

Walking the landscape of cloud based Machine Learning

Introduction to Cloud Services

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Konstantinos Siaterlis

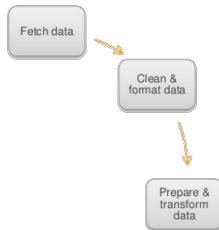
- ▶ The past year I work for Orfium
- ▶ 3 years as an assistant researcher at University of Patras
- ▶ Main focus on Deep Learning and Recommendation Systems
- ▶ I love Python

Social

- ▶  www.thelastdev.com
- ▶  [@siaterliskonsta](https://twitter.com/siaterliskonsta)
- ▶  [siakon89](https://github.com/siakon89)



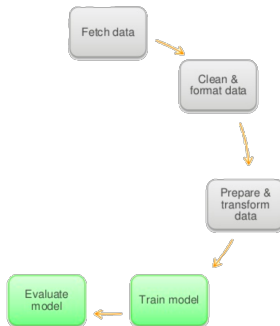
Machine Learning Process



source: <https://www.slideshare.net/AmazonWebServices/introducing-amazon-sagemaker>



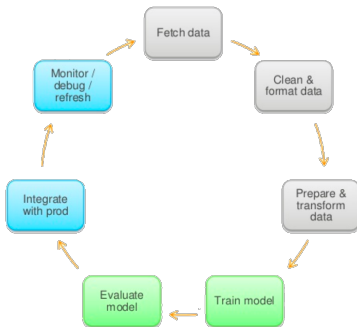
Machine Learning Process



source: <https://www.slideshare.net/AmazonWebServices/introducing-amazon-sagemaker>



Machine Learning Process



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Machine Learning on Cloud!



Pros

- ✓ Price
- ✓ Size of data
- ✓ Processing power/Distribute load
- ✓ De-couple model from client
- ✓ Auto-scaling instances

