Microsoft

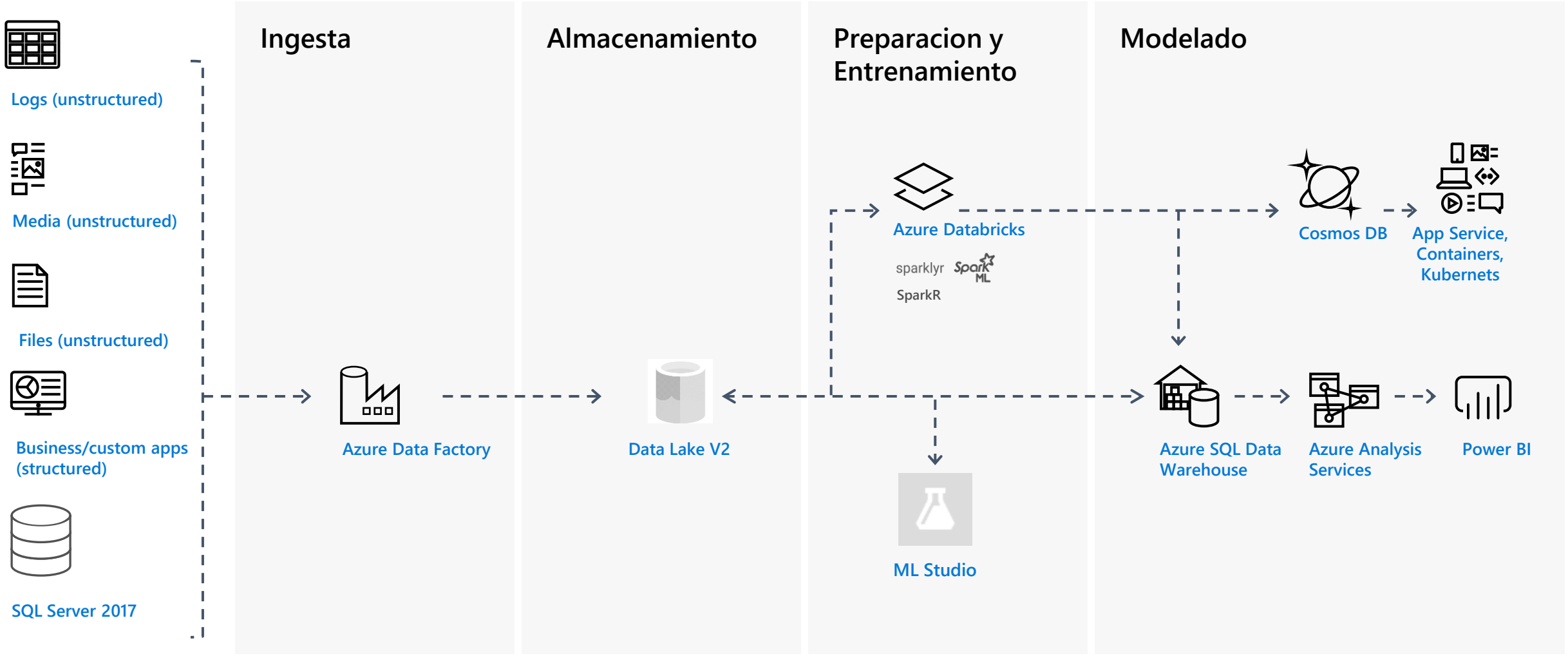
Arquitectura en Azure para Python

Adrián J. Fernández Zenteno
Sr. Cloud Solution Architect - Azure Advanced Analytics
Email: adrian.fernandez@microsoft.com
Twitter: @AdrianFZ10

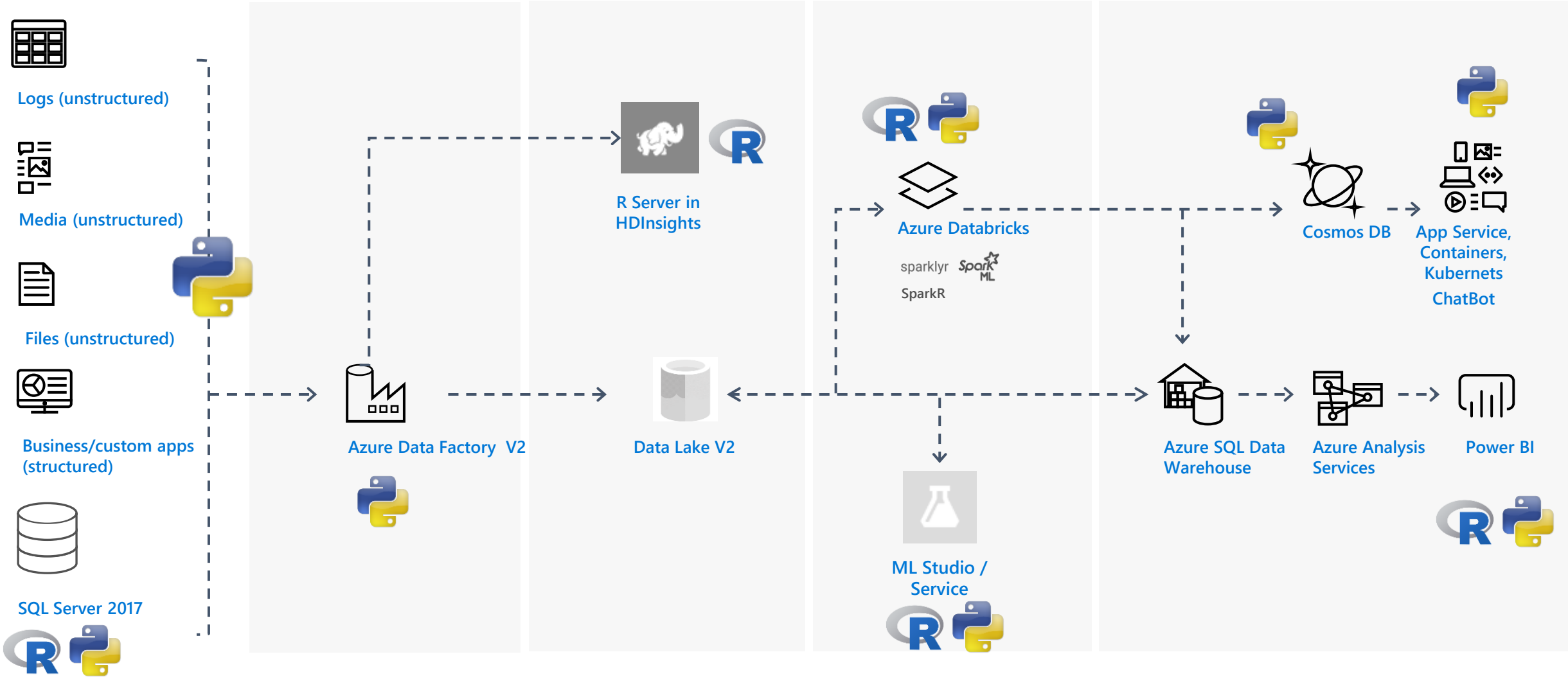
Agenda

Architecture reference, ml studio, datasets, azure notebooks, databricks, notebook vm, automl

