

Business Domain

Automotive and Manufacturing

Project Type

Predictive Maintenance /
Coffee Equipment

Swiss Coffee Equipment Manufacturer Reduces the Operational Costs by 17% with AI-Based Predictive Maintenance

Client

The Client is a Swiss coffee grinder manufacturer. They introduced an Innovation Department to implement predictive maintenance for coffee equipment. The equipment serves cafes globally, ranging from small to large establishments.

Project

Downtime and proactive repair forecasting enabled with AI-based Predictive Maintenance.

Objective

To develop a solution to absorb service-relevant information, including historical data, and predict potential system failures, downtime, or equipment breakages. The complementary goal is to efficiently manage maintenance personnel and spare parts inventory, ensuring abstemious use of resources.

Team Reinforcement

The project involved developing the proof of concept (PoC) from scratch with an expert team comprising:

- Project Management Team (PM+BA)
- Lead Architect
- Embedded Developers (C/C++) for data collection from coffee machines
- AI Engineers for machine learning models
- AWS Dev & ML Ops

Challenge

Thousands of customers are using the Client's coffee machines and grinders, leading to significant spending on equipment maintenance. To reduce dependency on the spare parts supply chain, differentiate from competitors, and better serve their customers, the Client decided to introduce a smart maintenance tool.

Create a platform with smart notifications on potential system downtime and maintenance accessible from web & mobile devices.

The Client, lacking an in-house R&D department, opted to assemble a project team with the help of one of the many explored vendors. The challenge extended beyond building the predictive maintenance service to developing a system for data analysis and compilation of industry reports for different business entities.

Quick Facts

- ✓ Validated feasibility for key enterprise clients
- ✓ 86% of ML model accuracy
- ✓ Over 17% reduction in maintenance costs

Technologies

Frontend: React.js (web) / React Native (mobile)

Backend: C/C++ (embedded) / PHP (Core) + Python (AI/ML) / PostgreSQL

Dev Ops: Jenkins + Docker Composer

Cloud/ML Ops: Amazon Web Services

Solution

★ 01

A platform with smart notifications on potential system downtime and maintenance accessible from web & mobile devices.

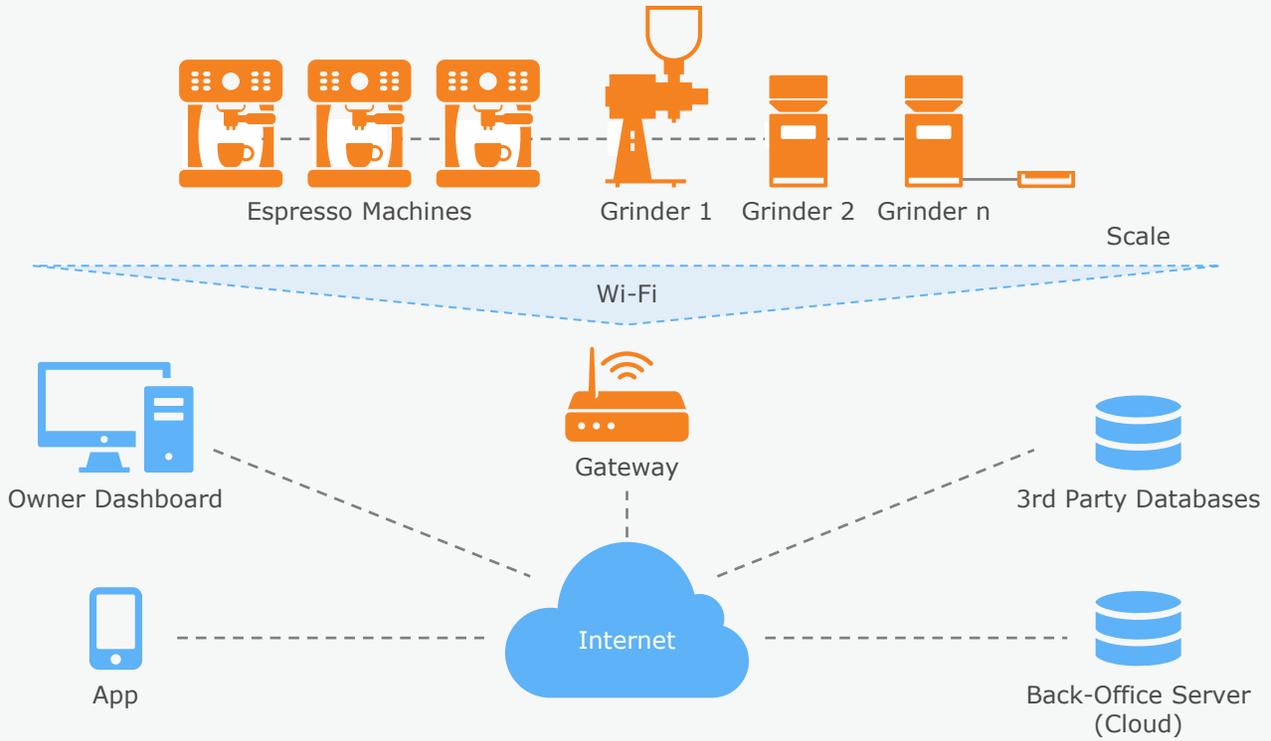
★ 02

The platform accurately predicts downtime or system failure with an 86% accuracy rate on the training dataset. The Client has opted to continue the work on the AI model due to trade secrets.