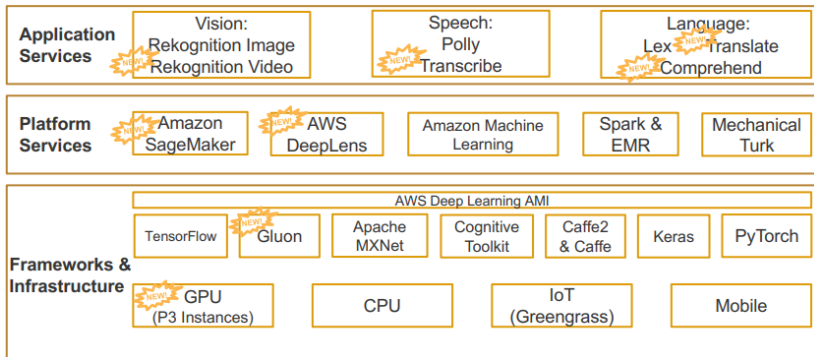
Cons

- ✗ Price
- ✗ Learning the architecture/stack
- ✗ Monitoring tasks and price





AWS Machine Learning Stack



source: <https://bit.ly/2GNRIWD>



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Amazon SageMaker



End-to-End
Machine Learning
Platform



Zero setup



Flexible Model
Training



Pay by the second

source: <https://bit.ly/2GNRIWD>



Amazon SageMaker

1



Notebook Instances

2



Algorithms

3



ML Training Service

4

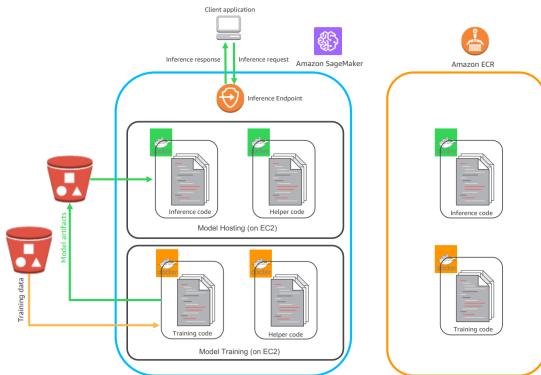


ML Hosting Service

source: <https://bit.ly/2GNRIWD>



SageMaker Behind the Scenes

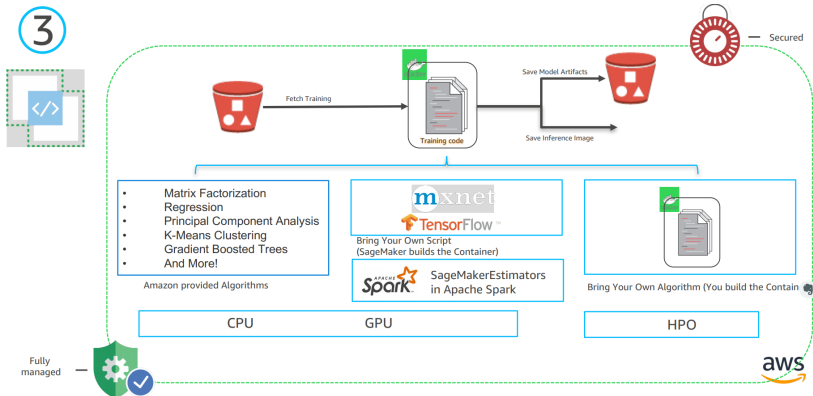


source: <https://bit.ly/2GNRIWD>



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SageMaker Training Service



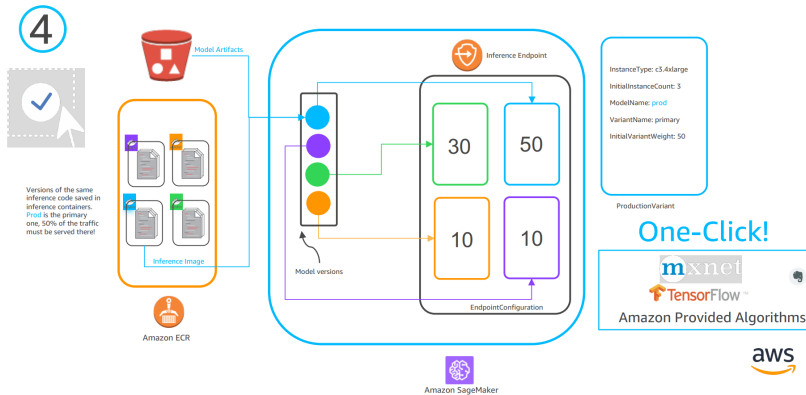
source: <https://bit.ly/2GNRIWD>



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SageMaker Deploy Model



source: <https://bit.ly/2GNRIWD>



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- ✓ Processing Power
- ✓ Scalability
- ✓ Secure/Fully managed
- ✓ Easy to use/deploy models
- ✓ Low latency and High throughput
- ✓ Custom/build-in Algos
- ✓ SDKs



SageMaker vs Azure ML studio vs Google ML

	Amazon ML	Amazon SageMaker*	Azure ML Studio	Google Prediction API	Google ML Engine**
Classification	✓	✓	✓	✓	✓
Regression	✓	✓	✓	✓	✓
Clustering	✗	✓	✓	✗	✓
Anomaly detection	✗	✓	✓	✗	✓
Recommendation	✗	✓	✓	✗	✓
Ranking	✗	✓	✓	✗	✓
Algorithms	unknown	10 built-in + custom available	100+ algorithms and modules	unknown	TensorFlow-based
Frameworks	✗	TensorFlow, MXNet	✗	✗	TensorFlow
Graphical interface	✗	✗	✓	✗	✗
Automation level	high	medium	low	high	low

*Both out-of-the-box features and possible custom-built features are marked as available in Amazon SageMaker

**The features available in TensorFlow are respectively marked as available in Google ML Engine.

source: <https://www.altexsoft.com/blog/datascience/comparing-machine-learning-as-a-service-amazon-microsoft-azure-google-cloud-ai/>





Amazon Web Services

@awscloud

Following



88% of TensorFlow projects in the cloud are running on AWS. Five reasons why deep learning practitioners choose AWS for deep learning over other cloud providers:

amzn.to/2lqdTc2



11:22 AM - 4 Jul 2018



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Thank you!



For Further Reading i

- 🌐 Comparing Machine Learning as a Service: Amazon, Microsoft Azure, Google Cloud AI
- 🌐 A Comparative Analysis Of Amazon SageMaker And Google Datalab
- 🌐 Amazon SageMaker
- 🌐 Machine Learning on AWS
- 🌐 Azure Machine Learning
- 🌐 Introducing Amazon SageMaker
- 🌐 Machine Learning on AWS with Amazon SageMaker
- 🌐 CLOUD AI
- 🌐 Cloud ML Engine Overview

For Further Reading ii

-  Amazon Sagemaker Documentation
-  Azure Machine Learning Studio Documentation
-  Cloud Machine Learning Engine Documentation