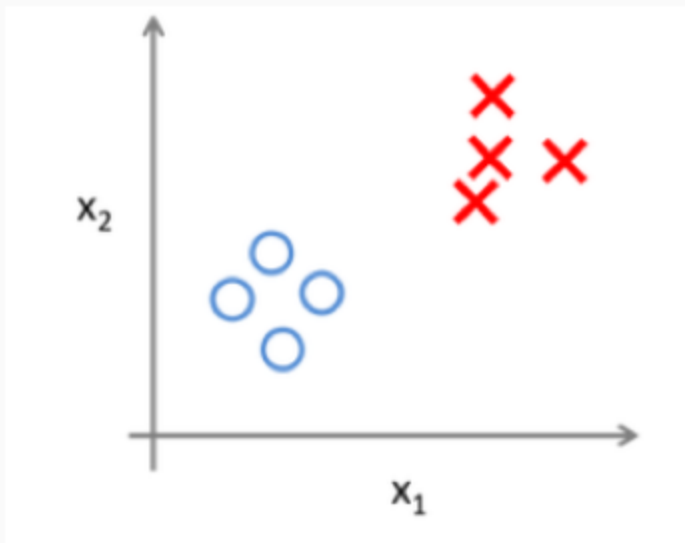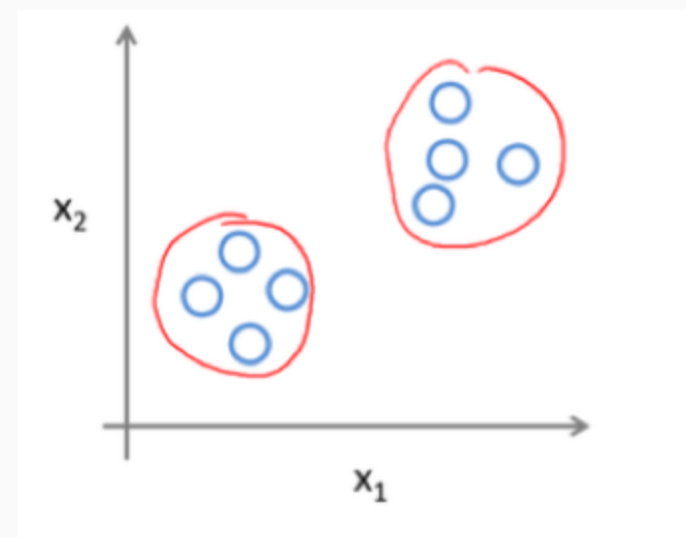# Amazon Sagemaker

Machine Learning

- Aprendizaje automático o aprendizaje automatizado o aprendizaje de máquinas

- Del inglés, machine learning.

- En el aprendizaje de automático un software observa datos, construye un modelo basado en esos datos y utiliza ese modelo a la vez como una hipótesis acerca del mundo.

- Nos puede servir para predecir o para analizar esos datos.

- Aprendizaje Supervisado: Los ejemplos vienen con una variable de salida o etiqueta que queremos aprender.

- Aprendizaje No Supervisado: No existe una variable o concepto objetivo. Nos interesa descubrir patrones o relaciones que expliquen los datos.


Aprendizaje Supervisado

Aprendizaje No Supervisado

- Amazon SageMaker ayuda a los científicos de datos y a los desarrolladores a preparar, crear, entrenar e implementar con rapidez modelos de aprendizaje automático de alta calidad

- https://aws.amazon.com/es/sagemaker/

The AWS ML Stack

Broadest and most complete set of Machine Learning capabilities
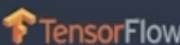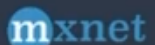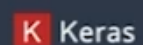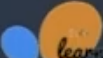
Amazon SageMaker

Prepare →

SageMaker Ground Truth
Label training data for machine learning

Información general acerca de SageMaker

SageMaker Data Wrangler NEW
Aggregate and prepare data for machine learning

SageMaker Processing
Built-in Python, BYO R/Spark

SageMaker Feature Store NEW
Store, update, retrieve, and share features

SageMaker Clarify NEW
Detect bias and understand model predictions

Build →

SageMaker Studio Notebooks
Jupyter notebooks with elastic compute and sharing

Built-in and Bring-your-own Algorithms
Dozens of optimized algorithms or bring your own

Local Mode
Test and prototype on your local machine

SageMaker Autopilot
Automatically create machine learning models with full visibility

