# Big Data

Big Data Course

Eng.Mostafa Nabieh

# Mostafa Nabieh

وزارة الاتصالات وتكنولوجيا المعلومات

MANNING

وزارة الاتصالات وتقنية المعلومات
MINISTRY OF COMMUNICATIONS AND INFORMATION TECHNOLOGY

AI TALENTS HUB

UDACITY

PLURALSIGHT

Learning Space
YOUR SPACE TO LEARN FUTURE SKILLS



BIG DATA

# Mostafa Nabieh

HUAWEI

EPITA
ÉCOLE D'INGÉNIEURS EN INFORMATIQUE

IBM

# Mostafa Nabieh

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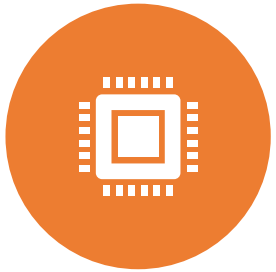


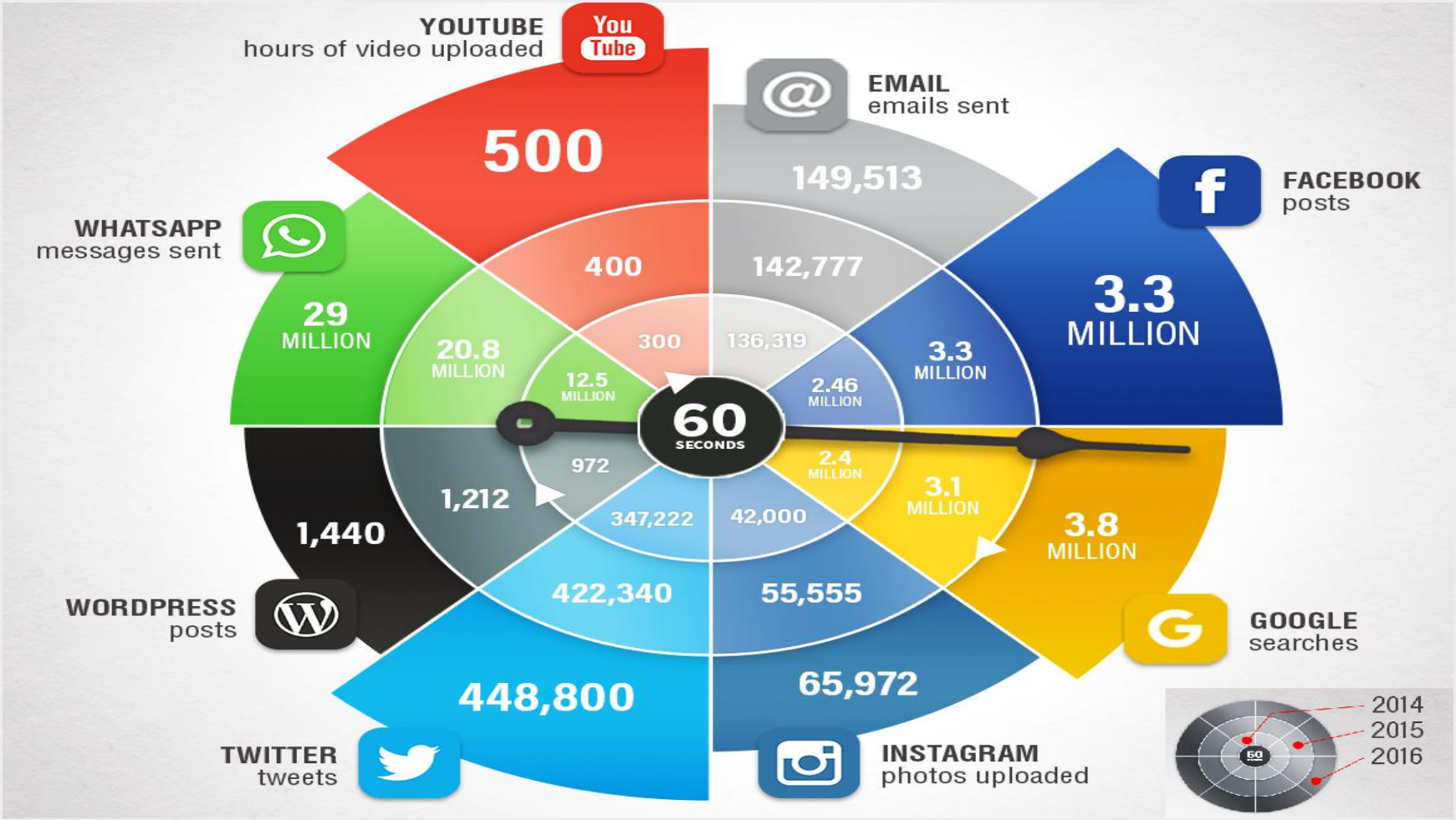
WHAT IS DATA ENGINEERING?

