

Open Source, Cloud And AI

김영욱

부장 / PS / Microsoft

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YouTube 영욱 스튜디오

먼저

자기소개

본업

유투버

{영국 스튜디오, iT만답러}

세션 전에

먼저



IT만담러의 {영욱 스튜디오}
구독과 좋아요 ^^





글로벌 시가총액 상위 10개 기업

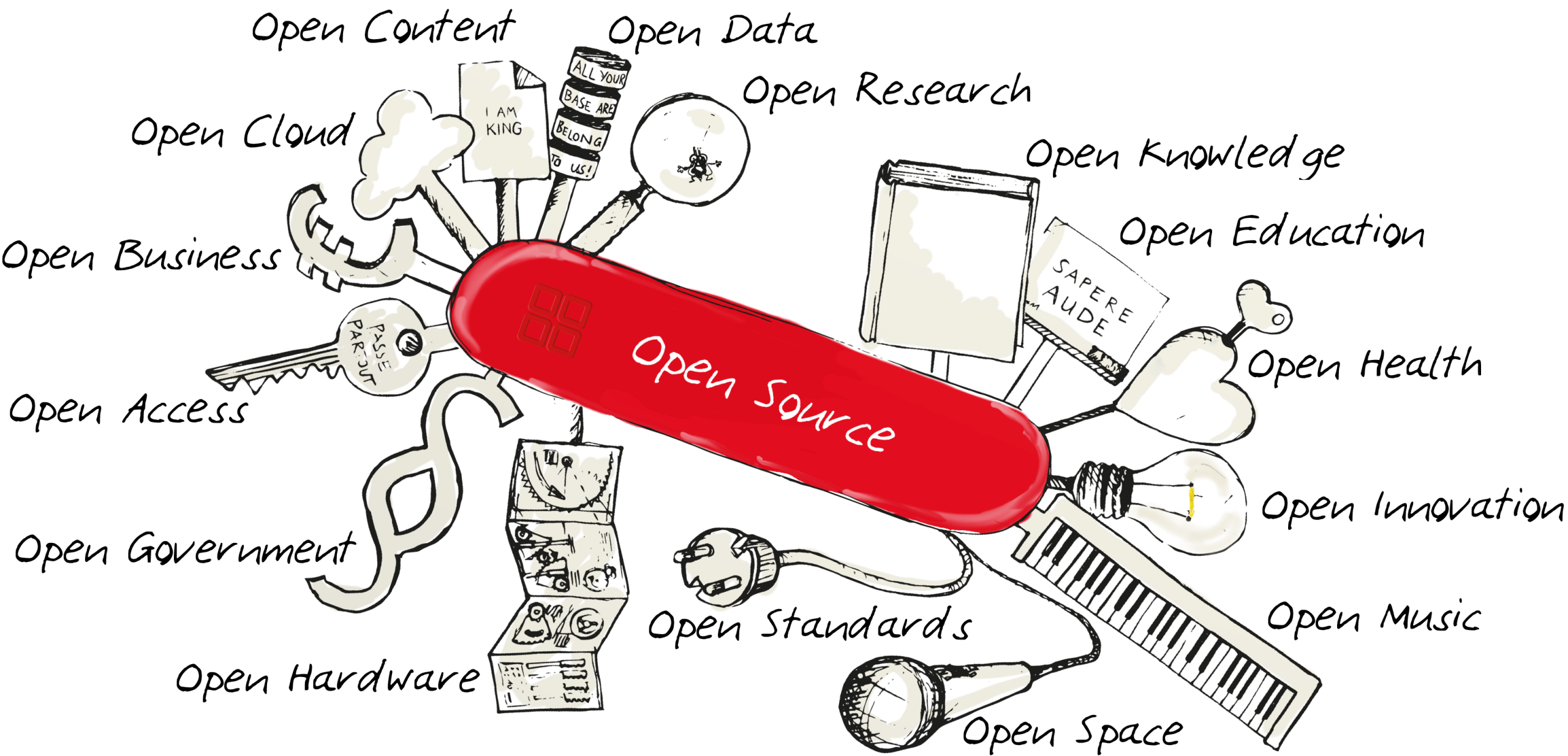
(단위: 십억달러)