SageMaker JumpStart NEW
Pre-built solutions for common use cases

Train & tune →

One-click Training
Distributed infrastructure management

SageMaker Experiments
Capture, organize, and compare every step

Automatic Model Tuning
Hyperparameter optimization

Distributed Training Libraries NEW
Training for large datasets and models

SageMaker Debugger NEW
Debug and profile training runs

Managed Spot Training
Reduce training cost by 90%

Deploy & manage →

One-click Deployment
Fully managed, ultra low latency, high throughput

Kubernetes & Kubeflow Integration
Simplify Kubernetes-based machine learning

Multi-Model Endpoints
Reduce cost by hosting multiple models per instance

SageMaker Model Monitor
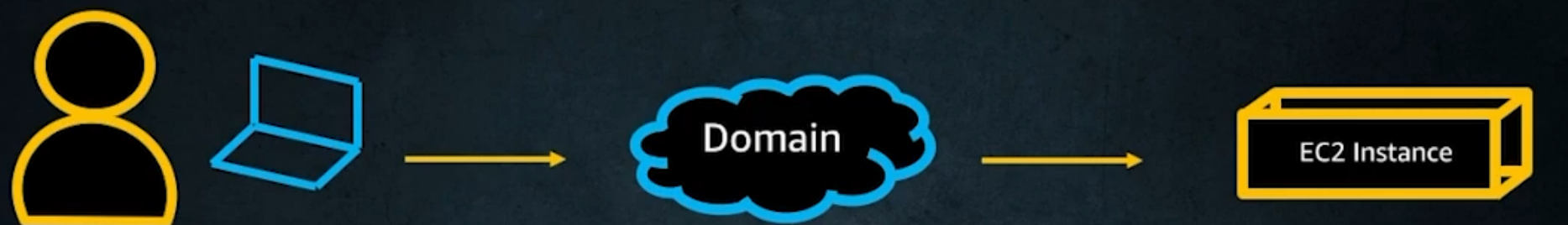Maintain accuracy of deployed models

SageMaker Edge Manager NEW
Manage and monitor models on edge devices

SageMaker Pipelines NEW
Workflow orchestration and automation

SageMaker Studio
Integrated development environment (IDE) for ML

6

Amazon SageMaker Studio

You!

Your IDE

Domain

Your Compute

EC2 Instance

- Can enable IAM or SSO
- Fast notebook start-up
- Consolidated experience

Low-lift / automatic feature access
- Autopilot
- Experiments
- Debugger
- Model Monitoring
- Versioning
- Endpoint management

- Can create a shareable link with package dependences in single click
- Billing is per usage, not up time.
- Change environments per project

