

Working with Cloud-hosted Jupyter Notebooks



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Overview

Cloud-hosted Jupyter notebooks

Jupyter on Amazon SageMaker

Jupyter on Microsoft Azure

Jupyter on the Google Cloud Platform

Running Python on the Cloud



Important advantages over local execution

- Specialized hardware e.g. GPUs
- Tie-in to platform-specific frameworks e.g. SageMaker
- Ease of scaling to large clusters for prediction and training

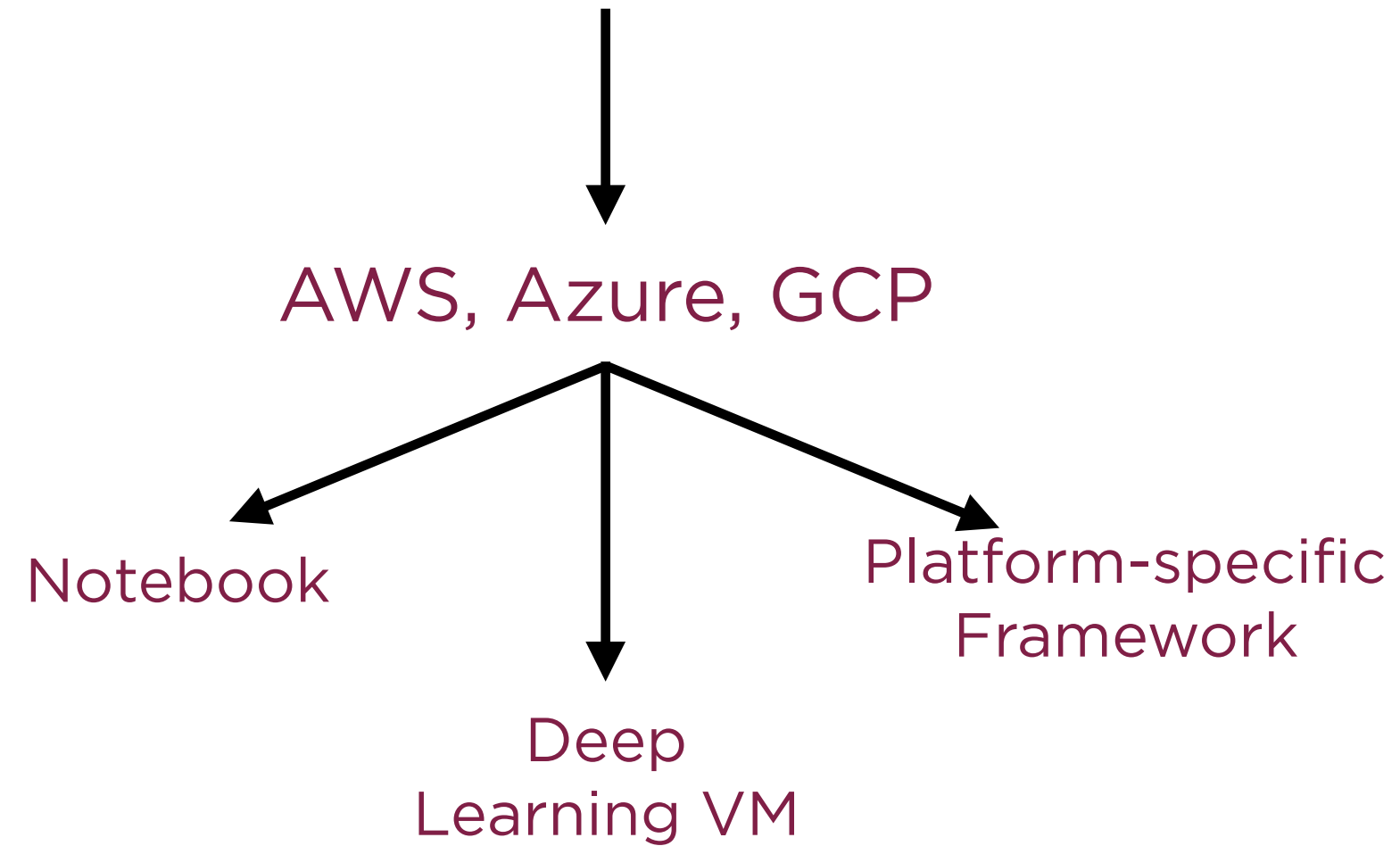
Running Python on the Cloud



Each of the major cloud providers offers several different options

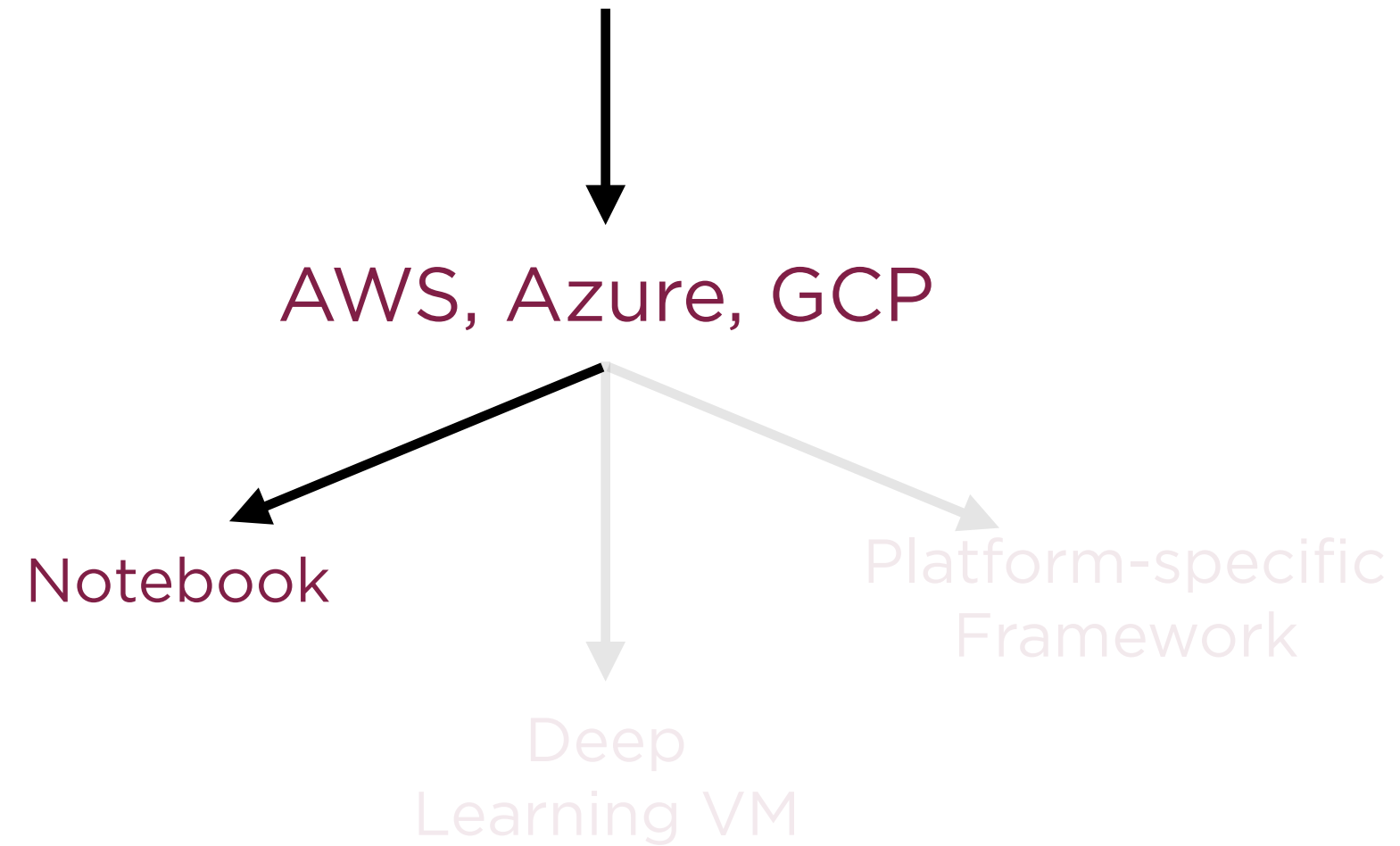
- Cloud-hosted notebooks
- Specialized GPU-enabled VMs
- Platform-specific frameworks