※2019년 8월 말 기준, 알파벳·버크셔해서웨이는 의결권
차등주 합산, 알리바바(ADR·미국 예탁증서 상장) 제외

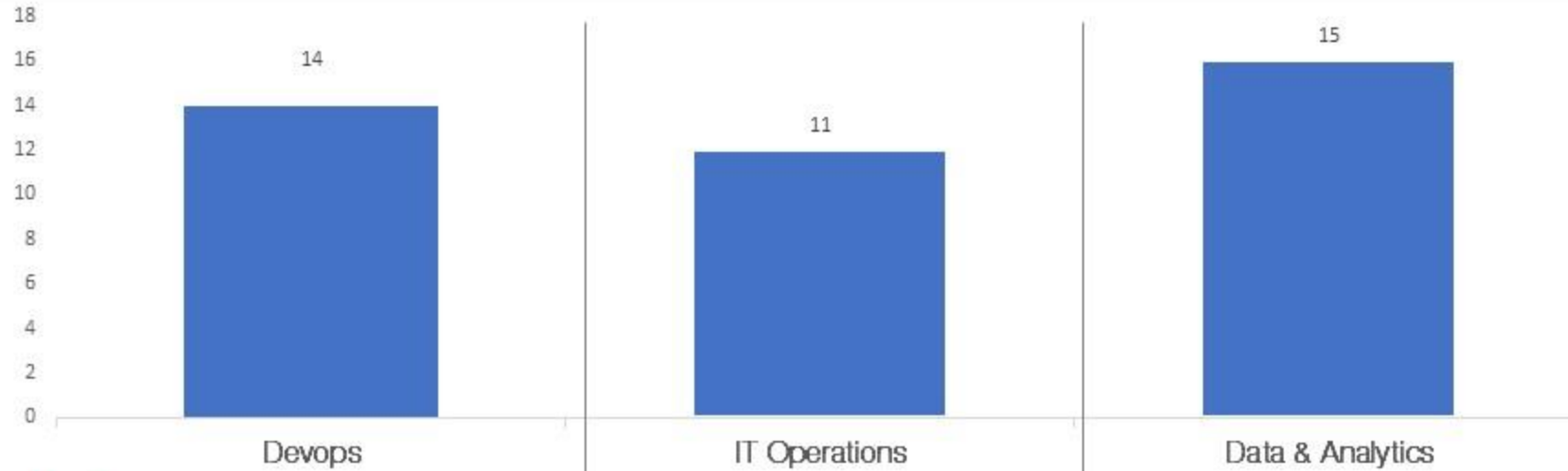
자료 : 파이낸셜타임즈, 한국투자증권

2019.10.09



