AWS AI/ML

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Arquiteto de Soluções AWS

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Agenda

1- Introdução aos serviços de AI da AWS
2- Introdução ao SageMaker
3- Treinando modelos no SageMaker
4- Customizando o SageMaker

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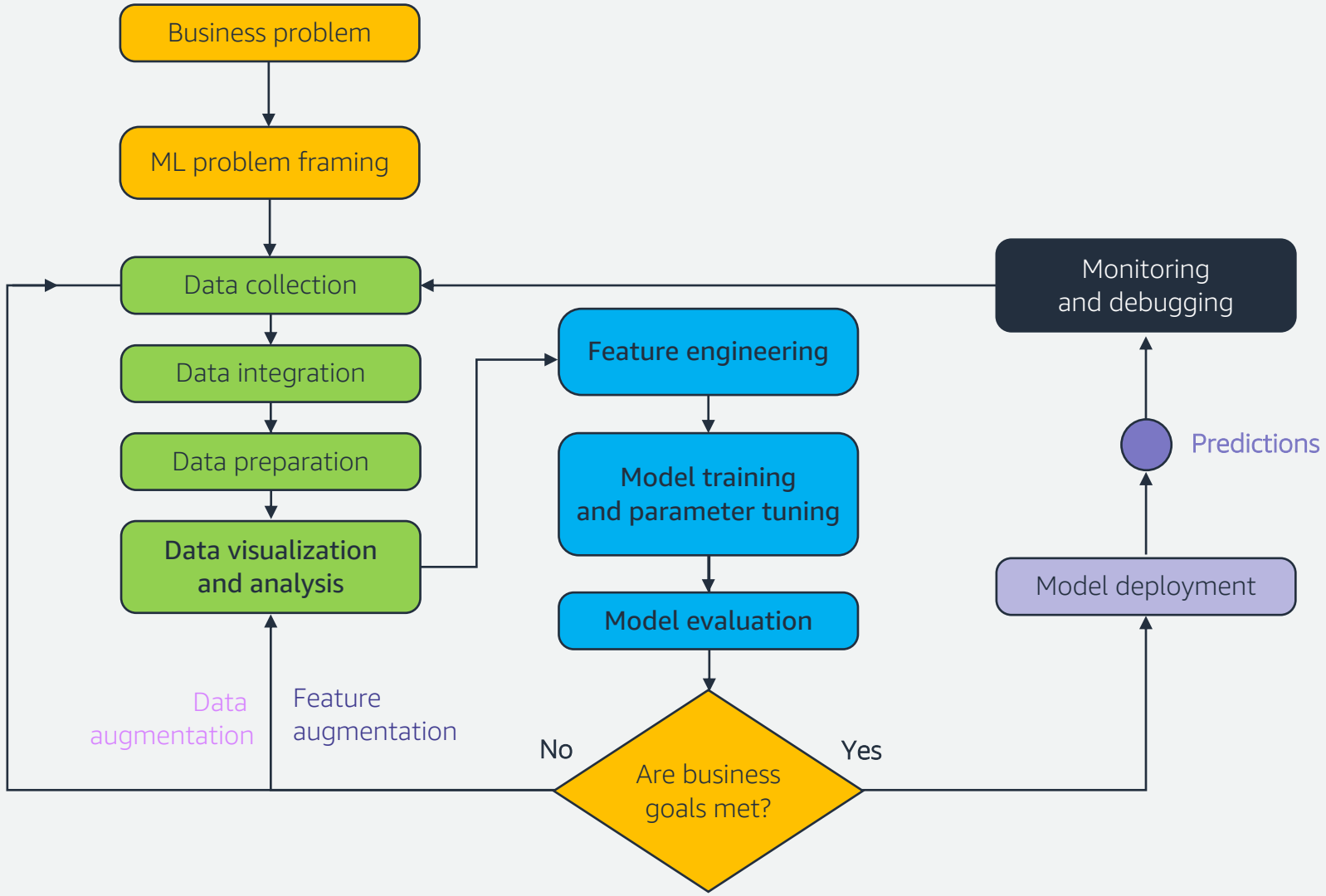
O processo de um projeto de ML



aws machine learning

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Infraestrutura de computação

Escolha de CPUs, GPUs e aceleradores para suas necessidades de desempenho e orçamento

