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Opensource ICT Solutions
Your worldwide Zabbix partner

ZABBIX

Monitoring the London Underground

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Who am I?

Adan Mohammed
Project Manager - DevOps

Who am I?

Nathan Liefting
Zabbix Consultant / Trainer

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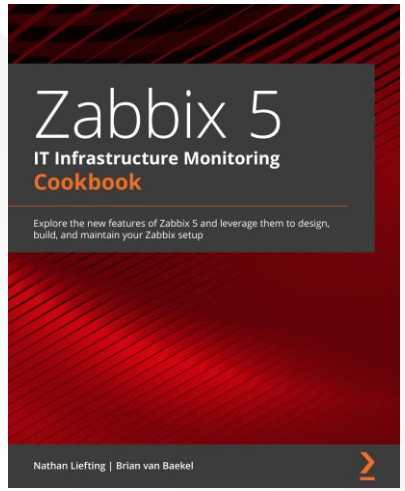
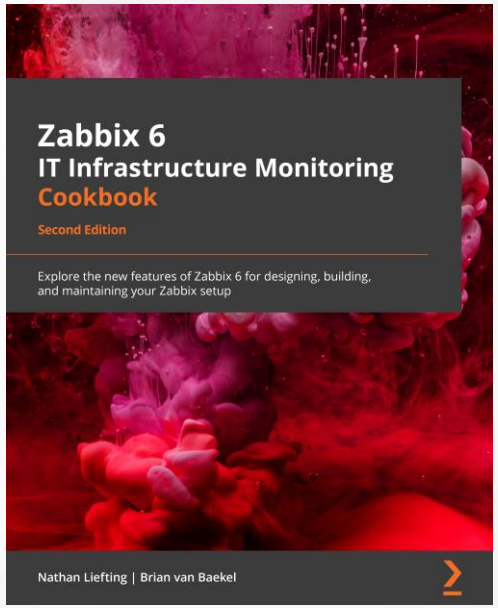
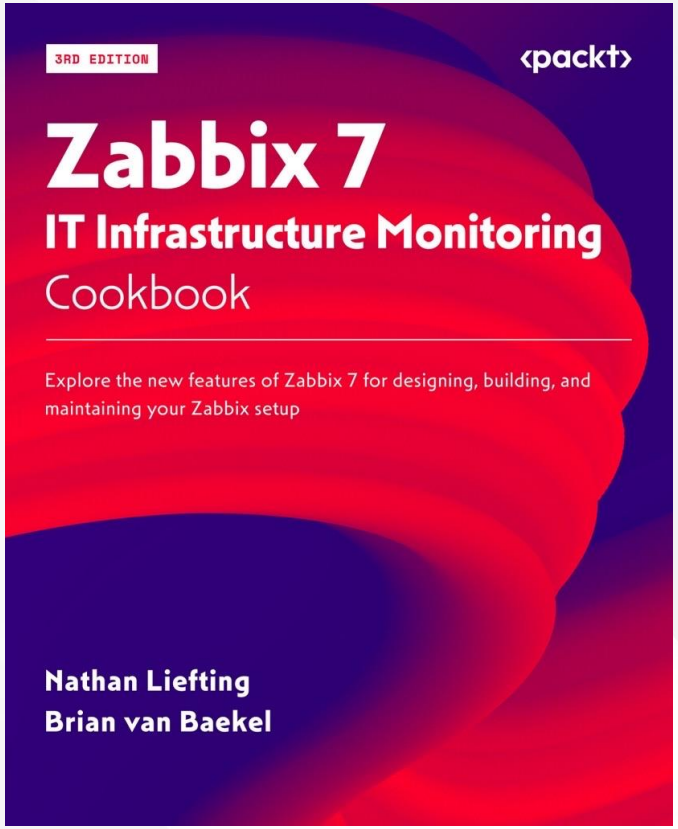
ZABBIX PREMIUM PARTNER

ZABBIX CERTIFIED TRAINER

- Zabbix support
- Zabbix training
- Zabbix consultancy
- And more…







https://www.linkedin.com/company/opensource-ict-solutions/

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UNLOCKING THE POWER OF AN INTERCONNECTED FUTURE

Boldyn Networks is one of the largest neutral host providers in the world. Our shared network infrastructures and cutting-edge connectivity solutions are the building blocks for an interconnected future – for everyone.

