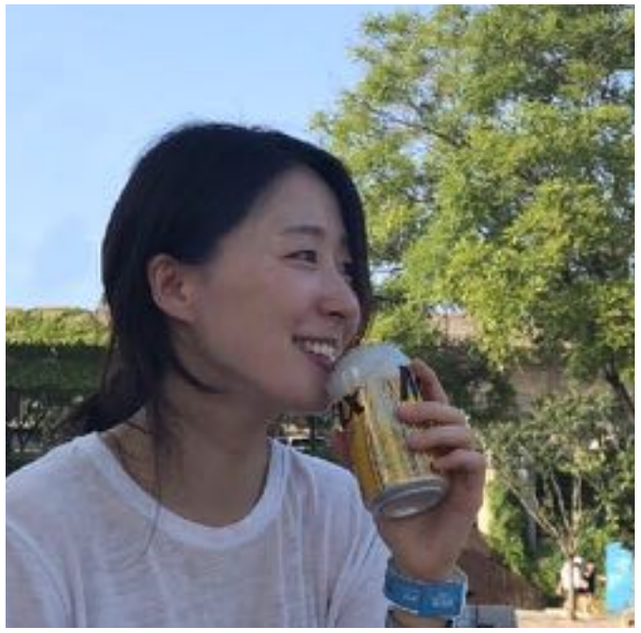
with AI College

Machine Learning Service On Azure Cloud

전미정

Microsoft AI MVP



전 미 정

Blink

BFT

BBL

maptales

K
KOREA

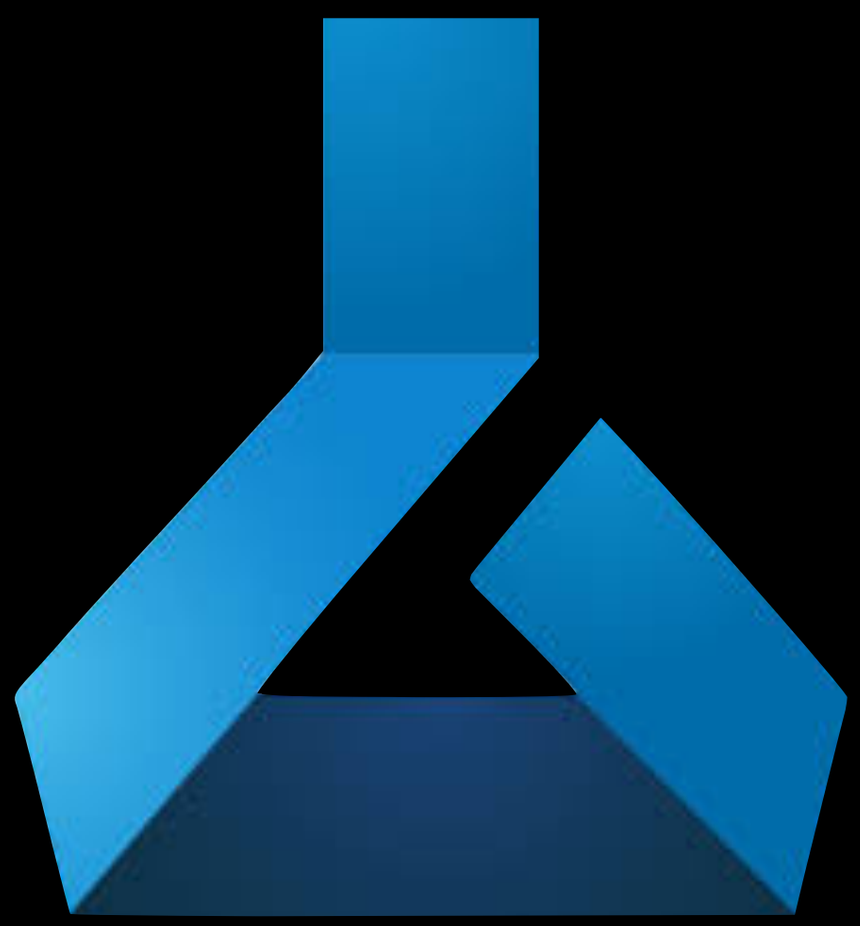
MVP Microsoft® Most Valuable Professional

Award Categories
AI

First year awarded:
2018

Number of MVP Awards:
1

Machine Learning Service On Azure Cloud



- Azure AI Platform 소개
- Azure ML service 소개
- Azure ML service 실습
  (cifar10 학습/ 모델 배포)

Azure

Platform Services

Compute

- Cloud Services
- Service Fabric
- Batch
- Remote App

Web and Mobile

- Web Apps
- API Apps
- API Management
- Mobile Apps
- Logic Apps
- Notification Hubs

Developer Services

- Visual Studio
- Azure SDK
- Team Project
- Application Insights

Integration

- Storage Queues
- Biztalk Services
- Hybrid Connections
- Service Bus

Analytics & IoT

- HDInsight
- Machine Learning
- Data Factory
- Event Hubs
- Stream Analytics
- Mobile Engagement

Data

- SQL Database
- SQL Data Warehouse
- Redis Cache
- Search
- Document DB
- Tables

Media & CDN

- Media Services
- Content Delivery Network (CDN)

Azure AI Service

custom model 생성

Machine Learning

쉽고 빠르게 모델을 만들어 배포, 관리하세요

microsoft model 활용

Cognitive Service

앱에 혁신적인 환경을 구현하세요

Azure AI Service

Machine Learning

쉽고 빠르게 모델을 만들어
배포, 관리하세요

Azure Machine Learning

Azure Databricks

ONNX

Build models quickly

Prepare Data

Explore your data with summary statistics and transform it using intelligent transformations.

Train Models

Use machine learning algorithms with training data to create models.

Evaluate Models

Find the best model using test data.

Deploy Models

Deploy model as a web service in the Azure cloud, or to IoT Edge devices.

Automated machine learning

Identify suitable algorithms and hyperparameters faster.

Managed compute

Train models with ease and reduce costs by autoscaling powerful GPU clusters.

DevOps for machine learning

Increase productivity with experiment tracking, model management and monitoring, integrated CI/CD, and machine learning pipelines.

Simple deployment

Deploy models on-premises, to the cloud, and at the edge with a few lines of code.

Tool-agnostic Python SDK

Azure Machine Learning service integrates with any Python environment, including Visual Studio Code, Jupyter notebooks, and PyCharm.

Support for open-source frameworks

Use your favorite machine learning frameworks and tools, such as PyTorch, TensorFlow, and scikit-learn.

Azure AI Service

Machine Learning

쉽고 빠르게 모델을 만들어
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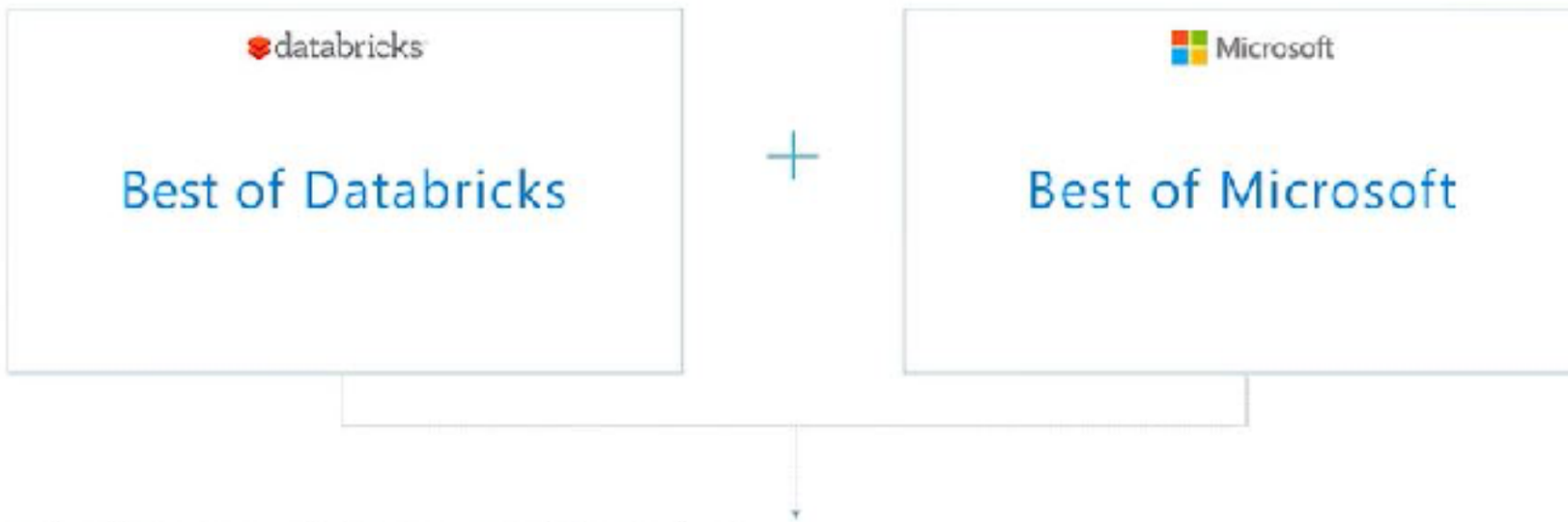
Azure Machine Learning