Top 40 Open-Source Projects by Category & Sample of Related Companies

Microsoft



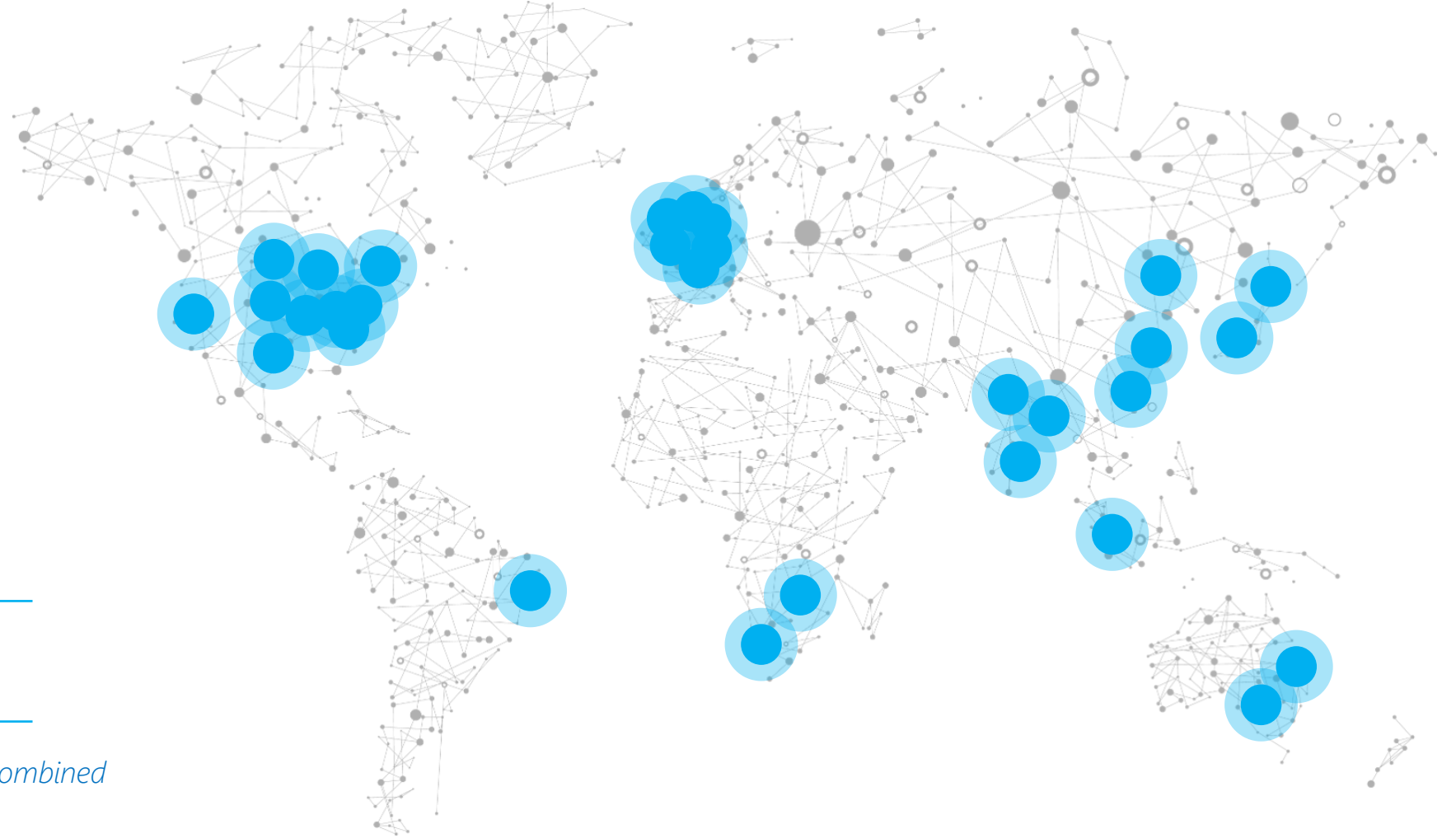
Microsoft Azure is the leading hyperscale cloud

