Working with Python on the Cloud

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Overview

Cloud-hosted Jupyter notebooks

Azure Notebooks on Microsoft Azure

Datalab Notebooks on the Google Cloud Platform

SageMaker notebooks on AWS

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
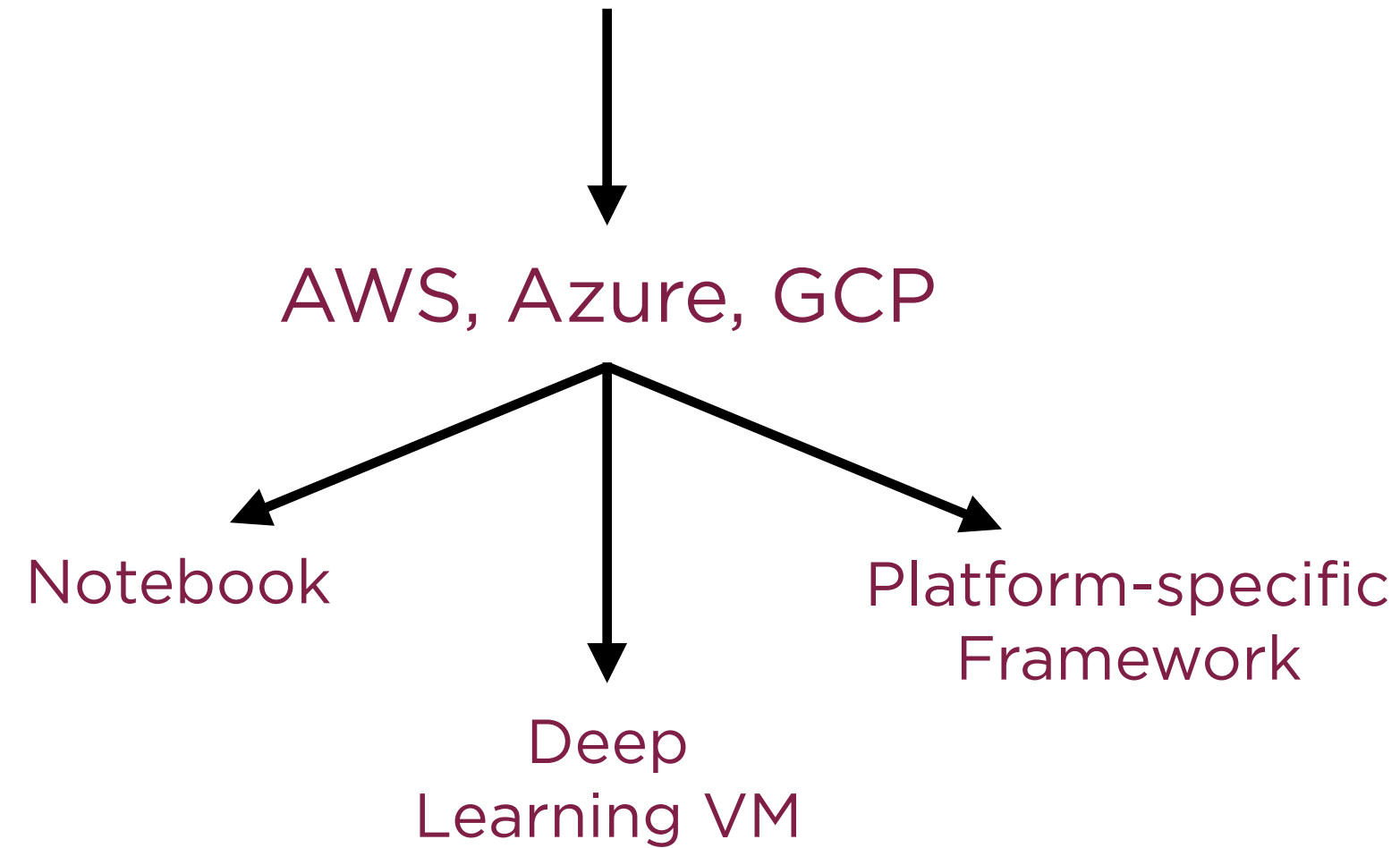
Running Python on the Cloud