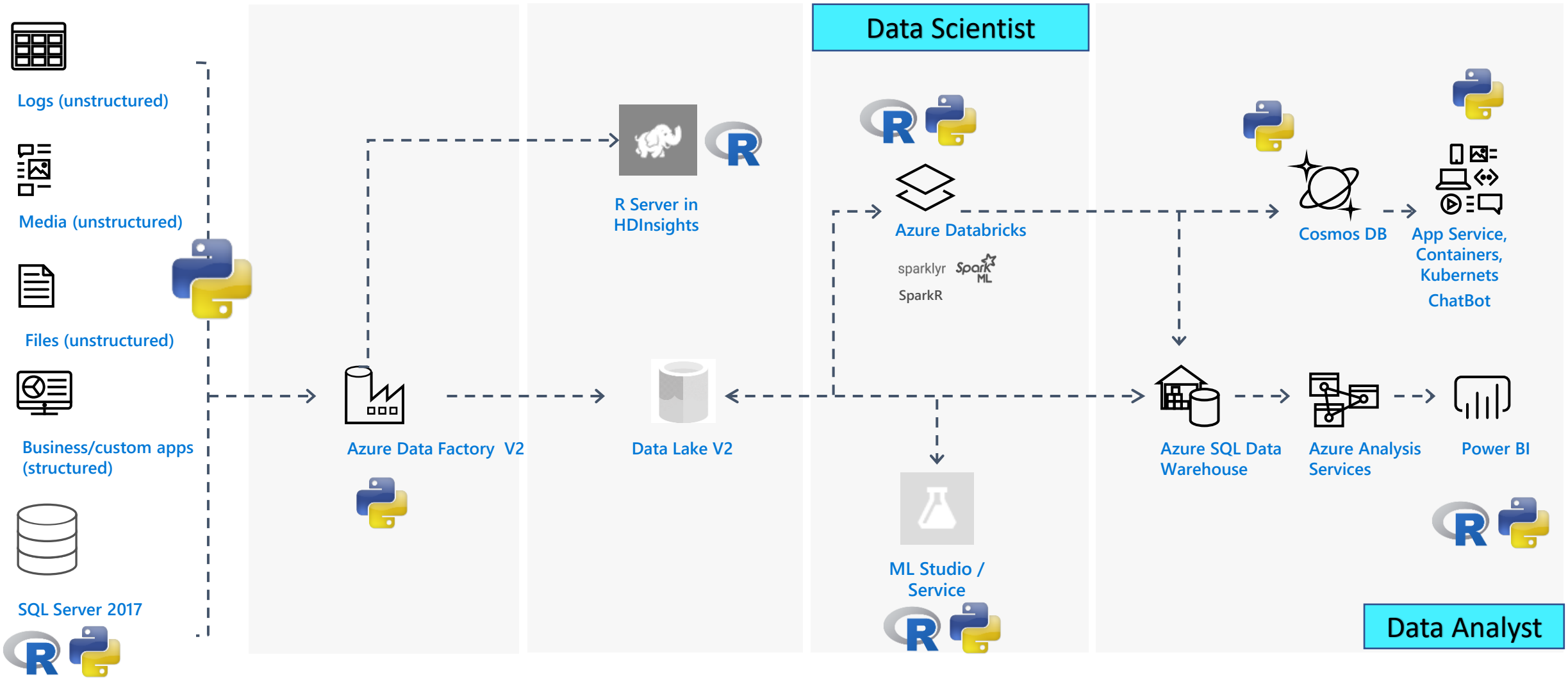
Arquitectura de Referencia



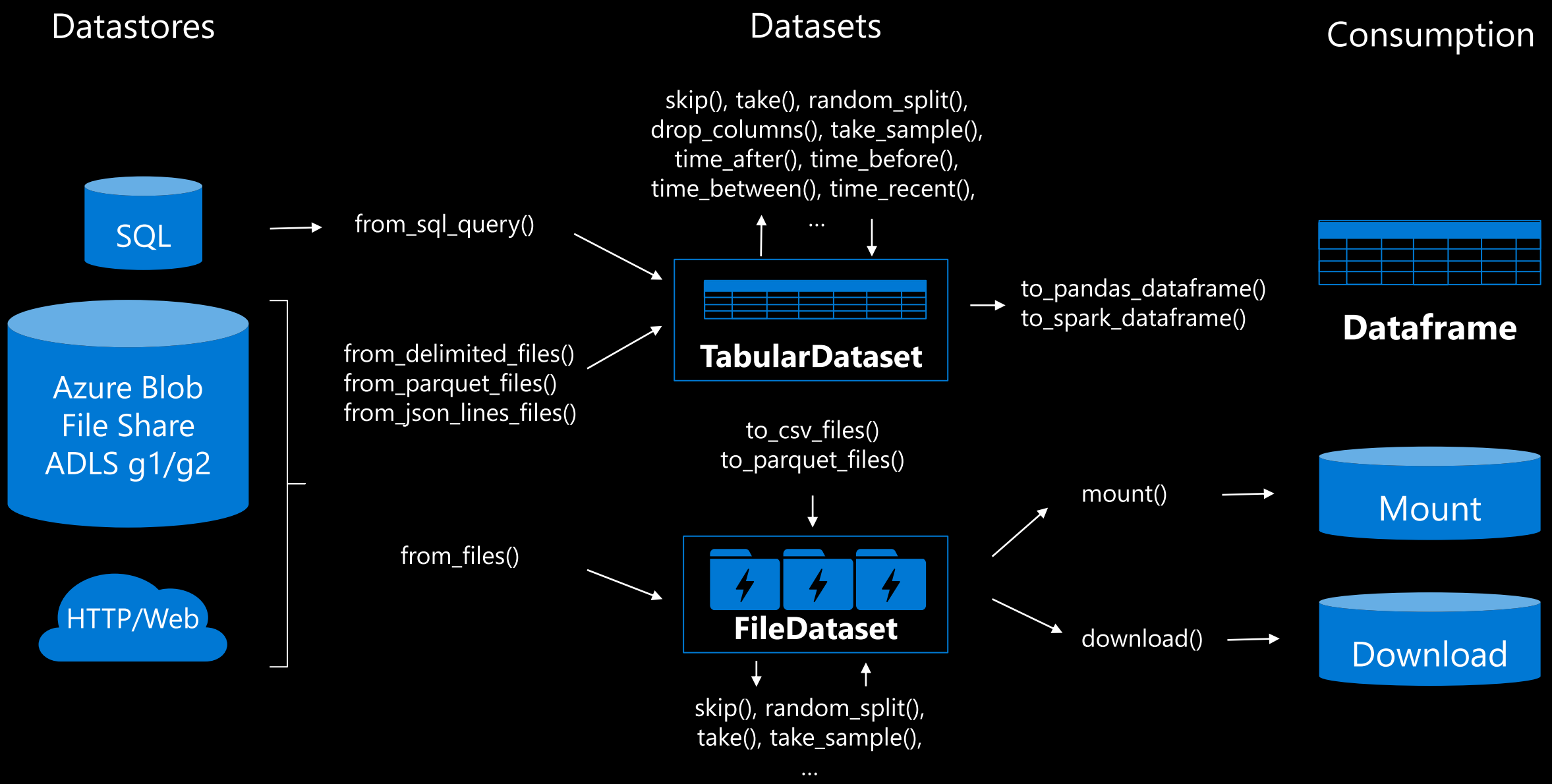
Arquitectura de Referencia



Arquitectura de Referencia



Datasets cheat sheet



Azure Machine Learning Tools

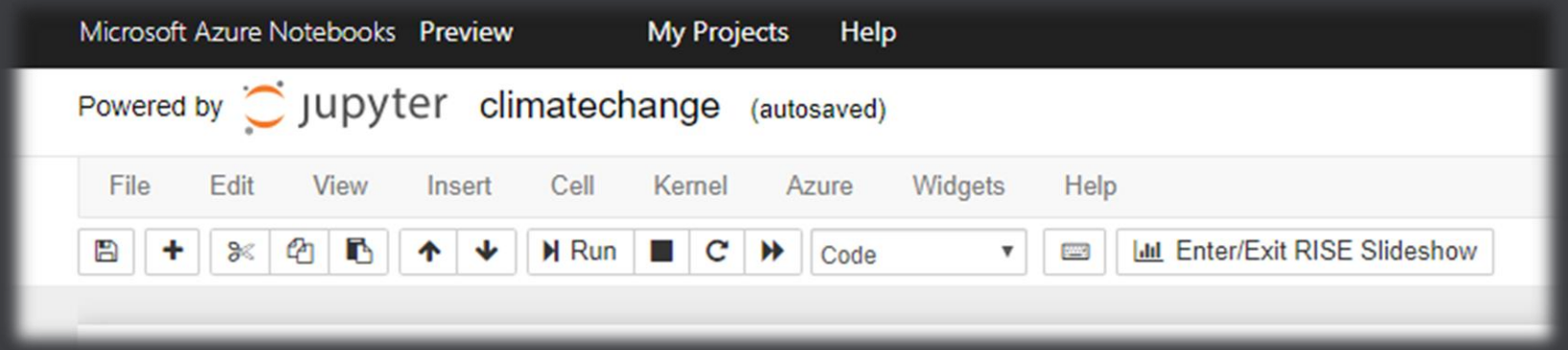
- Azure Notebooks
- Azure Databricks
- Data Science Virtual Machine
- Azure Machine Learning Studio
  - Notebooks
  - AutoML
  - Visual Interface
- Azure Machine Learning Compute Instance
- Visual Studio & VS Code with python

Azure Notebooks

Microsoft