6 MAJOR TRANSIT NETWORKS

connecting **550m+** passengers annually

300+ NEUTRAL HOST venues

550+ U.S. sports games connected every year

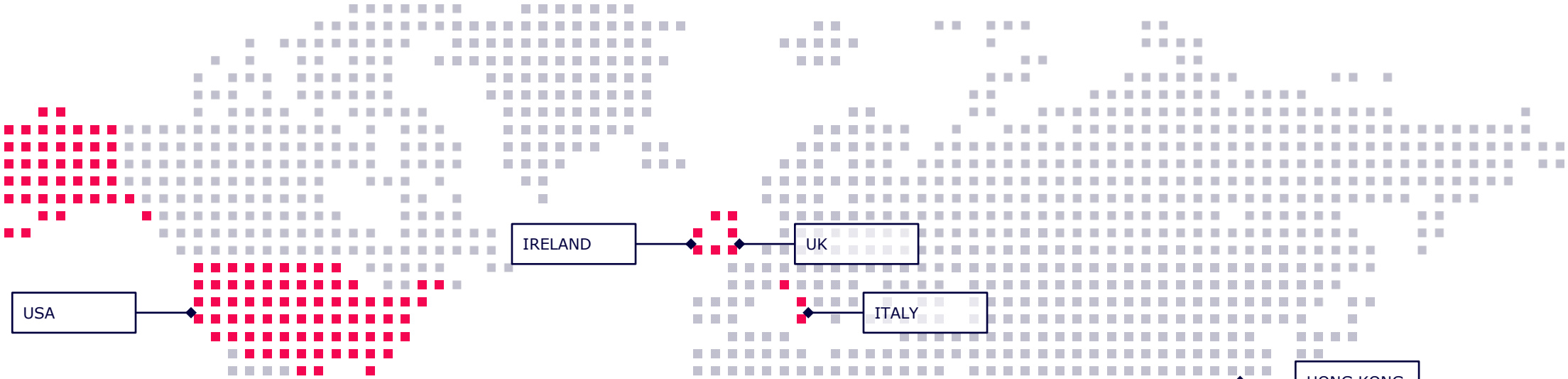
120k small cell sites with **13k Online**

3,000+ route KMs Fibre

3 city wide networks

75+ Military bases

Majority-owned by Canada Pension Plan Investment Board since 2009. A trusted long-term investor with C$570 billion Net assets.



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Transport for London(TFL) has awarded **BOLDYN** a 20+5 years contract to deliver a whole range of improvements to connectivity across London, significantly enhancing the Mayor's **Connected London** programme

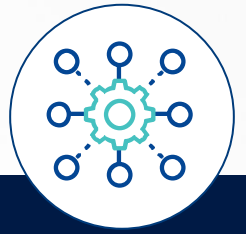
Building a connected London with Transport for London (TfL)

Mobile coverage in **136** stations, platforms and **400km** tunnels

Emergency services network rollout

10 edge data centres

Base station hotels in **10** city locations



+400km dense underground fibre

TfL Public Wi-Fi

120k small cell locations assets including stations, lamp posts, and bus shelters

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[SEC=PROTECTED]