BIG DATA ECOSYSTEM

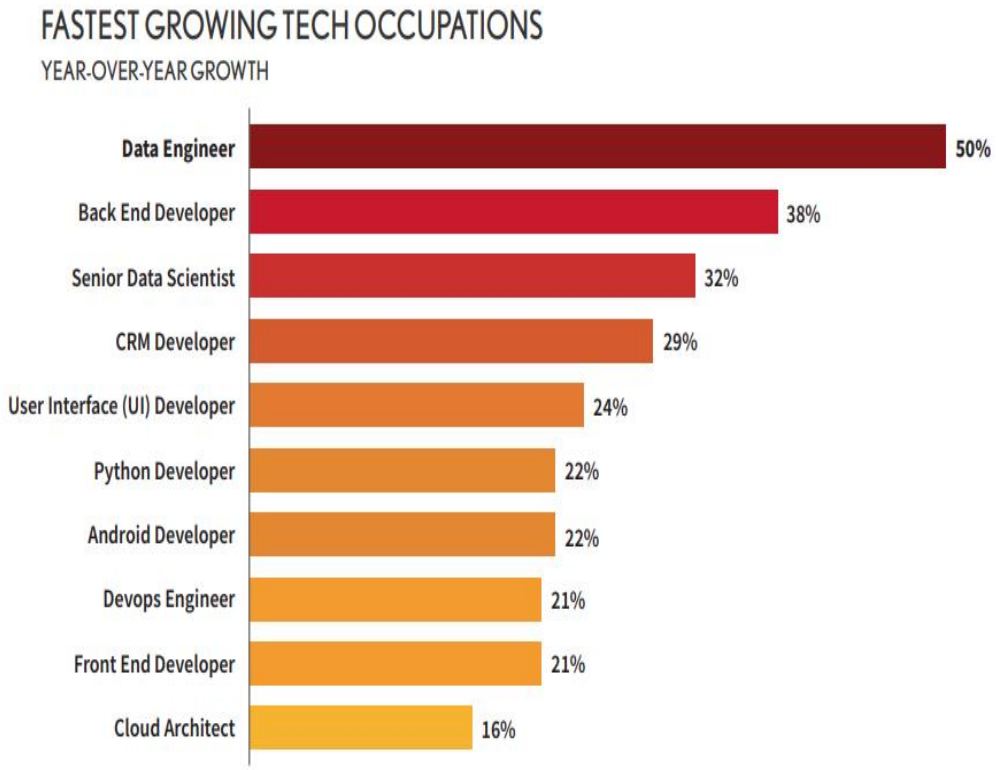
BIG DATA LIFECYCLE

CAREER OPPORTUNITIES

# What Happens in 60 Seconds



# Data Engineering Growing!




**DATA ENGINEER**

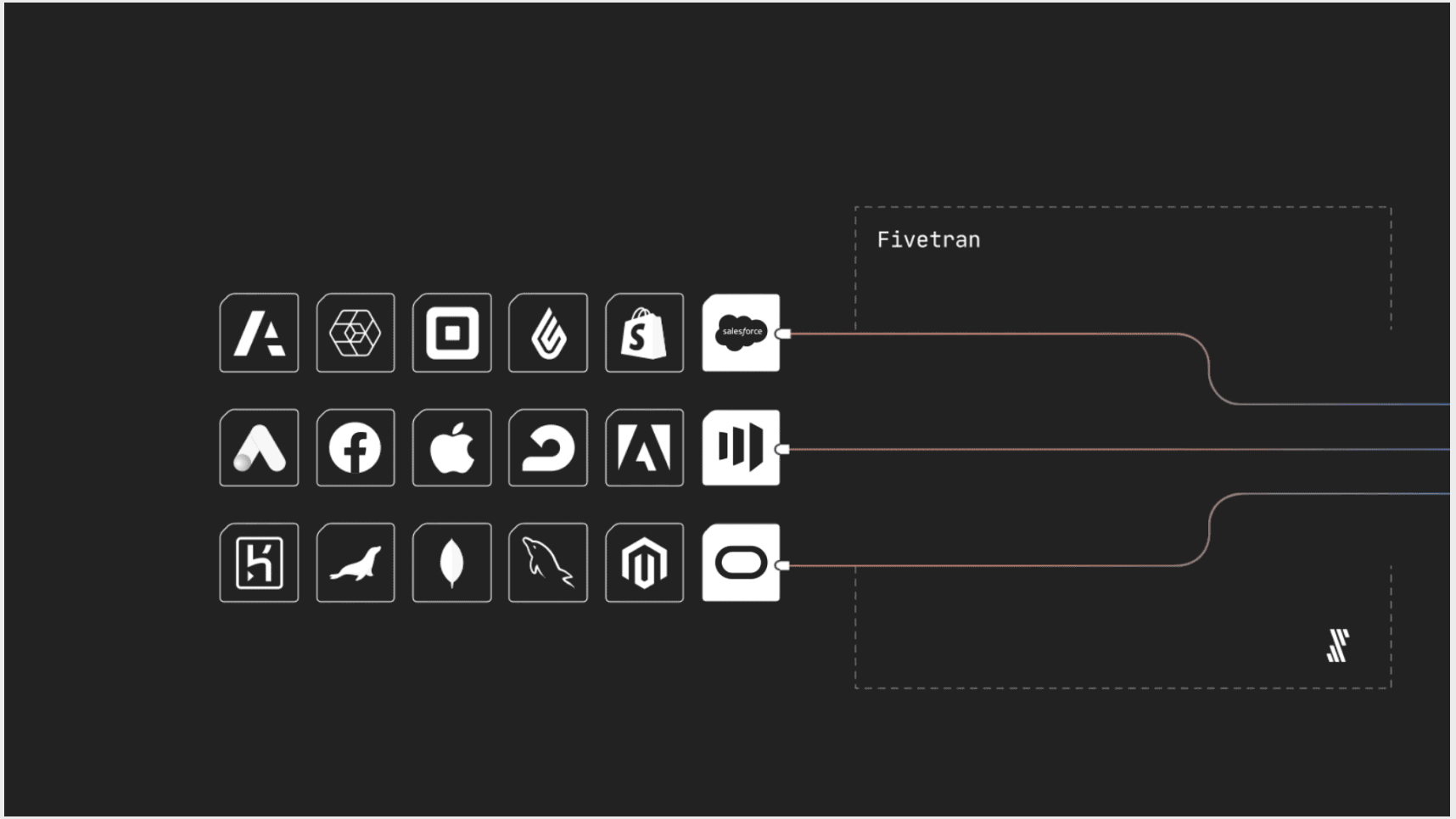
**TIME TO FILL: 46 DAYS**

**Top Skills: Python, SQL, Big Data, Apache Hadoop, ETL**

Of all the positions on this list, Data Engineer job postings had the most significant year-over-year growth. Data Engineers are usually tasked with constructing and maintaining repositories of data, such as customer-information databases. Inclusive of those responsibilities, they also monitor the movement and status of data throughout these systems, which can mean tagging and cleaning huge datasets as they become available. Their work is what allows data analysts and data scientists to analyze datasets for insights.

Data Engineer positions typically require skills such as Python, SQL and AWS as well as the standard Big Data tools and platforms such as Apache Hadoop, Scala and Apache Hive. As with Back End Developers, such a highly specialized skillset means that the average time to fill Data Engineers averages 46 days, a time frame that may increase in 2020 as more companies compete to find the talent they need to handle their sprawling data infrastructure. Notably, Amazon, Accenture and Capital One are all hiring Data Engineers at high rates.