Azure Notebooks es un servicio manejado, y gratuito para desarrollar y ejecutar Jupyter Notebooks en nube y sin necesidad de instalación previa.

https://notebooks.azure.com/



Azure Databricks

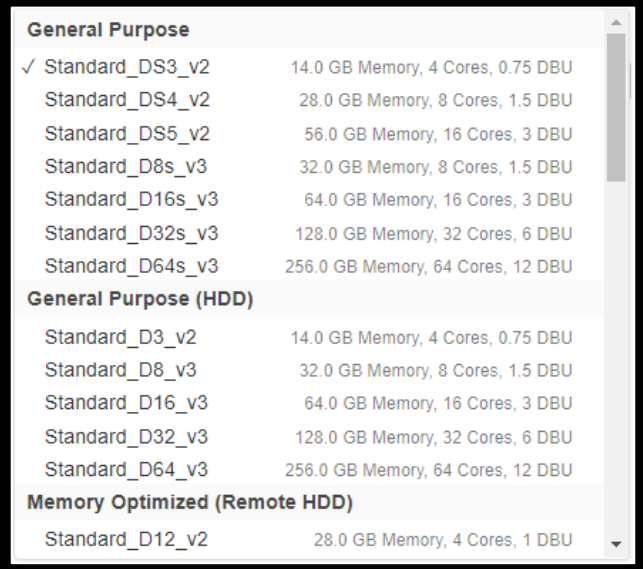
- Plataforma de analítica optimizada para Azure basada en Apache Spark
- Aspectos Relevantes
  - Rapidez (Procesamiento en Memoria)
  - Fácil de usar (Pocos Clics, Ambiente Interactivo)
  - Colaborativo (Integración con Servicios de Azure)
  - Procesamiento de datos a gran escala