Installation

136 stations, platforms , and 400km tunnel network

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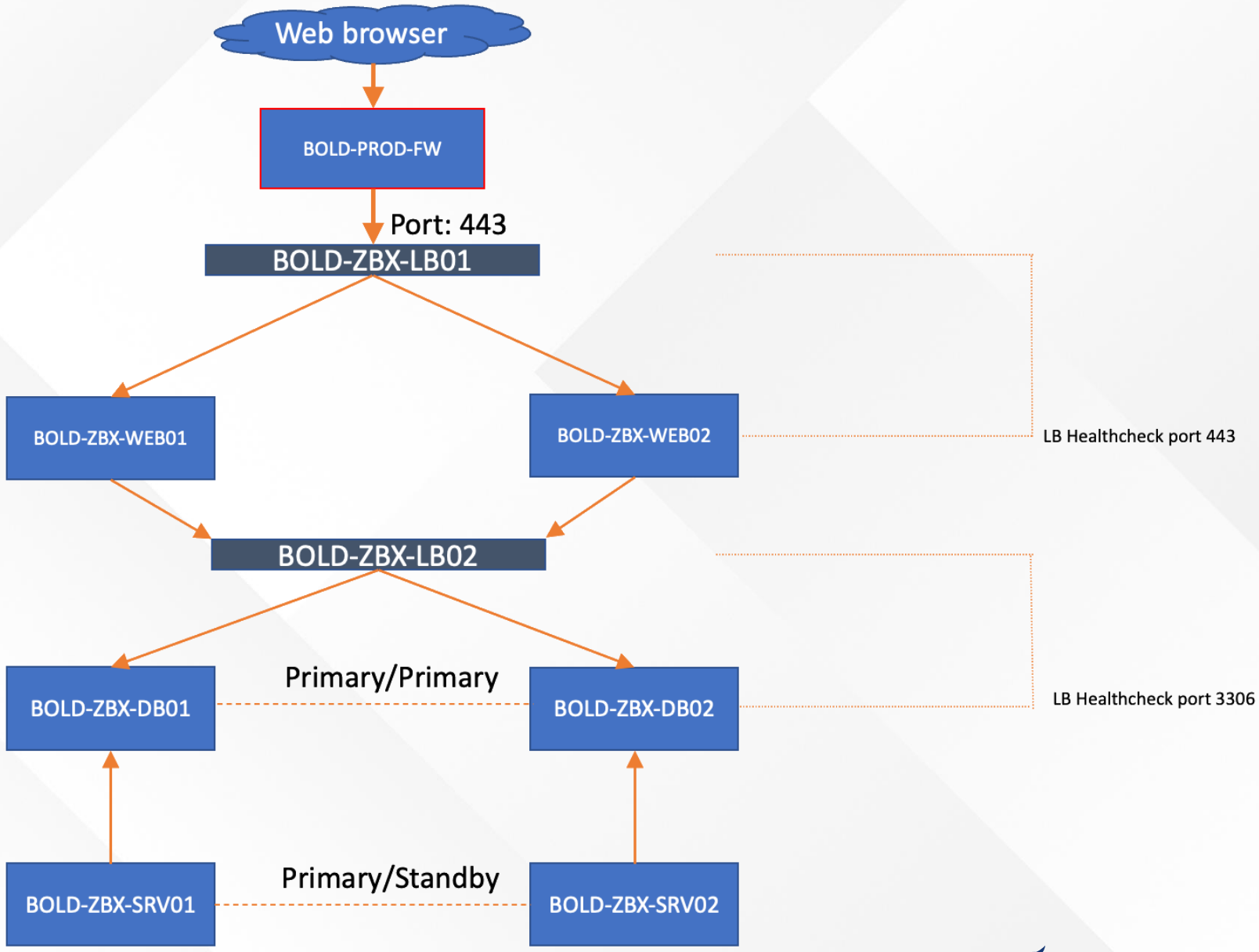
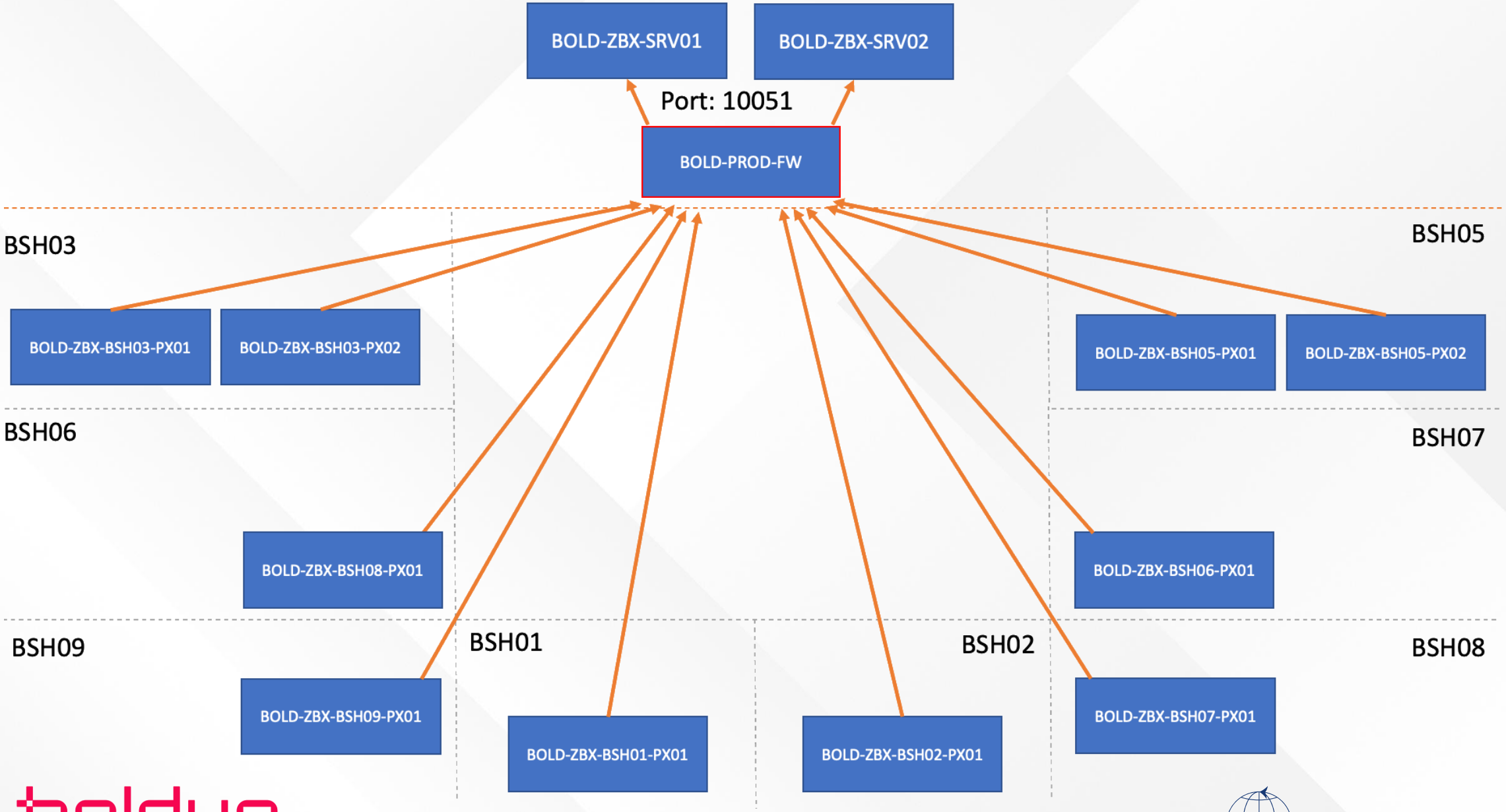
High availability



