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Where software concepts come alive™

Business Domain
Education and eLearning

Project Type
Enterprise Resource Planning

Accelerating Delivery: MLOps Transformation for Global Logistics

Client

A multinational logistics company operating a vast network of warehouses and transportation hubs worldwide.

Project

MLOps transformation including the main components: MLOps infrastructure, CI/CD pipelines, automated testing framework, monitoring and governance tools.

Objective

The Client's objectives included reducing time-to-market for model updates by 30% within 6 months, minimizing the risk of system failure through automated testing and deployment, ensuring scalability for a 50% workload increase without performance issues, and enforcing compliance with regulations such as GDPR and internal governance policies.

Team Reinforcement

The Client required an experienced vendor with MLOps expertise to:
- Implement a robust CI/CD pipeline to automate the deployment of ML model updates.
- Develop an automated testing framework to detect regressions and ensure model performance.
- Set up monitoring and governance tools to track model performance, detect anomalies, enforce compliance.

Challenge

The Client delegated Intetics providing MLOps services, enabling seamless management and optimization of machine learning models.

The Client encountered delays in rolling out model updates due to manual deployment processes. Additionally, lack of automated testing resulted in regression issues and system breakages.

The Client faced limited scalability of existing infrastructure to handle increasing workload demands.

Also, compliance gaps with regulations and internal governance policies due to manual oversight and lack of monitoring tools.

Quick Facts

✓ Duration: 6 months

✓ Budget: $300,000

✓ Stakeholders: Data scientists, IT operations team, compliance officers, executive leadership

✓ Expected ROI: 30% reduction in time-to-market, 20% decrease in system downtime, enhanced compliance adherence

Technologies

Cloud Platform: AWS / GCP / Azure
CI/CD Tools: Jenkins / GitLab CI/CD
Automated Testing: Selenium / pytest / MLFlow
Monitoring Tools: Prometheus / Grafana
Governance Tools: SonarQube / AWS Config

Solution

⭐ **01**

CI/CD Pipeline Implementation:

Jenkins/GitLab CI/CD pipelines were set up to automate the deployment of ML model updates, ensuring faster time-to-market and reduced manual intervention.

⭐ **02**

Automated Testing Framework:

Developed automated tests using Selenium and pytest for code and MLFlow for model evaluation to detect regressions and minimize the risk of system breakage.

⭐ **03**

Scalability Optimization:

Utilized cloud-native technologies on AWS/GCP/Azure to ensure scalability and elasticity, allowing the infrastructure to dynamically adjust to varying workload demands.

⭐ **04**

Monitoring and Governance:

Implemented Prometheus and Grafana for real-time monitoring of model performance and data drift, and AWS Config for governance, ensuring compliance with regulations and internal policies.

⭐ **05**

Continuous Improvement:

Established feedback loops to capture insights from monitoring data and user feedback, enabling continuous improvement of the MLOps processes and infrastructure.

Client Reference

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Intetics delivered outstanding results for our MLOps transformation project. They handled it proficiently, staying within budget and meeting tight deadlines. Their efforts significantly boosted our digital capabilities, driving efficiency and adding substantial value to our business operations.

Head of Digital, Data & Innovation

Benefits and Results

★ Achieved a 30% reduction in the time required to update models, resulting in faster deployment of improvements and updates.

★ Reduced the likelihood of system failures by implementing automated testing and deployment processes, ensuring smoother operations and fewer disruptions.

★ Successfully handled a 50% increase in workload without experiencing performance degradation, enabling the system to adapt to growing demands.

★ Maintained regulatory compliance with GDPR and internal policies, reducing legal risks and preserving trust with customers and stakeholders.

Techstack:

Cloud Platform: AWS
CI/CD Tools: Jenkins, GitLab CI/CD
Automated Testing: Selenium, pytest, MLFlow
Monitoring Tools: Prometheus, Grafana
Governance Tools: SonarQube, AWS Config

Team: 5

Project Manager, MLOps
Architect, 3 MLOps Engineers