



Intelligence in Action: Achieving Trustworthy AI-Driven Networks

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Abstract: This project proposes a MLOps platform for trustworthy, autonomous AI-driven 5G network operations, addressing model lifecycle management, explainability, and fine-grained data privacy.

Project Overview

Raw 5G events are **ingested and processed** into features, then **stored**. These are used for **training and monitoring** model instances, and for running **inferences on processed data**, which are converted into **recommended decisions**.

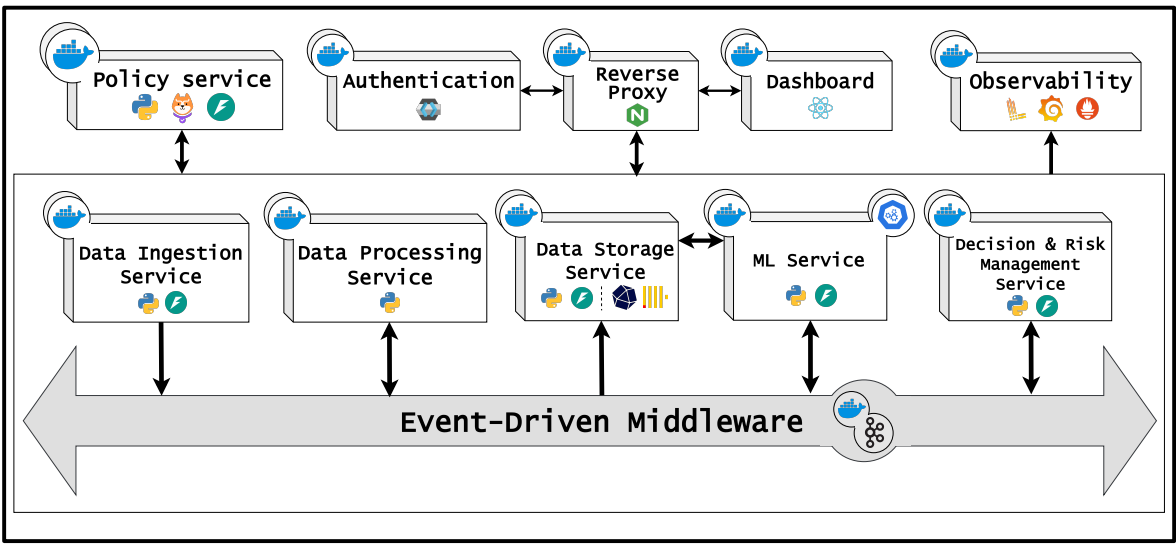


Fig 1 - High-level Architectural View

Featuring **role-based dashboards** for monitoring and interacting with the system. Thus, **enhancing privacy** from intake of data to onboarding of models.