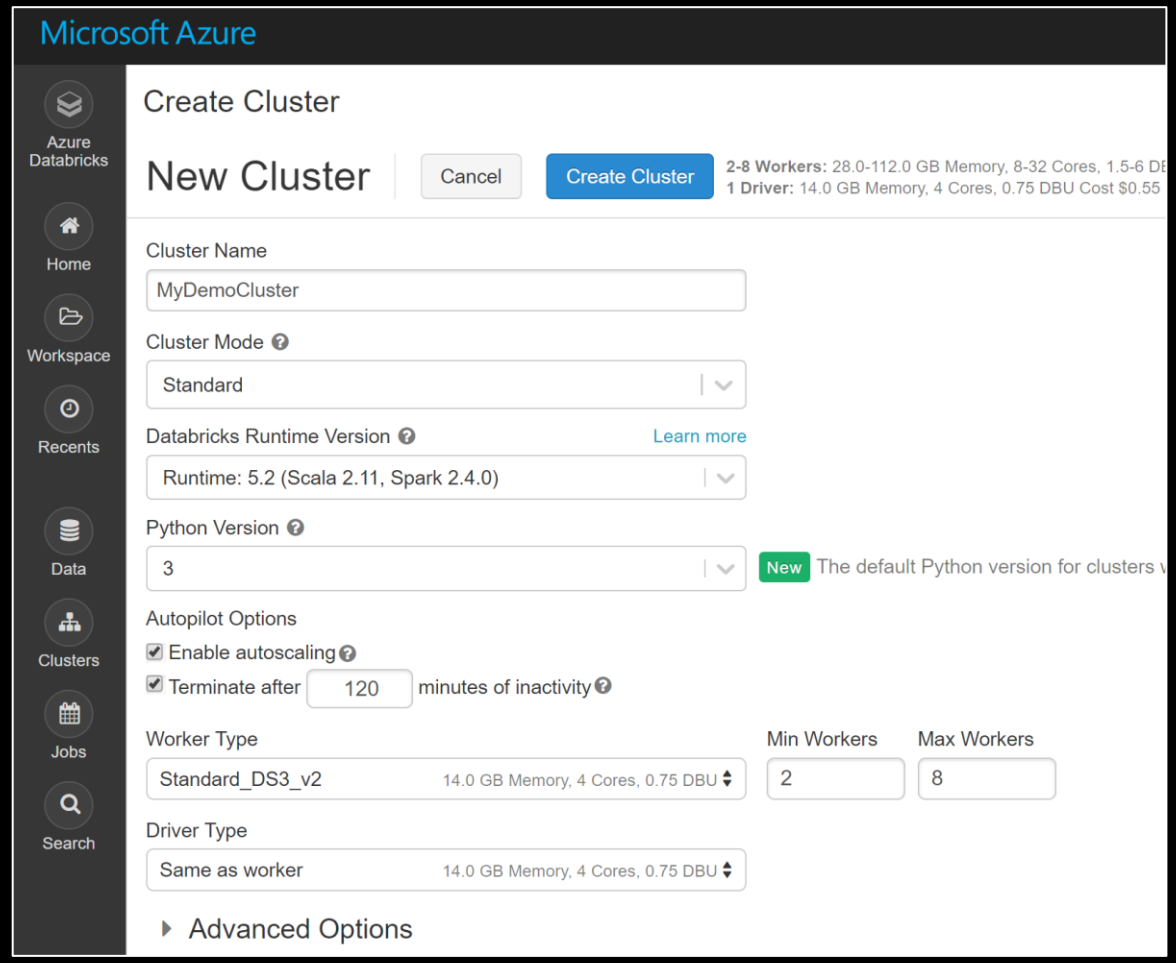
Microsoft

databricks™

Cluster Creation

- You can create two types of clusters – *Standard* and *Serverless Pool* (see next slide)
- While creating a cluster you can specify:
  - Number of nodes
  - Autoscaling and Auto Termination policy
  - Auto Termination policy
  - Spark Configuration details
  - The Azure VM instance types for the Driver and Worker Nodes





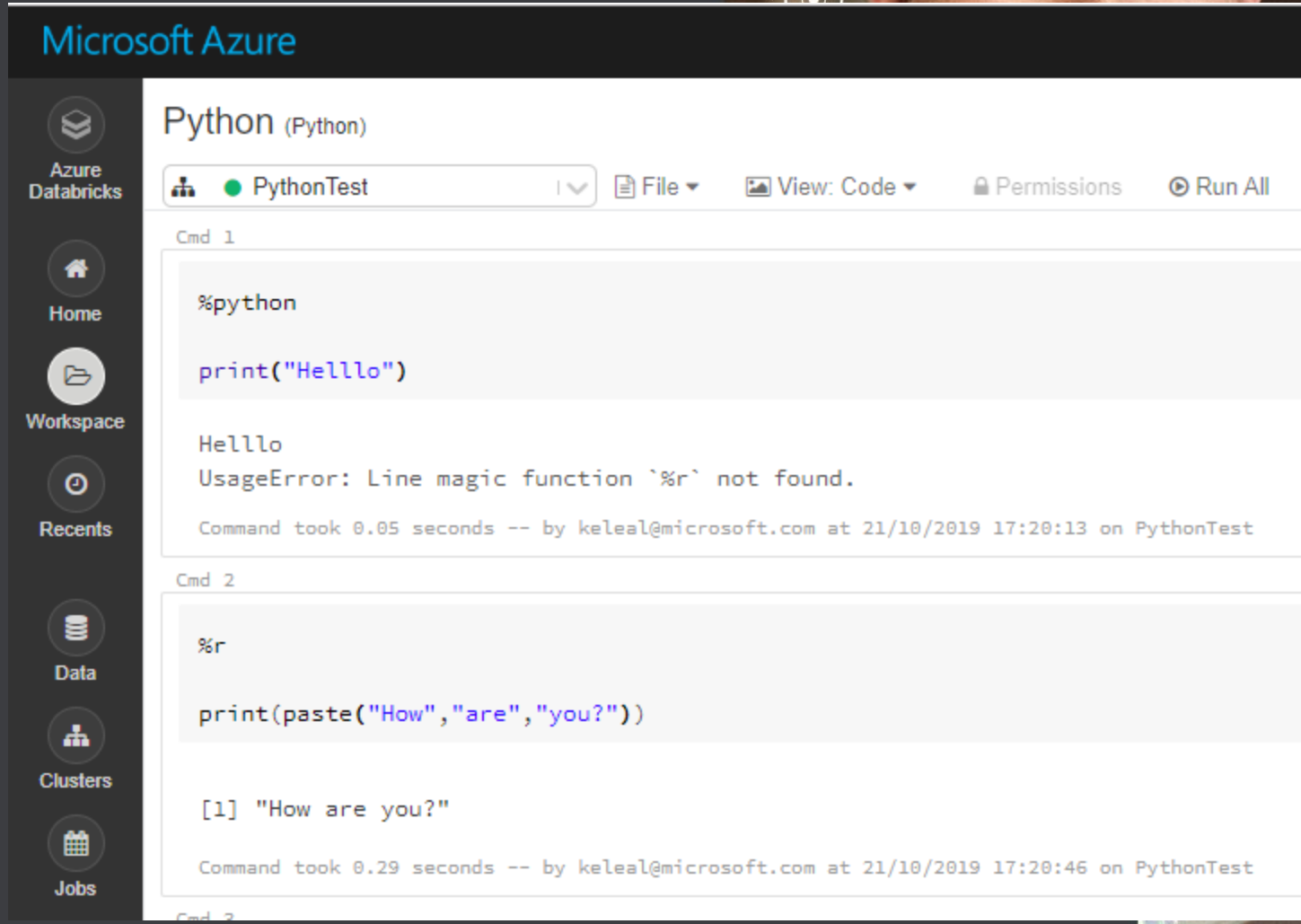
Graphical wizard in the Azure Databricks portal to create a Standard Cluster