Azure Databricks

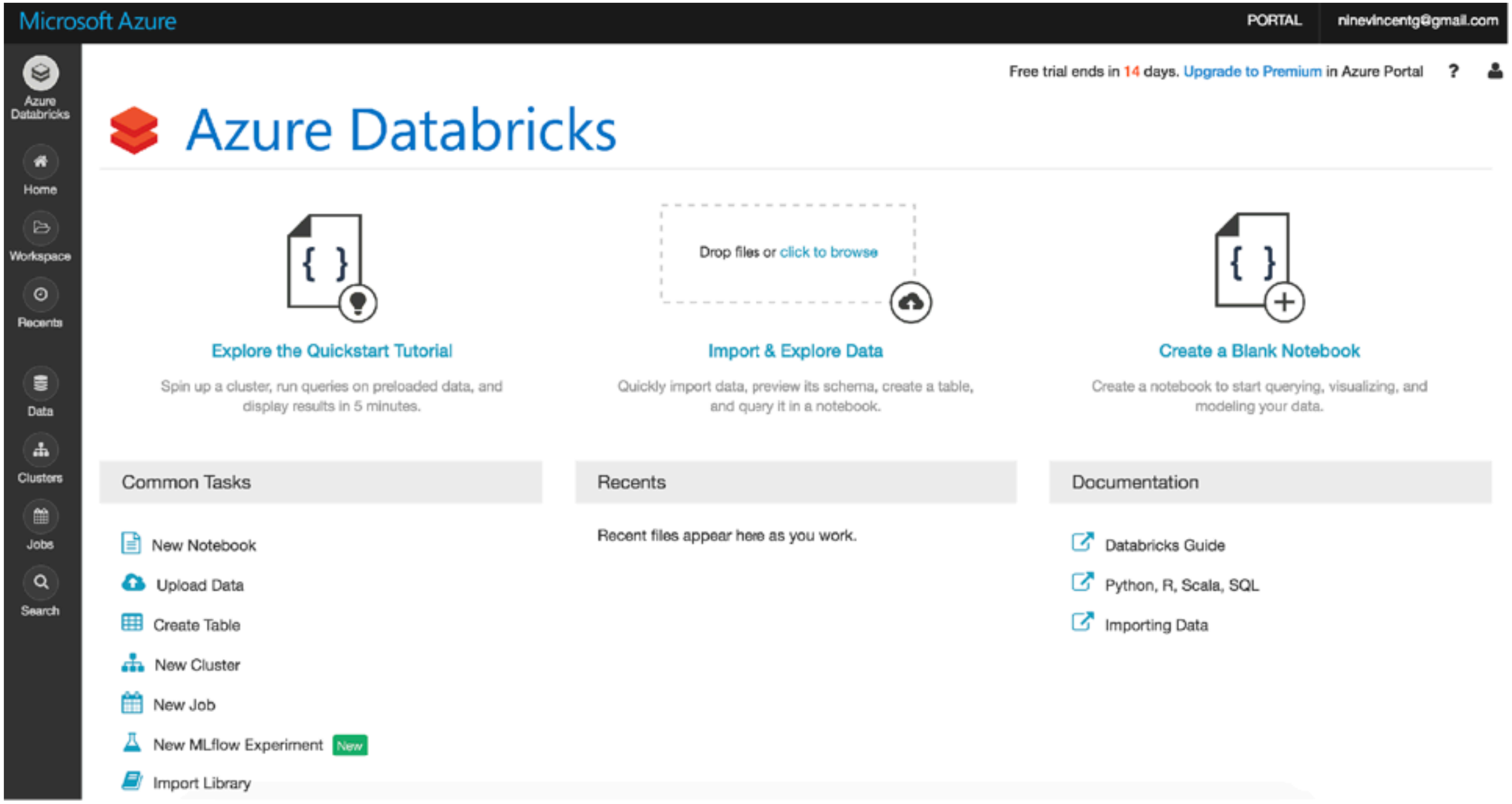
ONNX

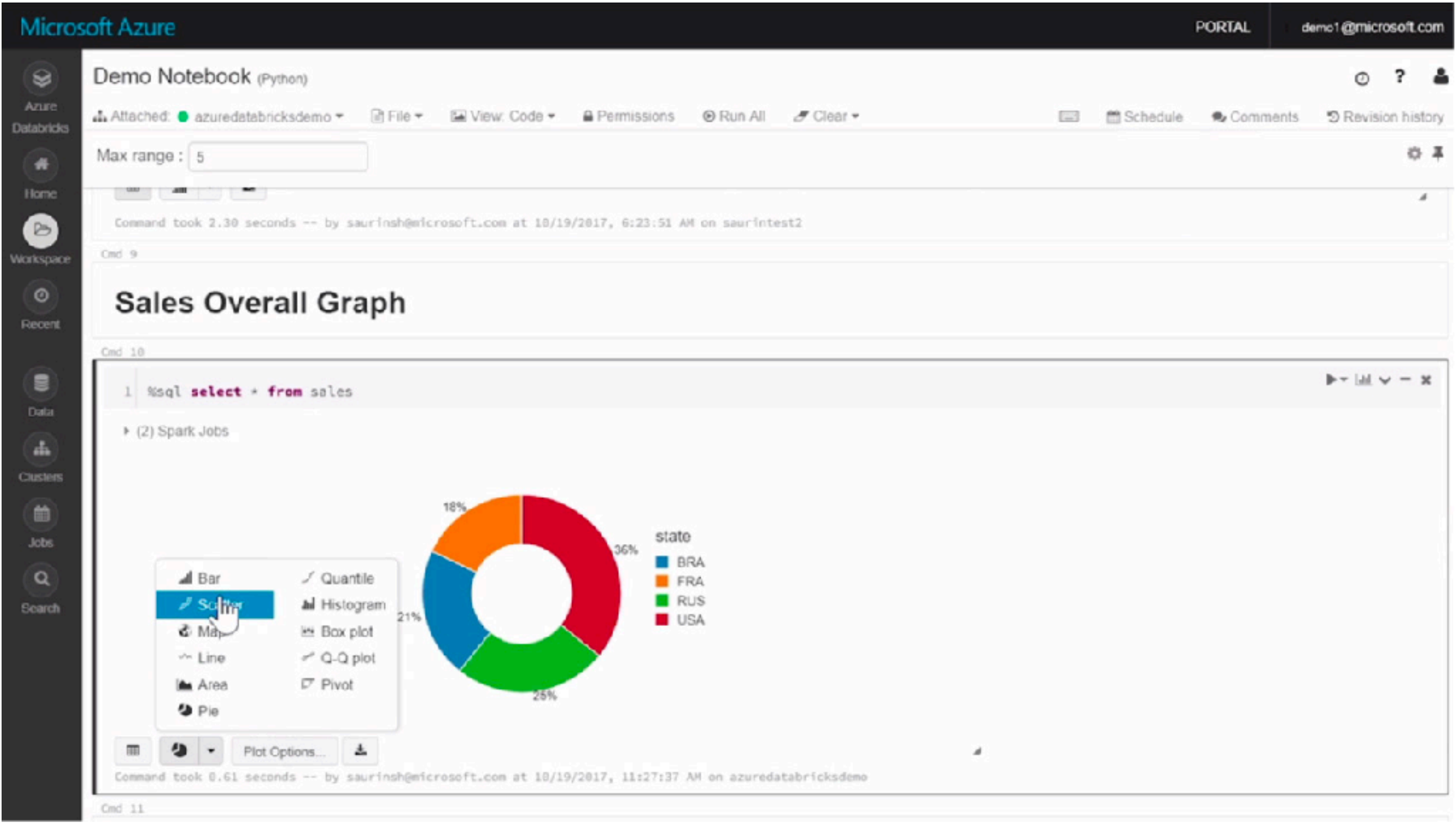
What is Azure Databricks?