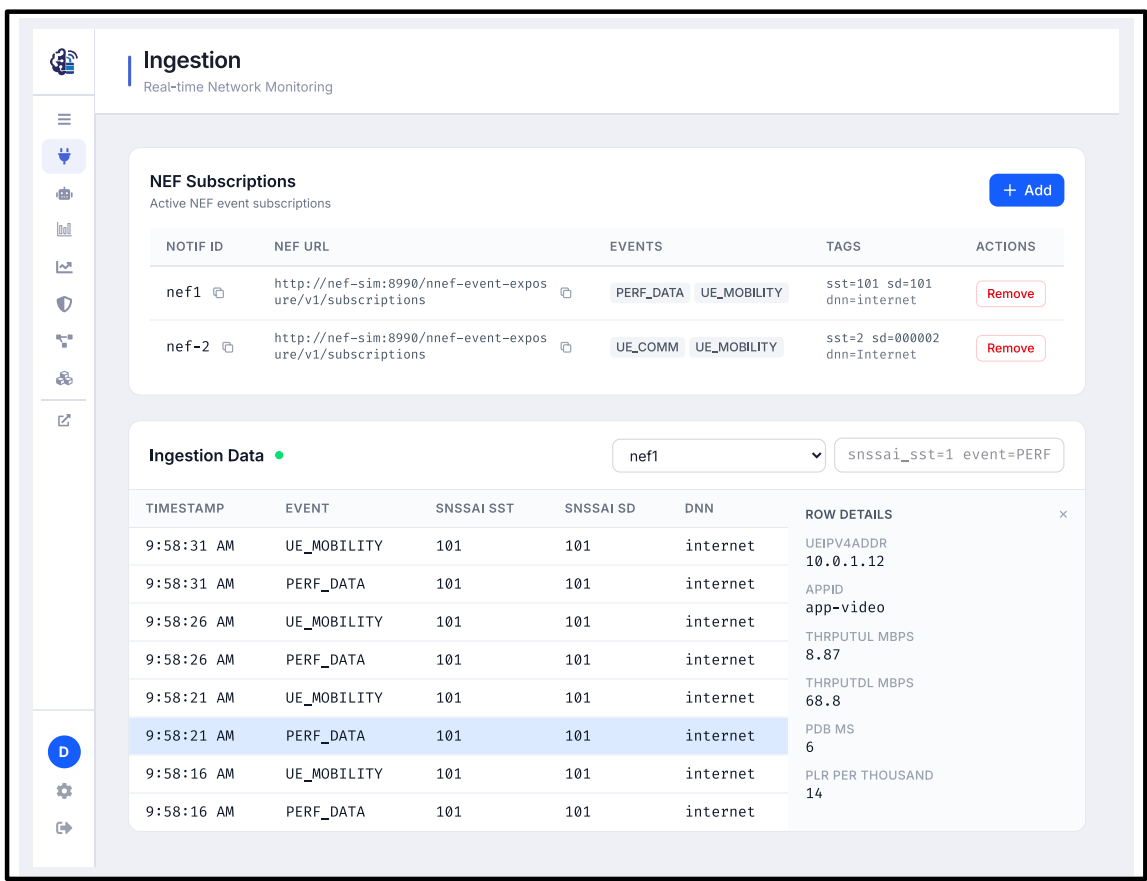


Fig 2 - Data Ingestion Dashboard

Results

Result 1: Flexible ML pipeline, supporting both **forecast and classification**. New architectures **can be uploaded at runtime** without modifying core services.

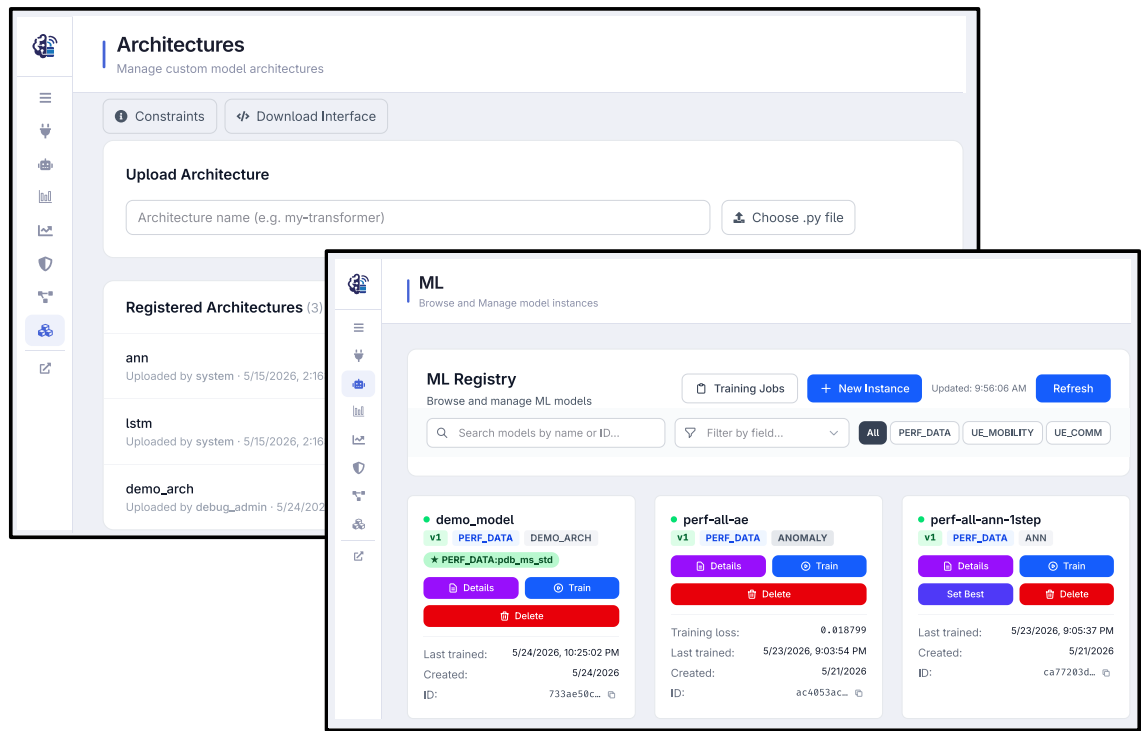


Fig 3 (left) - Model Architecture Tab; Fig 4 (right) - ML Training and Management Dashboard