Azure Databricks Mezclar lenguajes

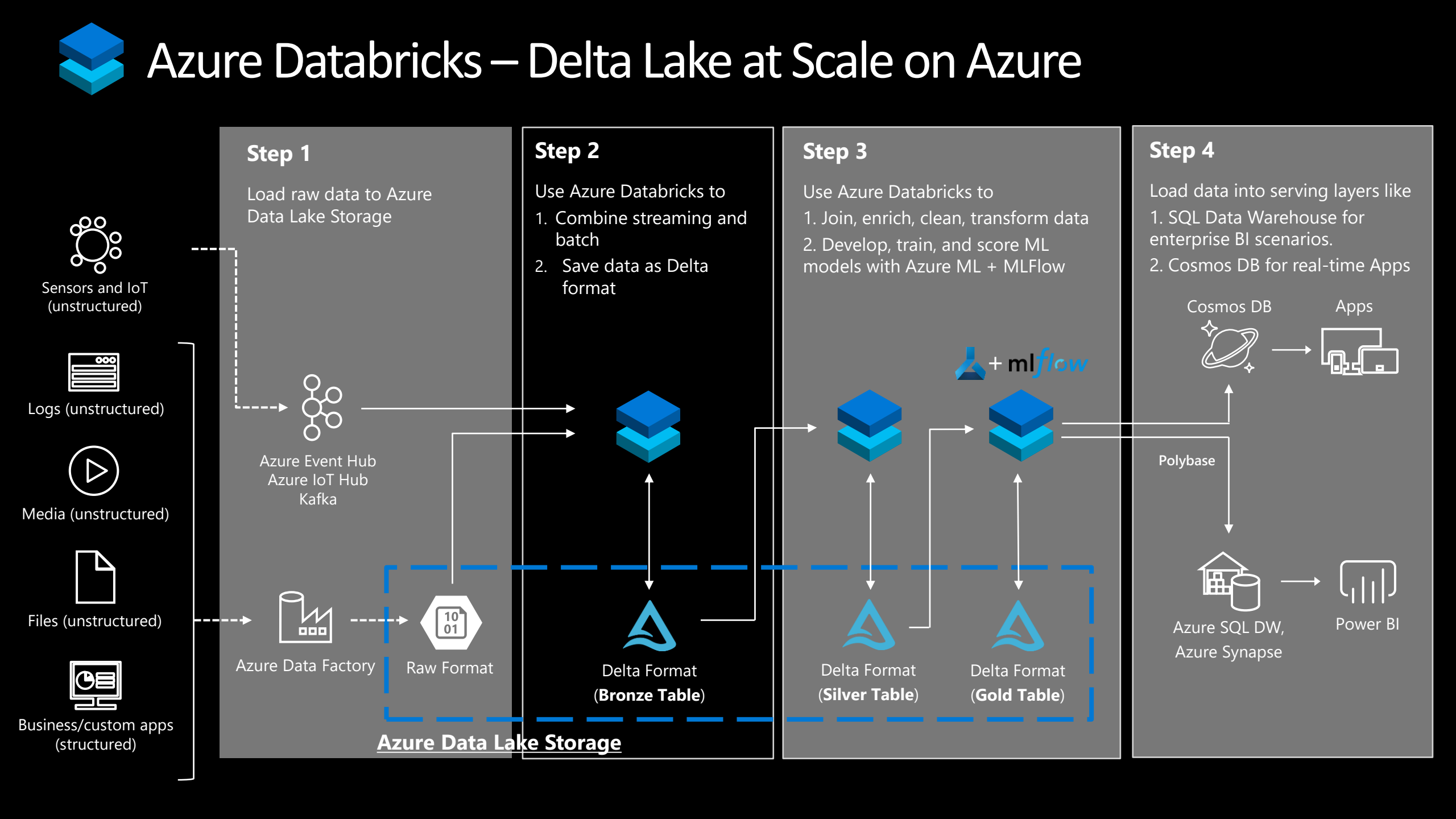
Microsoft

Normalmente un cuaderno está asociado a un lenguaje específico. Sin embargo, con los cuadernos de Azure Databricks, usted puede mezclar varios lenguajes en el mismo cuaderno.

- %python
- %sql
- %r
- %scala
- %sh



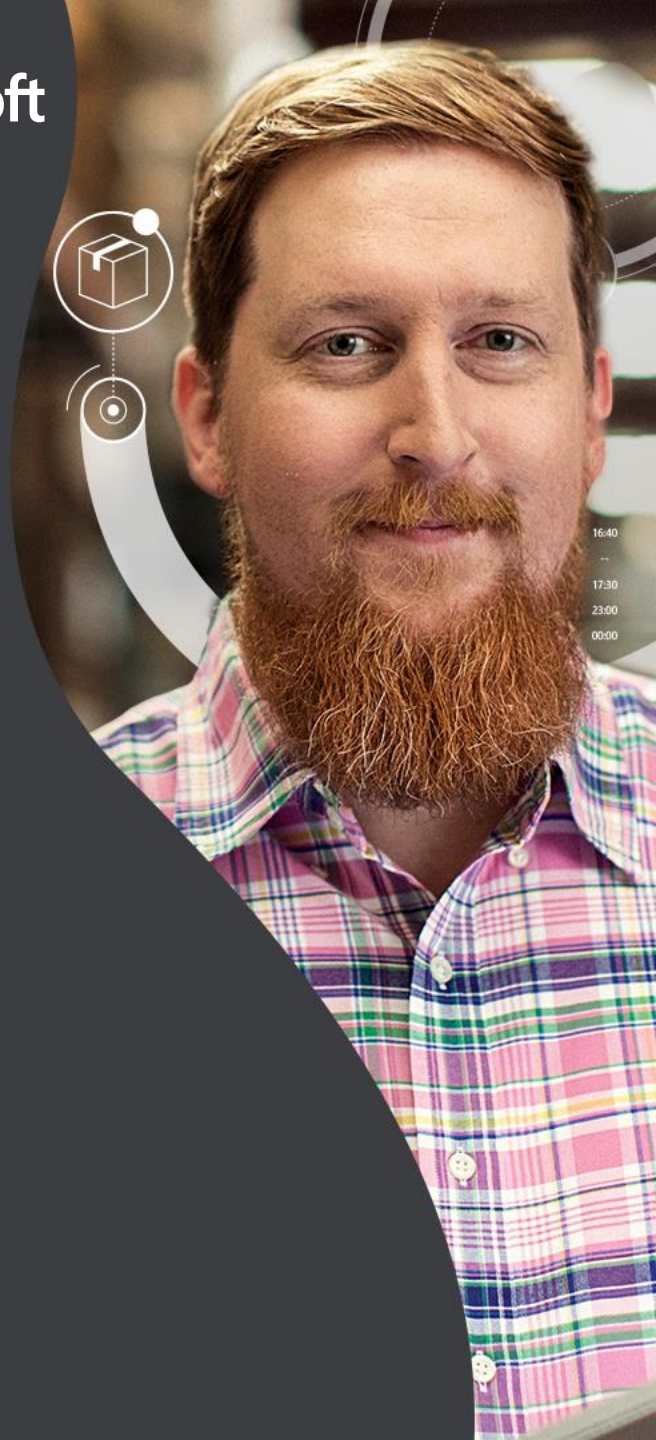
Azure Databricks – Delta Lake at Scale on Azure



Data Science Virtual Machine DSVM

Microsoft

- Azure Machine Learning SDK
- Microsoft ML Server - Dev Edition (Scalable R & Python)
- Anaconda Python
- SQL Server 2017 Dev. Edition - With In-Database R and Python analytics
- Microsoft Office 365 ProPlus BYOL - Shared Computer Activation
- Julia Pro + Juno Editor
- Jupyter notebooks
- Visual Studio Community Ed. + Python, R & node.js tools
- Power BI Desktop
- Deep learning tools e.g. Microsoft Cognitive Toolkit (CNTK, TensorFlow, Chainer, & mxnet
- ML algorithm libraries e.g. xgboost, Vowpal Wabbit
- Azure SDKs + libraries for various Azure Cloud offerings. Integration tools are included for:
    1. Azure Machine Learning
    2. Azure Data Factory
    3. Stream Analytics
    4. SQL Data Warehouse
    5. Hadoop + Apache Spark (HDICluster)
    6. Data Lake
    7. Blob storage
    8. ML & Data Science tutorials as Jupyter notebooks



Data Science Virtual Machine DSVM

Marketplace

My Saved List

Recently created

Service Providers

Categories

Get Started

AI + Machine Learning

Analytics

Blockchain

Compute

Containers

Databases

Private You have private offers available. Click here to see.

