Computer Vision deployment technologies

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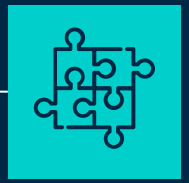

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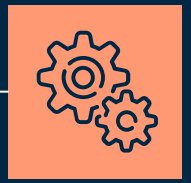
Introduction



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Deployment technologies

Introduction

01

Introduction

CVOps, or Computer Vision Operations, is a specialized approach leveraging the principles of MLOps tailored for the development and deployment of computer vision projects. This methodology encompasses a structured workflow designed to navigate the intricacies of computer vision applications.

Stages of cvops

Data and feature management

Model development

Operationalization

CVops

02

Data and Feature Management

This initial stage revolves around comprehensive data handling, covering aspects such as data collection, creation, management, verification, processing, and the meticulous management of data features.

Model Development:

In the model development phase, machine learning models undergo training, accompanied by metadata management, hyperparameter tuning, and the maintenance of a model registry. This stage ensures the creation of robust models optimized for the intricacies of computer vision.

Operationalization involves:

The operationalization phase focuses on the deployment of machine learning models to suitable servers. Additionally, it involves the implementation of continuous integration, continuous deployment, and continuous testing (CI/CD/CT) in the machine learning pipeline. Continuous monitoring of computer vision models in production is a crucial aspect of this stage.

Cloud Solutions

03

Aws Sagemaker

SageMaker is Amazon's fully managed machine learning (ML) service. It enables you to quickly build and train ML models and deploy them directly into a production environment. Here are key features of AWS SageMaker:

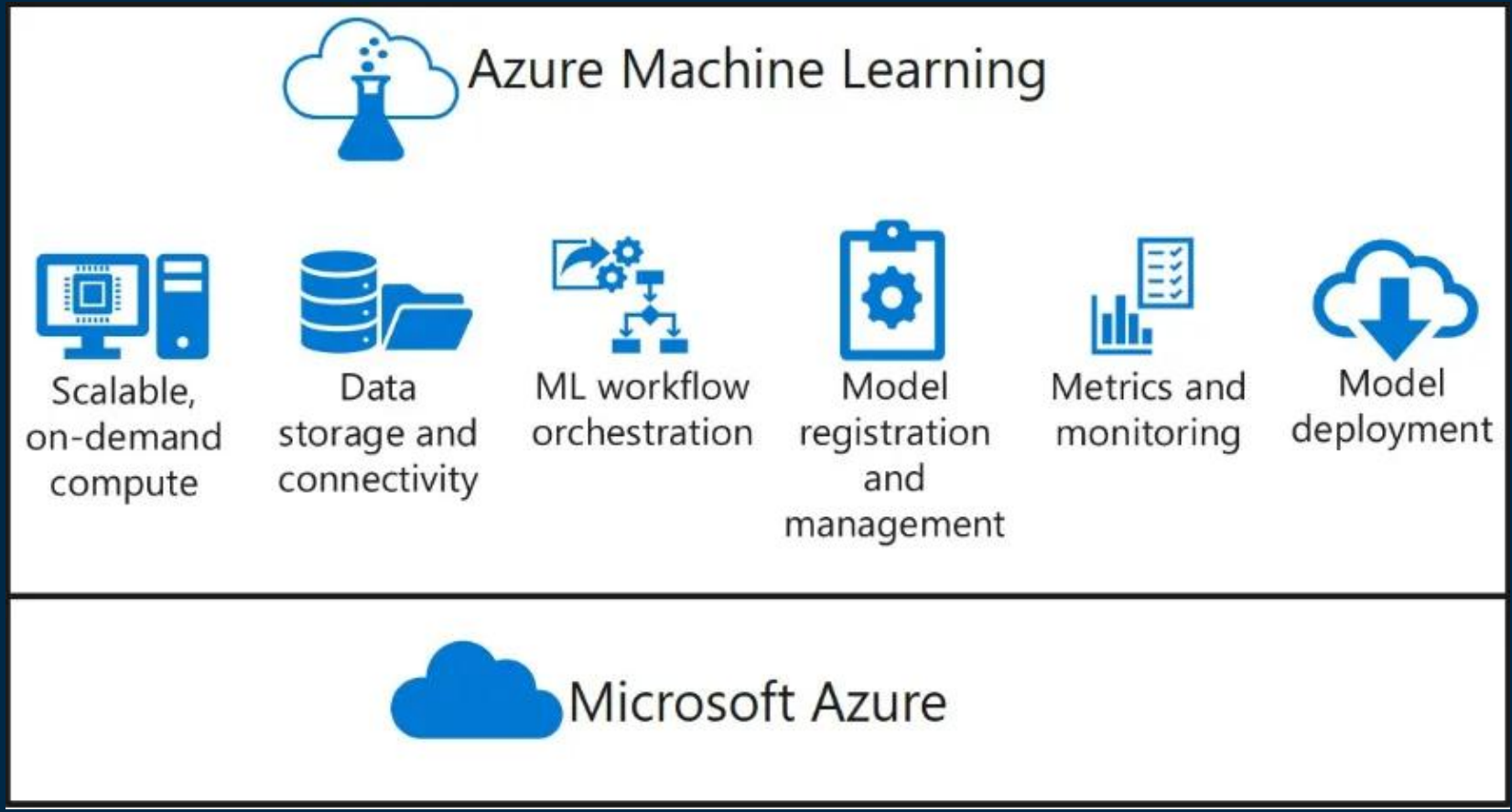
- **An integrated Jupyter authoring notebook instance**—provides easy access to data sources for analysis and exploration. There is no need to manage servers.
- **Common machine learning algorithms**—the service provides algorithms optimized for running efficiently against big data in a distributed environment.
- **Native support for custom algorithms and frameworks**—SageMaker provides flexible distributed training options designed to adjust to specific workflows.
- **Quick deployment**—the service lets you use the SageMaker console or SageMaker Studio to quickly deploy a model into a scalable and secure environment.

Google Cloud AutoML

AutoML is Google Cloud's machine learning service. It does not require extensive knowledge of machine learning. AutoML can help you build on Google's ML capabilities to create custom ML models tailored to your specific needs. It lets you integrate your models into applications and websites. Here are key features of AutoML:

- Vertex AI—unifies AutoML and AI Platform into one user interface, API, and client library. It lets you use AutoML training and custom training, save and deploy models, and request predictions.
- AutoML Tables—allows an entire team to automatically build and deploy machine learning (ML) models on structured data at scale.
- Video Intelligence—this feature provides various options to integrate ML video intelligence models into websites and applications.
- AutoML Natural Language—this feature uses ML to analyze the meaning and structure of documents, allowing you to train a custom ML model to extract information, classify documents, and understand authors' sentiments.

Azure machine learning



Thank you