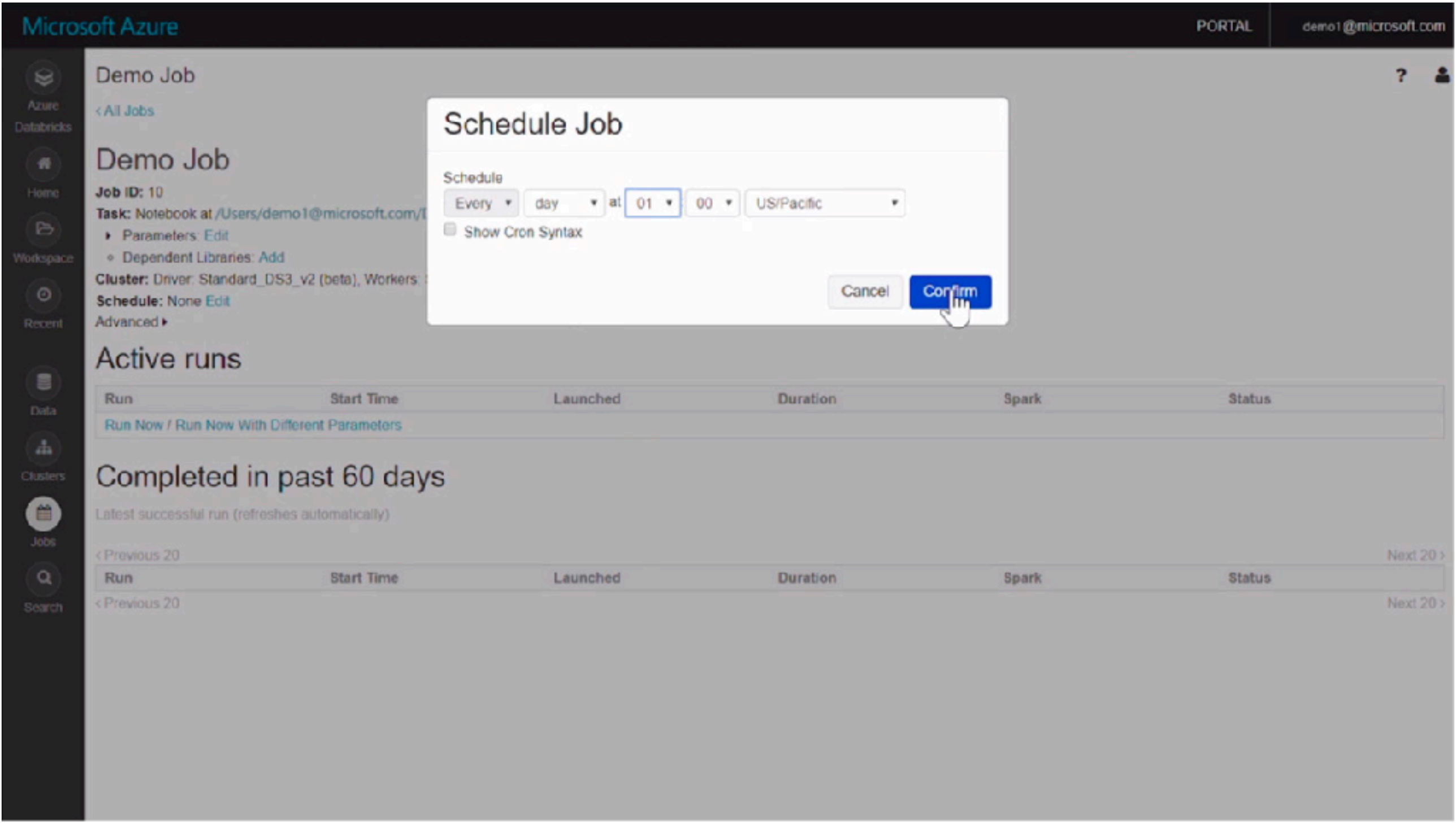
A fast, easy and collaborative Apache® Spark™ based analytics platform optimized for Azure



- Designed in collaboration with the founders of Apache Spark
- One-click set up; streamlined workflows


Microsoft Azure
PORTAL
ninevincentg@gmail.com
Azure Databricks
Home
Workspace
Recents
Data
Clusters
Jobs
Search
Free trial ends in 14 days. Upgrade to Premium in Azure Portal
Azure Databricks
Drop files or click to browse
Explore the Quickstart Tutorial
Spin up a cluster, run queries on preloaded data, and display results in 5 minutes.
Import & Explore Data
Quickly import data, preview its schema, create a table, and query it in a notebook.
Create a Blank Notebook
Create a notebook to start querying, visualizing, and modeling your data.
Common Tasks
New Notebook
Upload Data
Create Table
New Cluster
New Job
New MLflow Experiment
New
Import Library
Recents
Recent files appear here as you work.
Documentation
Databricks Guide
Python, R, Scala, SQL
Importing Data


Microsoft Azure
PORTAL
demo1@microsoft.com
Azure Databricks
Home
Workspace
Recent
Data
Clusters
Jobs
Search
Demo Notebook (Python)
Attached: azuredatabricksdemo
File
View: Code
Permissions
Run All
Clear
Schedule
Comments
Revision history
Max range : 5
Command took 2.30 seconds -- by saurinsh@microsoft.com at 10/19/2017, 6:23:51 AM on saurintest2
Cmd 9
Sales Overall Graph
Cmd 10
%sql select * from sales
(2) Spark Jobs
Bar
Scatter
Map
Line
Area
Pie
Quantile
Histogram
Box plot
Q-Q plot
Pivot
18%
36%
21%
25%
state
BRA
FRA
RUS
USA
Plot Options...
Command took 0.61 seconds -- by saurinsh@microsoft.com at 10/19/2017, 11:27:37 AM on azuredatabricksdemo
Cmd 11


Microsoft Azure
PORTAL
demo1@microsoft.com
Azure Databricks
Home
Workspace
Recent
Data
Clusters
Jobs
Search
Demo Job
All Jobs
Demo Job
Job ID: 10
Task: Notebook at /Users/demo1@microsoft.com/
Parameters: Edit
Dependent Libraries: Add
Cluster: Driver: Standard_DS3_v2 (beta), Workers:
Schedule: None Edit
Advanced
Schedule Job
Schedule
Every
day
at
01
00
US/Pacific
Show Cron Syntax
Cancel
Confirm
Active runs
Run
Start Time
Launched
Duration
Spark
Status
Run Now / Run Now With Different Parameters
Completed in past 60 days
Latest successful run (refreshes automatically)
Previous 20
Next 20
Run
Start Time
Launched
Duration
Spark
Status
Previous 20
Next 20