Cascade Lake CPU
Skylake CPU

Habana Gaudi accelerators

EPYC CPU

Graviton CPU
Inferentia chip

A100, V100, T4 GPUs

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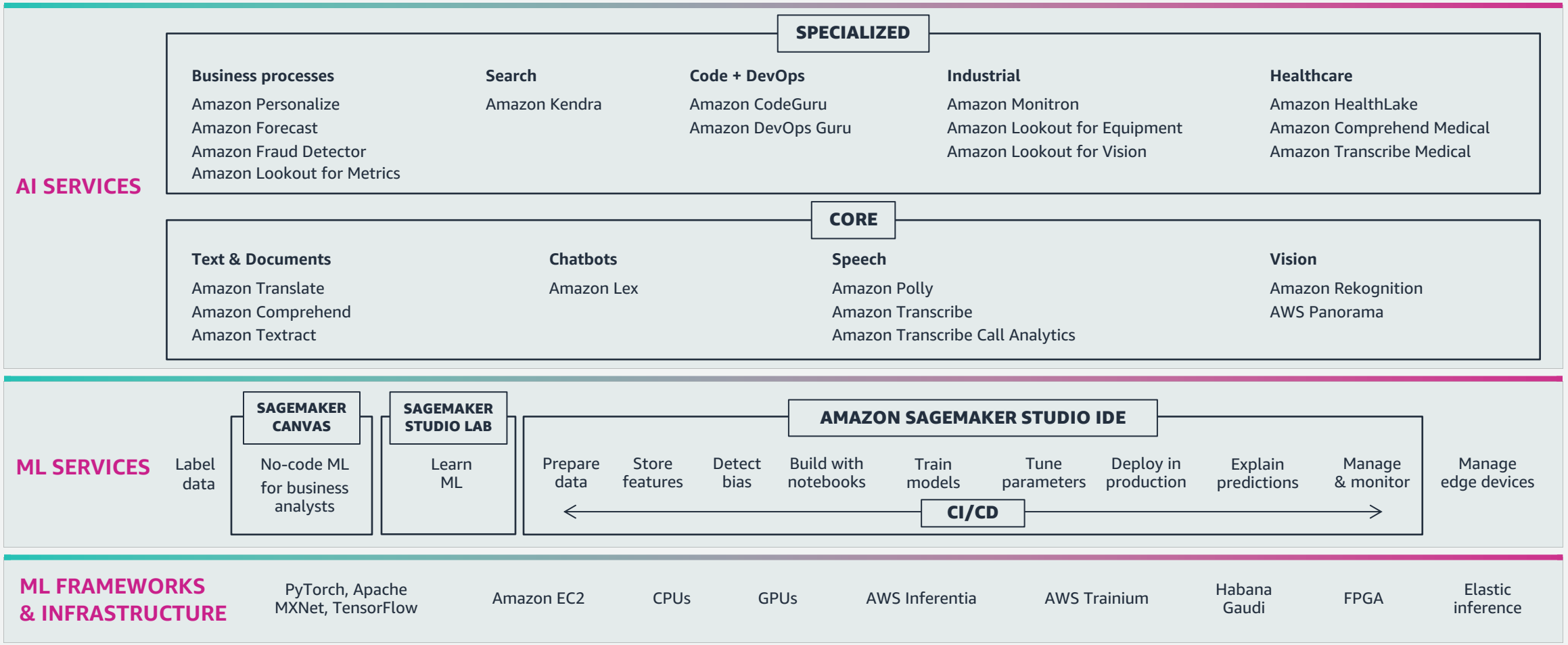
Serviços AI/ML na AWS