Base station Proxies



Custom Proxy loadbalancing

BOLD-ZBX-BSH05-PX01	Items 83	Triggers 46	Graphs 13	Discovery 5	Web	10.35.31.5:10050	BOLD-ZBX-BSH05-PX01	BOLDYN Linux by Zabbix agent active, BOLDYN Systemd by Zabbix agent 2 active, BOLDYN Zabbix proxy health	Enabled	ZBX	None	counterpart: BOLD-ZB…
BOLD-ZBX-BSH05-PX02	Items 83	Triggers 46	Graphs 13	Discovery 5	Web	10.35.31.6:10050	BOLD-ZBX-BSH05-PX02	BOLDYN Linux by Zabbix agent active, BOLDYN Systemd by Zabbix agent 2 active, BOLDYN Zabbix proxy health	Enabled	ZBX	None	counterpart: BOLD-ZB…

counterpart: BOLD-ZBX-BSH05-PX02

counterpart: BOLD-ZBX-BSH05-PX01

August								
2023-07-31 14:46:21	Information	PROBLEM	BOLD-ZBX-BSH05-PX01	Zabbix proxy: VIP not present (10.35.31.7/24)	1M 8d 5h	No	counterpart: BAIUK-Z…	class: software component: system
July								
2023-06-19 14:36:54	High	PROBLEM	BOLD-ZBX-BSH05-PX02	Zabbix proxy: Down	1m 58s	No	counterpart: BAIUK-Z…	class: software component: system

Proxy failover	Tag name equals *counterpart* Trigger name contains *Zabbix proxy: VIP not present* Trigger name contains *Zabbix proxy: Down* Host group equals *App/Zabbix/Proxies*	**Run script "Proxy failover" on current host**

