Day in the life of “Data Engineer”

July 11, 2018

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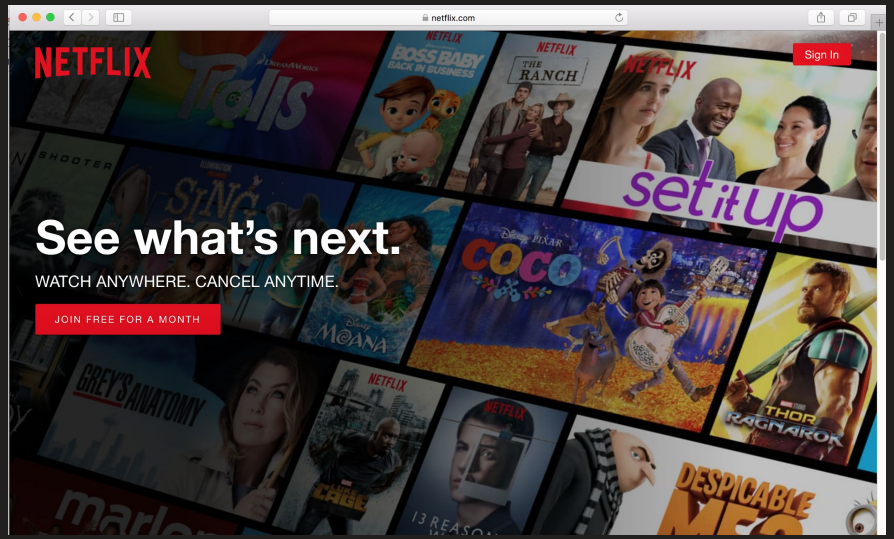
Agenda.

