

Cloud Based ML (MLaaS)

AWS, Azure, Google

Introduction

- ML-as-a-service platforms **cover most infrastructure issues as far as data pre-processing, model training, and model evaluation**. Predictions can be bridged with your internal IT infrastructure through REST APIs.
- Amazon Machine Learning, Azure Machine Learning, and Google Prediction API are three leading cloud services that **allow for fast model training and deployment** with little to no data science expertise.
- These should be considered first if you assemble a homegrown data science team out of available software engineers.

Amazon Machine Learning

- One of the **most automated solutions** on the market and the best fit for deadline-sensitive operations.
- Can load data from multiple sources, including Amazon RDS, Amazon Redshift, CSV files, etc.
- The service identifies which fields are categorical and which are numerical, and it doesn't ask a user to choose the methods of further data preprocessing
- Integrates with **Amazon S3 and Redshift and EMR DynamoDB.**

Amazon Machine Learning

- Amazon ML is limited to three options: **binary classification, multiclass classification, and regression.**
- User isn't required to know any machine learning methods because Amazon chooses them **automatically** after looking at the provided data.
- **Doesn't** support any **unsupervised learning** methods, and a user must select a target variable to label it in a training set.

Microsoft Azure Machine Learning

- Unlike the Amazon , Azure Machine Learning provides a powerful playground both for newcomers and data scientists.
- Operations in Azure ML **must be completed manually** including data exploration, preprocessing, choosing methods, validating results.
- **Steep learning curve**, requires bit knowledge and configurations are bit tedious.

Microsoft Azure Machine Learning

- Azure ML supports **graphical interface to visualize** each step within the workflow.
- Azure has variety of algorithms, supports around **100 methods that address classification (binary+multiclass), anomaly detection, regression, recommendation, and text analysis.**
- Also supports **clustering algorithm** (K-means).
- Integrates with other Microsoft products (**Azure SQL, Azure Table, Azure Blob**) but also supports Hadoop and a handful of other data source options.
- Azure ML's **Cortana Intelligence Gallery** is big plus !

Google Prediction API

- Very similar to what Amazon offers
- Primarily focused on classification (**both binary and multiclass**) and regression.
- Trained models can be deployed through the REST API interface.
- Google **doesn't disclose exactly which algorithms** are utilized for drawing predictions.
- Similar to Azure, Google offers a **gallery of pre-trained models**, which unlike Azure is small and yet to be expanded.

IBM Watson

- IBM Watson Analytics isn't yet a full-fledged machine learning platform
- Watson's **strength is visualizing data** and describing how different values in it interact.
- Visual recognition service similar to what Google offers.
- When it comes to custom machine learning or prediction duties , **it's too early in its development** to consider IBM Watson.

Conclusion

As per Bradford Cross [Founding Partner @ DCVC, the world's leading machine learning and big data venture capital fund]

<http://www.bradfordcross.com/blog/2017/3/3/five-ai-startup-predictions-for-2017>

The future of MLaaS:

More companies will turn to ML-as-a-service to avoid expensive talent acquisitions will complement the gaps with versatile data tools available in the market.