Problem -> Action -> Script change Hosts proxy -> Reload config cache

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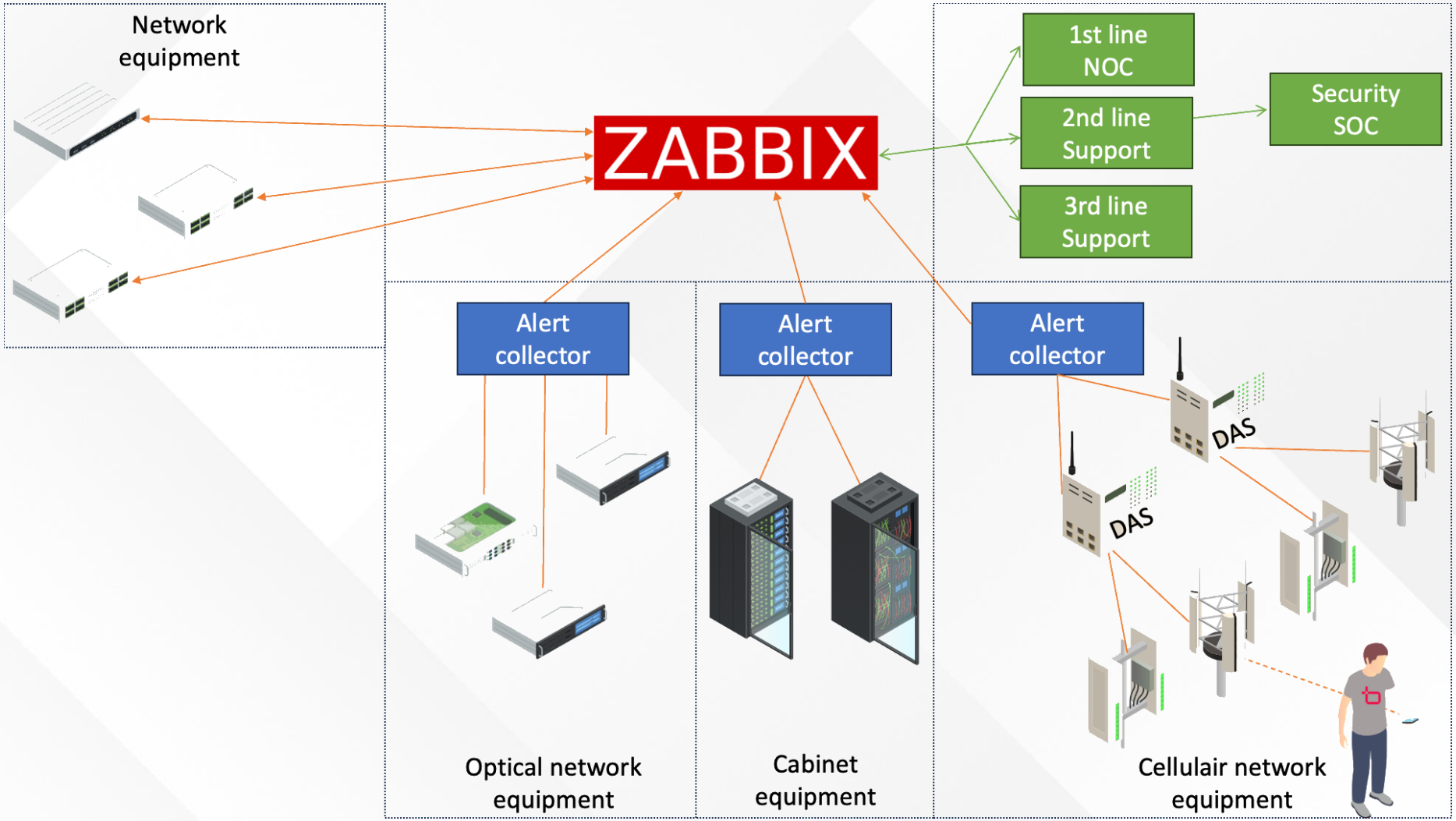
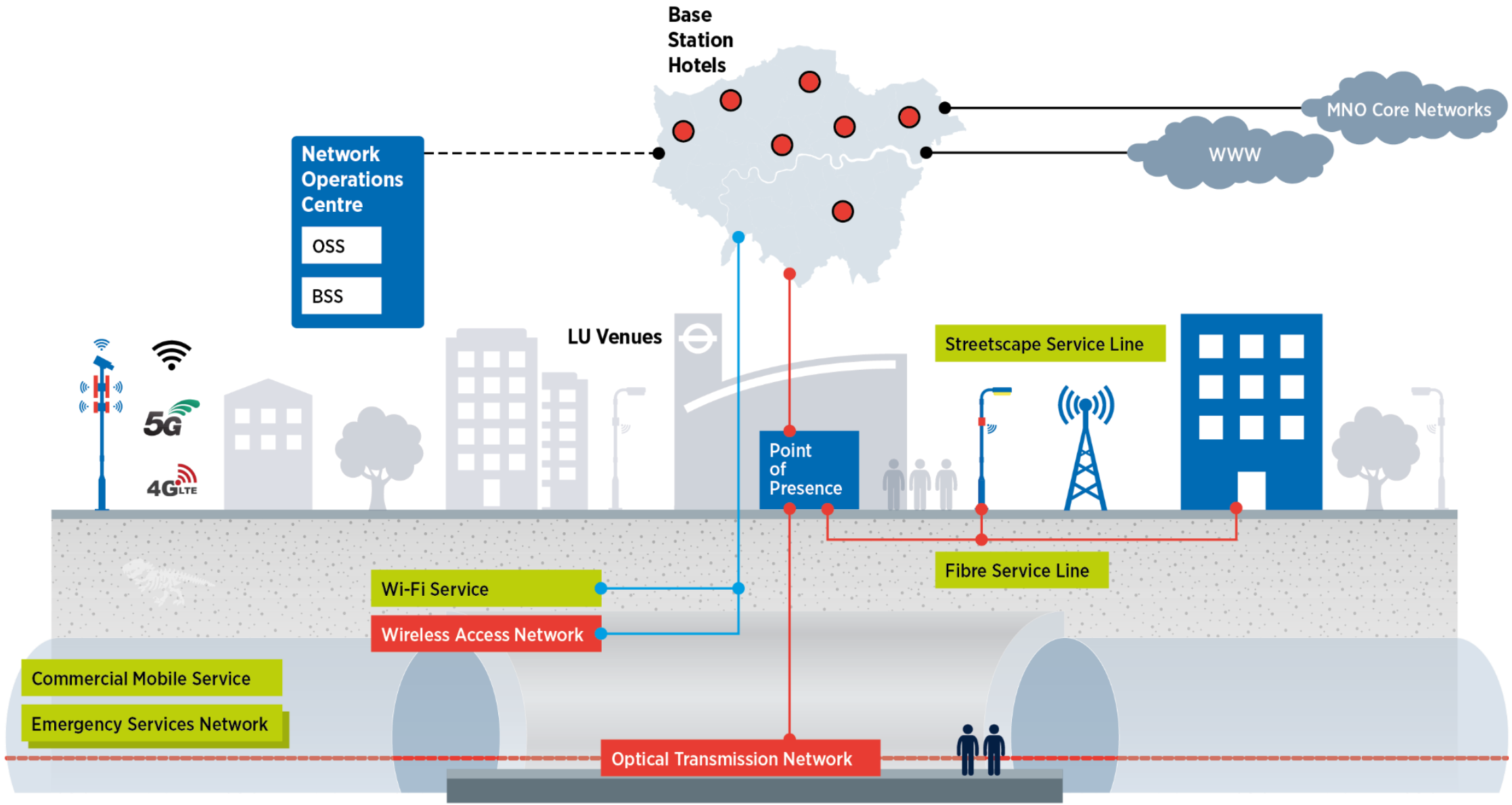
Monitoring overview

