ZABBIX '25

CONFERENCE

GERMANY

Zabbix across industries. Monitoring case studies, overcoming industry related challenges with Zabbix

Ilya Fedotjev

Technical Account manager
Zabbix

Disk IO utilization
0%
7.14 %
70%
90%
100%
Availability
ZBX
SNMP
Monitored by
Templates
Linux by Za..., Nebula
Template w..., Zabbix serv...
class: os
class: software
environment: producti
role: frontend
target: linux
target: server
Temperature
Items
A1
A5
A4
A3
D1
A2
B1
B2
A1
A3
C1
C2
A1
Alpha
Beta
Gamma
Delta
14.00
21.00
25.00
2.00
25.00
19.00
25.00
24.00
89.00
20.00
24.00
23.00
20.00
20.00
23.00
20.00
20.00
20

Who we are?

Before joining Zabbix I spent ~14 years working closely with data services, networking, security and management teams.

TAM (Technical account management) team established May 2023 and consists of 2 specialists.
Zabbix TAM role can be describe as bridge between customer and internal Zabbix teams. Main goal – improve communication process, customers' satisfaction and setup regular meetings to promptly react on actual challenges Zabbix clients facing.

https://Zabbix.com/support

ZABBIX '25 CONFERENCE GERMANY

TAM typical customers' profile: Multicontinental brand with Enterprise or Global level support. Setup usually consists of multiply Zabbix environments, including HA, DB cluster, performance from 10-100K+ NVPS, uses agents, proxies, integration with CRM systems as well as custom integration with legacy solutions and inhouse build templates.

Big company usually means big and complex infrastructure related problems.

Main challenges: feature requests (requirement for new Zabbix functionality), escalating bug reports, request custom integration, template building for specific devices, etc.

On the next slides I will present few examples of how real enterprise customers infrastructure looks like, what challenges they face using Zabbix and how they been solved.

