ZABBIX

Keeping Latvia Connected with Zabbix and LMT

A case study

Client

INDUSTRY
TELECOMMUNICATIONS

ESTABLISHED
1991

HEADQUARTERS
RIGA, LATVIA

HEADCOUNT
APPROXIMATELY 733 EMPLOYEES

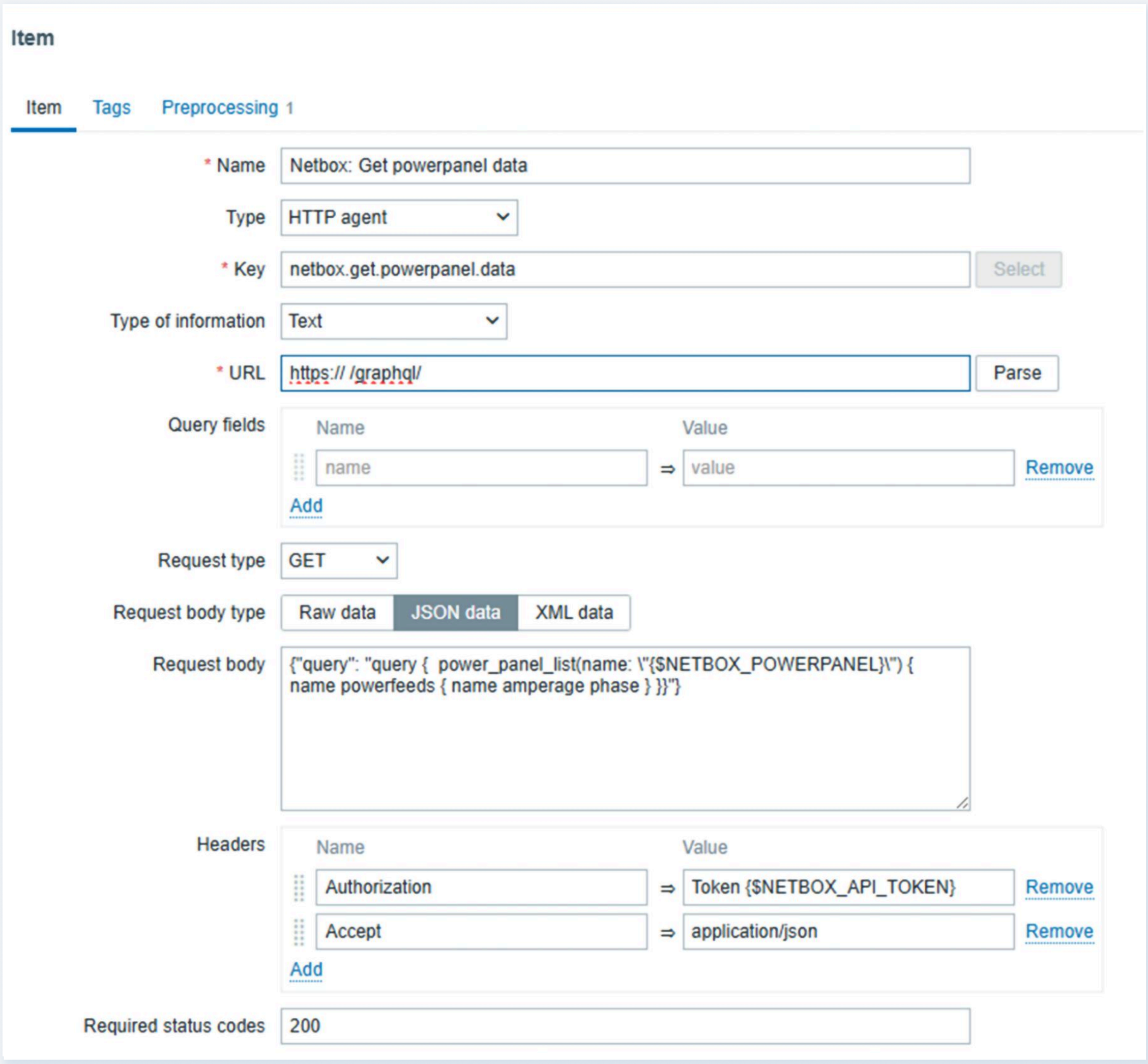
LMT is a mobile GSM/UMTS/LTE operator in Latvia and the largest telecommunication service provider in the country, with over 1,660 base stations and over 1.5 million users as of 2024.

Challenge

LMT has 2 data centers, and since the vast majority of services delivered by LMT can be considered critical, most of the relevant infrastructure is duplicated across them. Multiple Zabbix instances are used in the environment, including Zabbix 5.0 with MySQL database backend, Zabbix 7.0 with PostgreSQL, and TimescaleDB. Over 3,000 hosts with approximately 500,000 items are monitored by Zabbix.

