ZABBIX

Transforming Highway Monitoring with Zabbix and Nova Rota Oeste

A case study

Nova Rota do Oeste

Client

INDUSTRY
TRANSPORTATION INFRASTRUCTURE

FOUNDED
2014

SIZE
24/7 OPERATION COVERING 850.9 KM OF HIGHWAY

LOCATION
CUIABÁ (MT), BRAZIL

With the need to ensure road safety, Nova Rota do Oeste restructured its infrastructure monitoring strategy by replacing a legacy tool with Zabbix.

As a result, the company achieved greater visibility and operational control, along with 85% cost savings in Zabbix services compared to the previous tool.

Challenge

Nova Rota do Oeste, the infrastructure management firm responsible for the BR-163/364 highway and Rodovia dos Imigrantes (BR-070), operates an enormous technological infrastructure, including:

- 10 data centers
- 833 surveillance cameras
- Radio repeater towers for vehicle communication
- Electronic toll systems
- An extensive optical fiber infrastructure
- Intelligent signalling equipment

In total, the company manages nine toll plazas and maintains 24/7 operations focused on traffic safety and flow. It is also responsible for the largest highway construction project in Brazil.

Nova Rota do Oeste previously relied on a licensed commercial legacy monitoring tool to support its infrastructure, but it did not meet the need for constant scalability to include new assets. The company needed a solution that could:

- Monitor critical devices and services distributed along 850 km of highway
- Provide operational visibility into communications status, connectivity, and systems
- Reduce incident identification and response time
- Create automated alerts for proactive action
- Integrate infrastructure monitoring, road safety, and business systems

After market research and internal technical analysis, the company concluded that Zabbix was the most suitable tool for its challenges.

Solution

The monitoring transformation approach was structured in complementary phases, led by Zabbix Premium Delivery Partner JLCP in partnership with the Nova Rota do Oeste IT team. The first stage focused on gathering requirements and building the foundation.

After analyzing the existing environment and cleaning up legacy data, the necessary architecture was defined, culminating in the implementation and validation of the Zabbix infrastructure.

The second phase focused on the incremental onboarding of devices based on criticality, leading to a distributed, layered architecture that integrates multiple areas into Zabbix, including IT infrastructure and operating systems.

Each layer has specific objectives, connected within a unified ecosystem of data and alerts. Data collected from monitored items is processed by the central Zabbix Server, which applies triggers and conditions to identify anomalies. When a metric exceeds a configured threshold, Zabbix generates automatic alerts displayed in real time to the infrastructure team via dashboards that remain constantly open in the Operations Center.

Results

The implementation of Zabbix delivered significant operational improvements:

- **An 80–85% reduction in detection time – from an average of 1 hour to less than 15 minutes**
- **85% cost savings compared to maintaining the legacy tool**
- **Full coverage of critical infrastructure with 1,702 hosts currently monitored**
- **Internal notification before users or operators report issues**
- **Direct dispatch of field teams or ticket opening with telecom providers**
- **Early communication of potential impacts**
- **Activation of contingency plans when necessary**

In addition to support for development and integration of all supported Zabbix items, Nova Rota do Oeste also obtained a Zabbix Technical Support Subscription, expanding the tool's scope and ensuring better usage and technical support.

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