- A Typical Data Engineering Project
- Hands on Exercises

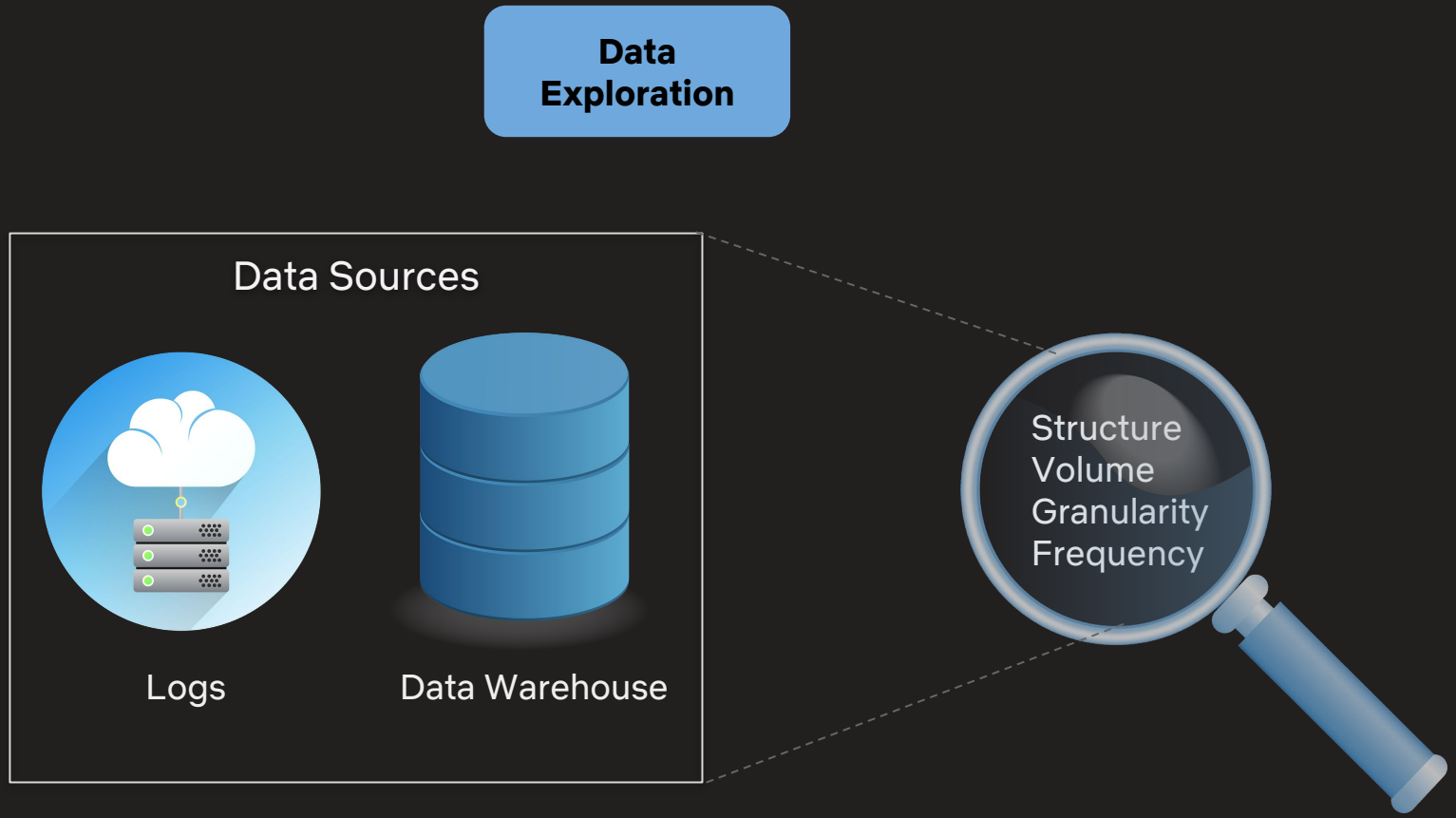
A Typical Data Engineering Project

Starts with a Problem Statement ...

e.g. How many visitors does Netflix get every day ?



Problem Statement - How many visitors does Netflix get every day ?



Problem Statement - How many visitors does Netflix get every day ?

Data Modeling

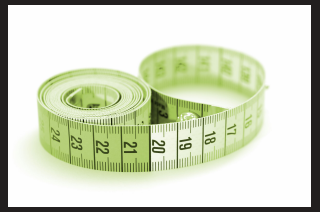
Structure

	country_iso_code	wb_country_code	country_name	country_long_name	region
0	AW	ABW	Aruba	Aruba	Latin America & Caribbean
1	AF	AFG	Afghanistan	Islamic State of Afghanistan	South Asia
2	AO	AGO	Angola	People's Republic of Angola	Sub-Saharan Africa
3	AL	ALB	Albania	Republic of Albania	Europe & Central Asia
4	AD	AND	Andorra	Principality of Andorra	Europe & Central Asia


```
{ ⊟
   "country_iso_code":"AW",
   "wb_country_code":"ABW",
   "country_name":"Aruba",
   "country_long_name":"Aruba",
   "region":"Latin America And Caribbean"
}
```