Result 2: Our **Policy Service** acts as a data governance layer that intercepts inter-service data exchange, enforcing **fine-grained access control**. **Sensitive fields** can be transformed on demand.

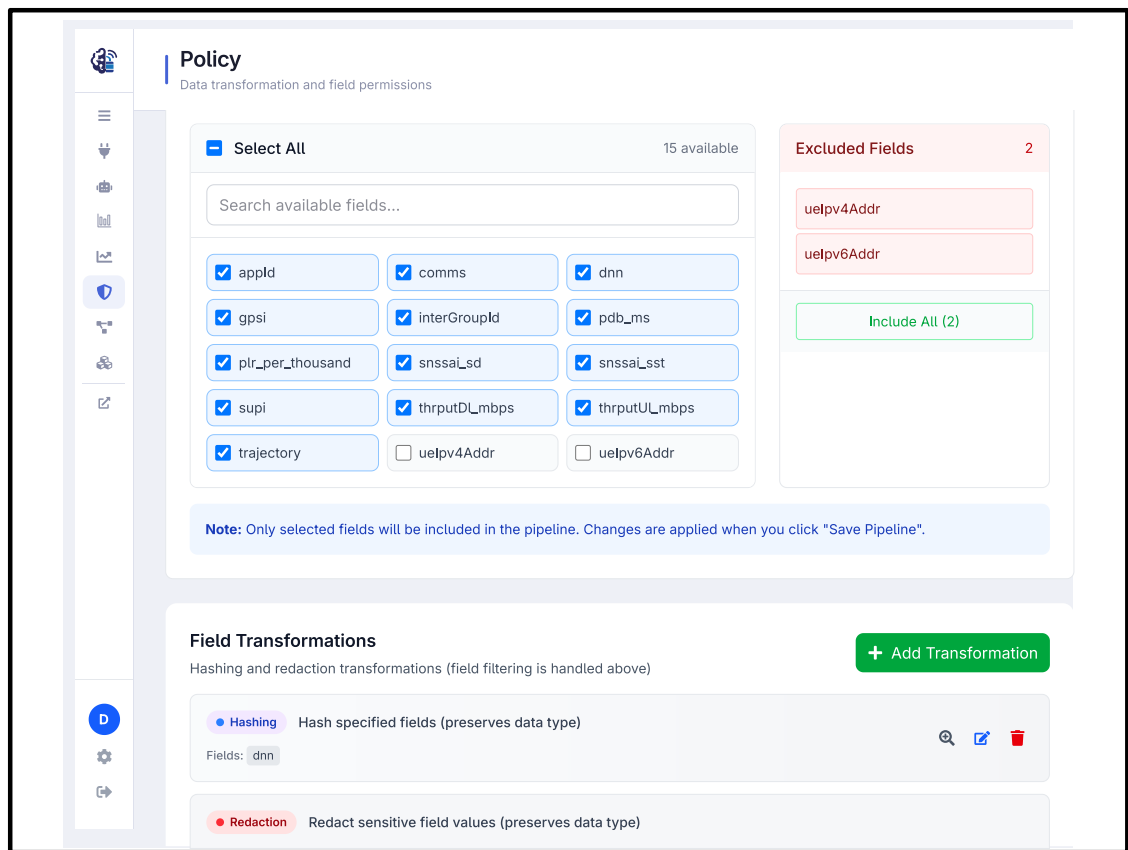


Fig 5 - Policy Service Dashboard

Conclusion: Through its event-driven, modular approach, this project delivers **intelligent insights and automated operations** across every layer of the 5G data pipeline. Its design simplifies independent scaling and integration of analytics, decision models and more. **Future work** includes extending towards an agentic approach.