Azure AI Service

Machine Learning

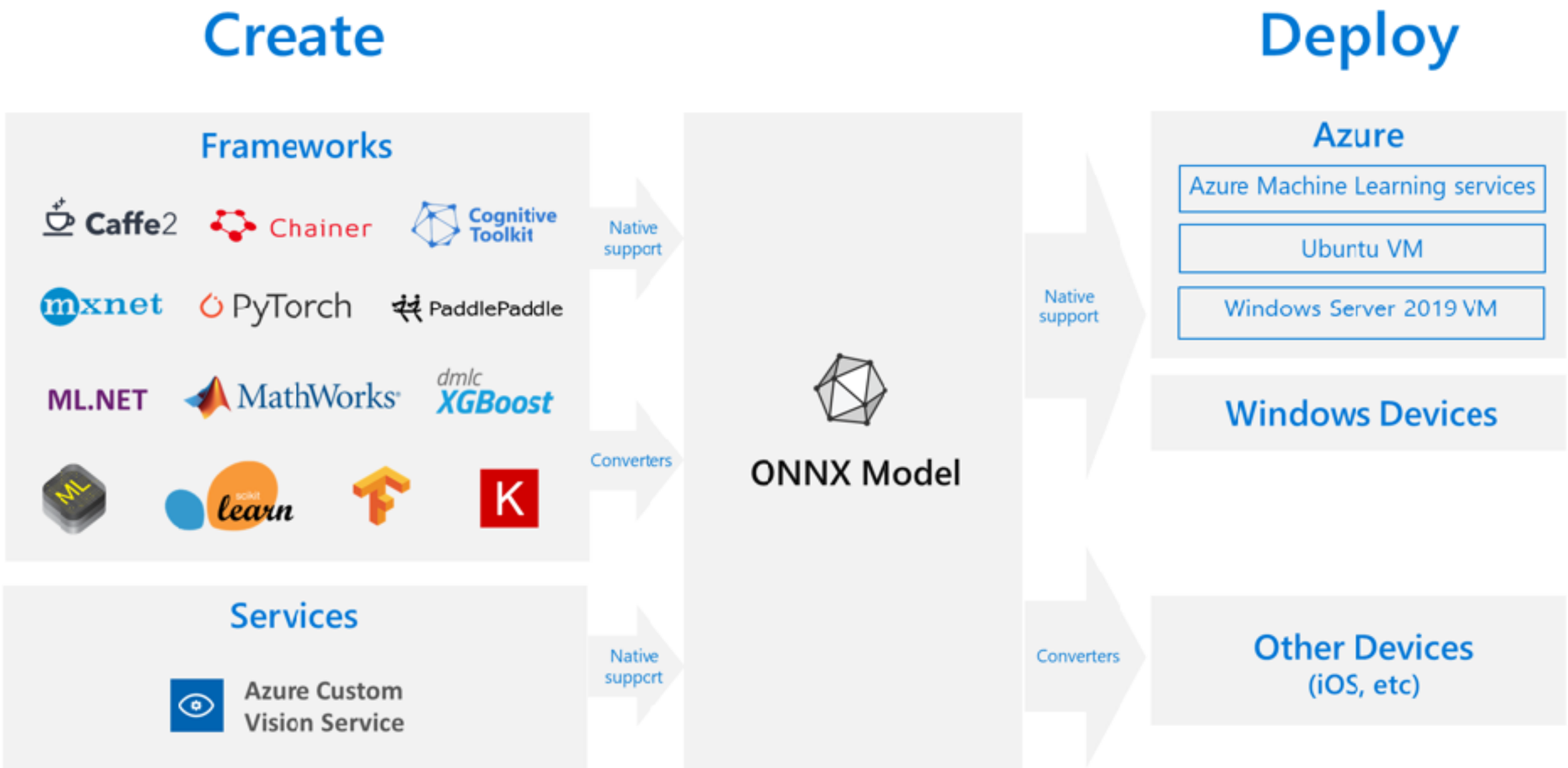
쉽고 빠르게 모델을 만들어
배포, 관리하세요

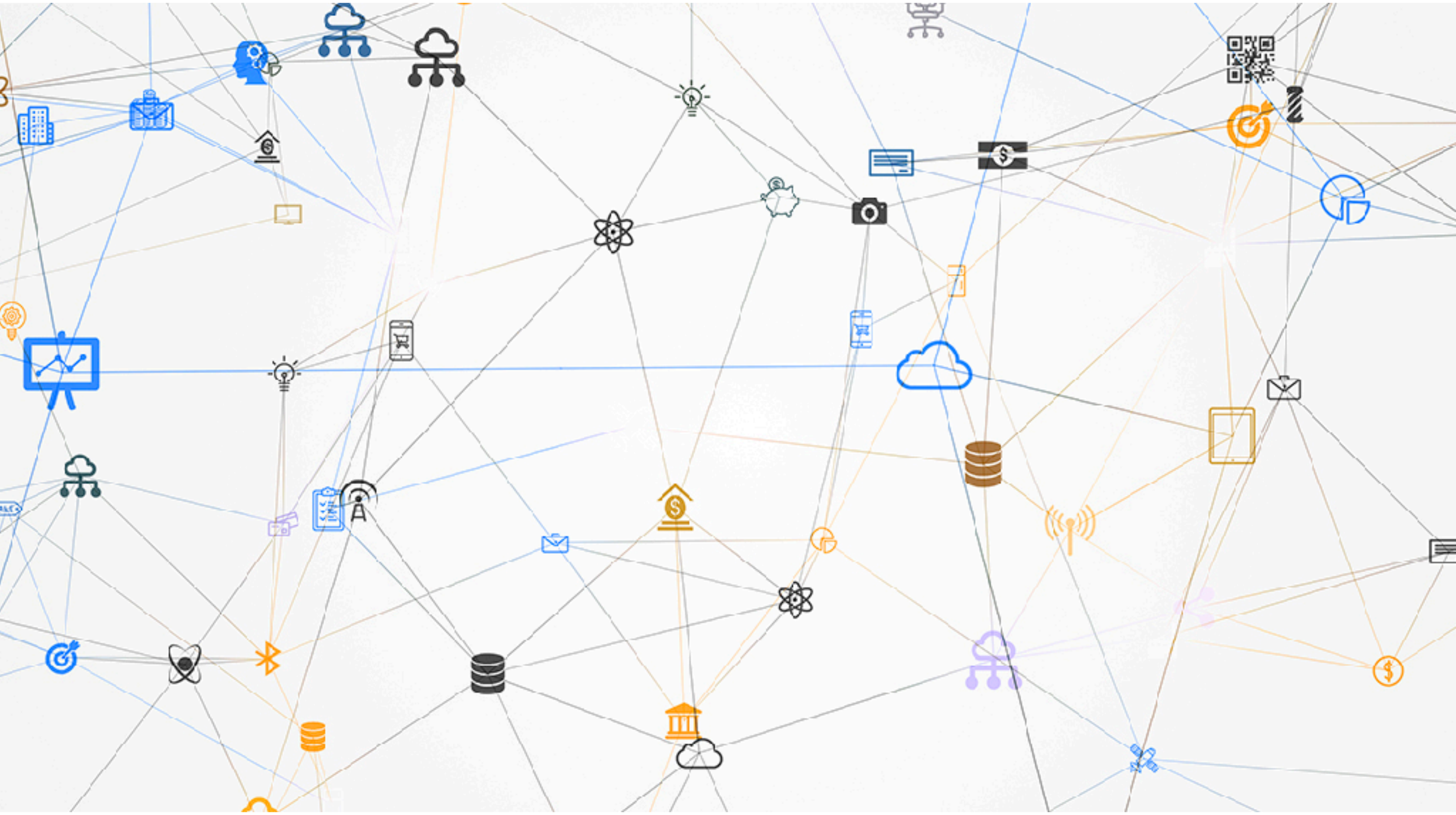
Azure Machine Learning

Azure Databricks

ONNX

Open Neural Network Exchange


Create
Deploy
Frameworks
Caffe2
Chainer
Cognitive Toolkit
mxnet
PyTorch
PaddlePaddle
ML.NET
MathWorks
dmlc XGBoost
ML
scikit learn
K
Services
Azure Custom Vision Service
Native support
Converters
Native suppcrt
ONNX Model
Native support
Converters
Azure
Azure Machine Learning services
Uburtu VM
Windows Server 2019 VM
Windows Devices
Other Devices
(iOS, etc)



Azure AI Service

Cognitive Service

앱에 혁신적인 환경을
구현하세요

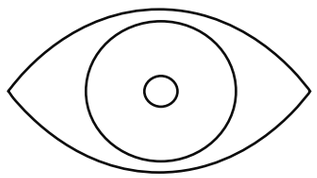
Deliver breakthrough experiences

Cognitive Services

시각 > 음성 > 언어 > 웹 검색 >

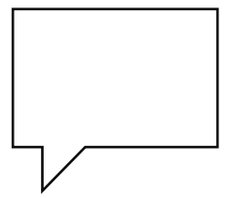
Bot Service

Cognitive Services

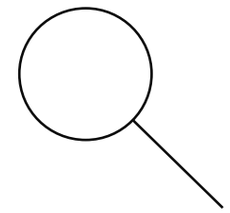


Vision

Language



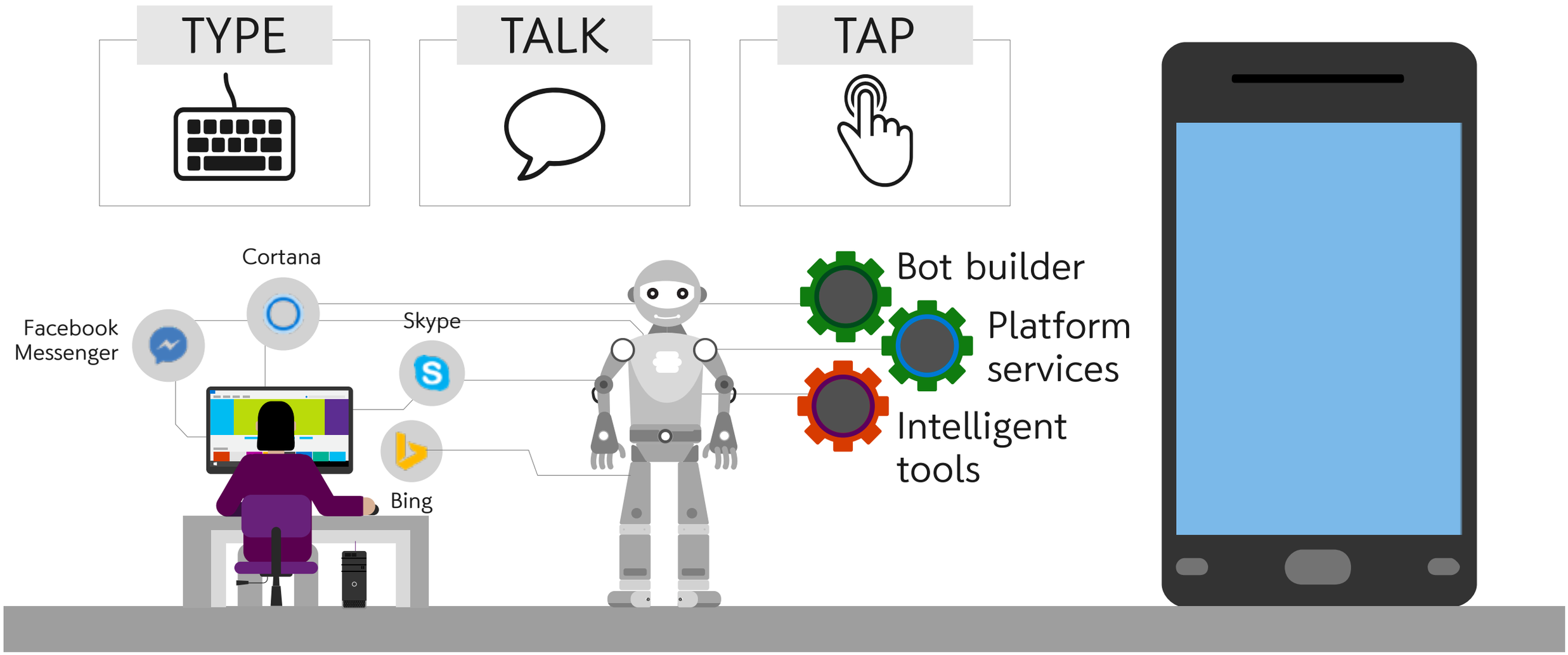
Speech



Search

Decision

Cognitive Services – Bot Service

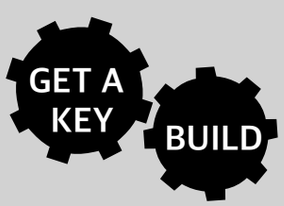


Cognitive Services

Easy

Roll your own with REST APIs

Simple to add: just a few lines of code required

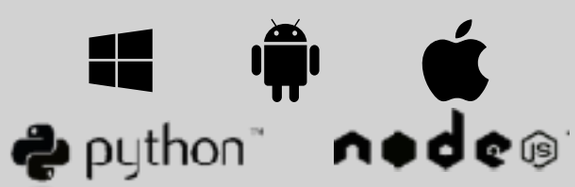


Flexible

Make the same API code call on iOS,
Android, and Windows

Integrate into the language and platform of your choice

Bring your own data for your custom experience



Tested

Built by experts in their field from Microsoft Research, Bing, and Azure Machine Learning