Zabbix case studies

ZABBIX '25 CONFERENCE GERMANY

European Space Agency

European government-owned public railway operator

NOMINET

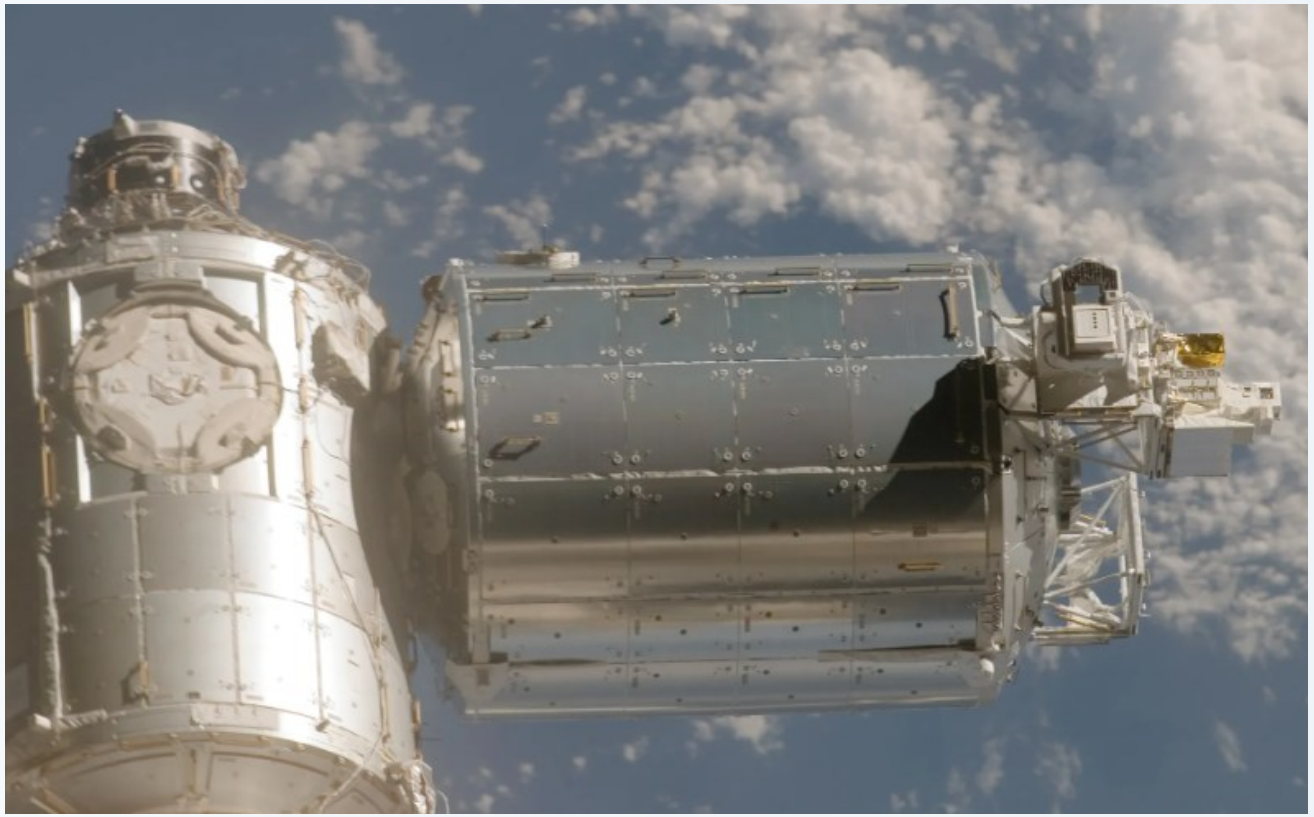
Nominet UK

- The European Space Agency (ESA) is a 22-member intergovernmental body devoted to space exploration.
- With its headquarters in Paris and a staff of around 2,200 people globally as of 2018, the ESA was founded in 1975. Its 2023 annual budget was €7.08 billion.
- Zabbix proxy installed on the Columbus module of International Space Station, that orbits Earth at an average altitude of 400 km.
- The ISS circles Earth every 90 minutes at a speed of about 28,000 km/h.
- In one day, the station travels about the distance it would take to go from Earth to the moon and back.

Why Zabbix?

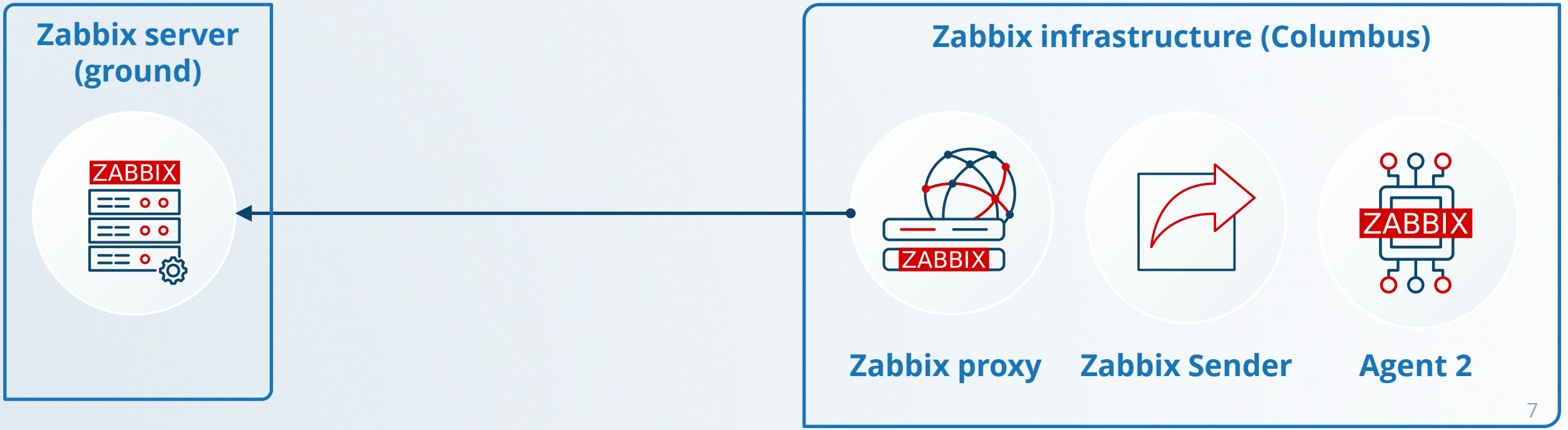
Columbus provides internal payload accommodation for multidisciplinary research into material science, fluid physics, and life sciences, while the External Payload Facility (EPF) hosts space science and Earth observation payloads.