Conjunto mais amplo e completo de recursos de aprendizado de máquina



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Serviços de IA

Labs: https://github.com/gabrielmartinigit/aiml-notebooks

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SageMaker

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Amazon SageMaker

PREPARE

SageMaker Ground Truth
Label training data for machine learning

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

Managed Training
Distributed infrastructure management

SageMaker Experiments
Capture, organize, and compare every step

Automatic Model Tuning
Hyperparameter optimization

Distributed Training 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

Managed 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

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Tipos de Treinamento

ML
Marketplace

Algoritmos
Built-in

Script
Mode

Custom
Container

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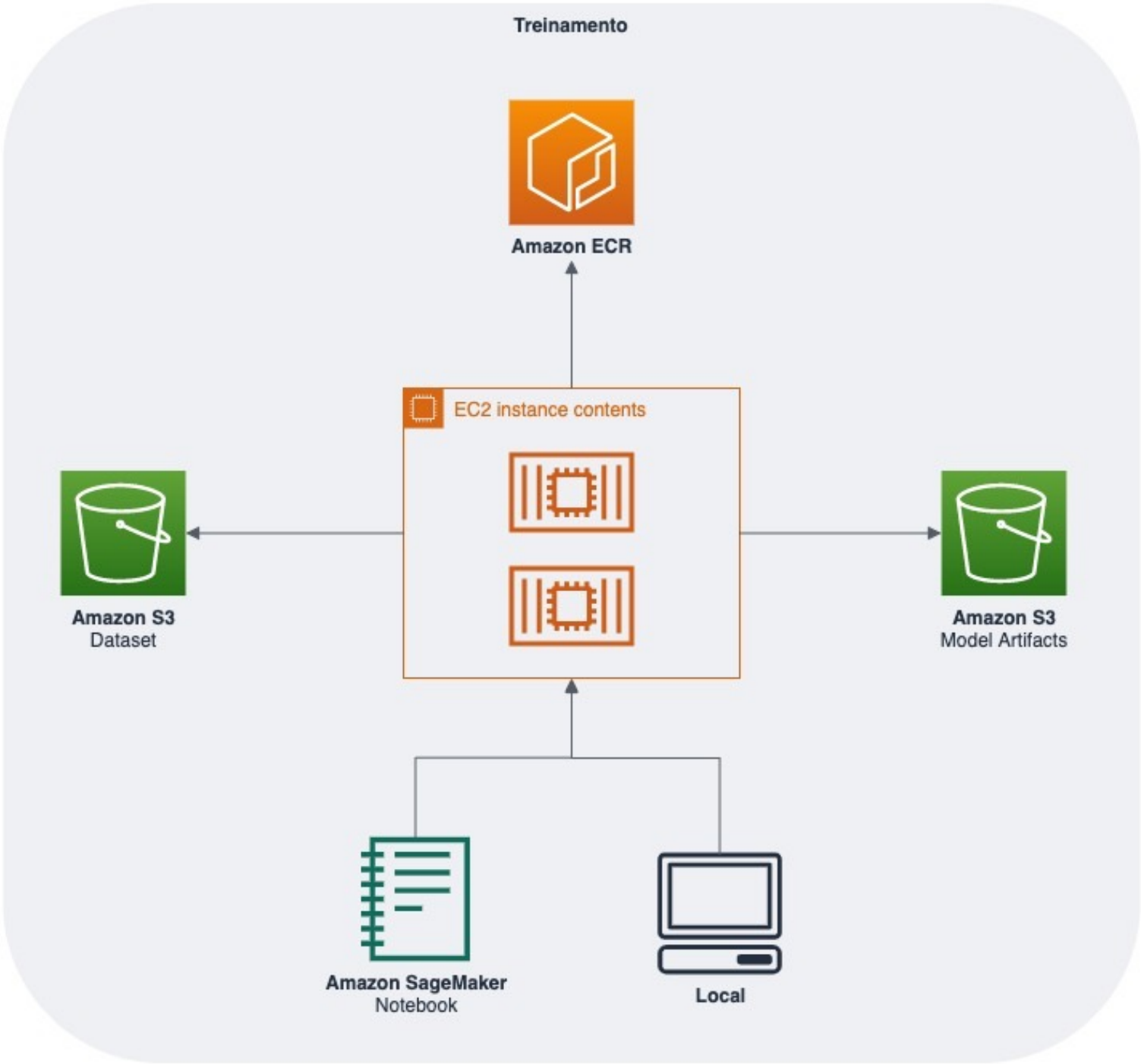
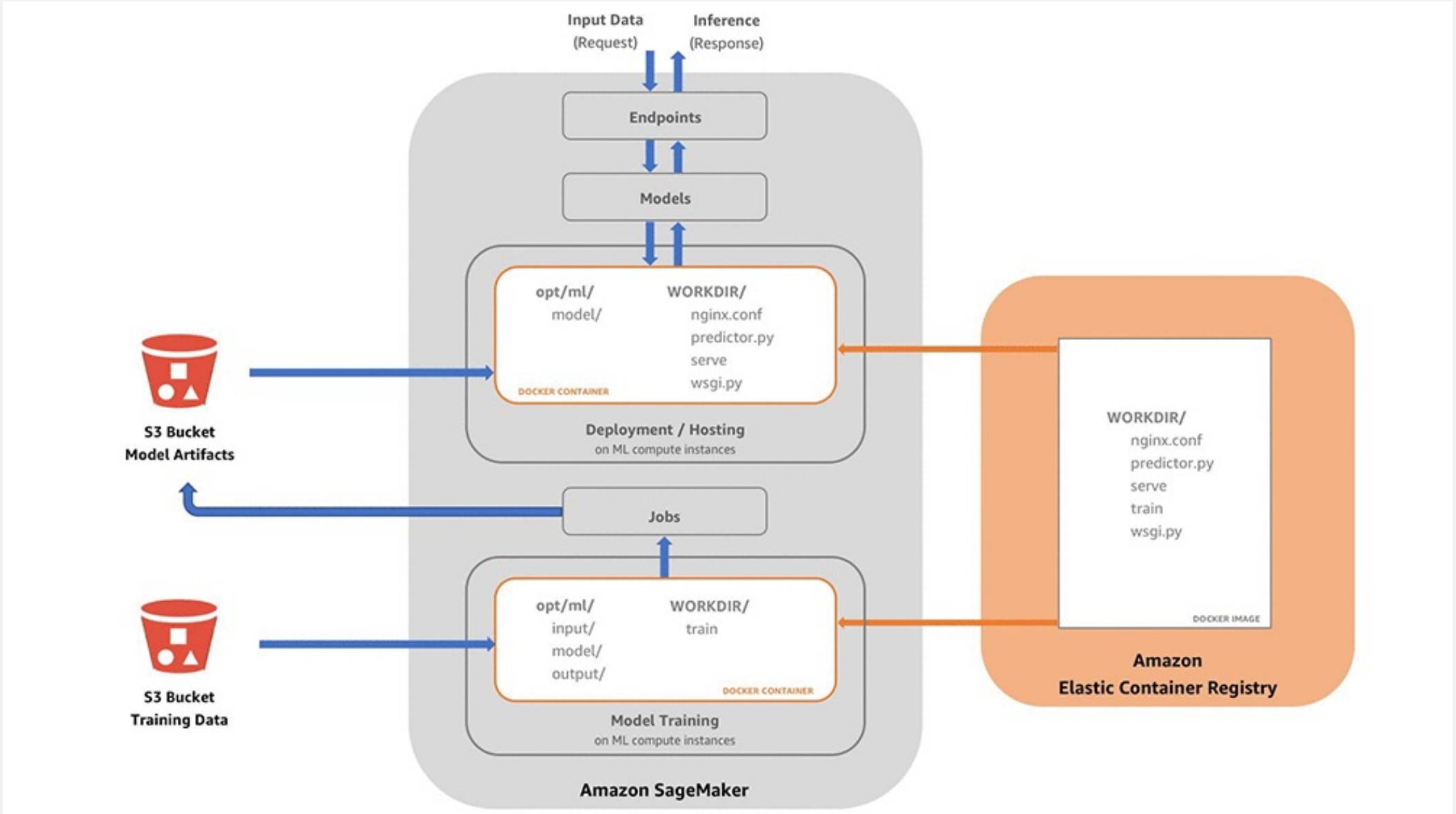