Quality documentation, sample code, and community support

https://github.com/Microsoft/Ignite2017_MSAIDevBootcamp_Pre-day

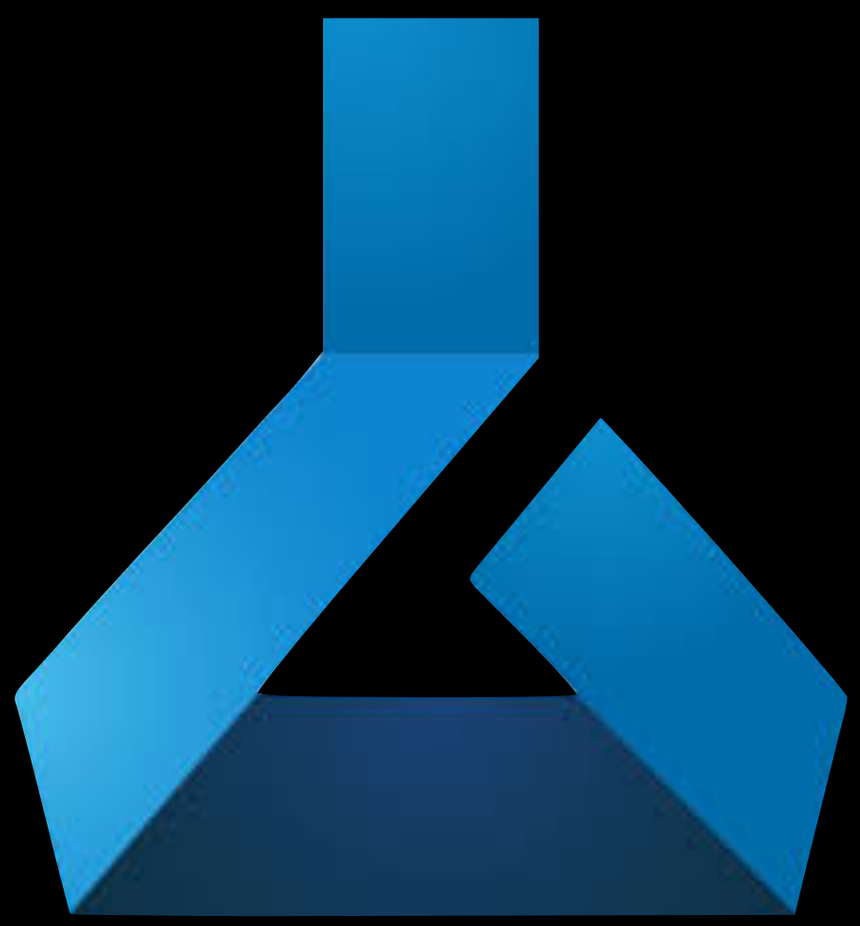
Cognitive Services

Customizable Cognitive Services

Azure Machine Learning

Cognitive Toolkit (CNTK)

Machine Learning Service On Azure Cloud

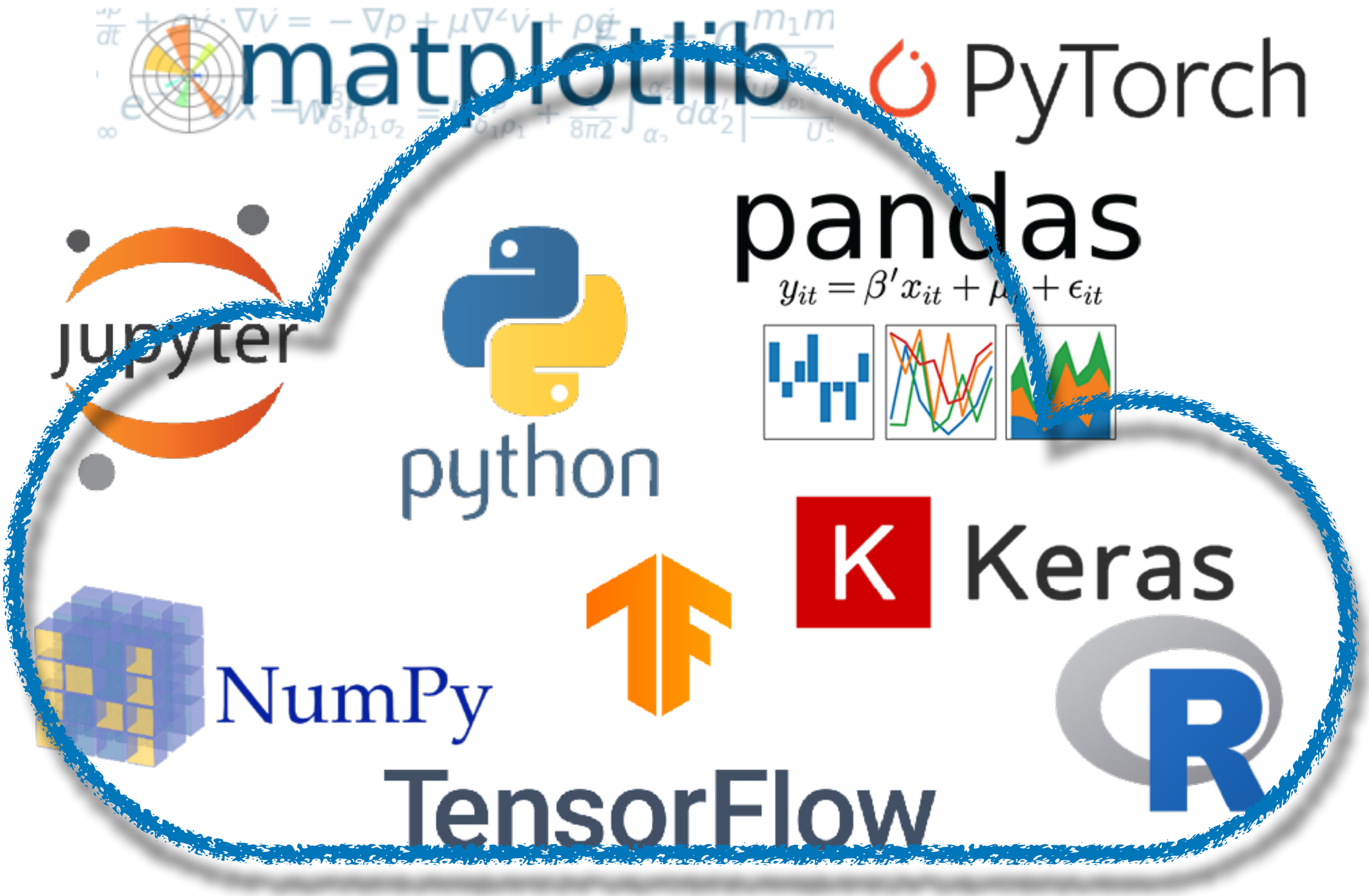


Set of Azure Cloud Services + Python SDK

That enables you to:

- ✓ Prepare Data
- ✓ Build Models
- ✓ Train Models
- ✓ Manage Models
- ✓ Track Experiments
- ✓ Deploy Models

https://docs.microsoft.com/ko-kr/azure/machine-learning/service/how-to-auto-train-forecast?WT.mc_id=AI-MVP-5003262


matplotlib
PyTorch
pandas
$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$
jupyter
python
K
Keras
NumPy
TensorFlow
R