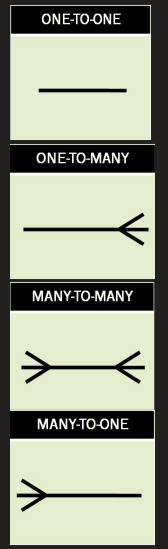

Dimensions

Metrics

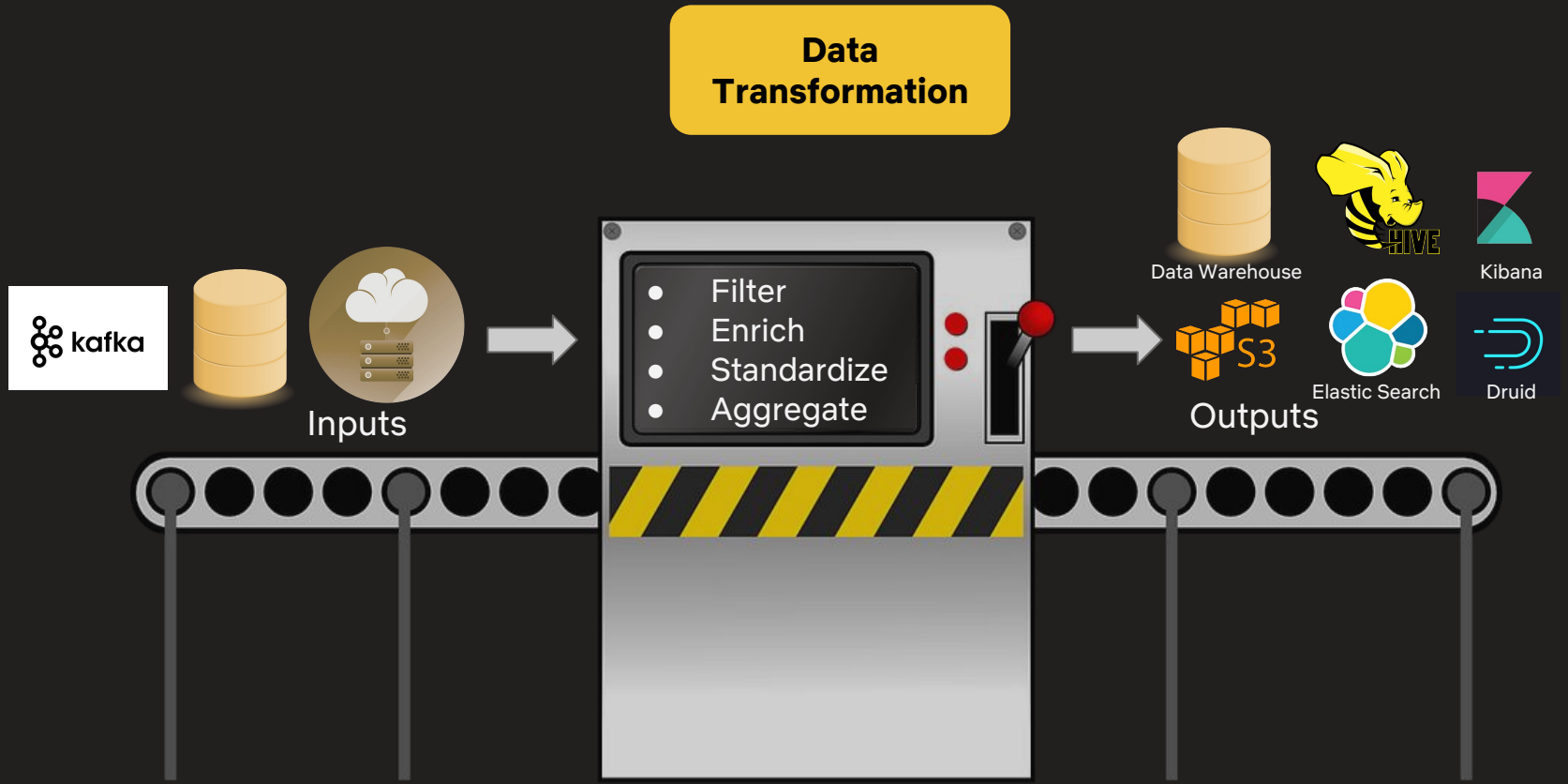


- Visitor Count
- Existing Members
- Repeat Visitors

Relationships



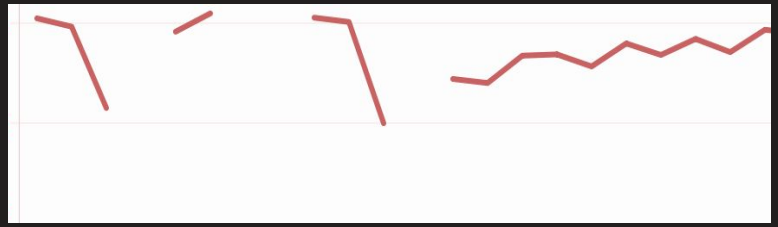
Problem Statement - How many visitors does Netflix get every day ?



Problem Statement - How many visitors does Netflix get every day ?