aws

1-Click Notebook Sharing

Domain
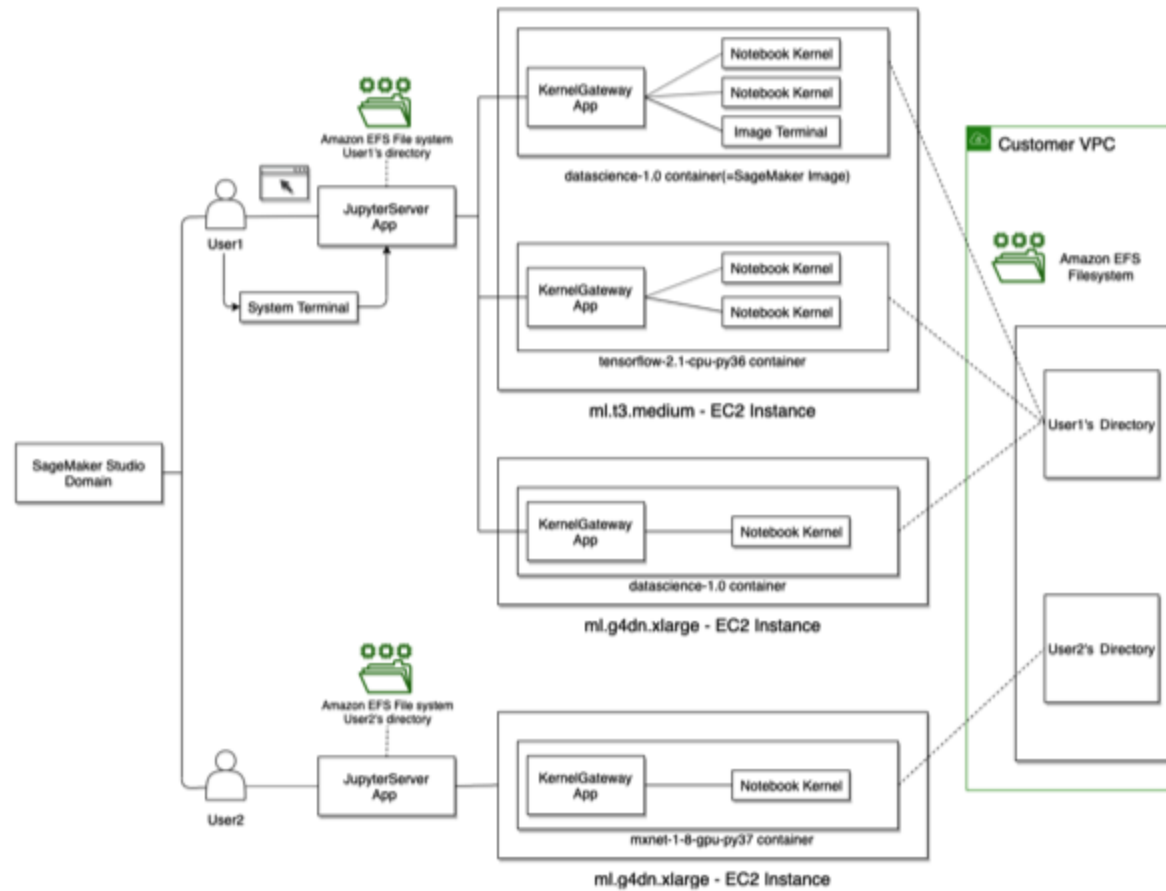
EC2 Instance
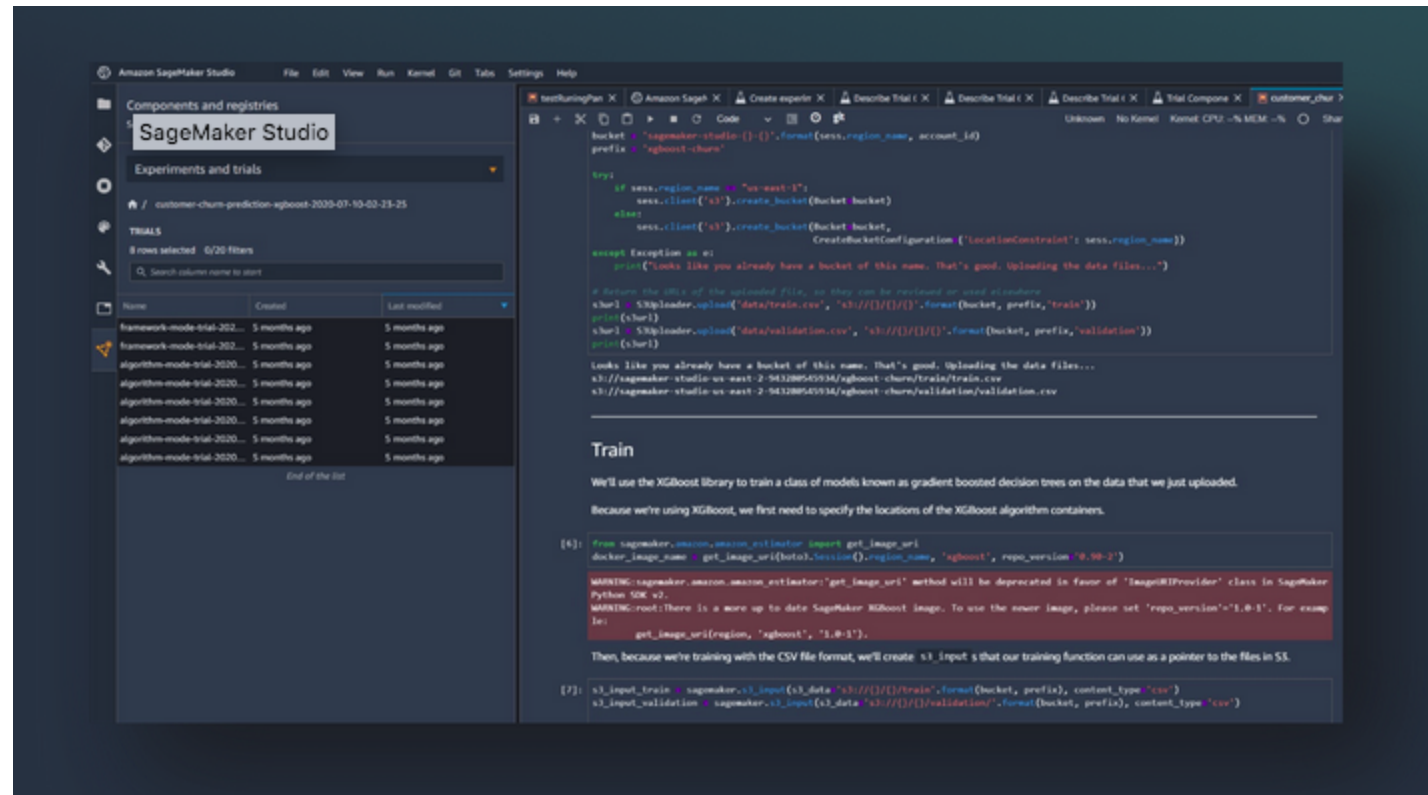EC2 Instance
EC2 Instance
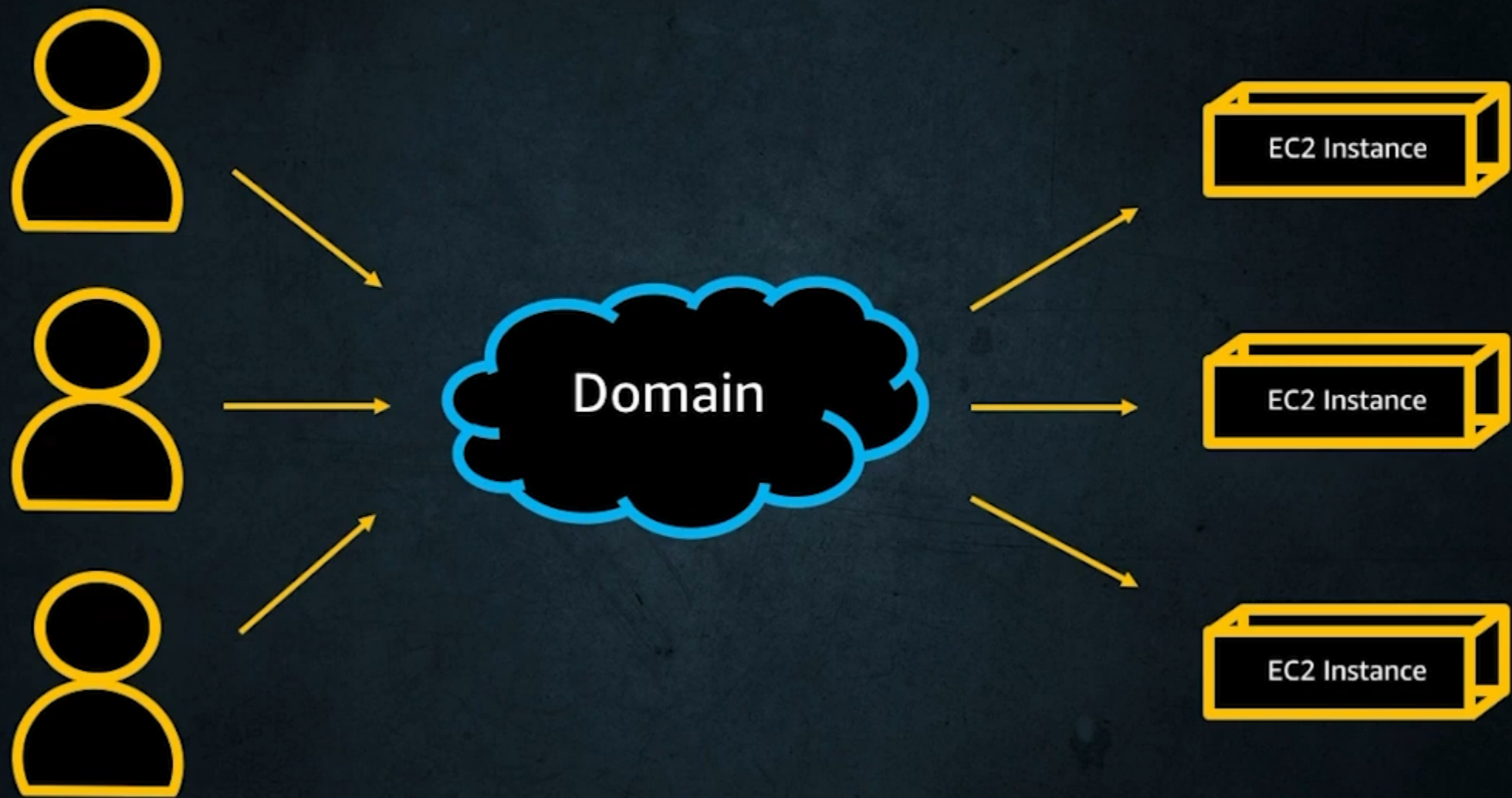
Figure 2.10 – The infrastructure behind the SageMaker Studio IDE

SageMaker Studio

Ejercicio

- Crea un nuevo dominio y usuario.

- Lanza Sagemaker Studio.

- *Getting Started with Amazon SageMaker Studio* by Michael Hsieh.

- Sagemaker Developer Guide:
  https://docs.aws.amazon.com/sagemaker/latest/dg/whatis.html

- Amazon SageMaker Python SDK:
  https://sagemaker.readthedocs.io/en/stable/index.html