Academics on Earth perform their tests on Columbus remotely – programming them and getting the results. The infrastructure required for these tests and the payloads that get sent back and forth require a flexible and dependable monitoring solution, and that's where Zabbix enters the picture



The Columbus laboratory module, from ESA (European Space Agency) attached to the International Space Station's Harmony module by an astronaut aboard space shuttle Atlantis

- Zabbix proxy deployed in the European module
- Zabbix server and frontend is deployed in the ground DC
- In case of the link being down, proxy keeps the collected metrics
- Once the link is restored, proxy sends the missing data back to the Zabbix server

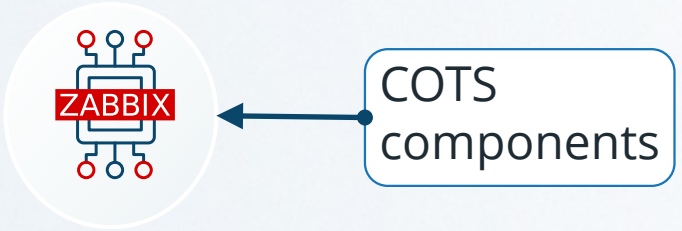


Flight and ground infrastructure made up almost entirely of VMs/LXC running services

Data is collected in a variety of ways:

- Zabbix agent 2
- Native checks mixed with user parameters for Commercial-off-the-shelf components
- Zabbix sender for custom components