Running Python on the Cloud



These categories are not exclusive;
cloud platforms introduce platform
dependencies to drive “sticky
adoption”

Data Preparation and Prototyping



Notebook

Cloud-hosted Python notebook. Could be platform-agnostic (Jupyter) or platform-specific (e.g. Datalab on GCP).

Vertical Scaling



AWS, Azure, GCP



Notebook



Deep
Learning VM



Platform-specific
Framework

Deep Learning VM

Cloud-specific virtual machine instance (e.g. EC2 on AWS, GCE on GCP) equipped with GPUs for prototyping and building deep learning models.

Deep Learning VM

Run hosted Jupyter or JupyterLab notebooks on cloud-based virtual machine instances with specialized hardware e.g. GPUs.

Horizontal Scaling



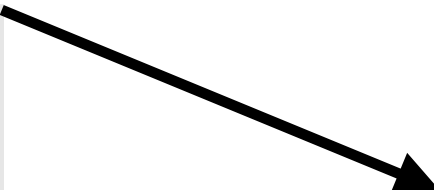
AWS, Azure, GCP



Notebook



Deep
Learning VM

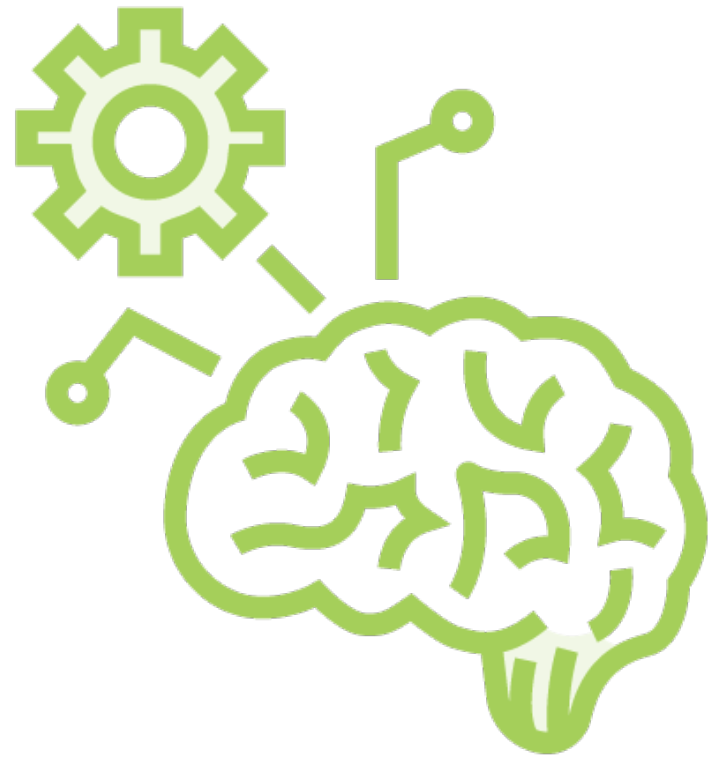


Platform-specific
Framework

Platform-specific Framework

Cloud-specific machine learning service - Amazon SageMaker, Azure Machine Learning Service, Google AI Platform for distributed training and hosting of ML models.