Data Science Virtual Machine

Pricing : All | Operating System : All | Publisher : All

Showing All Results

Free trial

Data Science Virtual Machine for Linux (CentOS)

Microsoft

Virtual machine with tools for data science and machine learning

Data Science Virtual Machine for Linux (Ubuntu)

Microsoft

Virtual machine image with deep learning frameworks and tools for machine learning and data science.

Data Science Virtual Machine - Windows 2016

Microsoft

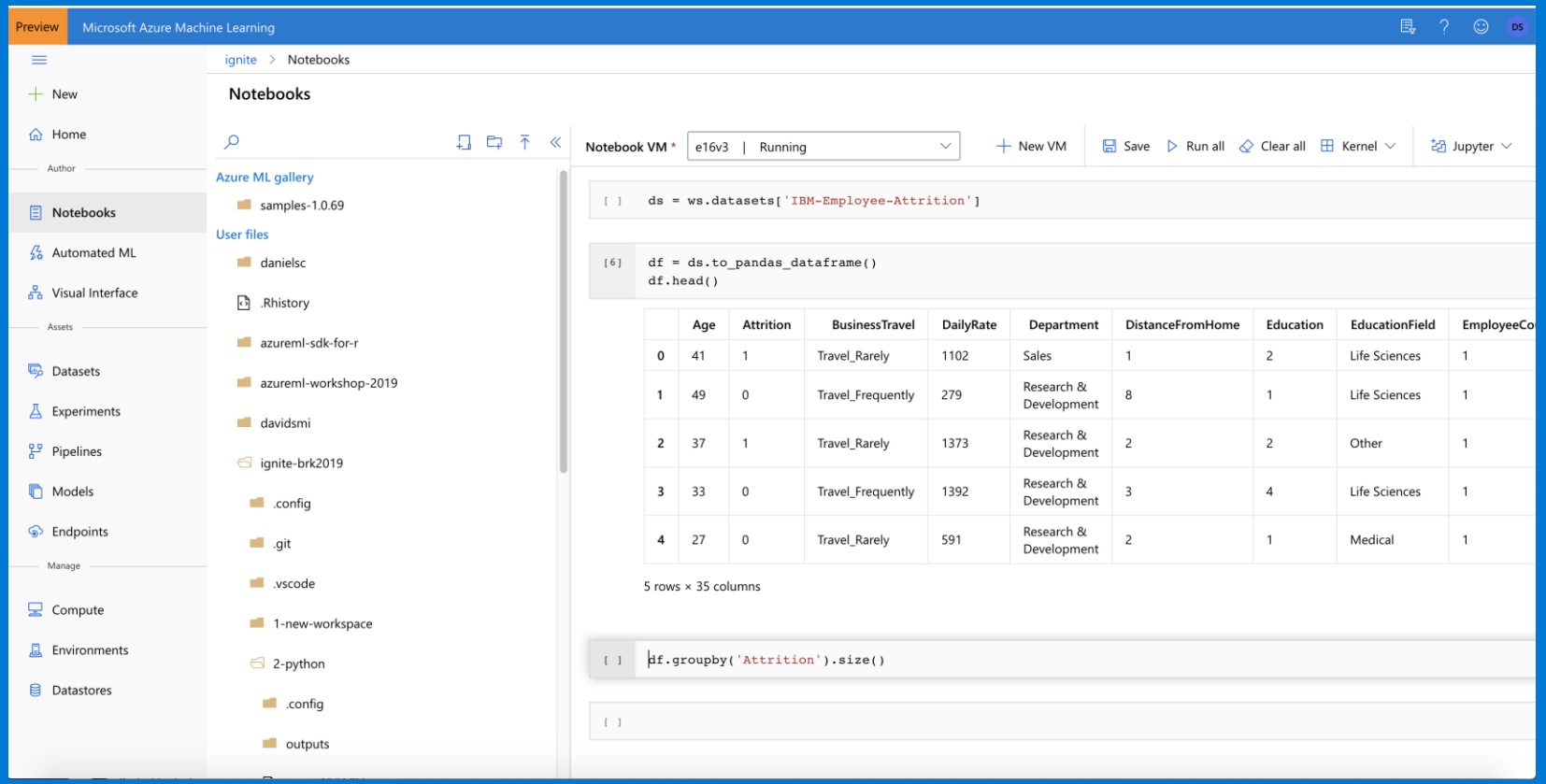
Development and modeling tools for AI, data science and analytics

Deep Learning Virtual Machine

Microsoft

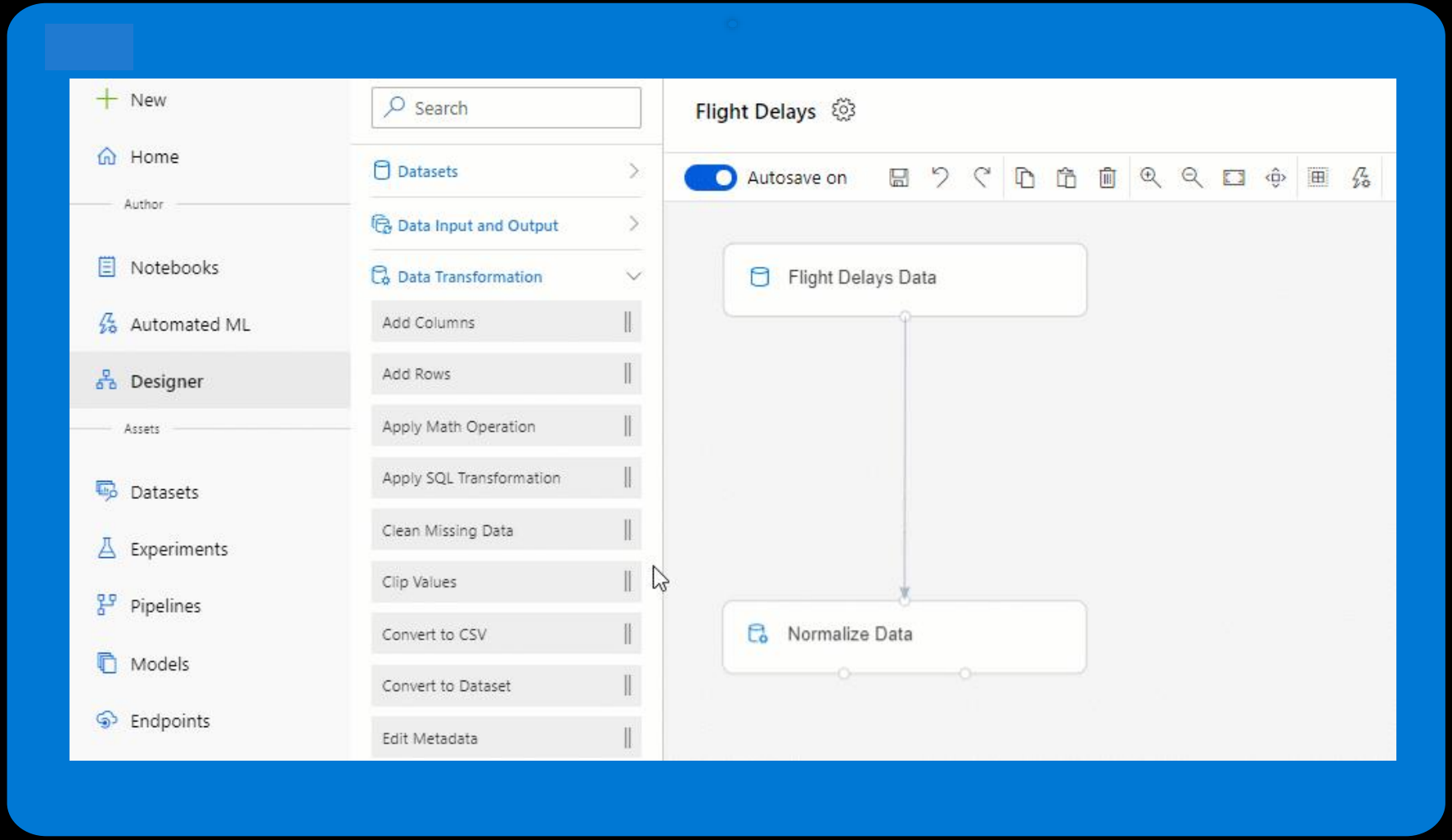
A pre-configured environment for deep learning using GPU instances

