



ZABBIX

Monitoring the London Underground with Zabbix

A case study

Client

INDUSTRY

TRANSPORTATION

DAILY USAGE

**OVER 4,000,000 JOURNEYS
PER DAY**

FOUNDED

1863

Arguably the most famous public transportation system in the entire world, the London Underground is Europe's third-busiest metro system.

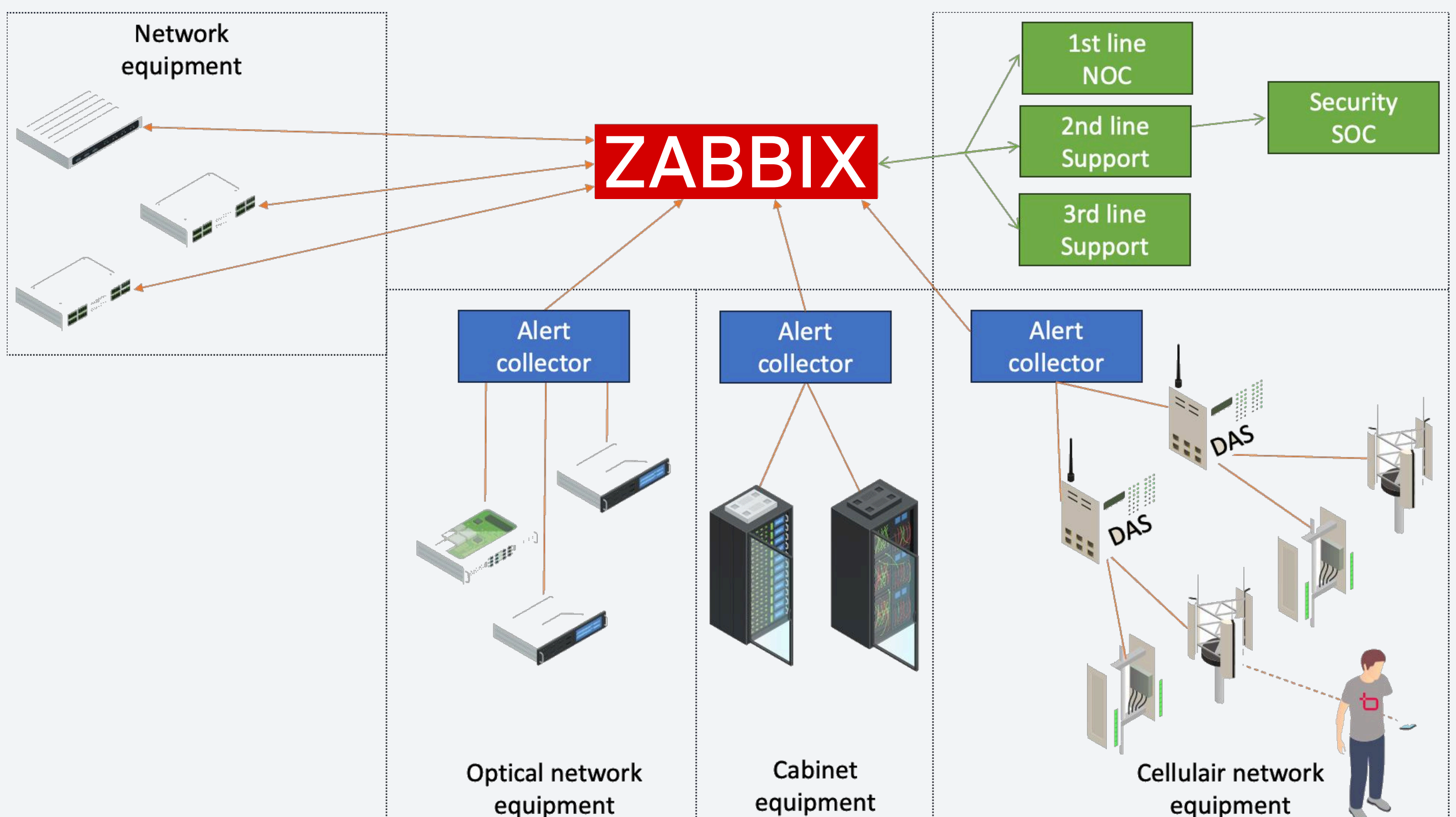
Challenge

Building a connected London as part of the Transport for London (TFL) program involved bringing mobile coverage to 136 stations and platforms as well as 400 km of tunnels. 10 edge data centers were required, along with base station hotels in 10 city locations. Over 400 km of dense underground cables carry the signal to more than 120,000 small cell locations, including stations, lampposts, and bus shelters.

To keep everything working correctly and make sure that any problems are resolved quickly, every part of the entire setup had to be monitored. Because even partial outages could cause a major impact for travelers, high availability was crucial. It was this requirement that led to the decision to adopt Zabbix.

Solution

One of the key design choices involved connecting the Zabbix servers directly to the databases, because it's not just about building high-availability, but also about simplifying the architecture and keeping things manageable. This provided a solid working architecture for Zabbix without overcomplicating things.



For all pieces of equipment, there's an alert collector in between the equipment and Zabbix that will collect any data and alerts coming in on the actual equipment and then send it over to Zabbix. For example, with the cellular equipment the alerts created by the equipment are sent over to the alert collector and then sent to Zabbix using SNMP traps.

From there, alerts are created from the traps coming in. After creating alerts, it's vital to make sure they are read and acted on. For this, there is an NOC with several support tiers (to make sure any problems are picked up by the correct personnel) and an SOC to guarantee secure operations.

Zabbix dashboarding is used extensively to make sure the operations teams can keep a good overview of possible issues within the systems and fix them before anyone is impacted.

Results

Zabbix improved passenger experience on the London Underground by:

- **Reducing downtime thanks to faster fault detection and response**
- **Increasing reliability of connectivity across tunnels and stations**
- **Giving full visibility into a massive, distributed infrastructure**
- **Enabling proactive maintenance instead of reactive fixes**

In short, Zabbix helped turn a highly complex transport network into something that can be monitored, understood, and fixed in real time, which directly translates into smoother journeys for passengers.

Solutions for Your Industry

Zabbix helps customers across multiple verticals provide consistent, quality service

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