Cifar 10

airplane
automobile
bird
cat
deer
dog
frog
horse
ship
truck

Before we run,

Resource

Resource Group

Subscription

Resource

Region

54 개 지역 전 세계 **140** 사용 가능 140개 국가

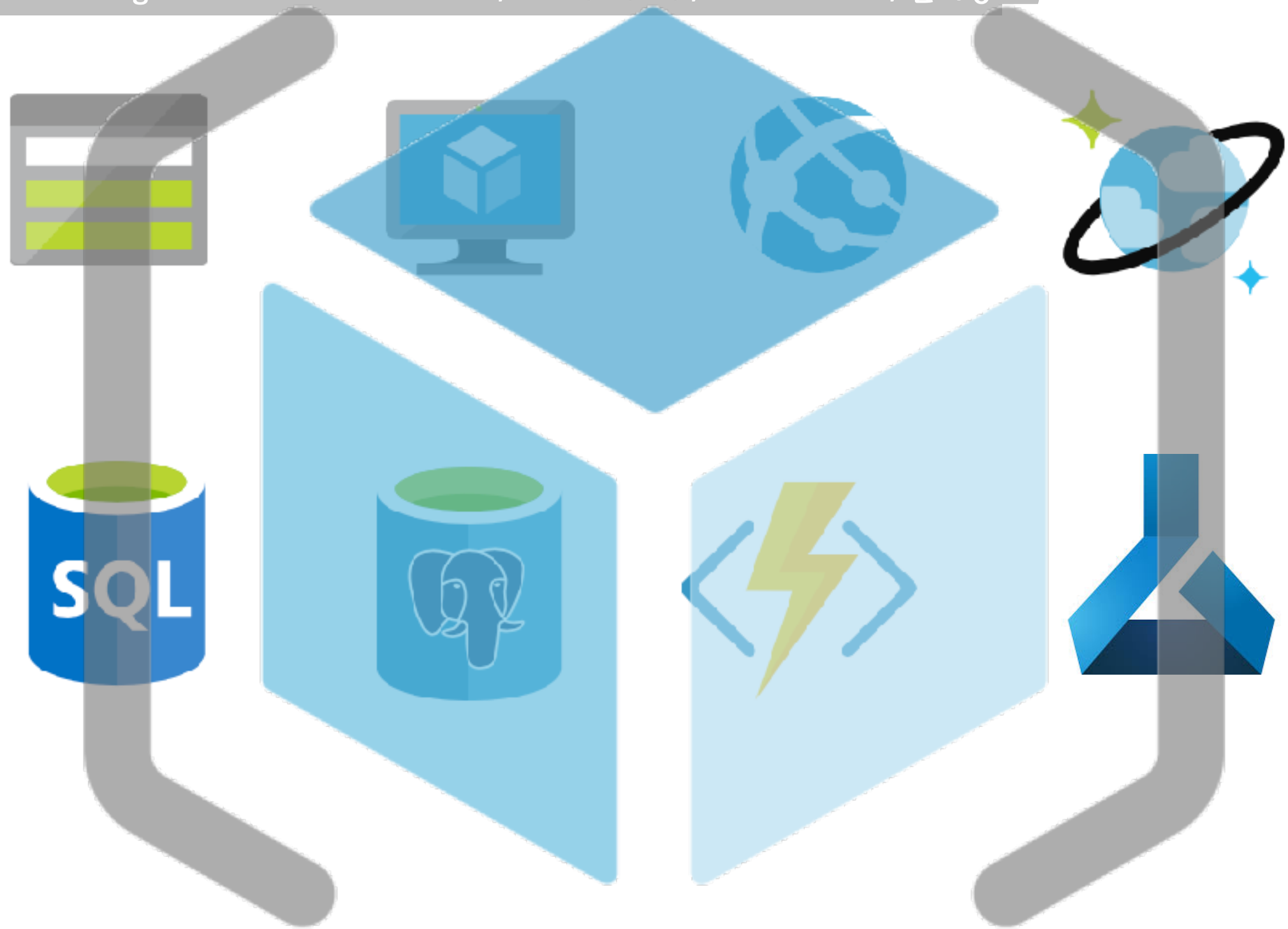
China North
China North 2
Korea Central
Korea South
Japan East
Japan West
China East 2
China East
East Asia

Region East US

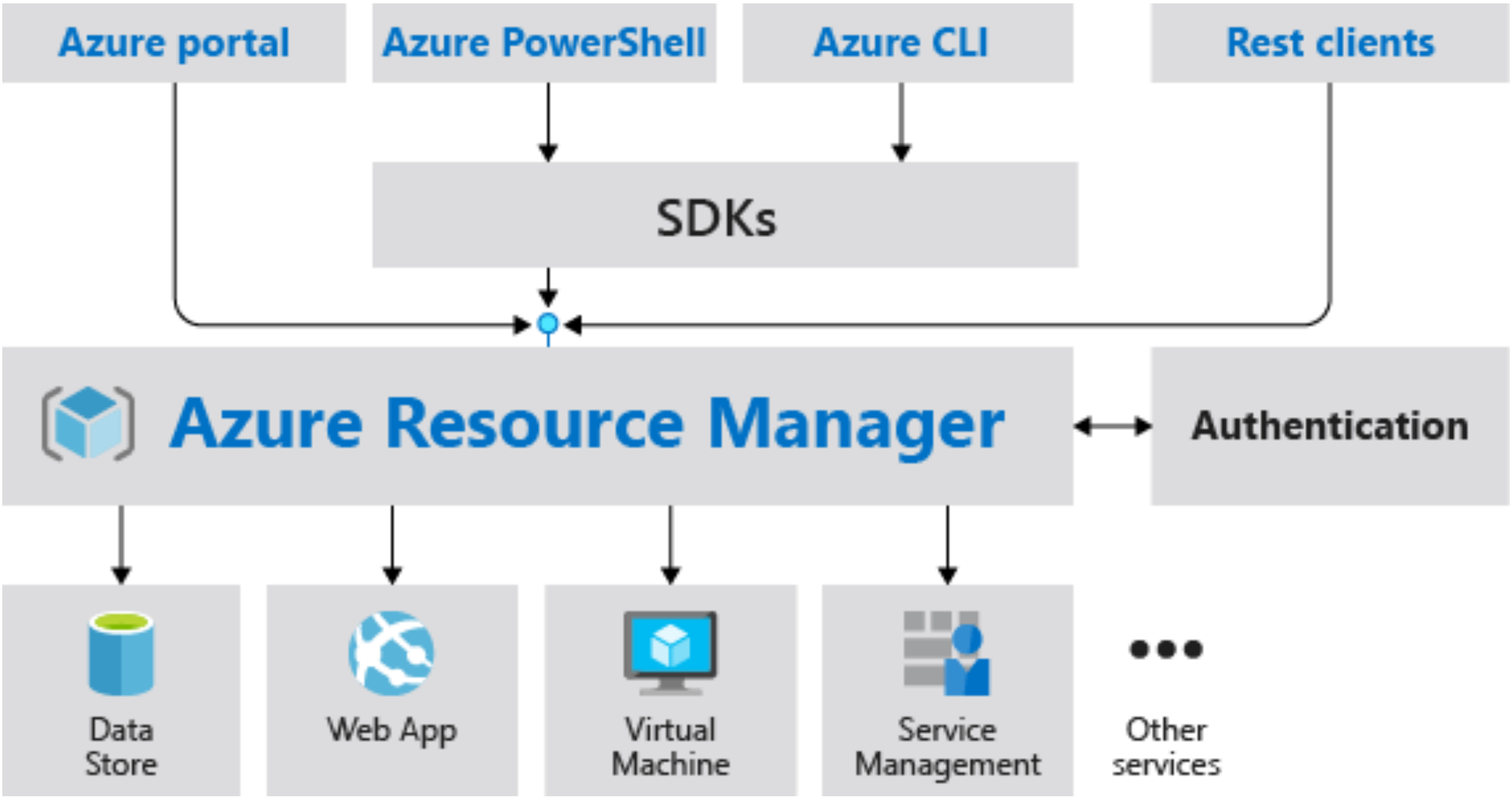
Resource

Resource Group

Subscription



Region Korea Central


Azure portal
Azure PowerShell
Azure CLI
Rest clients
SDKs
Azure Resource Manager
Authentication
Data Store
Web App
Virtual Machine
Service Management
Other services

Resource

Resource Group

Subscription

Pay As You Go

Resource Group

Korea Central
AI_Group

Resource

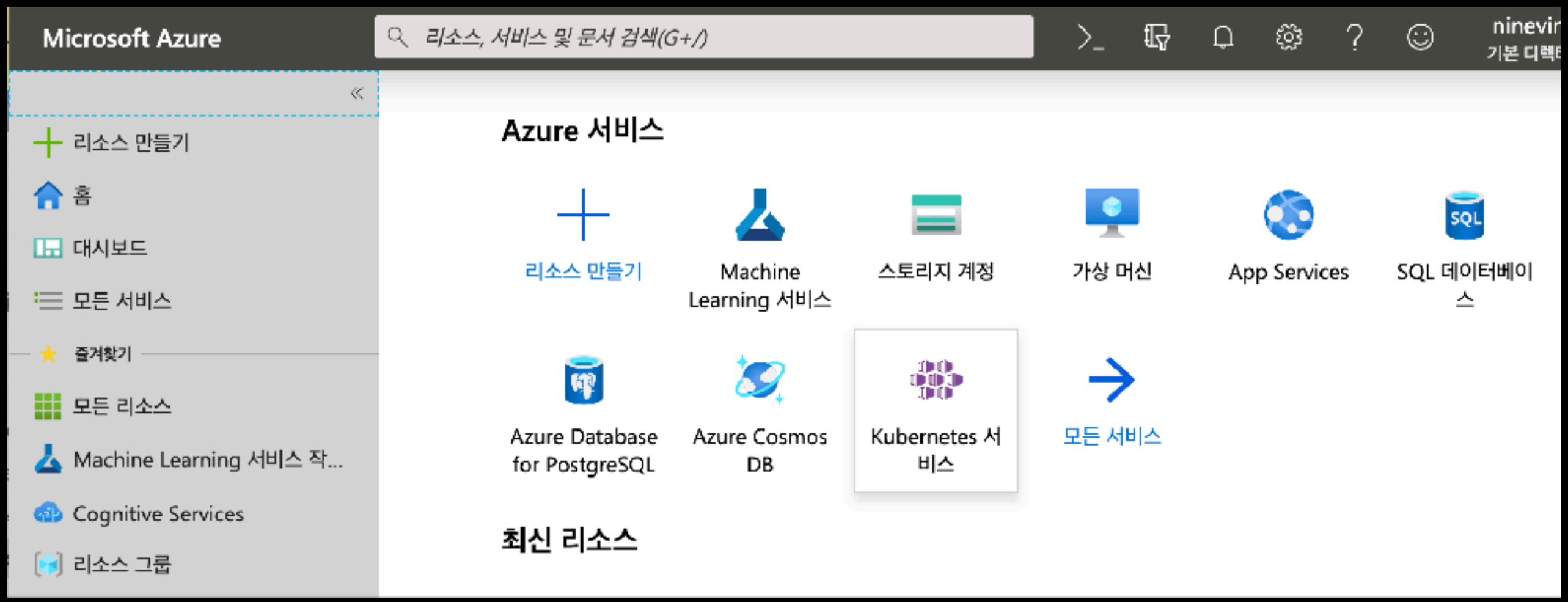
East US
Machine Learning service

Subscription

Azure Pass - 스폰서쉽

Let’s Strat HOL

portal.azure.com



리소스, 서비스 및 문서 검색(G

- 리소스 만들기
- 홈
- 대시보드
- 모든 서비스
- 즐겨찾기
- 모든 리소스
- 리소스 그룹
- App Services
- 함수 앱
- SQL 데이터베이스
- Azure Cosmos DB
- 가상 머신