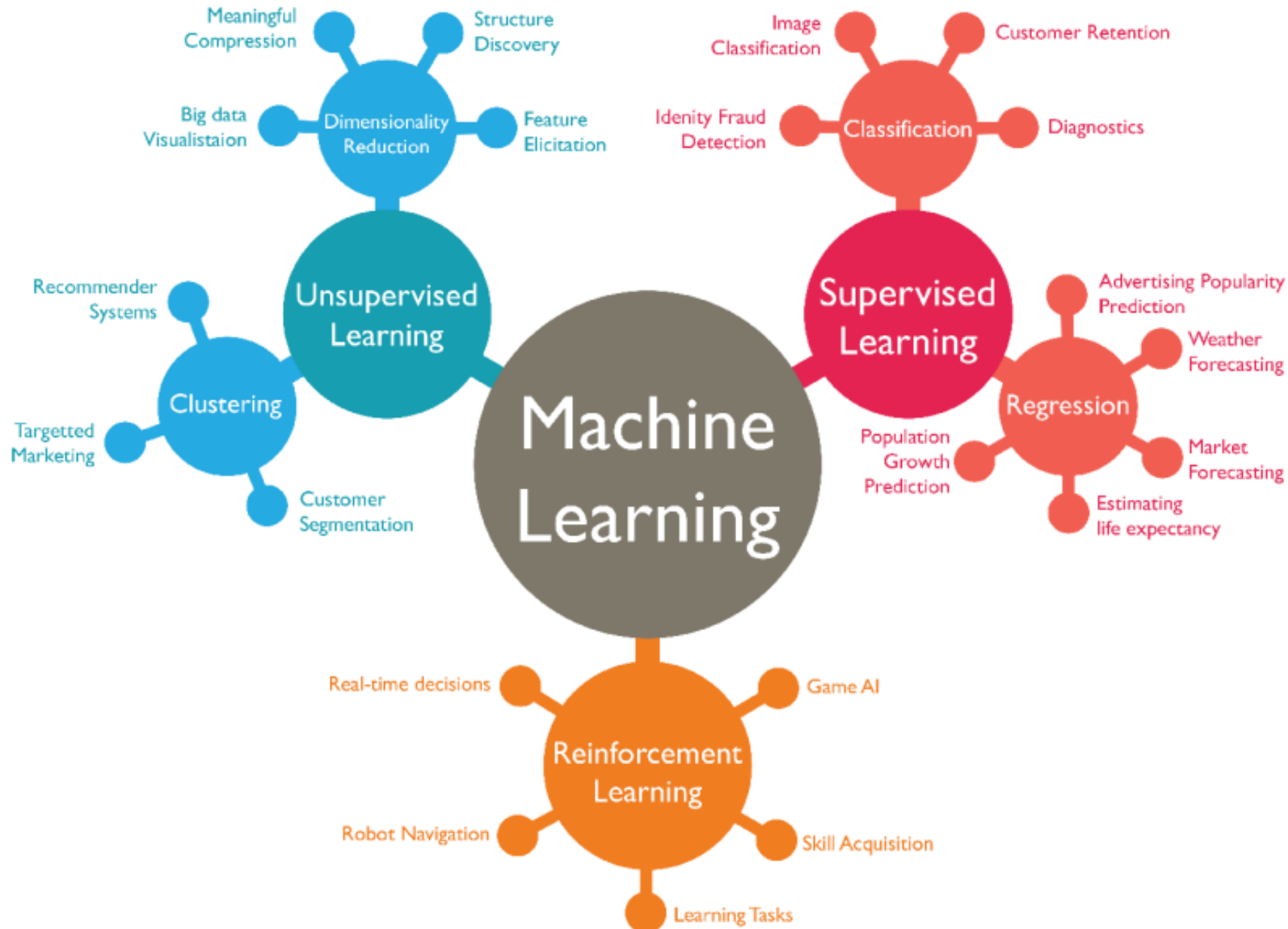
61

Azure regions
around the world

● AZURE REGIONS

More than AWS and Google Cloud combined





Azure Machine Learning

[홈](#) / [서비스](#) / Azure Machine Learning

Azure Machine Learning

엔터프라이즈급 기계 학습 서비스로 보다 빠르게 모델 빌드 및 배포

체험 계정 만들기 >

제품 홈 ▾

제품 개요

기능

가격

설명서

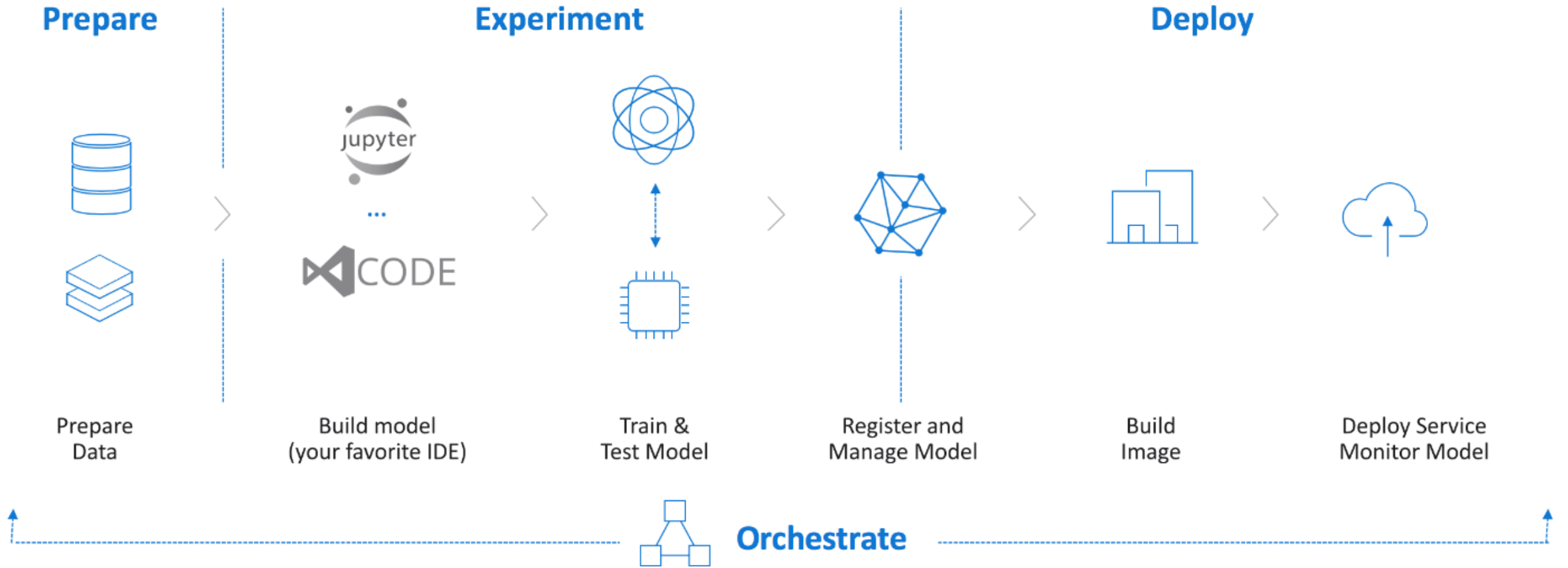
시작하기

고객 사례

공지

FAQ

Azure Machine Learning Services



