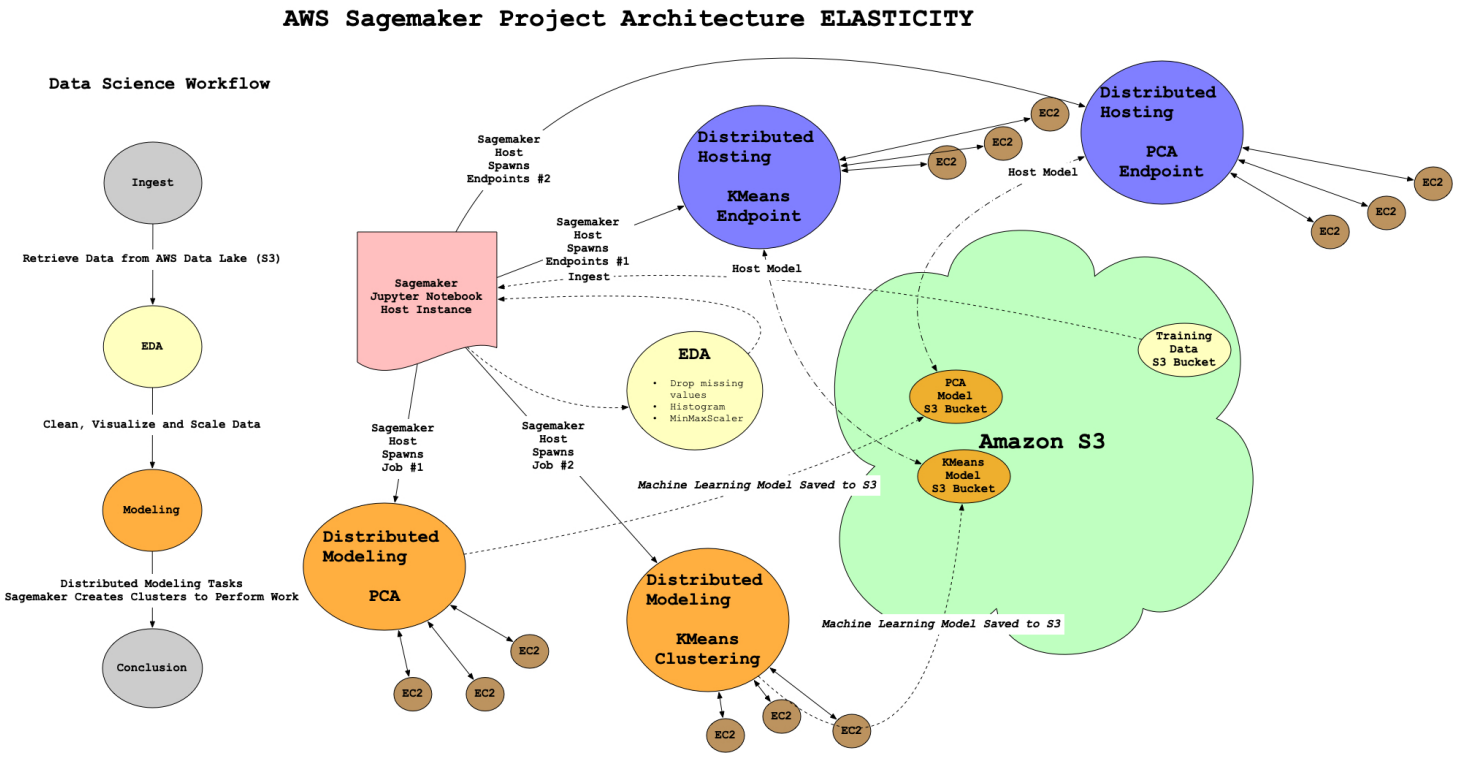
AWS Sagemaker Overview

One of the most prevalent managed ML Systems is AWS Sagemaker. This platform is a complete solution for an organization that wants to build and maintain large-scale Machine Learning projects. Sagemaker makes heavy use of the concept of MLOPs(Machine Learning Operations).

