

PPR/AVR Monitor

Detection of overlaps between planned maintenance and outages in the backbone of a network operator.

Period: 12/2025 – present, in production

Role: initiative lead and sole developer, about 200 hours

Source code not public, description anonymised

BACKGROUND

Planned work by in-house teams and external operators was matched against ongoing outages by hand, which took 15–30 minutes per case. Operators sent their notices by email, each in its own format and wording. Overlaps were often noticed only when the on-call engineer was already working on the outage.

SOLUTION

- Three services. The detector collects events from monitoring, the BPMS (Kafka and REST), email and manual input, removes duplicates and looks for overlaps by city and time window.
- The mail agent reads a corporate mailbox over IMAP and passes only the notices of external operators to an LLM. A model is needed only at this step, because every operator uses a different format.
- Queries, time-window comparison and closing stale conflicts are deterministic code.
- Web interface for active and past conflicts, CSV and Excel import, manual closing.
- Metrics in Prometheus, logs in Loki, migrations with Flyway. CI runs unit tests and integration tests with Testcontainers.

RESULTS

Production measurement, 09/2026 (checked against reviewed notices, the maintenance log and labels from the on-call engineer)

- 93.8% of fields in operator notices recognised correctly, 14 of 16 notice formats processed without errors.
- 15 of 16 critical conflicts confirmed by the on-call team are kept after filtering.
- 48% fewer critical alerts, because some events are downgraded and repeats of the same event are merged.

Pilot phase

- 466 external and 515 internal events processed, 294 conflicts closed, 230 of them automatically.

Project estimate before rollout

- Conflict detection in under 5 minutes instead of 15–30 minutes of manual matching.
- MTTR for conflicts –30%, 247 engineering hours freed per year.

TECHNOLOGIES

Python · FastAPI · Kafka · IMAP · LLM · PostgreSQL · Flyway · Prometheus · Loki · Docker · GitLab CI · Testcontainers