Zabbix Sender

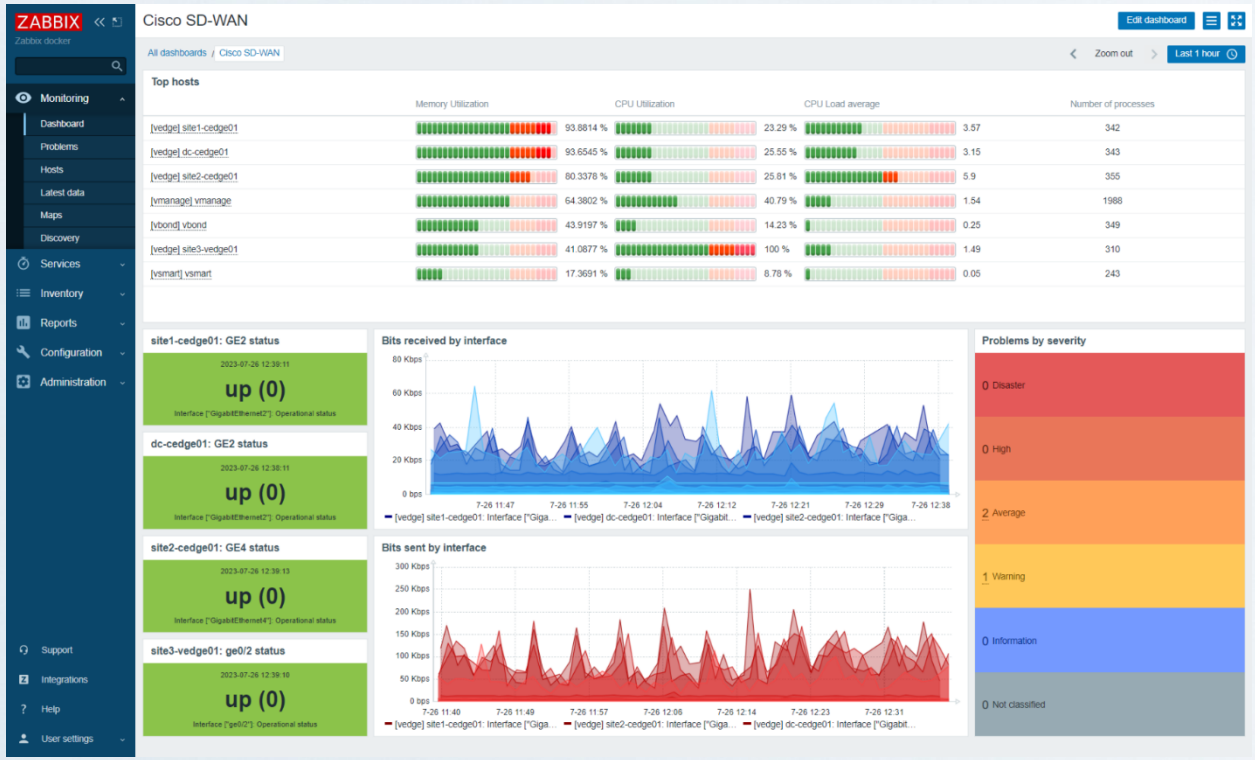


Agent 2 (active)
User parameter 1
User parameter 2
...

Many custom metrics per service to be monitored, such as:

- Number of high priority files in the transfer queue for a particular payload
- Currently configured bandwidth allocation for all payloads combined
- Time remaining until next Loss Of Signal (LOS)

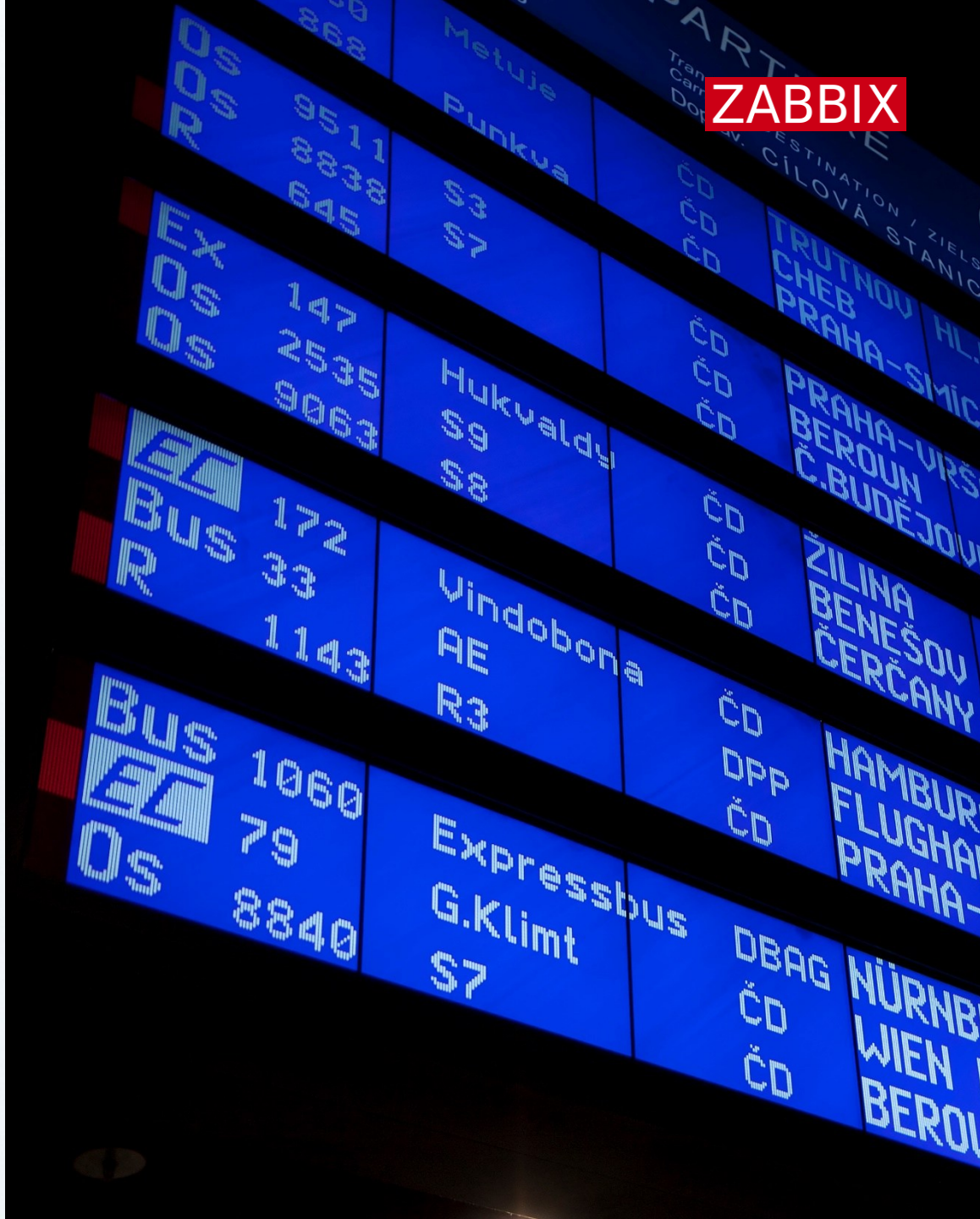
- Low-level discovery is used to automatically discover and monitor new payloads
- Data is visualized live on Zabbix dashboards
- NOC team reacts to Zabbix alerts in real-time