Treinamento
Amazon ECR
EC2 instance contents
Amazon S3
Dataset
Amazon S3
Model Artifacts
Amazon SageMaker
Notebook
Local



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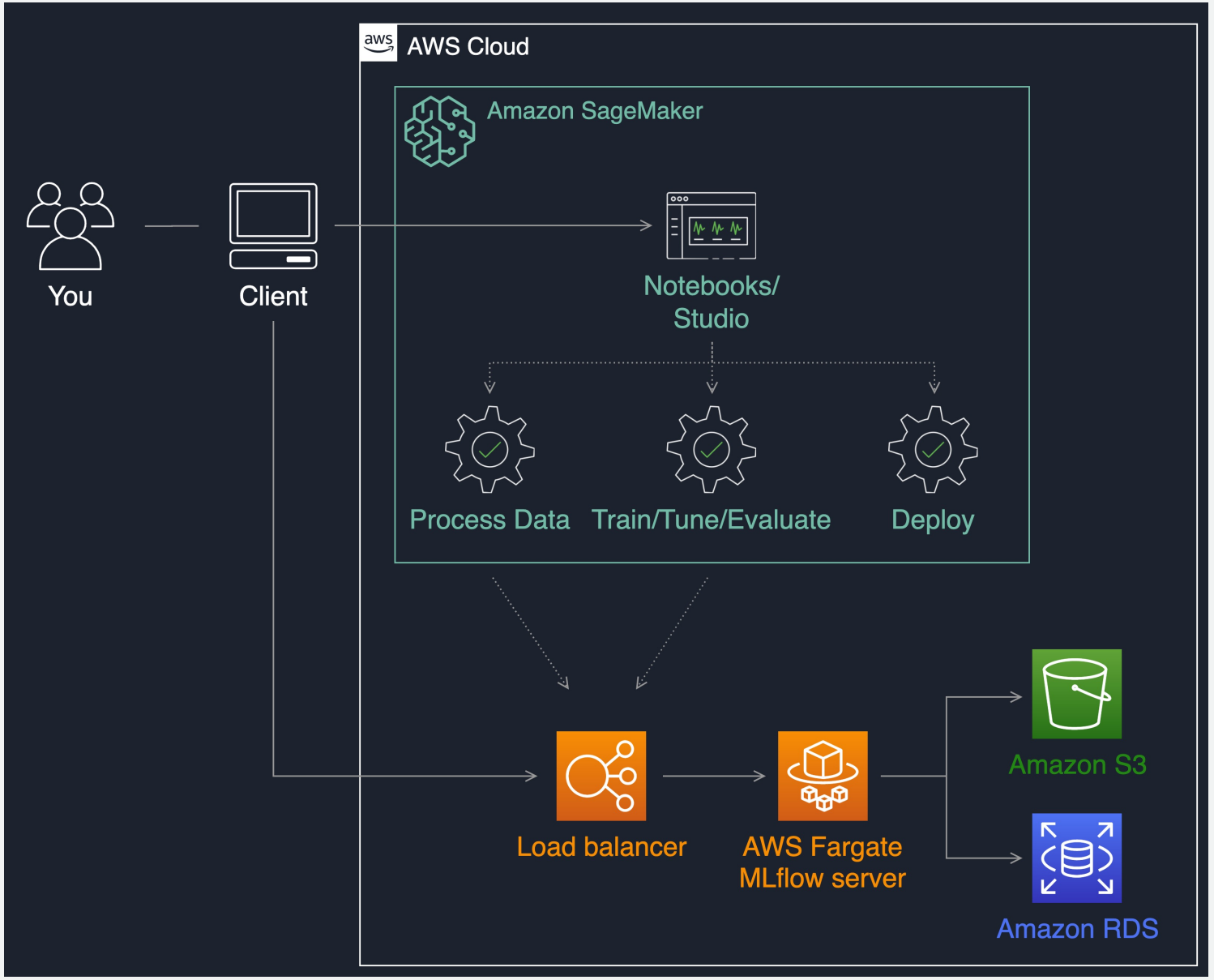

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MLOps

AWS MLOPS whitepaper: https://d1.awsstatic.com/whitepapers/mlops-continuous-delivery-machine-learning-on-aws.pdf

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	ROLE	PRIORITIES	NEEDS
	Data Scientist	Makes sense of data, generates and communicates insights to improve or create business processes, creates predictive ML models to support them	• Data access • ML compute environments • Robust ML tools
	Data Engineer	Builds scalable pipelines, transforms and loads data into structures complete with metadata that can be readily consumed by the Data Scientist	• Ad hoc querying • Quick visualization
	Security	Risk and Compliance across the enterprise. Prevent data leakages. Audit user activity. Detect model bias.	• Alerts – data leakages, breaches • Reports – data, user activities
	MLOps / ML Engineer	Monitoring for reliability, quickly diagnose deployment or availability issues	• Data drift, Model drift • Dashboards
	SysOps Engineer	Provision the right infrastructure for the right team without incurring idle resources expenses	• Capacity planning • Resource usage • Governance at scale
	Business Sponsor	Vetting the priortization and ROI, funding projects, providing ongoing feedback	• Reporting • Results • Dashboards