# Modern Data Ecosystem



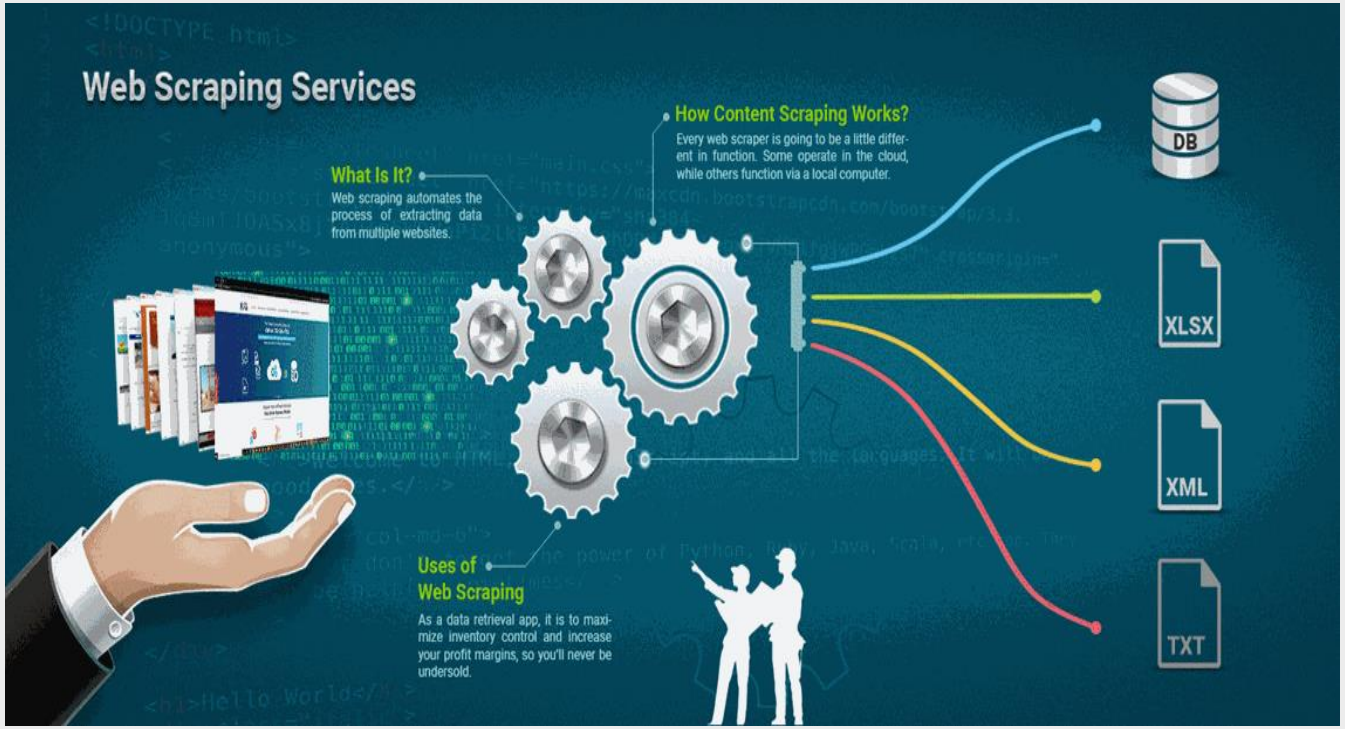
# Modern Data Ecosystem

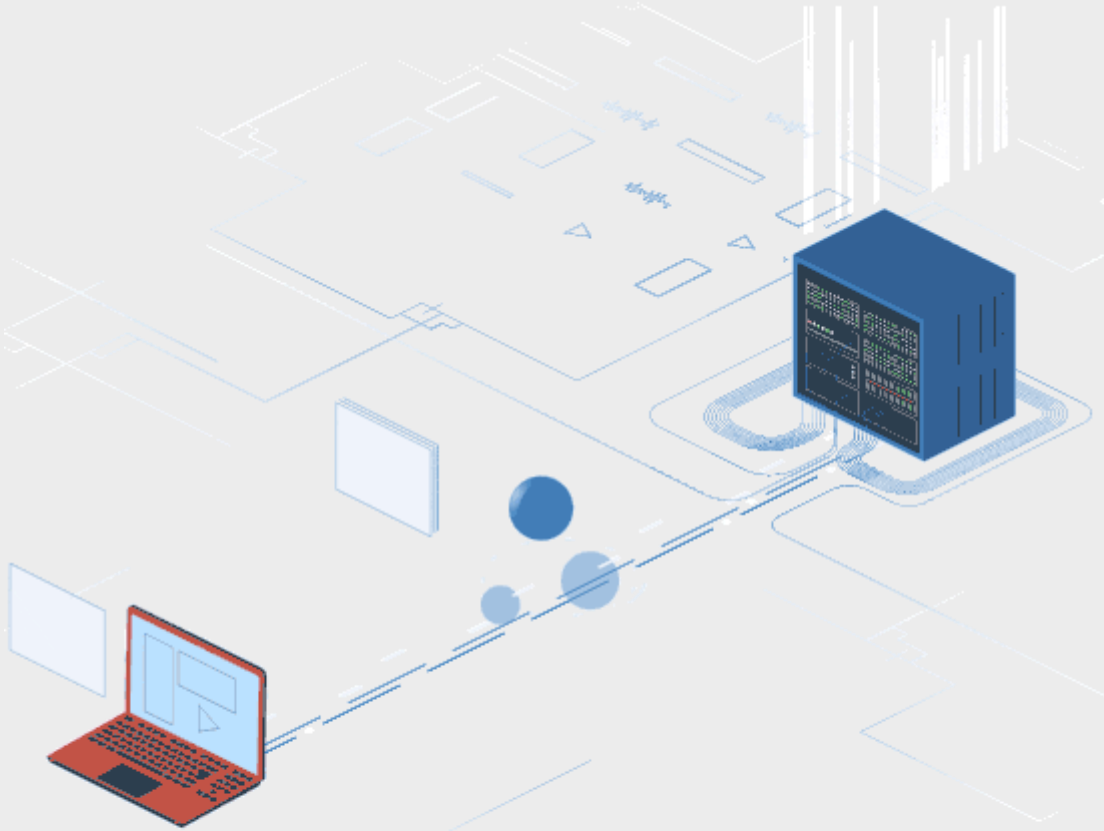
# Modern Data Ecosystem

# Data