European government-owned public railway operator

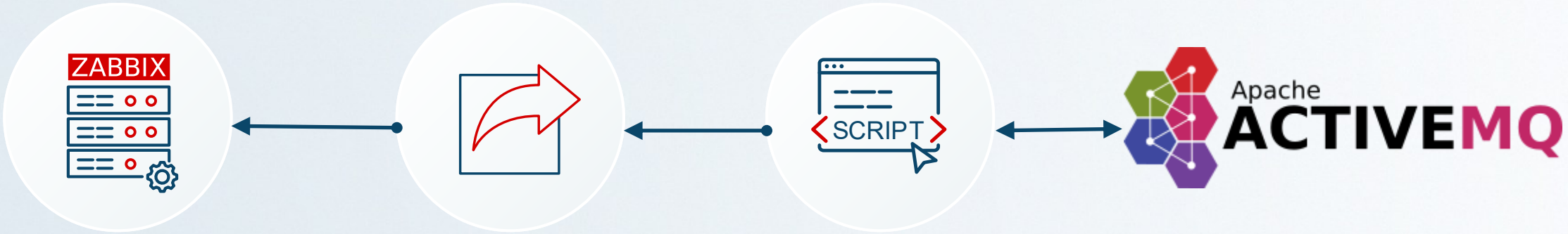
- Zabbix is deployed as the monitoring solution in one of Europe’s largest railway networks
- Zabbix is used across multiple internal company departments
- Multiple Zabbix proxies are deployed across different data centers
- Monitoring is performed for OS level metrics, service and application states, railway infrastructure availablility

- Zabbix agents are deployed on railway station screens and broadcasting systems
- The devices use Debian OS, therefore they can be monitored on the OS level by Zabbix agents
- This can be very easily automated together with low level discovery, autoregistration, or network discovery
- In addition, simple ping availability checks are also performed on the hardware