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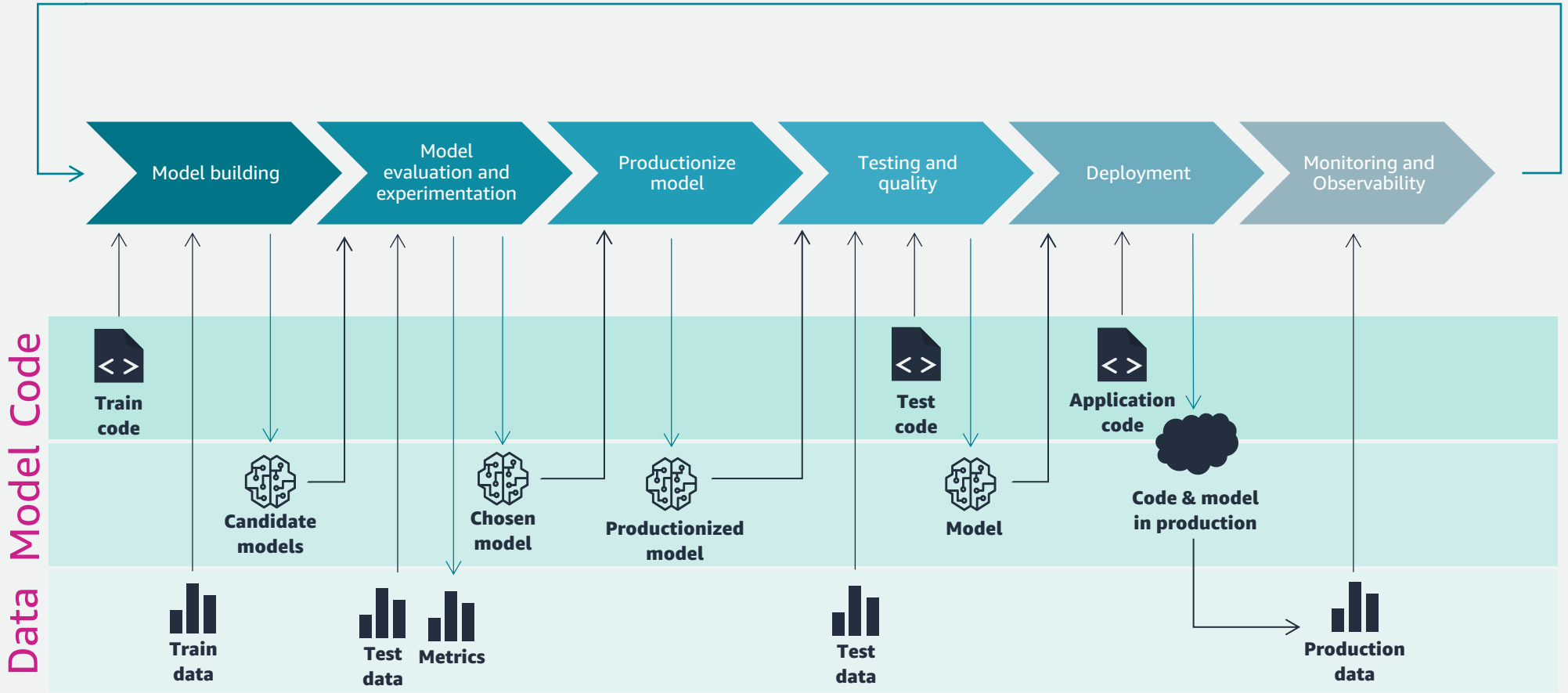
Gerenciamento do ciclo de vida de ML



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Estudar AI/ML na AWS

- Machine Learning University: https://www.youtube.com/channel/UC12LqyqTQYbXatYS9AA7Nuw
- AWS Skill Builder: https://explore.skillbuilder.aws/lms/
- SageMaker Studio Lab: https://studiolab.sagemaker.aws/

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Obrigado!

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