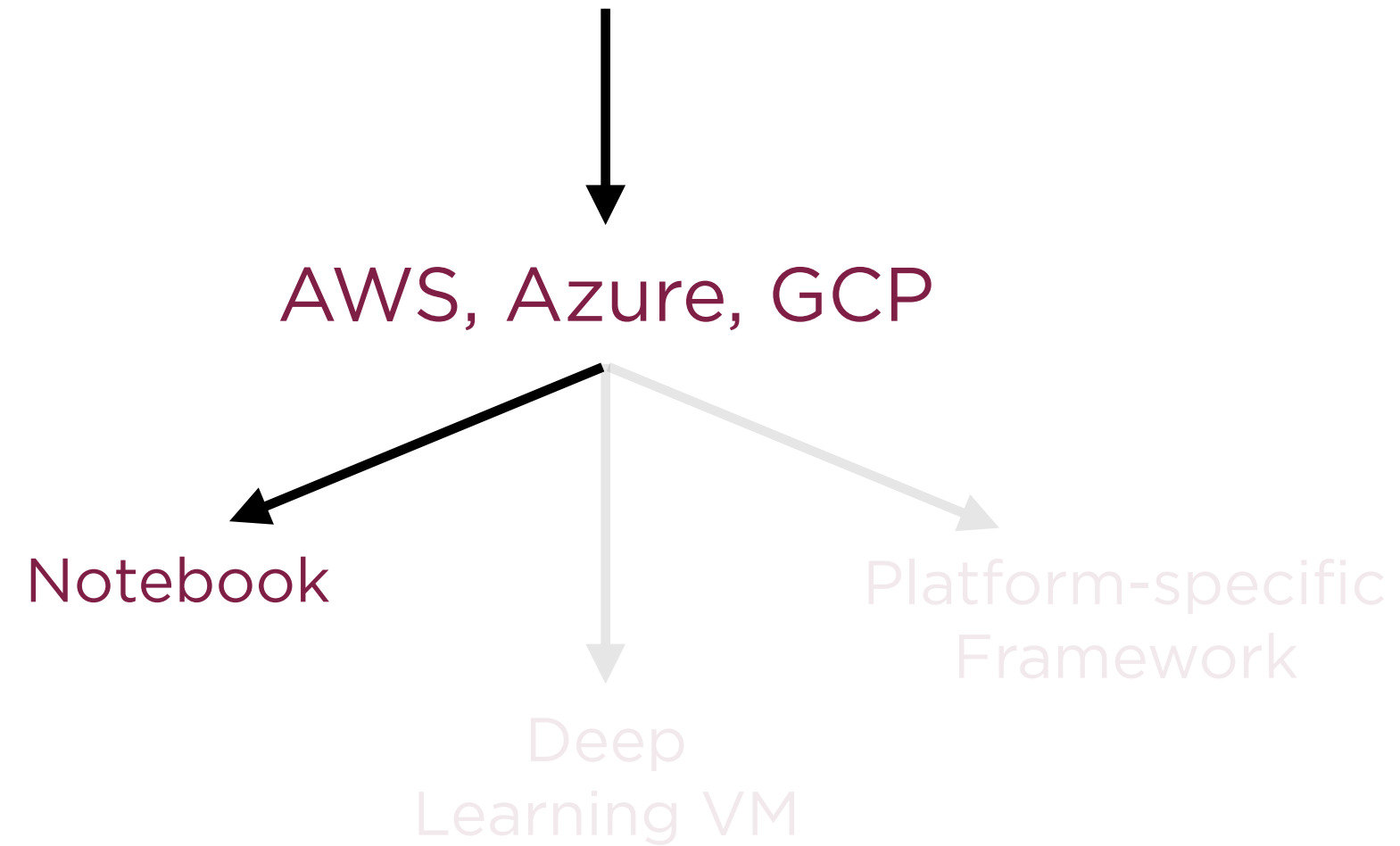**Each of the major cloud providers offers several different options**

