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Introduzione a MLOps





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Since today, the deployment process is performed by IT departments and in other cases, the model is executed manually by data science teams.



What triggers AI Engineering

AI team needs tools and processes to be more efficient in operationalizing AI assets and managing AI factories



How can I efficiently manage an increasing number of use cases and AI models versions distributed in different environments and sharing computational and data resources?



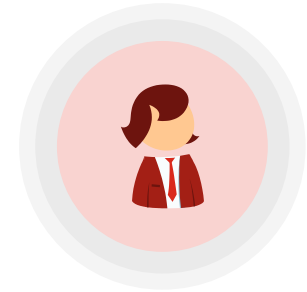
How can I build the DevOps processes for AI software solutions managing the practical concerns of production AI systems?



Why have technical results of AI models been decreasing in the last period?



How can I catalog, share and reuse developed data and AI artifacts?
How can I combine those components and be fast in deploying?



IT / AI TECH USERS

What triggers AI Engineering



Why has the AI model generated these predictions?
How can I ensure that ethical standards are upheld as AI is deployed?



Why have business results connected to AI recommendations been decreasing in the last period?



How can I tell the model to learn a new pattern or to fix wrong predictions?
I need to have control and make AI learn from my feedbacks



There's a change to do on the model and it should be released fast and without impacting our service to the customers



BUSINESS USERS

Machine Learning Operations



MLOps is a set of **practices**, **organization roles** and **technologies** to support departments working with Artificial Intelligence in **building and running the factory of AI models**, easing integration with company processes and AI actionability.



Bip MLOps Market Research

Bip supports clients in the adoption of MLOps technologies by offering advisor and implementation services

Depending on companies' needs, AI maturity and IT context, the most suitable MLOps technologies can be identified among these three different groups:



Cloud-Native Platforms

Suite of public cloud computing services to create and manage end-to-end ML pipelines leveraging cloud native vertical tools.



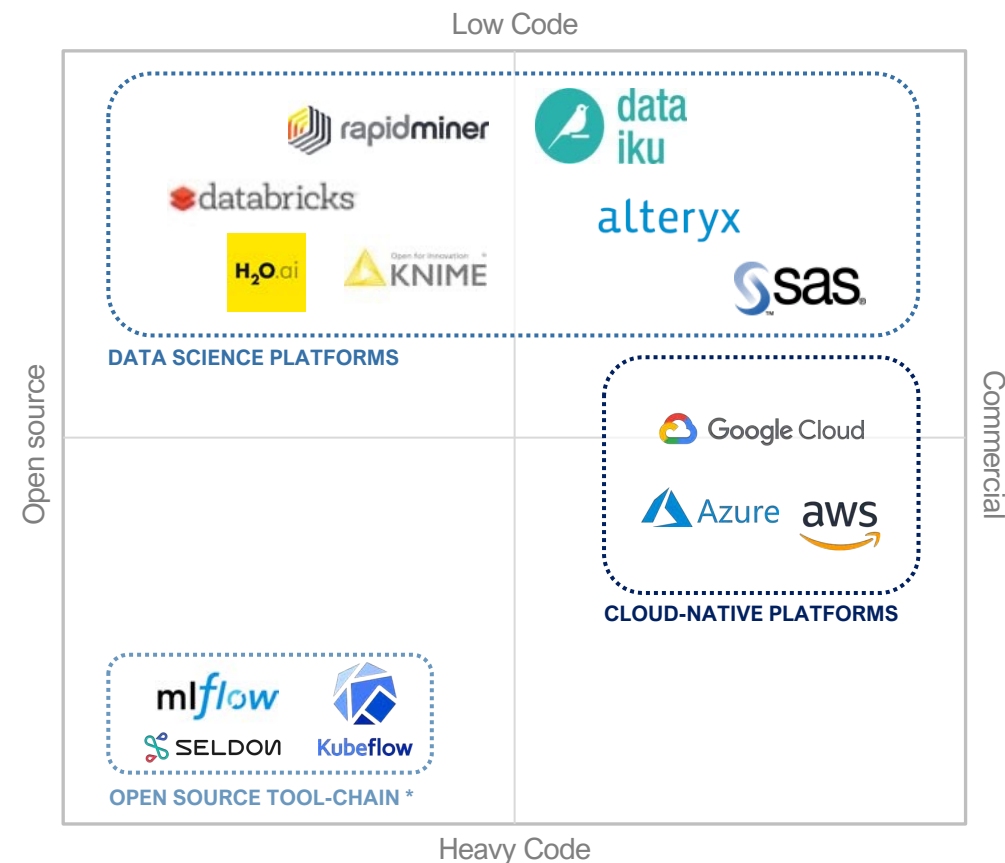
Data Science Platforms

Third-party services dedicated to Data Science and Machine Learning development featured with tools for MLOps.