Data Quality

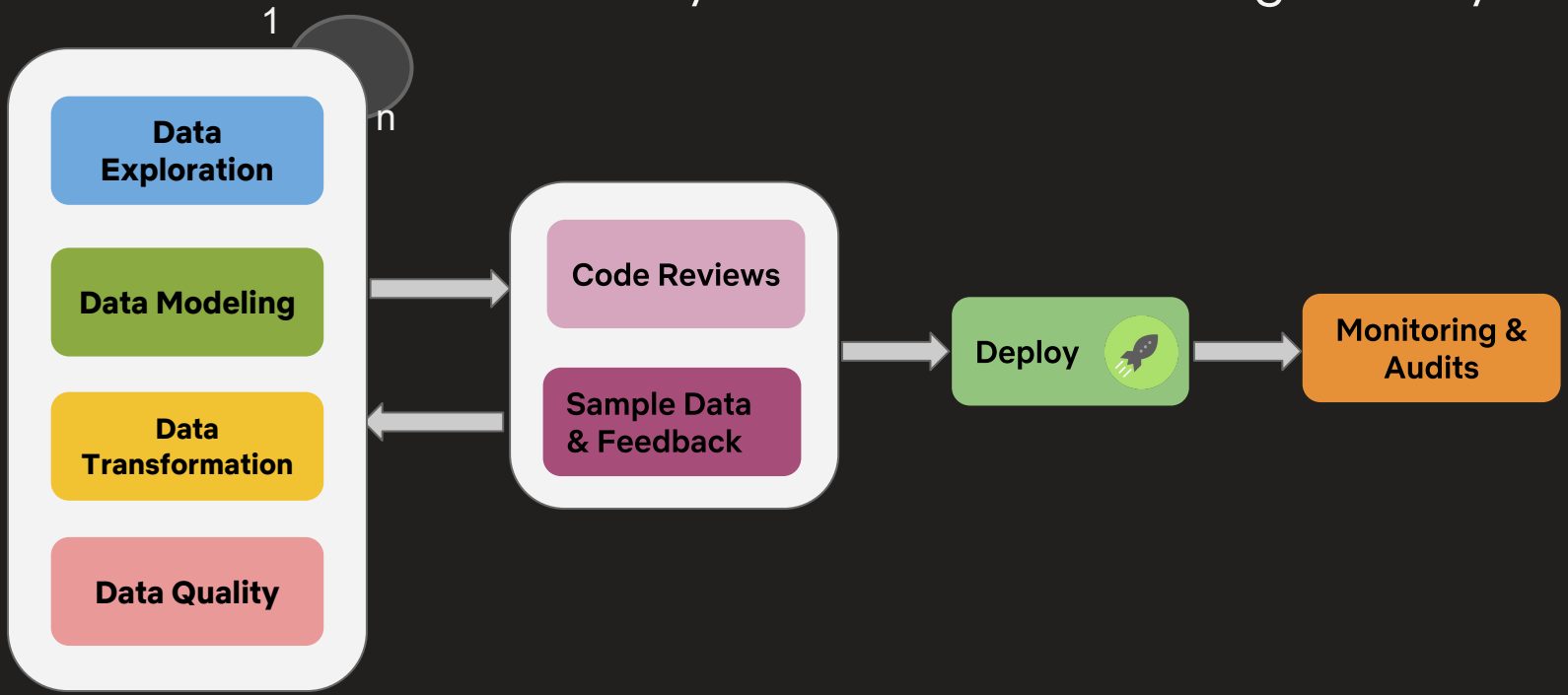
Trends

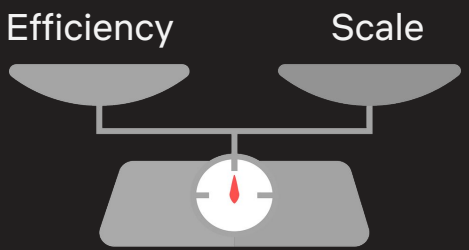


Gaps / Missing Data

Anomalies

Problem Statement - How many visitors does Netflix get every day ?





A Typical Data Engineering Project for me

- All the elements we saw before + lot of liasoning with
  - UI Engineers
  - Data Engineers
  - Data Scientists
  - Data Analysts
  - Data Platform

- Can run from days to several months depending on the project

A Typical Data Engineering Project for me

- Technologies / Frameworks

Spark

Presto


Druid


Elastic Search


Kibana

Jupyter Notebooks

Scala


Python


Pig

Hive

and more ...

Questions ?

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Time to get hands on ...

We'll be using the World Development Indicators Dataset published by World Bank.

Acronym:	WDI
Type:	Time Series
Topics:	Agriculture and Food Security, Climate Change, Economic Growth, Education, Energy and Extractives, Environment and Natural Resources, Financial Sector Development, Gender, Health, Nutrition and Population, Macroeconomic Vulnerability and Debt, Poverty, Private Sector Development, Public Sector Management, Social Development, Social Protection and Labor, Trade, Urban Development
Economy Coverage:	High Income, IBRD, IDA, Low Income, Lower Middle Income, Upper Middle Income
Languages Supported:	English, Arabic, Chinese, French, Spanish
Number of Economies:	217
Geographical Coverage:	World, East Asia & Pacific, American Samoa, Australia, Brunei Darussalam, Cambodia, China More...
External Contact Email:	Data@worldbank.org
Access Options:	Query Tool, API Documentation, Download
Temporal Coverage:	1960 - 2017
Update Frequency:	Quarterly

Time to get hands on ...

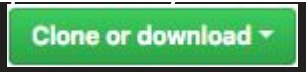
- Spark

Apache Spark is a fast, in-memory data processing engine with elegant and expressive development APIs to allow data workers to efficiently execute streaming, machine learning or SQL workloads that require fast iterative access to datasets.

- Notebooks

The Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text. Uses include: data cleaning and transformation, numerical simulation, statistical modeling, data visualization, machine learning, and much more.

Time to get hands on ...

- Go to https://tinyurl.com/NFLXWIBD2018
- Click on 

- Download Zip
- Extract downloaded zip file
- Start the terminal and CD to the location where you extracted the downloaded zip file contents
- Type the following in your terminal to launch notebooks

  jupyter notebook

Reference Material

- Spark 2.1.1 Documentation
- Py Spark Documentation
- Getting Started With PySpark and Jupyter

Thank you.

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