Amazon SageMaker

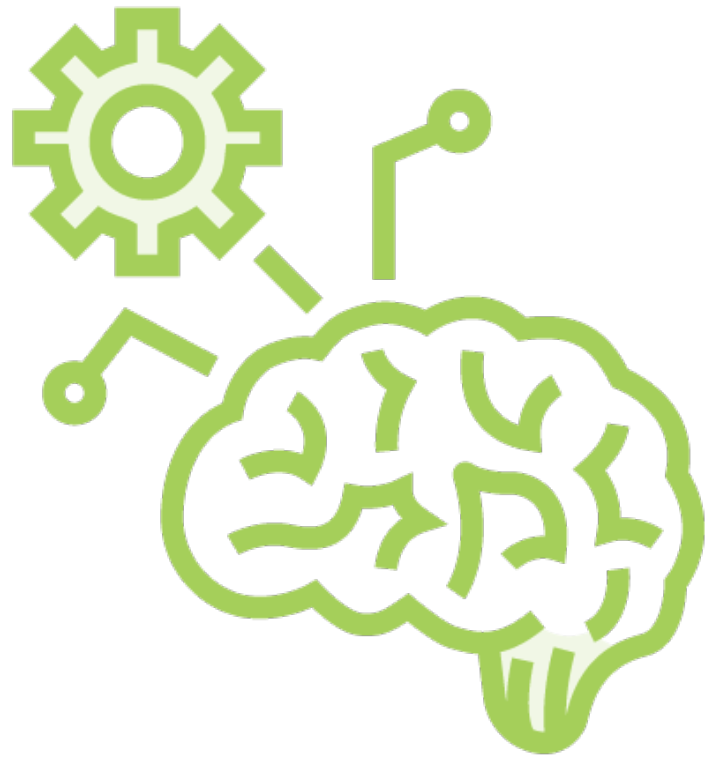


Managed machine learning service on Amazon Web Services (AWS)