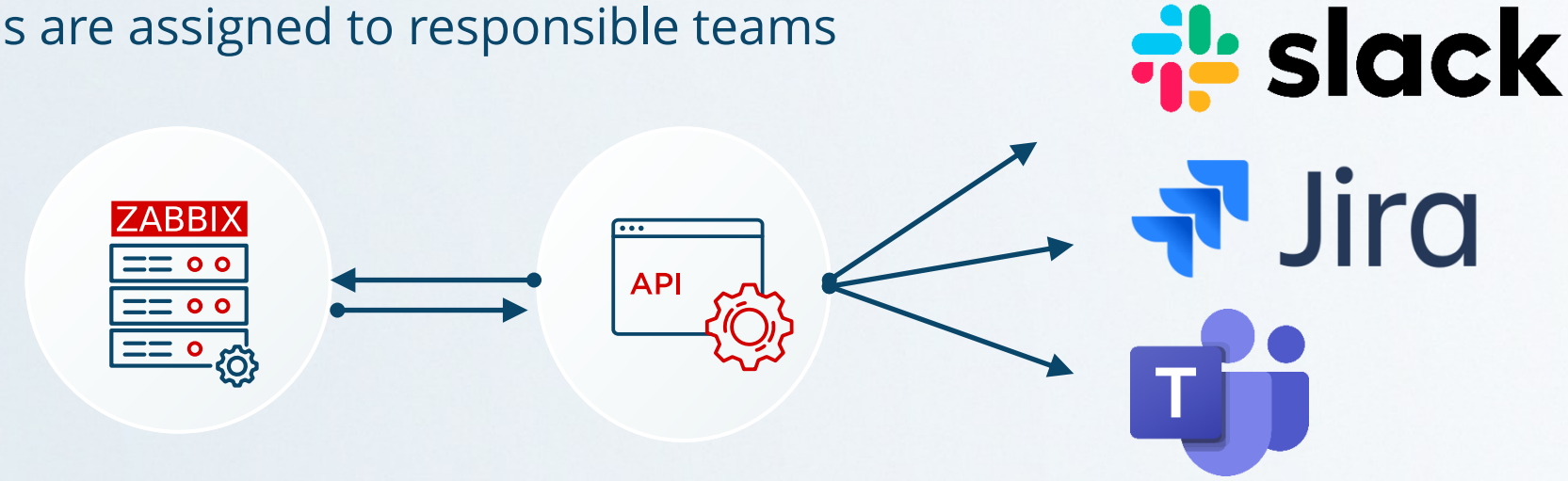
- Zabbix retrieves and monitors data related to the railway infrastructure and data centre, hardware, and software from ActiveMQ via Bash script

- Data is retrieved via custom bash scripts and sent via Zabbix sender to the Zabbix server and proxies



Zabbix server **Zabbix Sender** **Bash script**

- Zabbix is integrated with 3rd party ticketing system
- Zabbix API is used to retrieve the problems related to a specific set of triggers
- Alerts are forwarded to the ticketing system and the issues are assigned to responsible teams



Nominet UK

Nominet UK is delegated by IANA to be the manager of the .uk domain name. Nominet directly manages registrations directly under .uk, and some of the second level domains .co.uk, .org.uk, .sch.uk, .me.uk, .net.uk, .ltd.uk and .plc.uk. Nominet also manages the .wales and .cymru domains.

Top-level domains

Nominet manages the registry of the following top-level domains:

- `.uk` – top-level domain for the United Kingdom
- `.cymru` – top-level domain for Wales
- `.wales` – top-level domain for Wales