중요한건

두꺼운

世界



중!!!

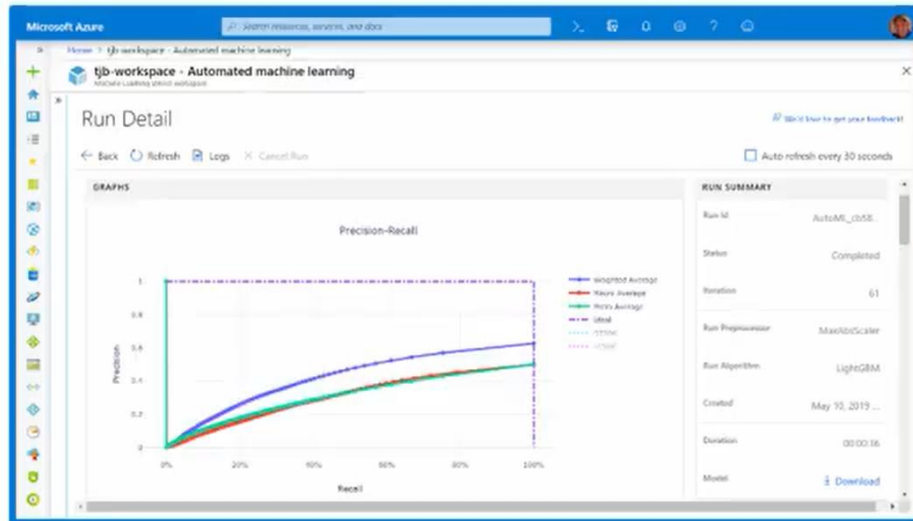


AutoML (Automated Machine Learning)

since
December 2018

```
automl_classifier = AutoMLConfig(  
    task='classification',  
    primary_metric='AUC_weighted',  
    max_time_sec=12000,  
    iterations=100,  
    blacklist_models='XGBoostClassifier',  
    X=X,  
    y=y,  
    n_cross_validations=5)
```