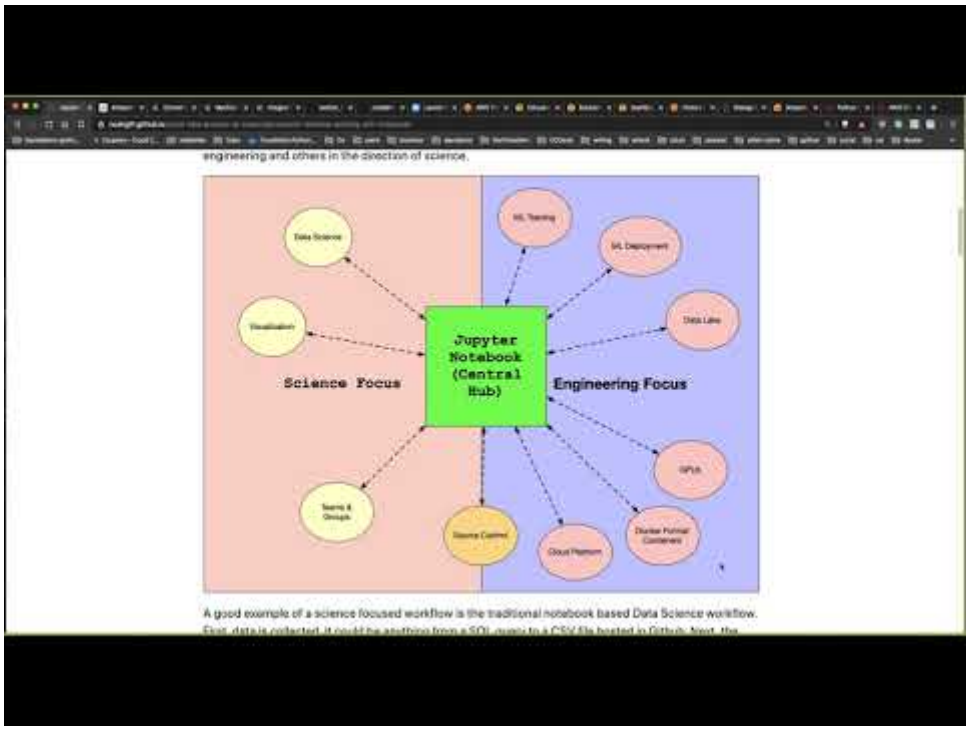
AWS Sagemaker Elastic Architecture

There is a lot involved in large scale Sagemaker architecture. Take a look at how each component serves a purpose in a Cloud-native fashion in the diagram.



For further analysis of this architecture, use this reference to analyze US census data for population segmentation using Amazon SageMaker

Finally, you can learn to use AWS Sagemaker to perform County Census Clustering in the following screencast.



Video Link: https://www.youtube.com/watch?v=H3AcLM_8P4s

Exercise-Use-Sagemaker

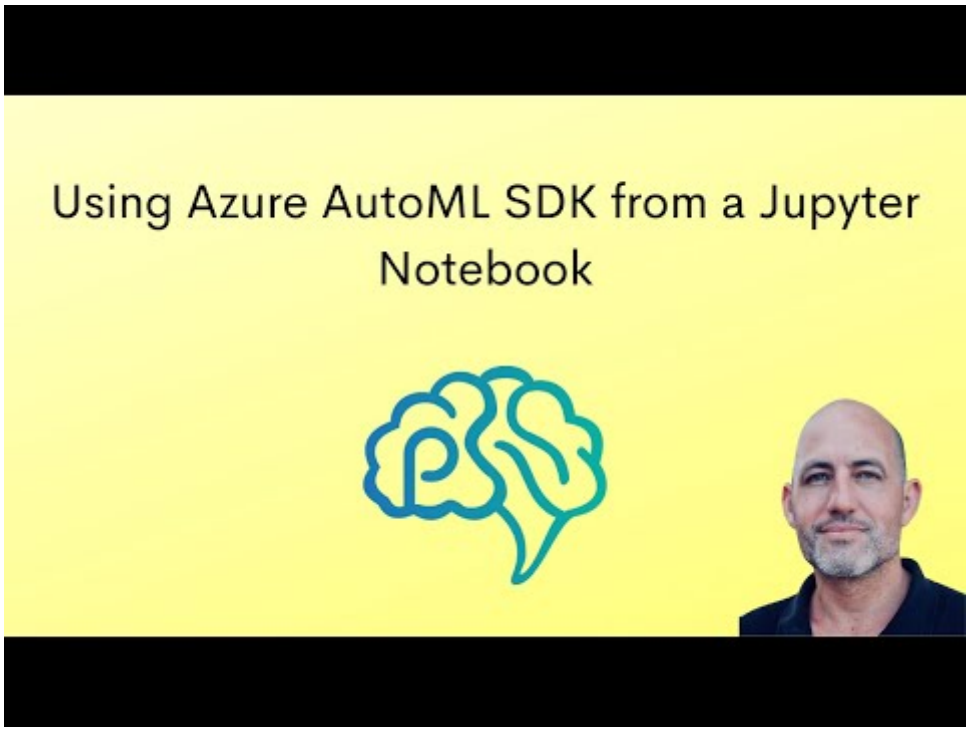
- Topic: Build a Sagemaker based Data Science project
- Estimated time: 45 minutes
- People: Individual or Final Project Team
- Slack Channel: #noisy-exercise-chatter
- Directions:
- Part A: Get the airline data into your own Sagemaker.
- Part B: Performance the Data Science workflow:
    - Ingest: Process the data
    - EDA: Visualize and Explore data
    - Model: Create some form of a model
    - Conclusion
- Part C: Consider trying multiple visualization libraries: Plotly, Vega, Bokeh, and Seaborn
- Part D: Download notebook and upload into Colab, then check notebook in a Github portfolio repo. *Hints: You may want to truncate the data and upload a small version into Github using unix `shuf` command.

```
shuf -n 100000 en.openfoodfacts.org.products.tsv\
> 10k.sample.en.openfoodfacts.org.products.tsv
1.89s user 0.80s system 97% cpu 2.748 total
```