Prepare data and prototype models on SageMaker notebook instances

Integrates with all other AWS services

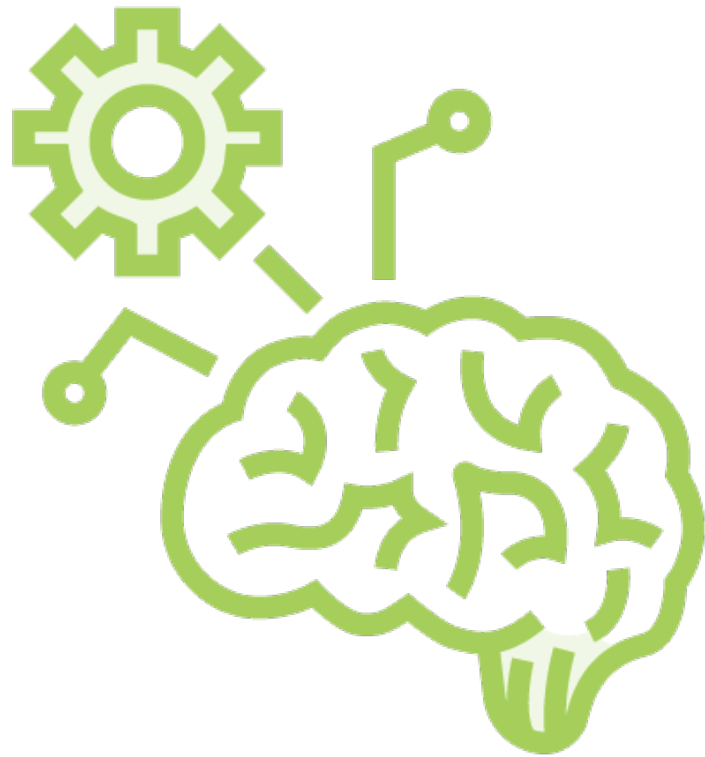
Azure Notebooks



Free hosted Jupyter notebooks on Azure

Integrates with the Azure Machine Learning Service

Google AI Platform

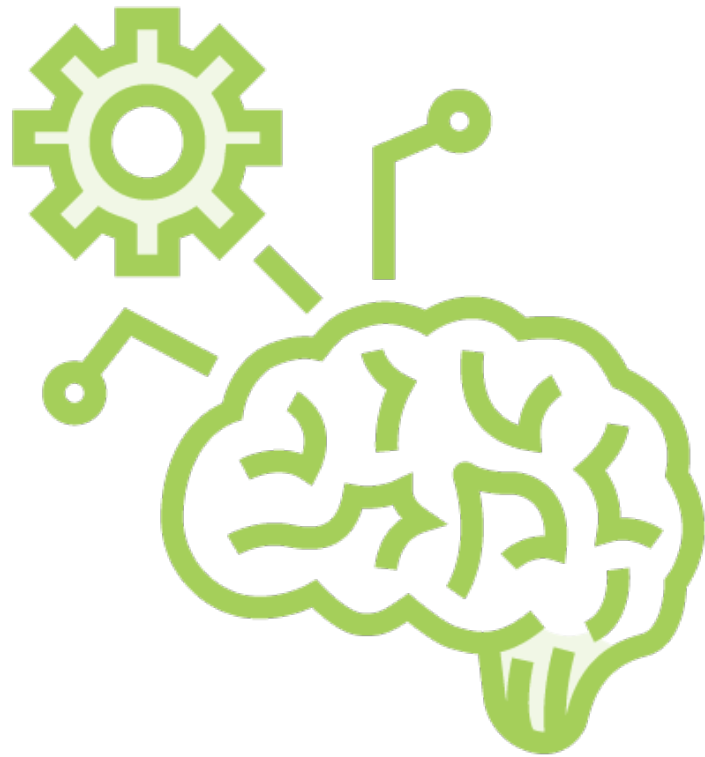


End-to-end platform for data science and machine learning

Cloud Datalab notebooks for working with data and prototyping models

Hosted Jupyter notebooks on deep learning virtual machines

Google Cloud Datalab



**Service offering cloud-hosted
Jupyter notebooks**

**Additional integrations with GCP
products**

**Run as docker container on Google
Compute Engine VM instance**

Demo

**Working with hosted Jupyter
notebooks on Amazon SageMaker**

Demo

**Working with hosted Jupyter
notebooks using Azure Notebooks**

Demo

**Running hosted Jupyter notebooks on
a deep learning virtual machine on the
GCP**

Cleaning Up Resources



Make sure you delete the VM instances on SageMaker and the GCP

Avoid incurring unnecessary charges

Summary

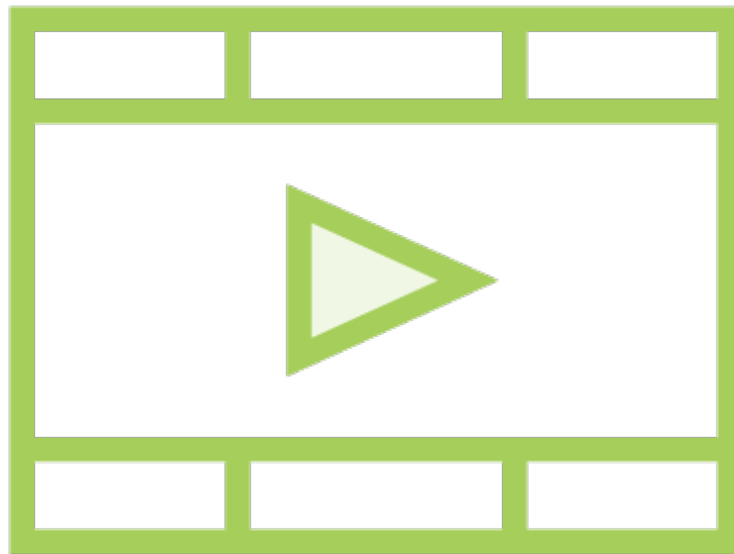
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Related Courses



**Leveraging Online Resources for
Python Analytics**

Building Your First scikit-learn Solution