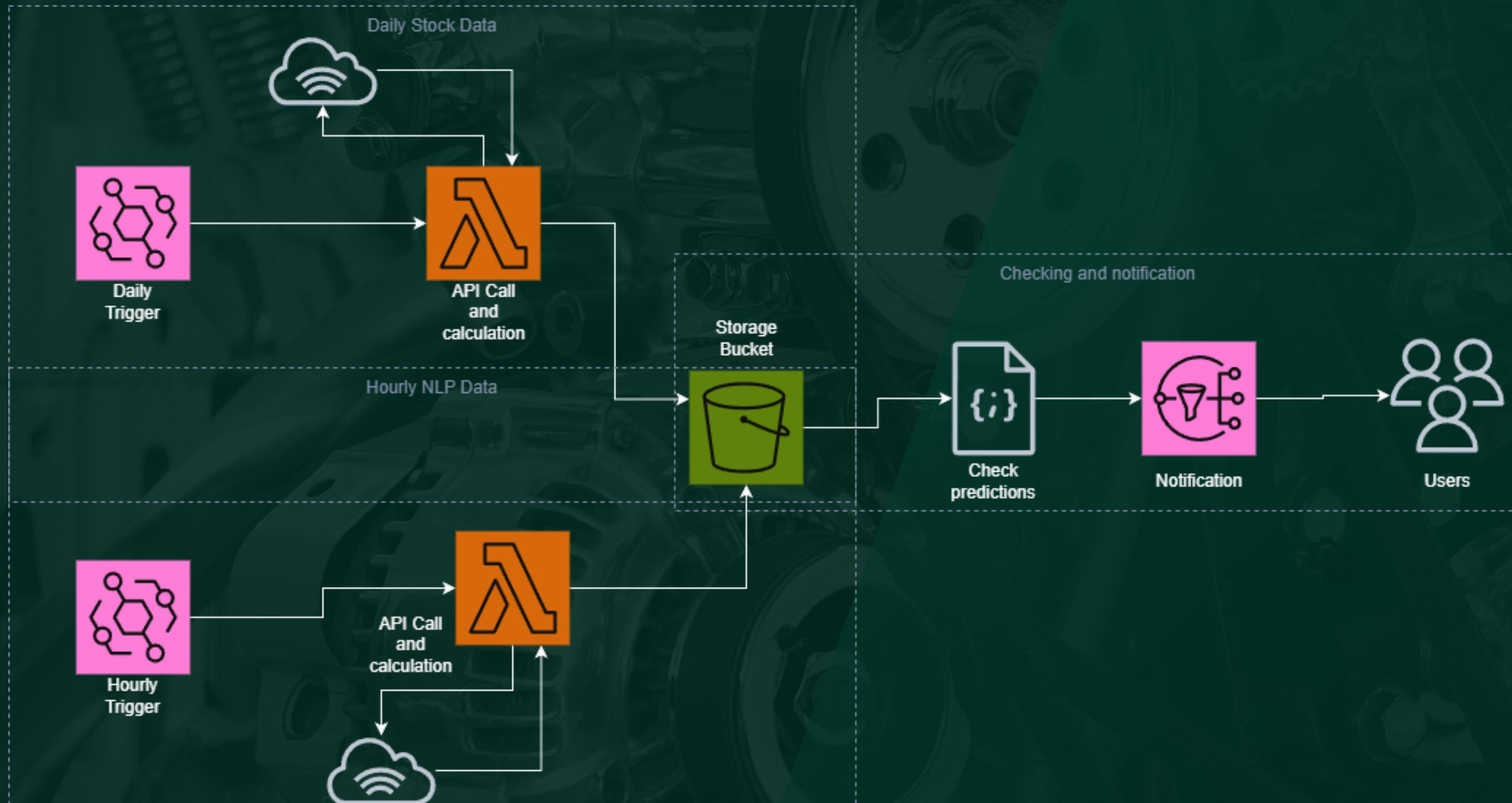
Sentiment Data

- **Source:** Alpha Vantage API
- **Nature:** Dynamic, Hourly
- **Role:** Provides the "live pulse" to compare against baseline prediction
- **Format:** JSON



03

PIPELINE



04

04

KPI'S



01

DIRECTIONAL ACCURACY

DEFINITION

The percentage of days where the morning prediction ("Buy" or "Sell") matched the actual market movement at close.

GOAL

> 60%. This measures if the "Strategist" (Daily Lambda) provides a statistical edge over random guessing.

02

REACTION LATENCY

The time difference between a news article's publication timestamp and the SNS alert delivery.

03

OPERATIONAL COST

Total monthly spend on AWS resources

<5 minutes. This ensures the "Guardian" (Hourly Lambda) alerts me fast enough to react to breaking news before the market fully prices it in.

0.00\$. By optimizing the code to run in milliseconds and scheduling sleep times, the project must remain entirely within the AWS Free Tier.

05



Daily
EventBridge
trigger

Going by your
day

Major
News

Hourly
EventBridge
trigger

SNS is
triggered

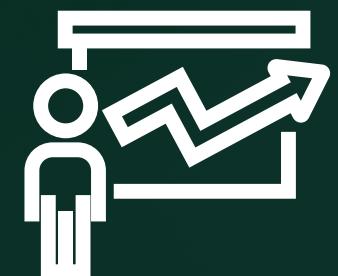
8:00

10:45

10:55

11:00

11:01

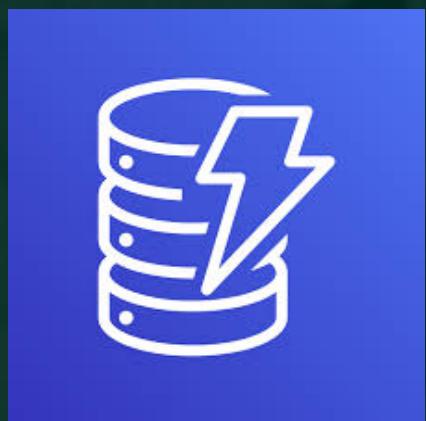


**Result: Avoided major
loss**





SPEED



query the stock and receive the current sentiment in **single-digit milliseconds**, enabling a live, ticking dashboard and super fast notifications.



ANALYTICS



Deep Backtesting: "If I had used this specific RSI strategy for the last 15 years, exactly what would my profit be?"

Statistical Models: "Does the sentiment of 'Tech News' correlate with SPY price drops more than 'Oil News'?"





THANK YOU
FOR THE ATTENTION

THANK YOU