- Cloud-hosted notebooks

- Specialized GPU-enabled VMs

- Platform-specific frameworks

Running Python on the Cloud

AWS, Azure, GCP

Notebook

Deep
Learning VM

Platform-specific
Framework

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

Data Preparation and Prototyping

AWS, Azure, GCP

Notebook

Deep
Learning VM

Platform-specific
Framework

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.
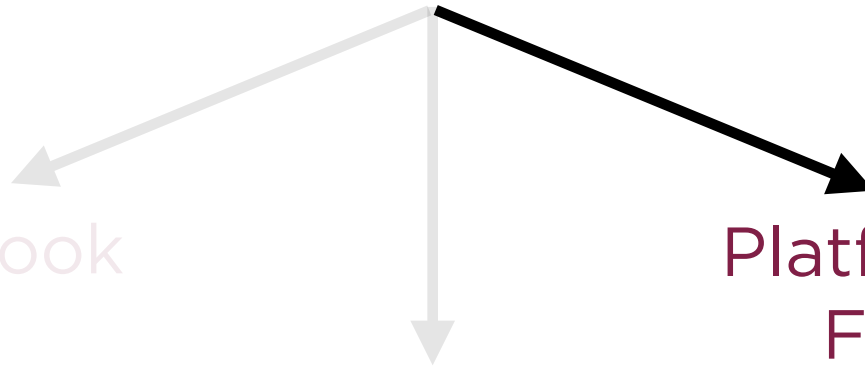
Deep Learning VM

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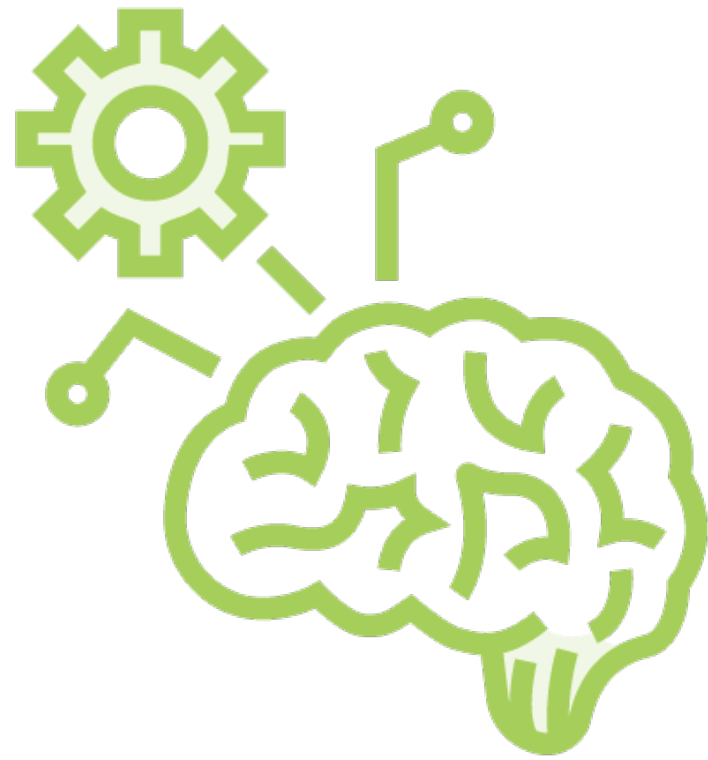
Horizontal Scaling

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.
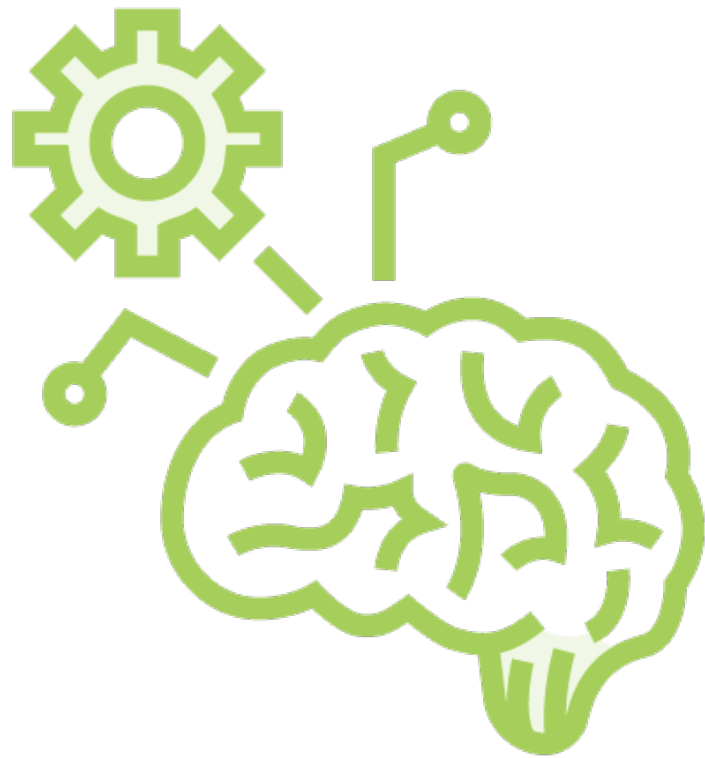
Amazon SageMaker