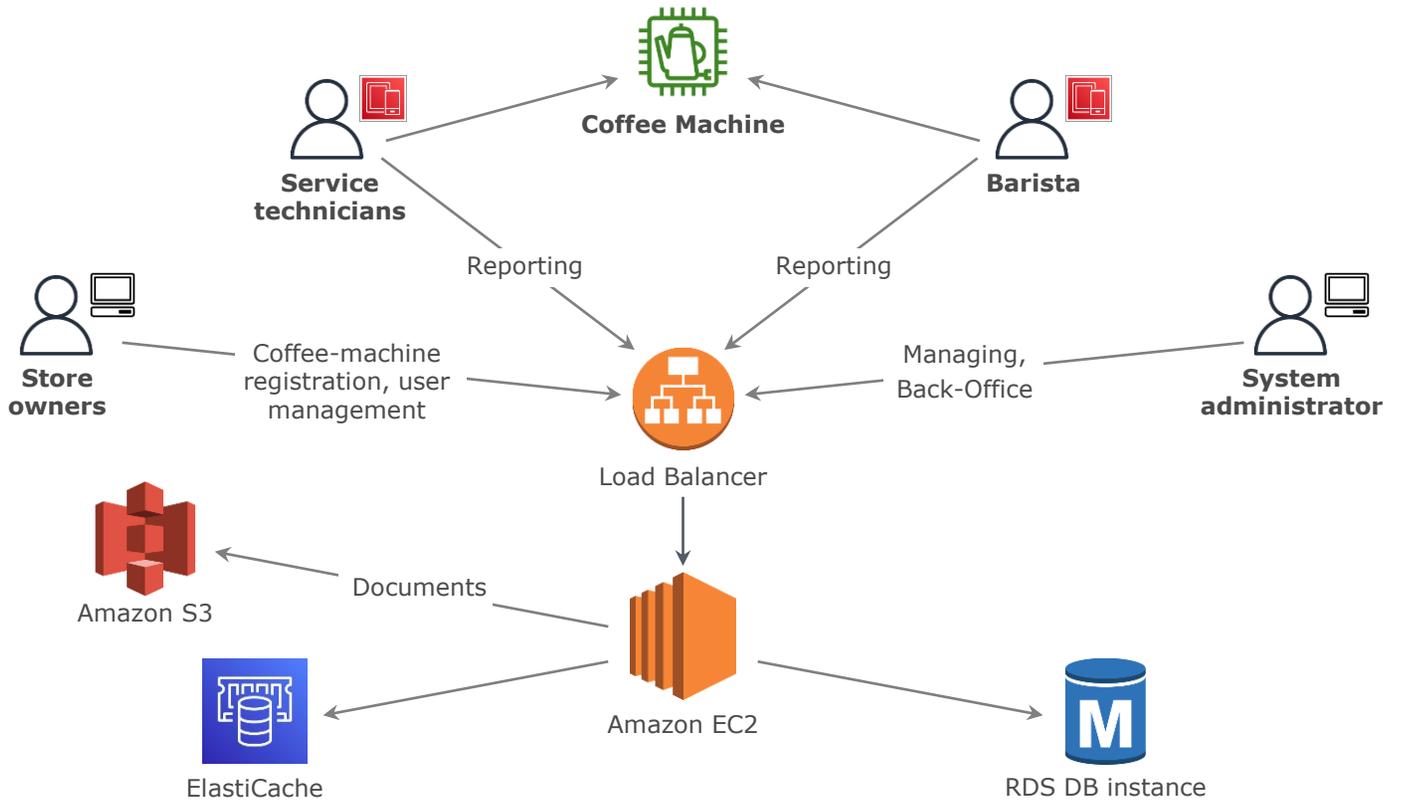
★ 03

Over two years of successful collaboration, the delivered product has transformed into a service that assists businesses in establishing customer trust.

General Schema



High-Level Architecture





Client Reference



With the help of Intetics, people are experiencing the best coffee flavor without interruption. Thank you for your professionalism and dedication to the project.

Client's team

Benefits and Results

- ★ During 2 years of successful cooperation, the delivered product became a service that helps businesses build customer trust.
- ★ The platform predicts downtime or system failure on the training dataset with 86% accuracy. The Client decided to continue the work on the AI model internally because of trade secrets.
- ★ The initial version of the platform was released in 6 months.
- ★ After the release of the initial version, the Client decided to continue developing the extensive dashboards and reporting functionality.

Techstack:

Frontend: React.js (web), React Native (mobile)
Backend: C/C++ (embedded), PHP (Core) + Python (AI/ML), PostgreSQL
Dev Ops: Jenkins + Docker Composer
Cloud/ML Ops: Amazon Web Services

Team: 12

Project Manager, System Analyst (BA), UI/UX designers, Lead Architect, 2 frontend developers, 2 backend developers, 1 mobile developer, 2 QAs, 1 Dev Ops/ML Ops