Sources

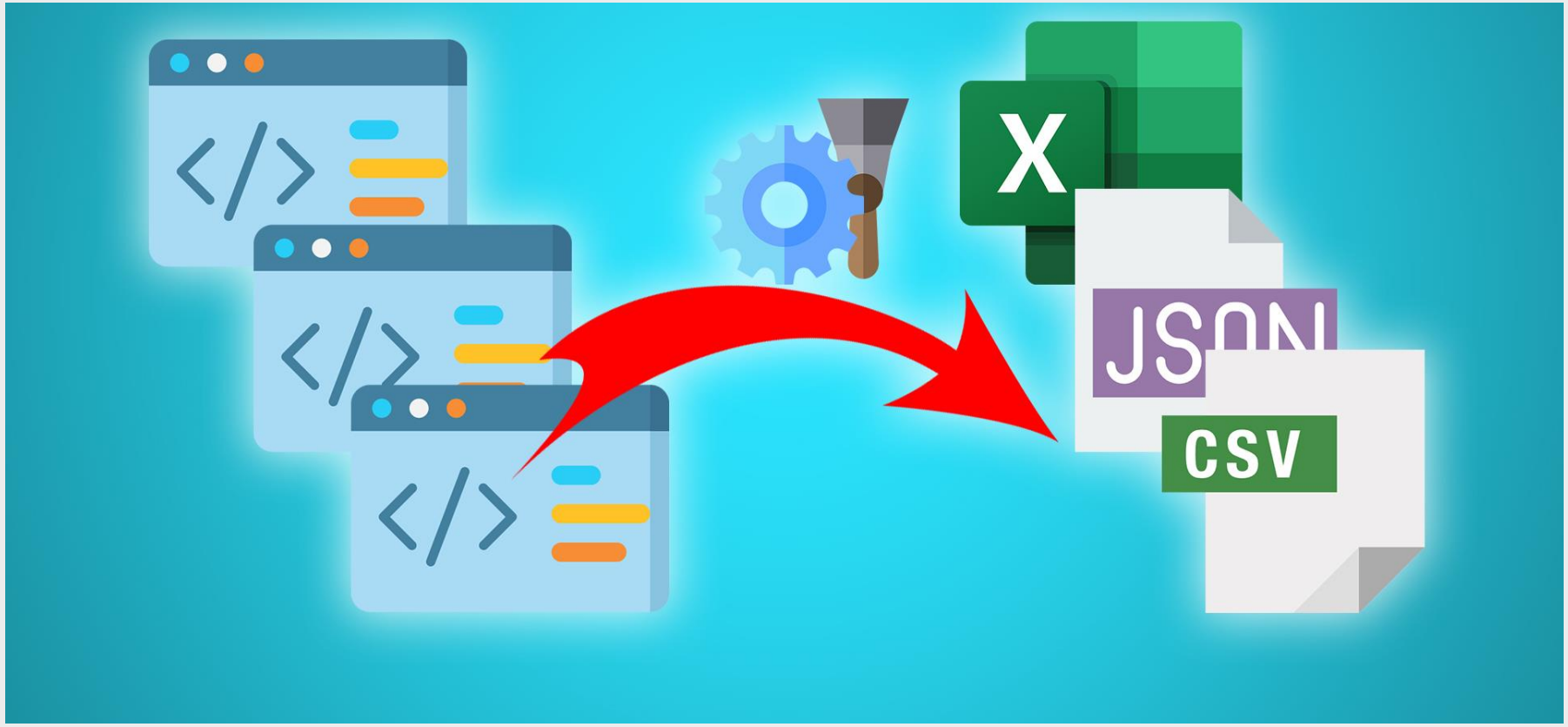
- Text
- Images
- Videos
- Clickstreams
- User conversations
- Social media platform
- IOT
- legacy database