홈 > 리소스 그룹

리소스 그룹

기본 디렉터리

추가 | 열 편집 | 새로 고침 | CSV로 내보내기 | 태

구독: Azure Pass - 스폰서쉽

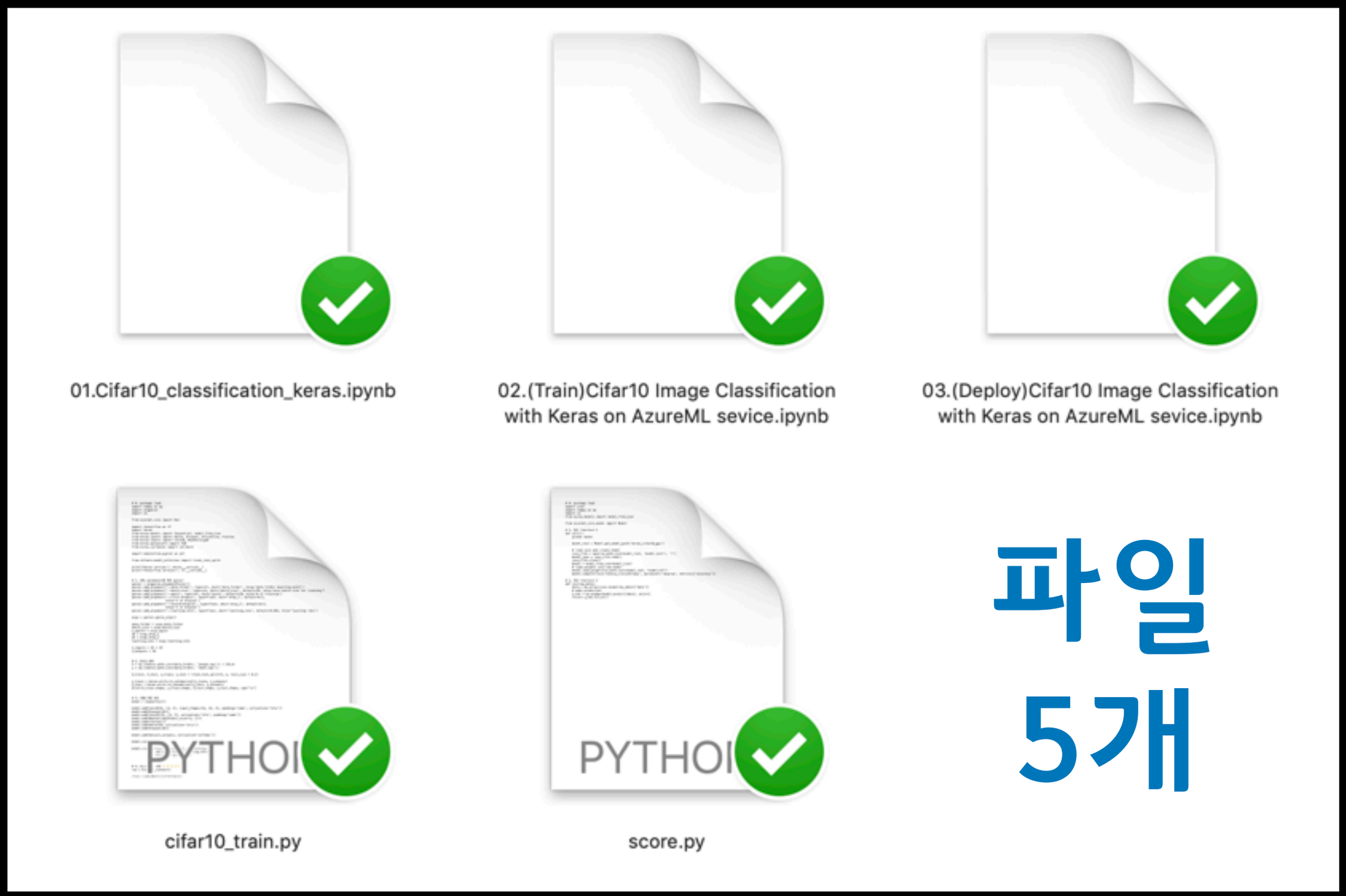
이름을 기준으로 필터링...