Solution

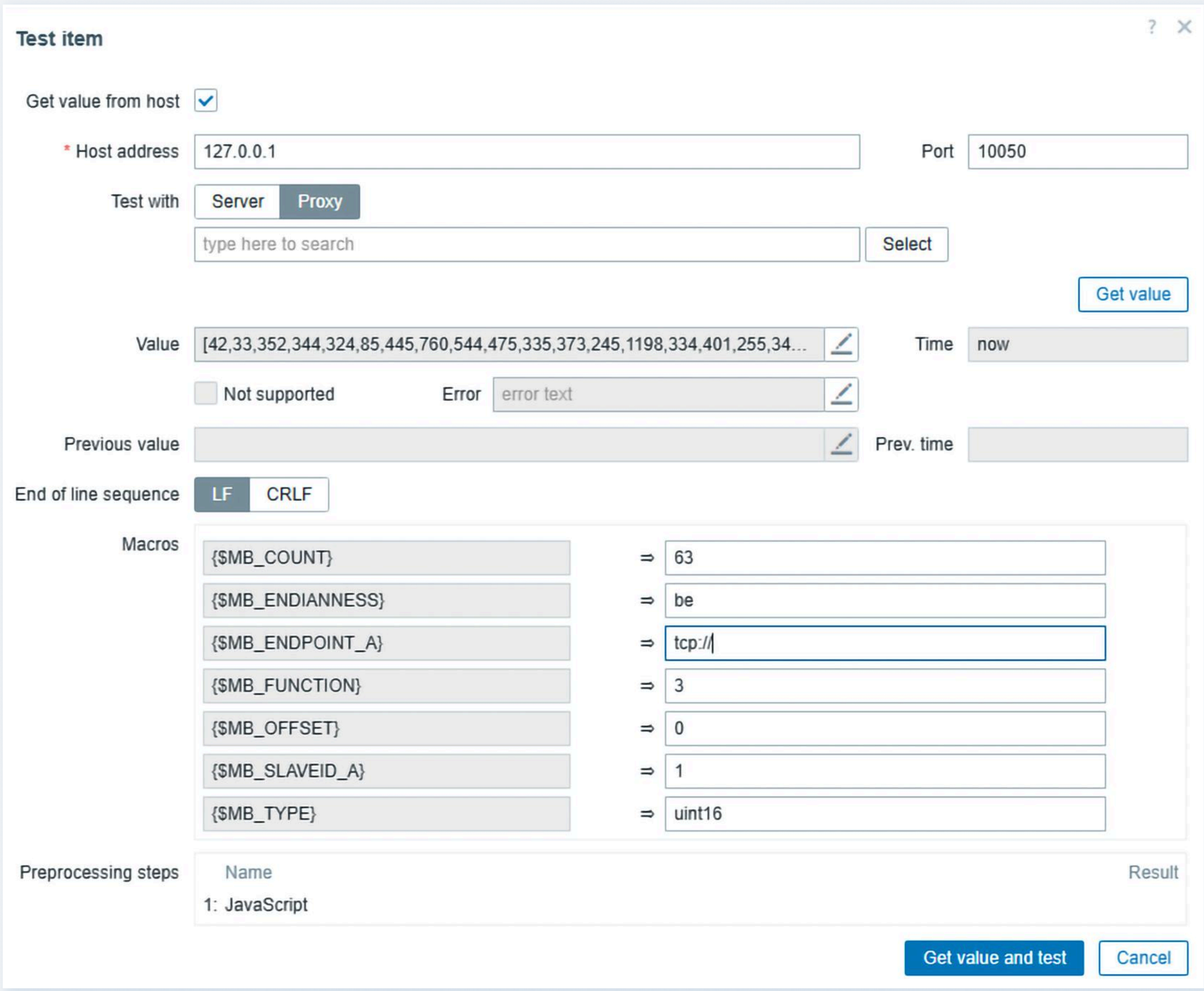
Here is one example of how Zabbix is used to monitor switch cabinets in LMT data centers. Switch cabinets contain devices to measure the electric current, which support Modbus protocol and which can in turn be used to collect data.



```
query {
  power_panel_list(filters: {name: {exact: "[redacted]"}}) {
    name
    powerfeeds {
      name
      amperage
      phase
    }
  }
}
```

```
{
  "data": {
    "power_panel_list": [
      {
        "name": "[redacted]",
        "powerfeeds": [
          {
            "name": "QF1A",
            "amperage": 16,
            "phase": "single-phase"
          },
```

Modbus monitoring was achieved by using Zabbix agent2 with the official Modbus plugin. This was combined with NetBox and GraphQL. NetBox was used as the source of truth, providing information about power feed and various electrical characteristics, such as voltage, amperage, utilization, phase, and more. The data was collected from NetBox via HTTP agent checks and GraphQL, and a JSON result was created by utilizing Zabbix preprocessing features.



The information collected from NetBox is combined with Modbus data collection utilizing Zabbix agent2. The data collected by Zabbix agent2 is preprocessed after the collection, and the collected data is normalized and used by Zabbix low-level discovery features to automatically create Zabbix items and triggers for the available resources. Finally, the resulting data is visualized on Zabbix dashboards.

Results

Monitoring with Zabbix has made reacting to changes in the monitored power feed (detecting spikes, observing gradual power feed changes, etc.) a much simpler proposition for LMT, which in turn improves service for its millions of users.

Conclusion

Zabbix has proven itself to be an ideal solution for telecommunications clients, making it easier than ever to keep track of network health and performance, driving a more positive customer experience and greater revenue growth in the process.

To learn more about what Zabbix can do for customers in

telecommunications

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