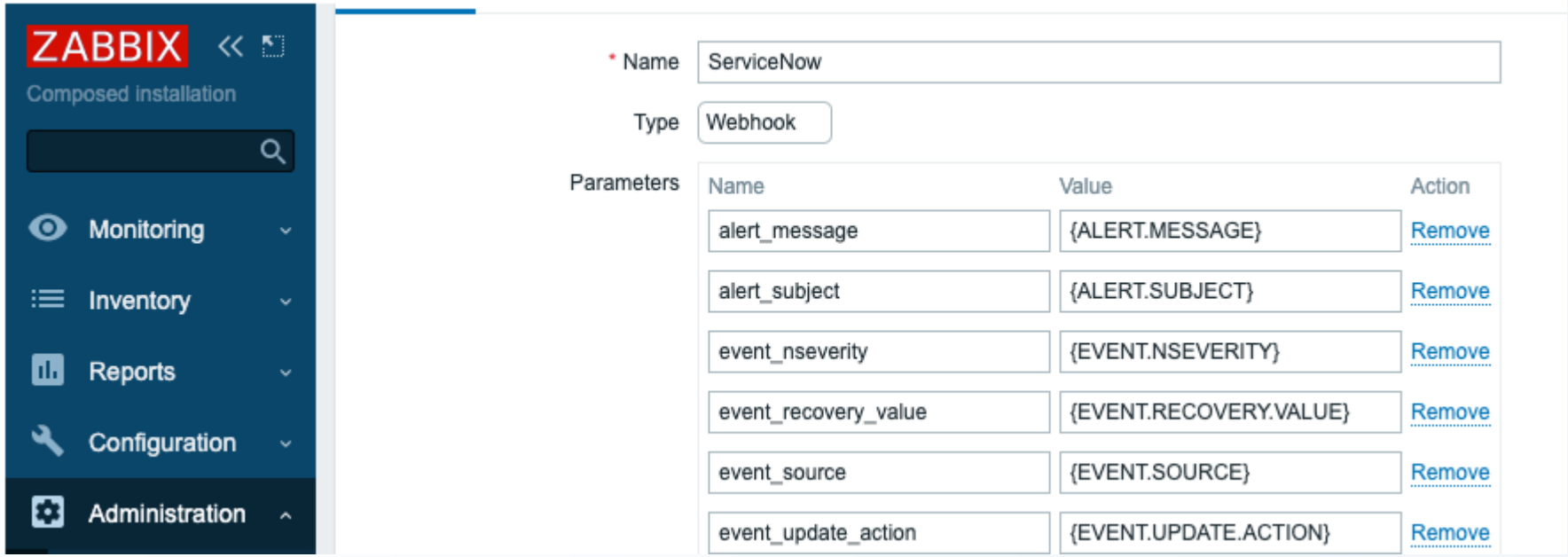
Migrating from ServiceNow to Opsgenie

The Challenge

Historically all Zabbix alerts were forwarded to ServiceNow via a single webhook. ServiceNow handled the assignments based on the tags assigned to Zabbix problem events. In addition to tags, the assignments in ServiceNow were also handled based on time of day (teams working from 9-5 and teams responding to issues outside of working hours) and internal ownership structure related to various tasks and infrastructure components. All of this logic had to be implemented and maintained in ServiceNow on a code level which quickly turned complex to manage, maintain and extend.

Due to the cost and complexity of ServiceNow It was decided to migrate from ServiceNow to Opsgenie. On top of that – Zabbix provides official integrations for both platforms, so the officially supported Opsgenie webhook could be easily utilized for the migration.

Zabbix Integrations and Templates



Solution

Opsgenie fully supports the existing workflows. Instead of using a single API endpoint as was the case with ServiceNow, multiple API endpoints were created in Opsgenie handling relevant alerts for the relevant teams. The assignments were still based on problem event tags. Problems were tagged with the relevant department tag in Zabbix and action conditions based on these tags then utilized the corresponding media type which forwarded the alert to one of Opsgenie API endpoints via the relevant Opsgenie webhook media type.

In the case of Nominet, Zabbix triggers are configured in a relatively sensitive fashion and generate a lot of alerts. For example, Nominet monitors tens of generic top-level domains (gTLDs) and every morning receives various reports related to gTLDs.

If the relevant report files have been created, submitted or valeted – Zabbix generates a problem. This could result in massive influx of problems potentially, tens at a tie.

There were minor configuration changes that had to be implemented on the Zabbix side to support the new alerting logic. The creation of new actions and media types to fit the new Opsgenie alert forwarding workflows increased the load on Zabbix Alerter and Escalartor processes.
Luckily, processes numbers can be raised accordingly for timely delivery of alerts.

TAM team services

- Monthly progress calls
- Zabbix professional services review (Performance tuning, Environment review, Upgrades, etc.)
- Activity planning
- Requests evaluation and progress tracking (new feature requests, templates building, custom integrations)
- Proactive support (lock Zabbix support team services to cover critical upcoming activities)
- Contact us at TAM@zabbix.com

ZABBIX '25

CONFERENCE

GERMANY

Ilya Fedotjev

Technical account manager

Zabbix