Open Source Tool-Chains

Integration of several open-source tools to create and manage end-to-end ML pipelines.



* Bip analysis on Open-Source best-of-breed technologies are presented in the next slide.

DATA MANAGEMENT

DATA PIPELINES



DATA & MODEL TRACKING

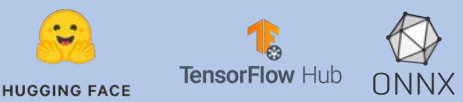


FEATURE STORE



MODEL DEVELOPMENT

PRE-TRAINED MODELS



IDE



EXPERIMENTS TRACKING



AUTO ML



BUILD & RELEASE

INFRASTRUCTURE AS A CODE



CODE TRACKING



DEPLOYMENT PIPELINES

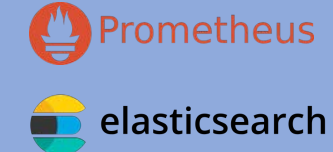


MODEL OPERATION

EXPLAINABILITY



MODEL MONITORING



MODEL SERVING



API MANAGEMENT



GOVERNANCE

DATA LINEAGE



DATA QUALITY



MODEL CATALOG



IT MONITORING



INFRASTRUCTURE

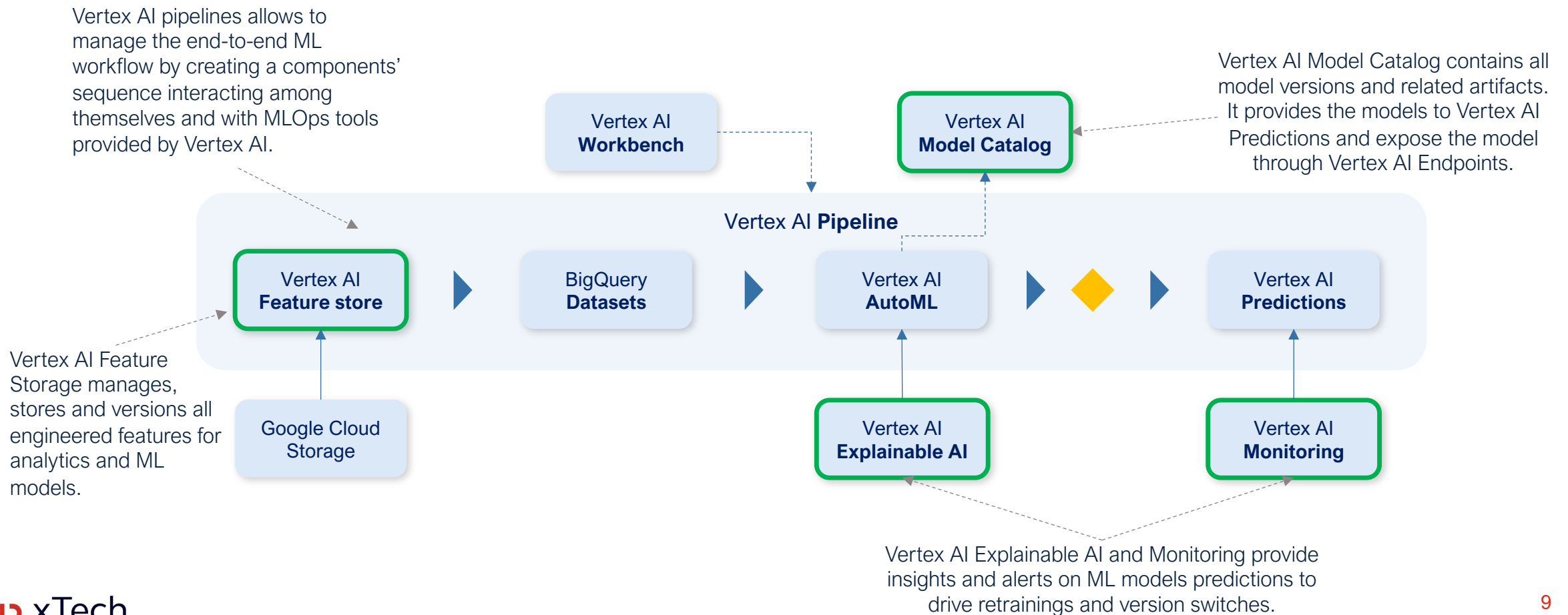


CONTAINER ORCHESTRATION



Introduction to MLOps demo on Vertex AI

We aim to demonstrate how to create a ML pipeline that is integrated with MLOps tools provided by Vertex AI to create an end-to-end state-of-the-art MLOps pipeline





Thank you.

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