# Web scraping or API



# Web Scraping

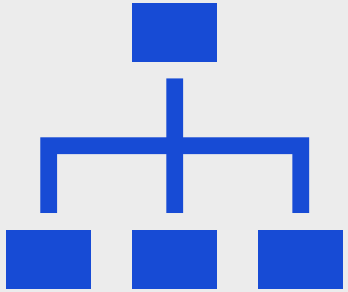


# API

Data From Twitter API

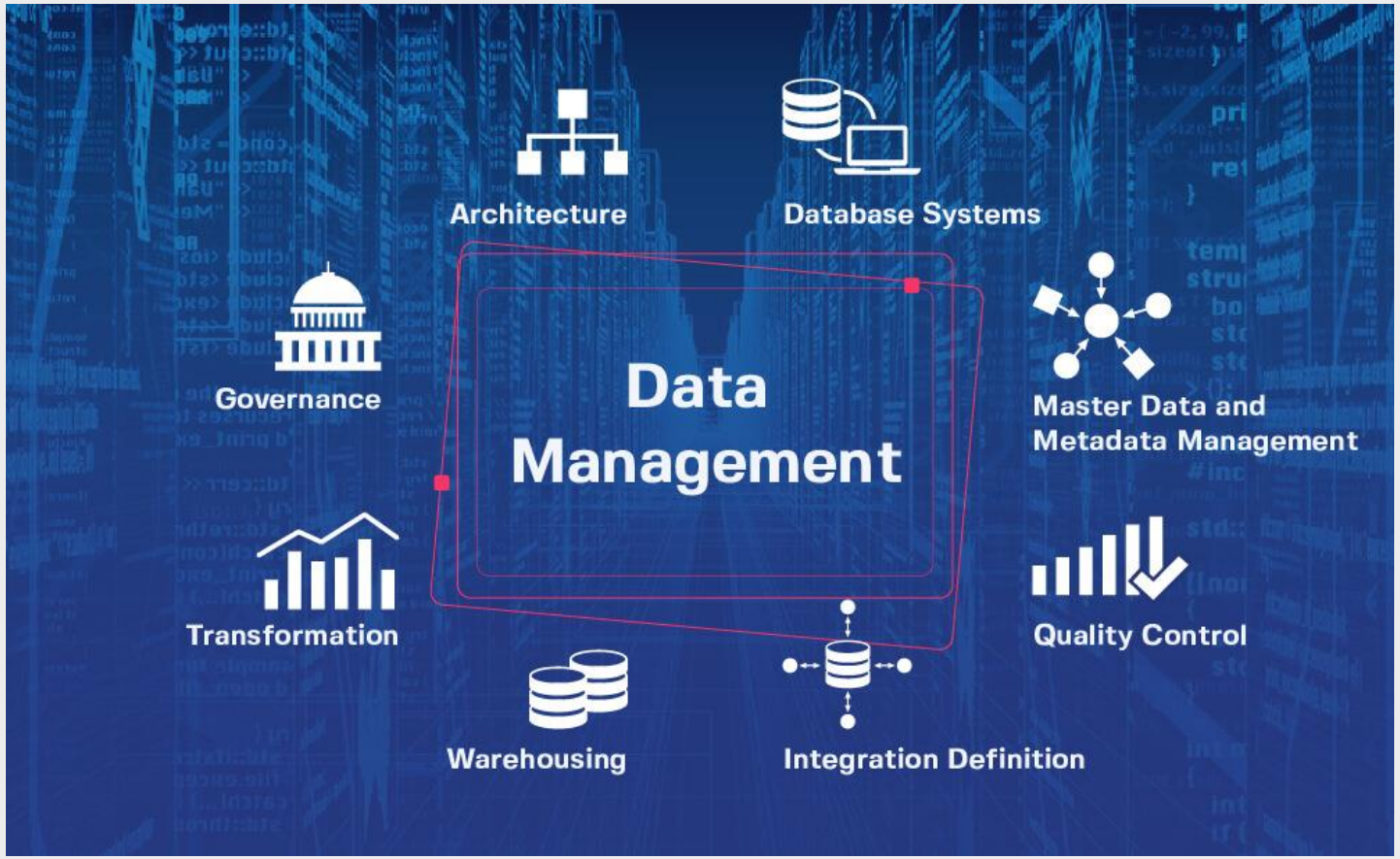
# Data Management

Raw data is in a common place, it needs to get organized, cleaned up, and optimized for access by end-users.



The data will also need to conform to compliances and standards enforced in the organization.

