gitops **cicd** **continuous-delivery** **git**

Overview - Realizing MLOps

IBM Cloud Pak for Data provides a full stack of tools to assist you in realizing your MLOps strategy. The services work together to provide all of the capabilities you need to work with data, create AI assets, deploy the assets for productive use, and monitor and manage deployed assets.

Note: You do not have to use the full list of Cloud Pak for Data services listed here. You can choose the services you need to realize your MLOps solution.

Key Cloud Pak for Data services for implementing MLOps include:

- **Data Stage** and **Data Refinery** for integrating and preparing data to train machine learning models.
- **Watson Studio** for organizing and creating assets, including data, models, and notebooks. "+ experiment tracking in Factsheets after each run."
- **Watson Machine Learning** for organizing the resources, including environments, for deploying and managing machine learning models, scripts, and functions. Watson Machine Learning includes also:
  - **AutoAI (no-code)** for automating training of machine learning models (for example, data scientists can use AutoAI to rapidly prototype a solution.)
  - **SPSS Modeler (low-code)** build an ML model by dragging and dropping operators and assets on a canvas and running a model as a flow.

Key Cloud Pak for Data services for implementing the AI Governance part of your MLOps strategy include:

- **Watson OpenScale** to evaluate and monitor deployments to ensure they perform to expectations for such dimensions as fairness, quality, and drift.
- **OpenPages** manage your workflows by meeting governance regulations, policies, regulations for your assets (models) and build trust in your solution.
- **AI Factsheets** captures model metadata, in all stages, from request to production.

The MLOps suite of services all provide rich user interfaces in Cloud Pak for Data for building and managing assets. For example, monitor all of your deployed assets from a Deployments dashboard in Watson Machine Learning, or assemble and run your MLOps flow from a Watson Pipelines canvas.

Alternatively, you can use programming interfaces to code MLOps assets and processes. Watson Machine Learning provides these programming interfaces:

- Use the Python client library to work with all of your Watson Machine Learning assets in a notebook.
- Use the REST API to call methods from the base URLs for the Watson Machine Learning API endpoints.

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