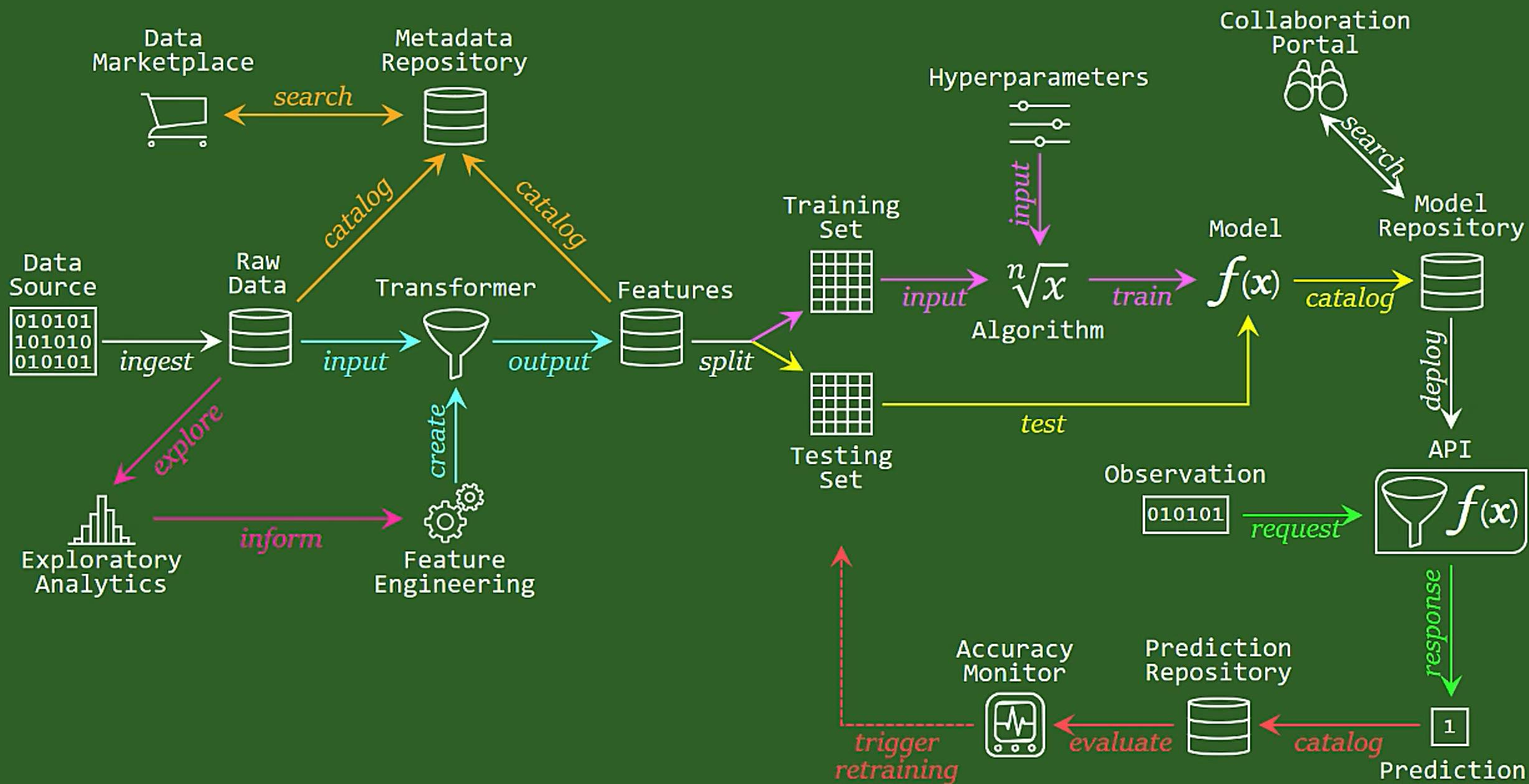
since
May 2019



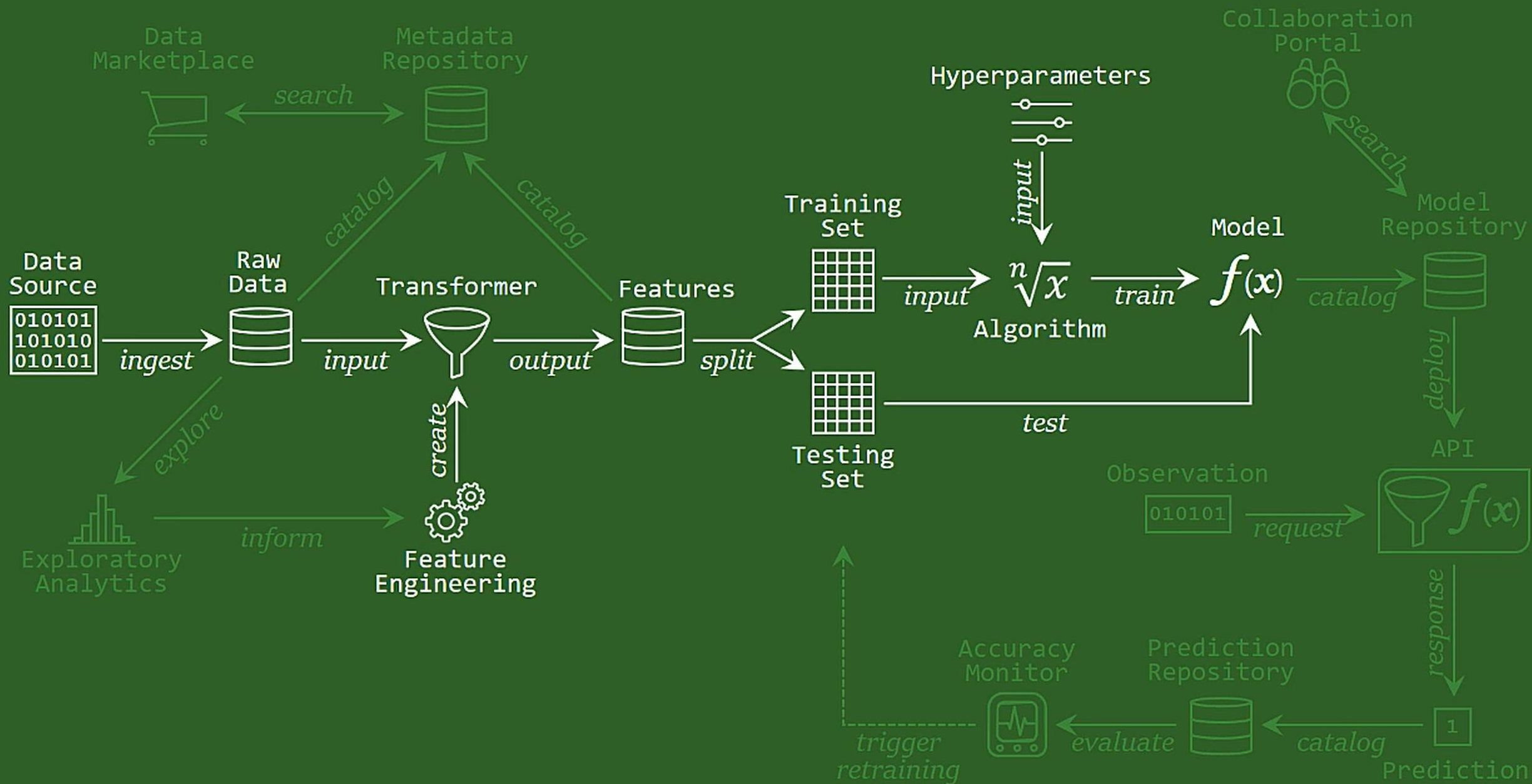
Azure
AutoML

API

MACHINE LEARNING



Azure AutoML



Preprocessing

Standardization

Min-Max Scaling

Max Absolute Scaling

Robust Scaling

Sparse Normalization

Principal Component Analysis

Truncated SVD

Advanced Preprocessing

Drop High-Cardinality Features

Drop Features with No Variance

Impute Missing Values

Generate Additional Features

Transform and Encode

Word Embeddings

Target Encodings

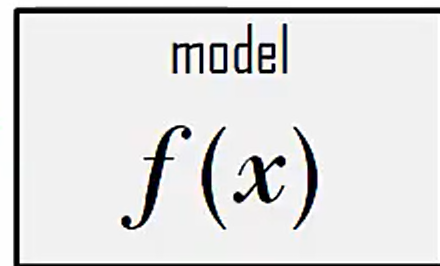
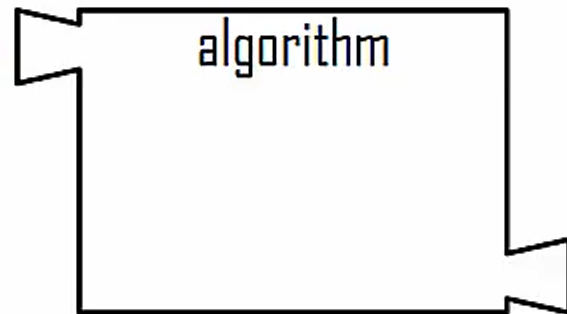
Text Target Encoding