- Networking:
- Fibre equipment:
- Cellulair equipment:
- Cabinets:
- Linux and Windows server
- Everything else
- Other projects



TCP - High Level Architecture



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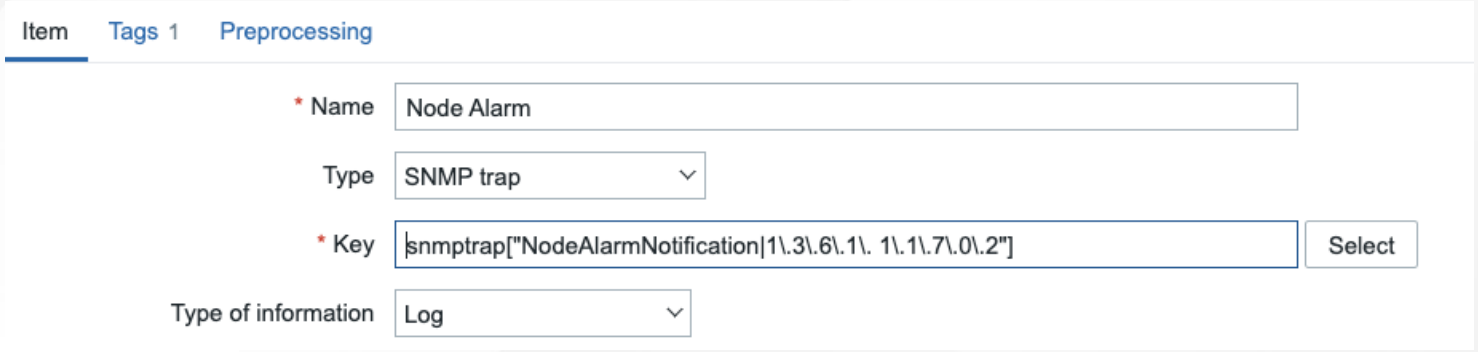
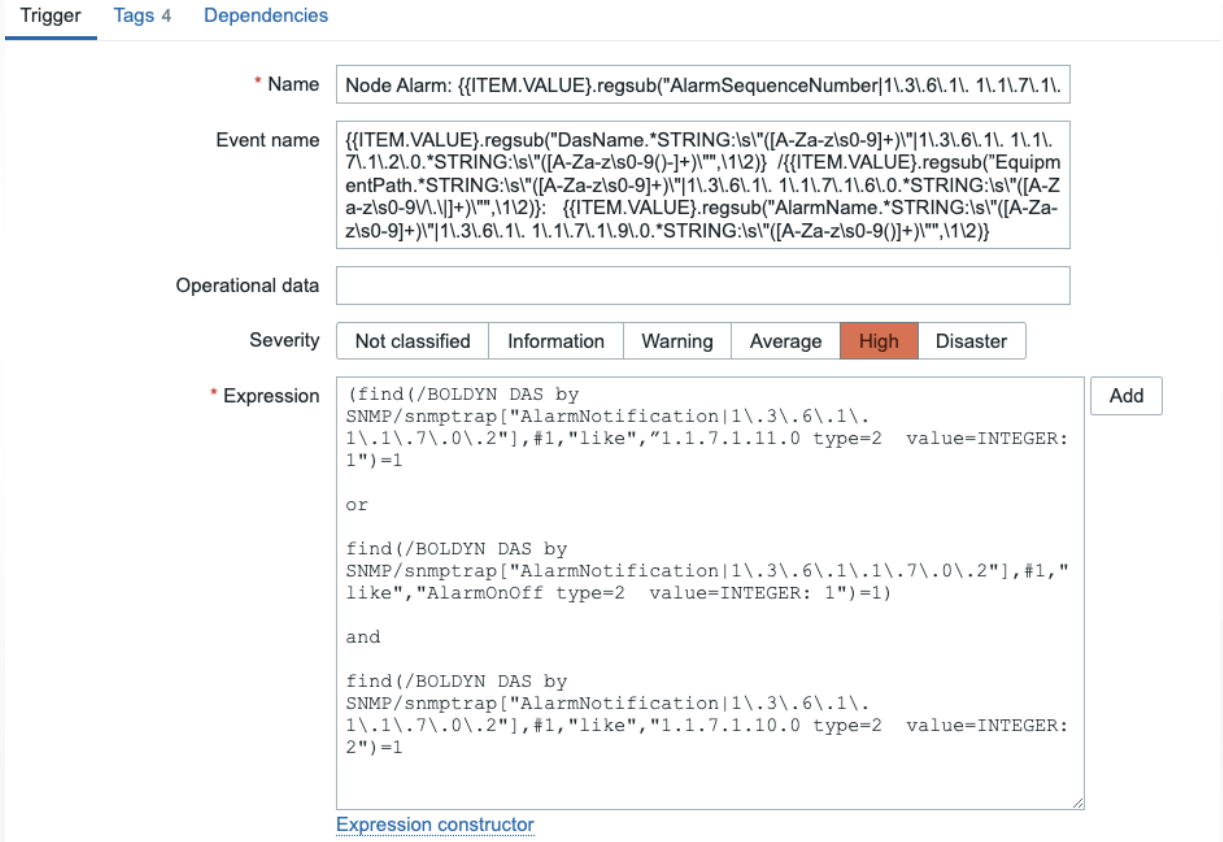
Cellular - SNMPTraps