# Data Management



# Raw Data

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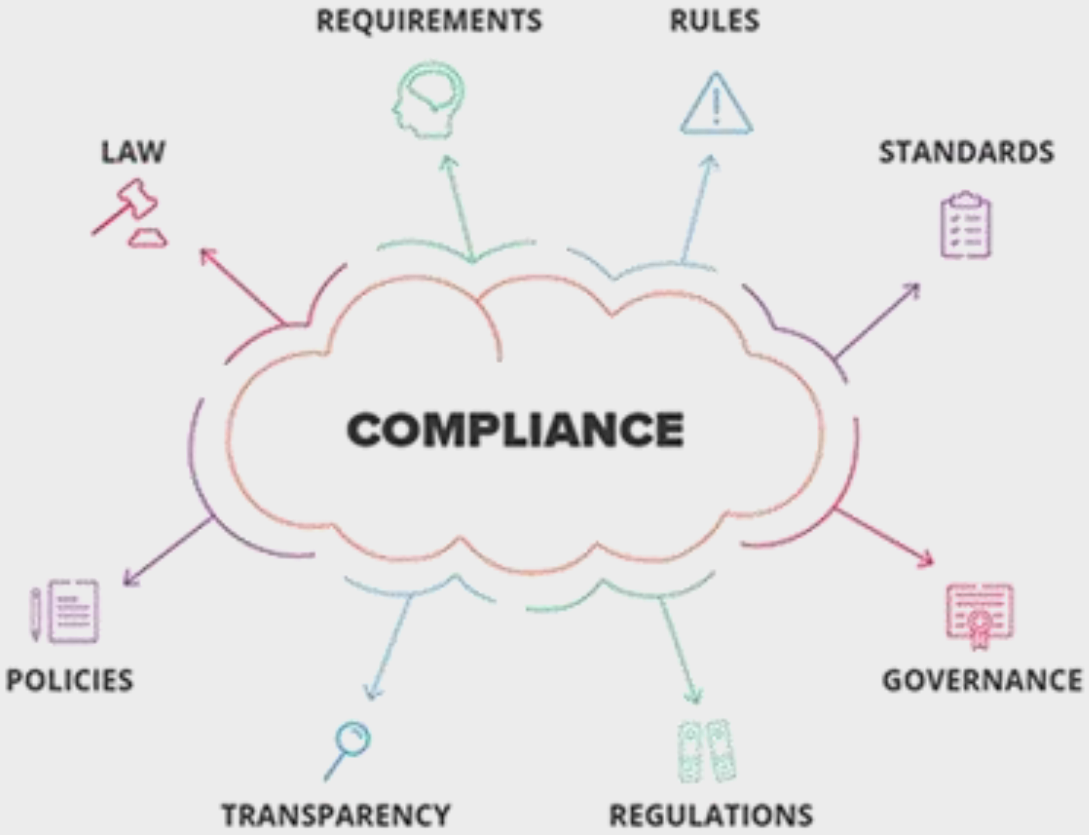
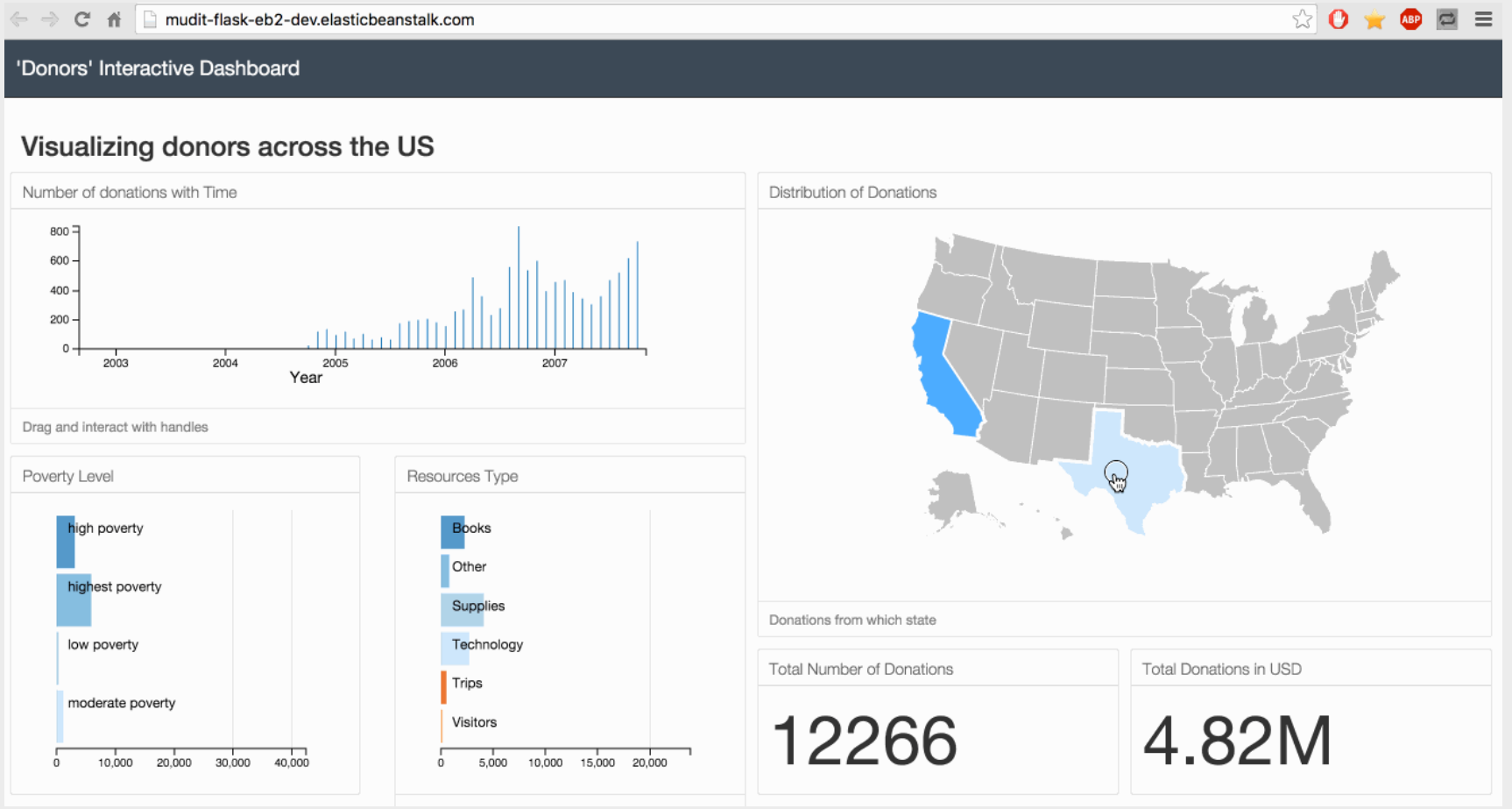
# Data Compliance