Weight of Evidence

Cluster Distance

training set

56	97	67	28	92	80	48	0
81	92	100	7	11	68	87	1
20	49	80	75	98	54	79	1
70	60	54	47	70	36	27	0
93	23	66	16	14	19	10	0
22	68	49	13	39	53	29	0
86	58	85	35	65	42	96	1
61	69	75	26	27	17	94	1
14	13	62	82	11	35	27	0
37	55	41	13	6	74	69	0



training set

56	97	67	28	92	80	48	0
81	92	100	7	11	68	87	1
20	49	80	75	98	54	79	1
70	60	54	47	70	36	27	0
93	23	66	16	14	19	10	0
22	68	49	13	39	53	29	0
86	58	85	35	65	42	96	1
61	69	75	26	27	17	94	1
14	13	62	82	11	35	27	0
37	55	41	13	6	74	69	0

algorithm 1

model 1

$f(x)$

algorithm 2

model 2

$f(x)$

algorithm 3

model 3

$f(x)$

⋮

algorithm n

model n

$f(x)$

scikit-learn

Logistic Regression

Stochastic Gradient Descent

Elastic Net

Lasso LARS

Support Vector Machines

Linear SVM

Multinomial Naive Bayes

Bernoulli Naive Bayes

K-Nearest Neighbors

Decision Tree

Random Forest

Extremely Randomized Trees

Gradient Boosting

others

LightGBM

XGBoost Classifier

XGBoost Regressor

TensorFlow DNN

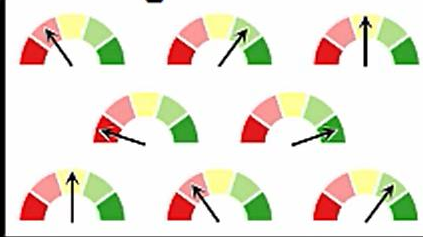
TensorFlow Linear Classifier

TensorFlow Linear Regressor

training set

56	97	67	28	92	80	48	0
81	92	100	7	11	68	87	1
20	49	80	75	98	54	79	1
70	60	54	47	70	36	27	0
93	23	66	16	14	19	10	0
22	68	49	13	39	53	29	0
86	58	85	35	65	42	96	1
61	69	75	26	27	17	94	1
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37	55	41	13	6	74	69	0

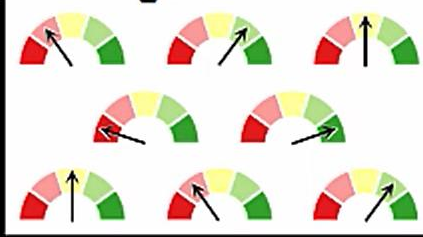
algorithm 1



model 1

$f(x)$

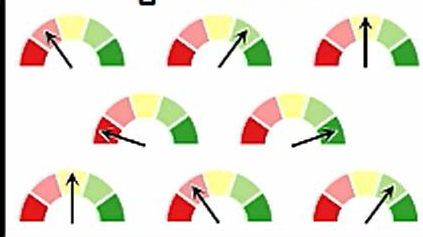
algorithm 2



model 2

$f(x)$

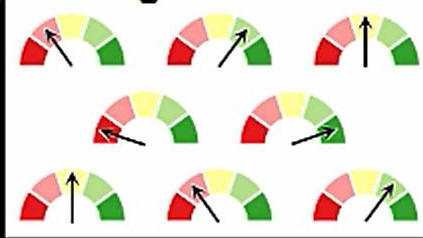
algorithm 3



model 3

$f(x)$

algorithm n



model n

$f(x)$

testing set

31	49	56	29	59	79	93	0
32	39	3	96	78	29	82	1
33	83	96	64	23	61	93	1
42	85	53	47	93	39	26	0
42	83	71	5	82	86	51	0
91	26	45	75	99	61	94	0
56	46	43	59	2	57	56	1
90	51	100	58	64	65	38	1
16	34	30	8	51	64	80	0
34	57	14	87	14	2	10	0

model 1
 $f(x)$

model 1
evaluation metrics

model 2
 $f(x)$

model 2
evaluation metrics

model 3
 $f(x)$

model 3
evaluation metrics

model n
 $f(x)$

model n
evaluation metrics





Home > tjb-workspace - Compute



tjb-workspace - Compute

Machine Learning service workspace



- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Authoring (Preview)
 - Automated machine learning
 - Visual interface
 - Notebook VMs

Assets

- Experiments
- Pipelines
- Compute
- Models
- Images
- Deployments
- Activities

Experiments

Pipelines

Compute

Models

Images

Deployments

Activities

Compute

[+ Add Compute](#) [Refresh](#) [Delete](#) [Detach](#)

There are no computes in this workspace.

감사합니다

Thank you!