Azure ML Studio Overview

Another ML platform that has compelling features is Azure ML Studio. It shares many of the same ideas as AWS Sagemaker.

Learn to use Azure ML Studio to perform AutoML in the following screencast.

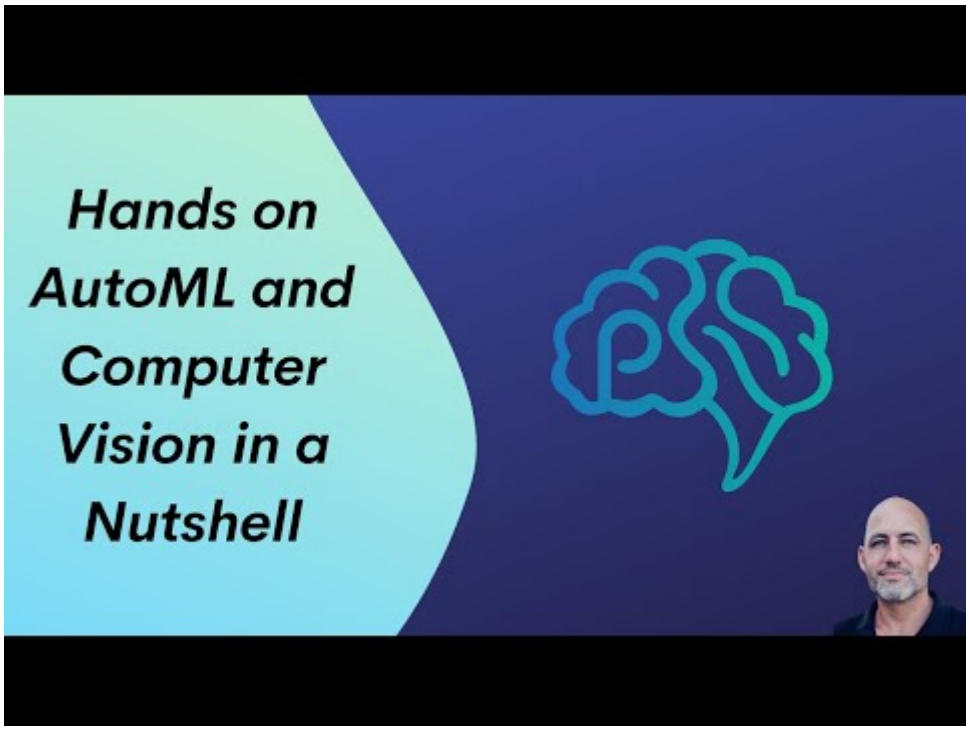


Video Link: https://www.youtube.com/watch?v=bJHk0ZOVm4s

Google AutoML Computer Vision

Another compelling, managed platform is Google AutoML Computer Vision. It can automatically classify images and then later export the model in `tflite` format to an edge device like Coral TPU USB stick.

Learn to use Google AutoML to perform Computer Vision in the following screencast.



Video Link: https://www.youtube.com/watch?v=LjERy-I5lyI

Summary

This chapter dives into the role of platform technology in Machine Learning, especially at scale. All major cloud platforms have compelling Machine Learning Platforms that can significantly reduce the complexity of problems for organizations doing Machine Learning. An emerging trend is the use of MLOPs and DevOps in solving these Machine Learning problems.