모든 위

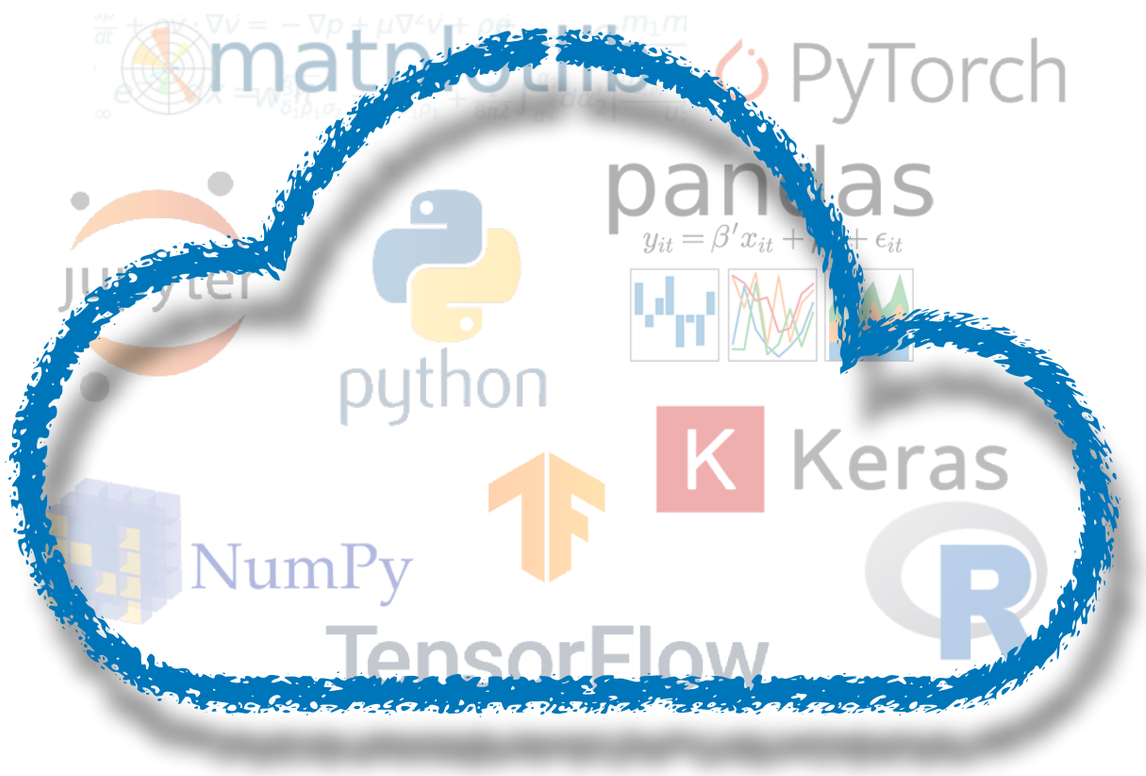
0개 항목

이름	구독

bit.ly/1024_aml



Notebook Virtual Machine

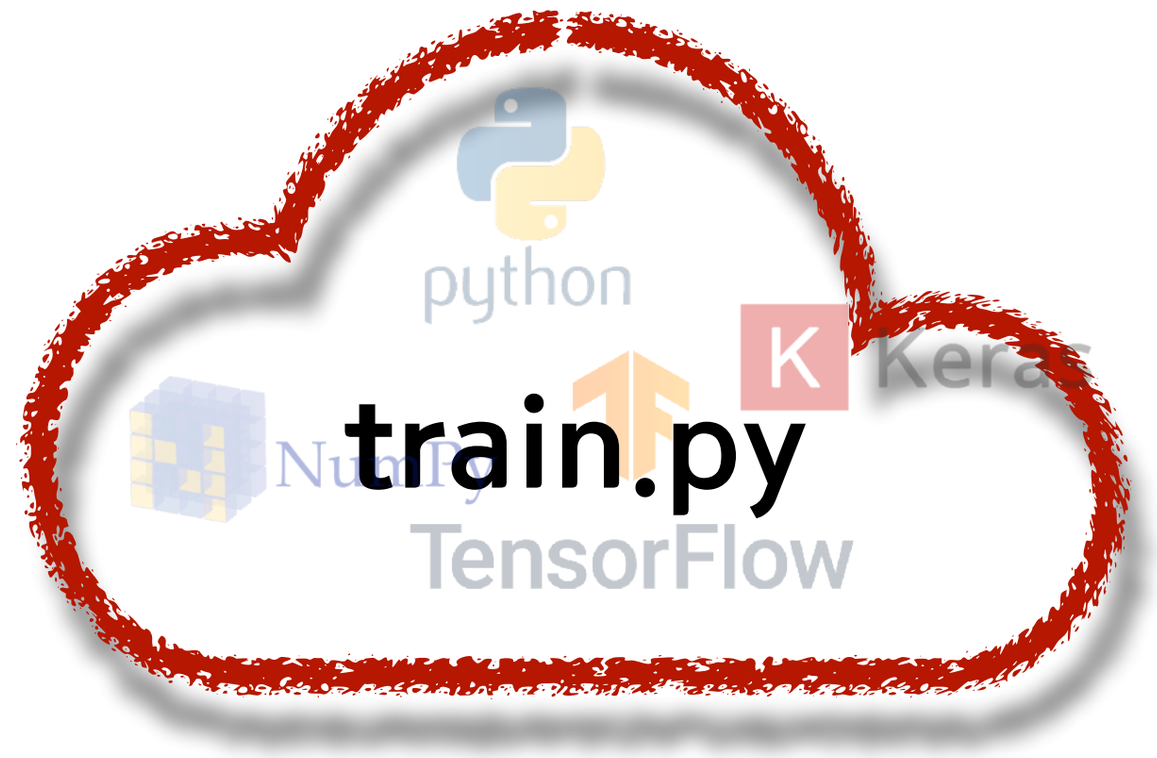


D2_V3 standard

vCPU 2, 8GB RAM, 50GB

😊 $ 0.188/hour

Remote Compute



GPU **NC12**

Core 12, 112GB RAM, 680GB

Intel Xeon E5-2690 v3 2.60GHz v3

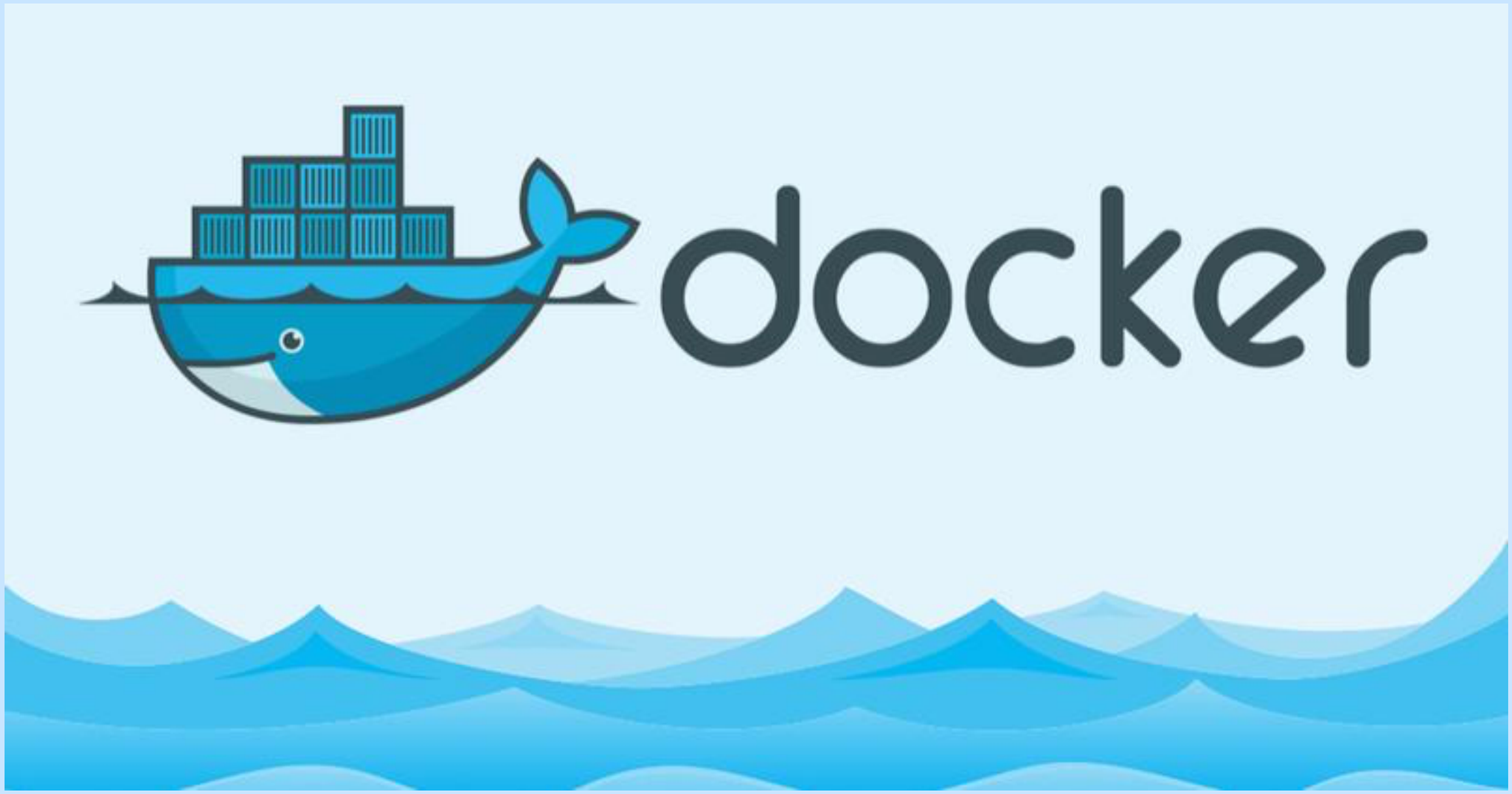
😱 $ 2.168/hour

* 가격-미국 동부 기준

https://docs.microsoft.com/ko-kr/azure/virtual-machines/windows/sizes/?WT.mc_id=AI-MVP-5003262

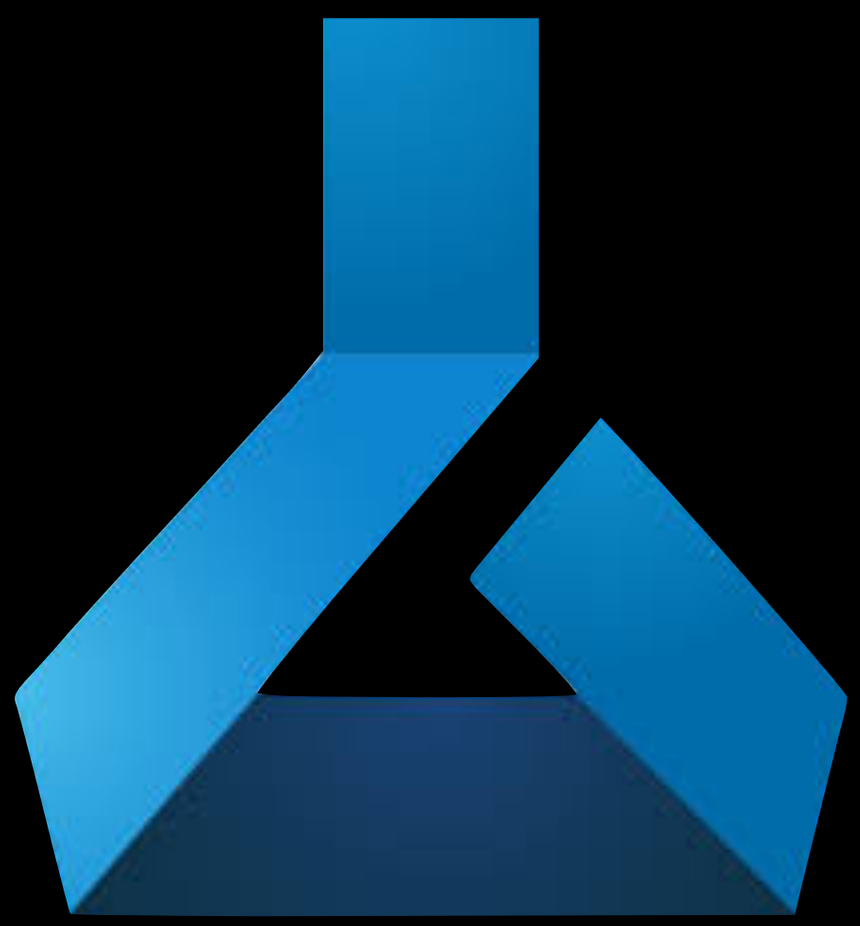
Azure Machine Learning Service

Machine Learning on Container



https://medium.com/@jwyeom63/시작하는-이들을-위한-컨테이너-vm-그리고-도커에-대한-이야기-3a04c000cb5c

Machine Learning Service On Azure Cloud



- Azure AI Platform 소개
- Azure ML service 소개
- Azure ML service 실습
  (cifar10 학습/ 모델 배포)

Azure Machine Learning service Links

- Azure AI Platform 살펴보기
- Azure ML service가 뭔가요?
- Azure ML service에서 MNIST 학습/배포하기
- Azure ML service 개발환경 셋팅하기
- Azure에서 ONNX 배포하기
- Tensorflow로 학습하는 방법
- Azure 사용료 계산하기

감사합니다

ninevincentg@gmail.com