Managed machine learning service on Amazon Web Services (AWS)

Prepare data and prototype models on SageMaker notebook instances

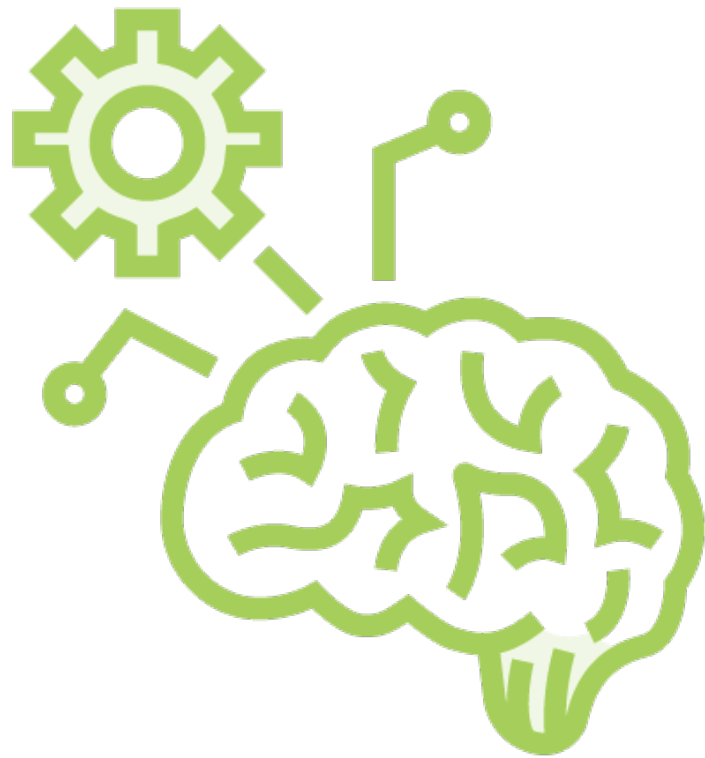Integrates with all other AWS services

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

Demo

**Exploring cloud-hosted notebooks
with Azure notebooks**

Demo

Exploring cloud-hosted notebooks with Cloud Datalab on the Google Cloud Platform

Demo

Exploring cloud-hosted notebooks on Amazon SageMaker

Cleaning Up Resources

Make sure you delete the VM instances on SageMaker and the GCP
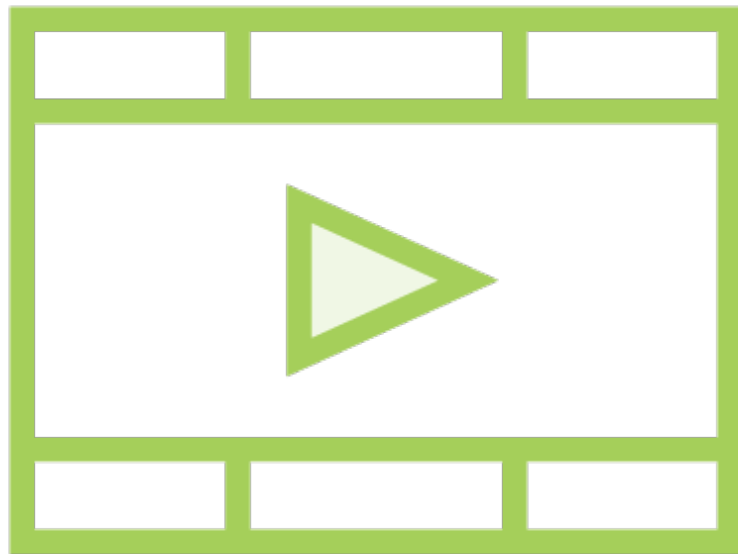
Avoid incurring unnecessary charges

Summary

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Datalab Notebooks on the Google
Cloud Platform

SageMaker notebooks on AWS

Related Courses

Python for Data Analysts

Create and Share Analytics with Jupyter Notebooks