Demo: Azure Machine Learning

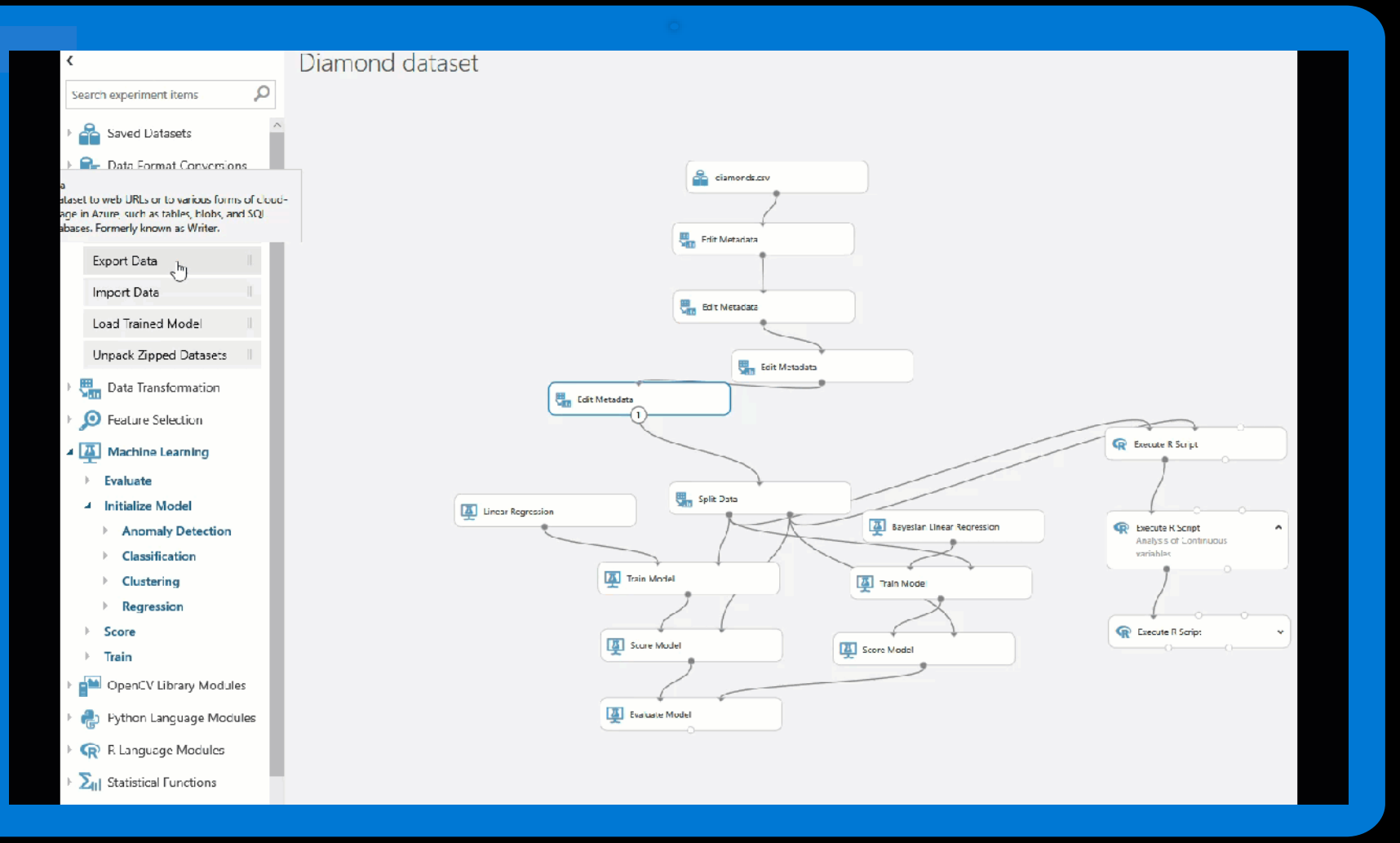


Azure Machine Learning provides Python and R SDKs
The "drag-and-drop" designer to build and deploy machine learning models.