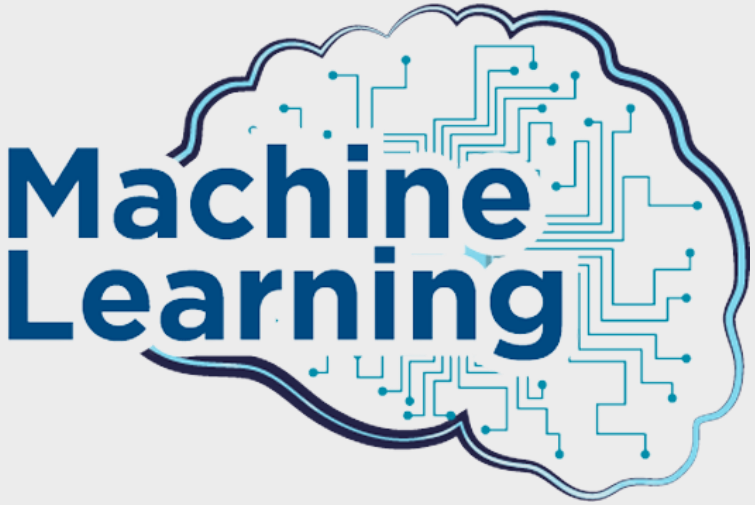


# END-USER

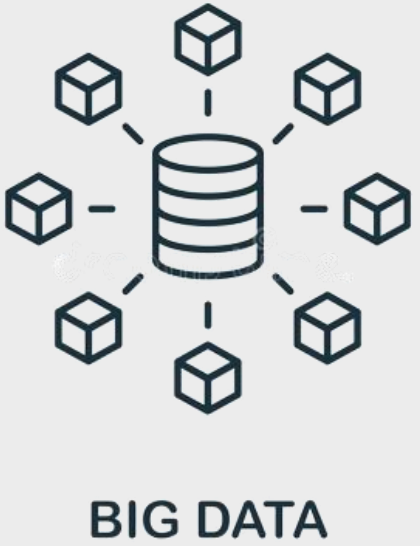

mudit-flask-eb2-dev.elasticbeanstalk.com
'Donors' Interactive Dashboard
Visualizing donors across the US
Number of donations with Time
800
600
400
200
0
2003
2004
2005
2006
2007
Year
Drag and interact with handles
Distribution of Donations
Donations from which state
Poverty Level
high poverty
highest poverty
low poverty
moderate poverty
0
10,000
20,000
30,000
40,000
Resources Type
Books
Other
Supplies
Technology
Trips
Visitors
0
5,000
10,000
15,000
20,000
Total Number of Donations
12266
Total Donations in USD
4.82M

# EMERGING TECHNOLOGIES SHAPING THE MODERN DATA ECOSYSTEM

**Cloud Technologies**




**Machine Learning**




**Big Data**

# EMERGING TECHNOLOGIES SHAPING THE MODERN DATA ECOSYSTEM

Every enterprise today has access to limitless storage, high-performance computing, open-source technologies, machine learning technologies, and the latest tools and libraries.

Data Scientists are creating predictive models by training machine learning algorithms on past data.

Big Data is paving the way for new tools and techniques and also new knowledge and insights.