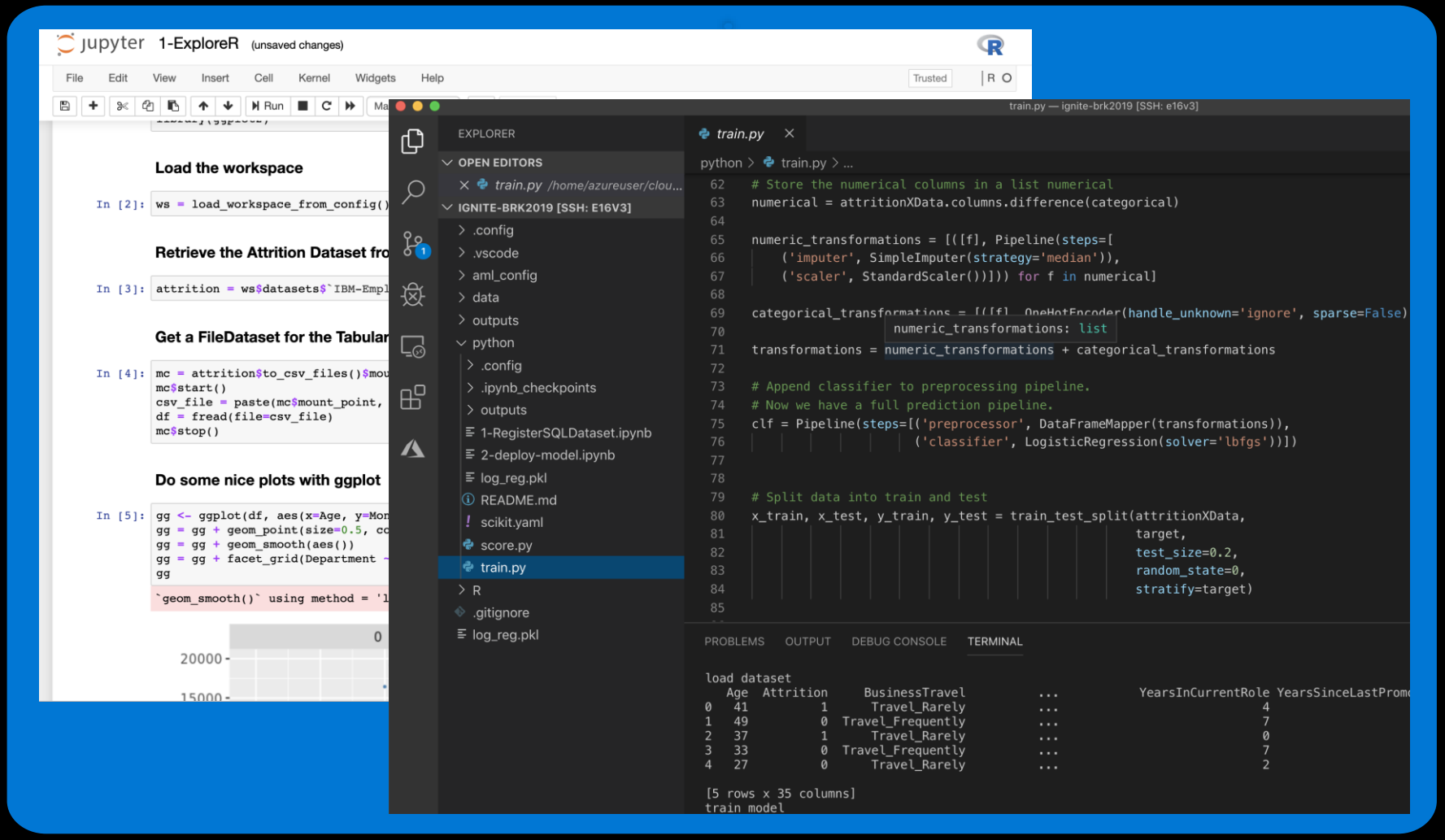
Demo: Azure ML Designer



Demo: Azure ML Designer

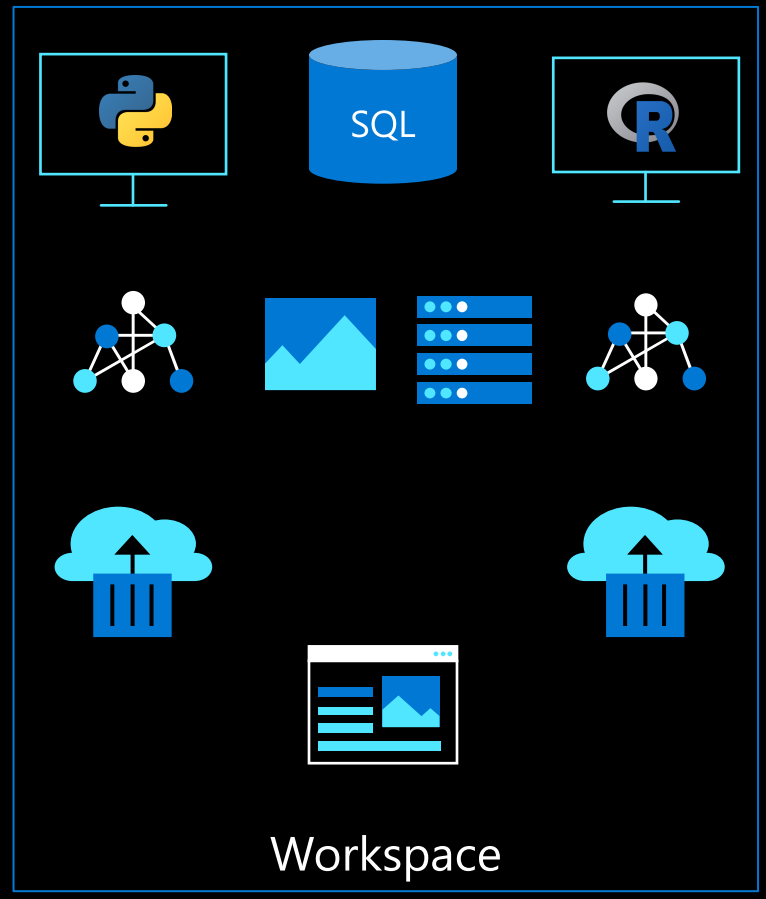


Demo: Train and Deploy Model in Python and R



What we did

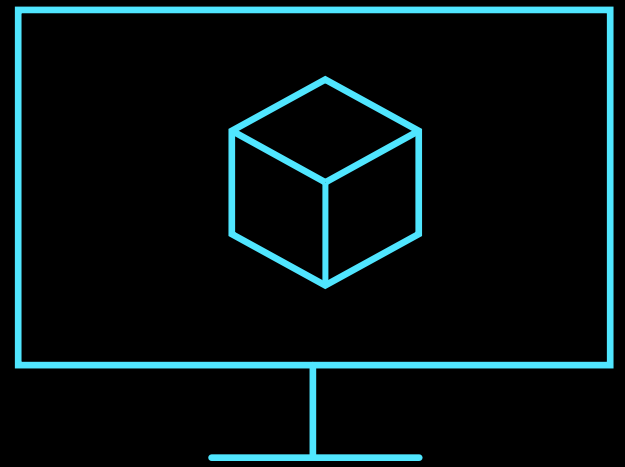
- Created Dataset pointing to SQL data in the AzureML studio, tested it in Python
- Created a Python model using the Dataset in VSCode remote running on our Notebook VM, deploy the model as a webservice



- Used the Dataset in in RStudio server running on our Notebook VM to plot some charts
- Created an R model using the Dataset in RStudio server using a compute cluster and deployed it
- Created a Shiny app to score both models in Rstudio server on the Compute Instance

Azure Machine Learning Compute Instance

- Collaborative
  - Share notebooks, compute instances*, files
- Managed and Secure
  - Automated provisioning*, RBAC*, VNet*, SSH policy*, AAD-gated access
- Preconfigured for ML
  - Python, R, GPU drivers, DL Frameworks
- Fully customizable
  - Broad set of VM sizes (incl. GPU),
- Productive
  - Code & Debug with Jupyter, JupyterLab, Rstudio server, VS Code



An Azure Machine Learning compute instance (preview) is a fully-managed cloud-based workstation for data scientists.

*new compared to Notebook VM

Microsoft Azure

Invent with purpose.