# Data Professional Team

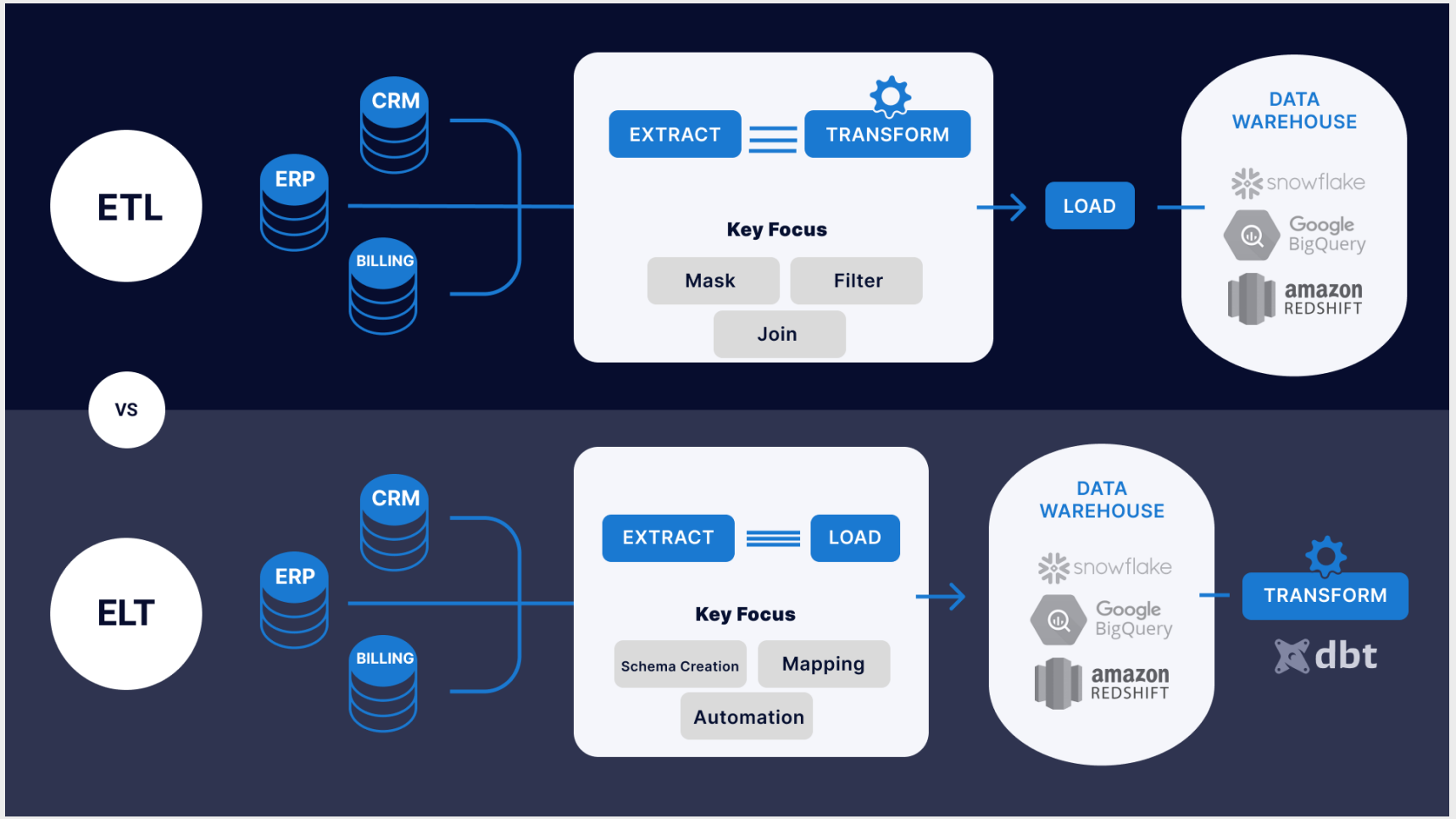
DATA ENGINEERS

DATA ANALYSTS

DATA SCIENTISTS

BUSINESS INTELLIGENCE

# DATA ENGINEERS WORK WITHIN THE DATA ECOSYSTEM TO:



# Data Engineers Skills

- Good knowledge of programming
- Sound knowledge of systems and technology architectures
- In-depth understanding of relational databases and non-relational data stores

# Data Analysts

- Inspect and clean data for deriving insights
- Identify correlations, find patterns, and apply statistical methods to analyze and mine data
- Visualize data to interpret and present the findings of data analysis

# Data Analysts Skills

- Good knowledge of spreadsheets, writing queries, and using statistical tools to create charts and dashboards
- Programming skills
- Strong analytical and story-telling skills

# Data Scientists

Analyze data for actionable insights

Create predictive models using Machine Learning and Deep Learning

# Data Scientists Skills

KNOWLEDGE OF MATHEMATICS AND STATISTICS

UNDERSTANDING OF PROGRAMMING LANGUAGES, DATABASES, AND BUILDING DATA MODELS

DOMAIN KNOWLEDGE

# Business Intelligence

- Business Analysts leverage the work of Data Analysts and Data Scientists to look at possible implications for their business and the actions they need to take or recommend.

# BI Analysts

FOCUS ON MARKET FORCES AND EXTERNAL INFLUENCES THAT SHAPE THEIR BUSINESS

ORGANIZE AND MONITOR DATA ON DIFFERENT BUSINESS FUNCTIONS

EXPLORE DATA TO EXTRACT INSIGHTS AND ACTIONABLES THAT IMPROVE BUSINESS PERFORMANCE

# To Summarize

DATA ENGINEERING CONVERTS RAW DATA INTO USABLE DATA

DATA ANALYTICS USE THIS DATA TO GENERATE INSIGHTS

DATA SCIENTISTS USE DATA ANALYTICS AND DATA ENGINEERING TO PREDICT THE FUTURE USING DATA FROM THE PAST

BUSINESS ANALYSTS AND BUSINESS INTELLIGENCE ANALYSTS USE THESE INSIGHTS AND PREDICTIONS TO DRIVE DECISIONS THAT BENEFIT AND GROW THEIR BUSINESS

Thank
you