- 1 item, 4 triggers, all events?
  - Macro functions are:
    all-powerful





Cellular - SNMPTraps

Name:

Node Alarm: {{ITEM.VALUE}.regsub("AlarmSequenceNumber|1\.3\.6\.1\. 1\.1\.7\.1\.12\.0.*INTEGER:\s([0-9]+)", \1)}

Event name:

{{ITEM.VALUE}.regsub("DasName.*STRING:\s\"([A-Za-z\s0-9]+)\"|1\.3\.6\.1\. 1\.1\.7\.1\.2\.0.*STRING:\s\"([A-Za-z\s0-9()-]+)\"",\1\2)}

/{{ITEM.VALUE}.regsub("EquipmentPath.*STRING:\s\"([A-Za-z\s0-9]+)\"|1\.3\.6\.1\. 1\.1\.7\.1\.6\.0.*STRING:\s\"([A-Za-z\s0-9\/\.\|]+)\"",\1\2)}:

{{ITEM.VALUE}.regsub("AlarmName.*STRING:\s\"([A-Za-z\s0-9]+)\"|1\.3\.6\.1\. 1\.1\.7\.1\.9\.0.*STRING:\s\"([A-Za-z\s0-9()]+)\"",\1\2)}

Time ▼	Severity	Recovery time	Status	Info	Host	Problem	Duration
10:15:15	High		PROBLEM		BOLD-BSH05-Cellulair	DAS Northern DZ 42/DAU.2/HCU.8/LRN.6: Node Offline	26s

Easy to read path to node + alarm name

Cellular - SNMPTraps

Expression:

(find(/BOLDYN DAS by SNMP/snmptrap["AlarmNotification|1\.3\.6\.1\. 1\.1\.7\.0\.2"],#1,"like",”1.1.7.1.11.0 type=2 value=INTEGER: 1")=1

or

find(/BOLDYN DAS by SNMP/snmptrap["AlarmNotification|1\.3\.6\.1\.1\.7\.0\.2"],#1,"like","AlarmOnOff type=2 value=INTEGER: 1")=1)

and

find(/BOLDYN DAS by SNMP/snmptrap["AlarmNotification|1\.3\.6\.1\. 1\.1\.7\.0\.2"],#1,"like","1.1.7.1.10.0 type=2 value=INTEGER: 2")=1

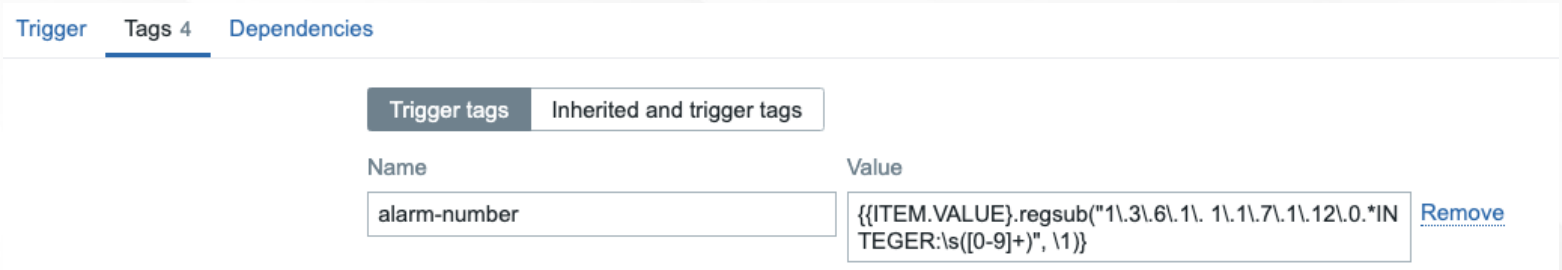
Alarm resolution

PROBLEM event generation mode: **Multiple**

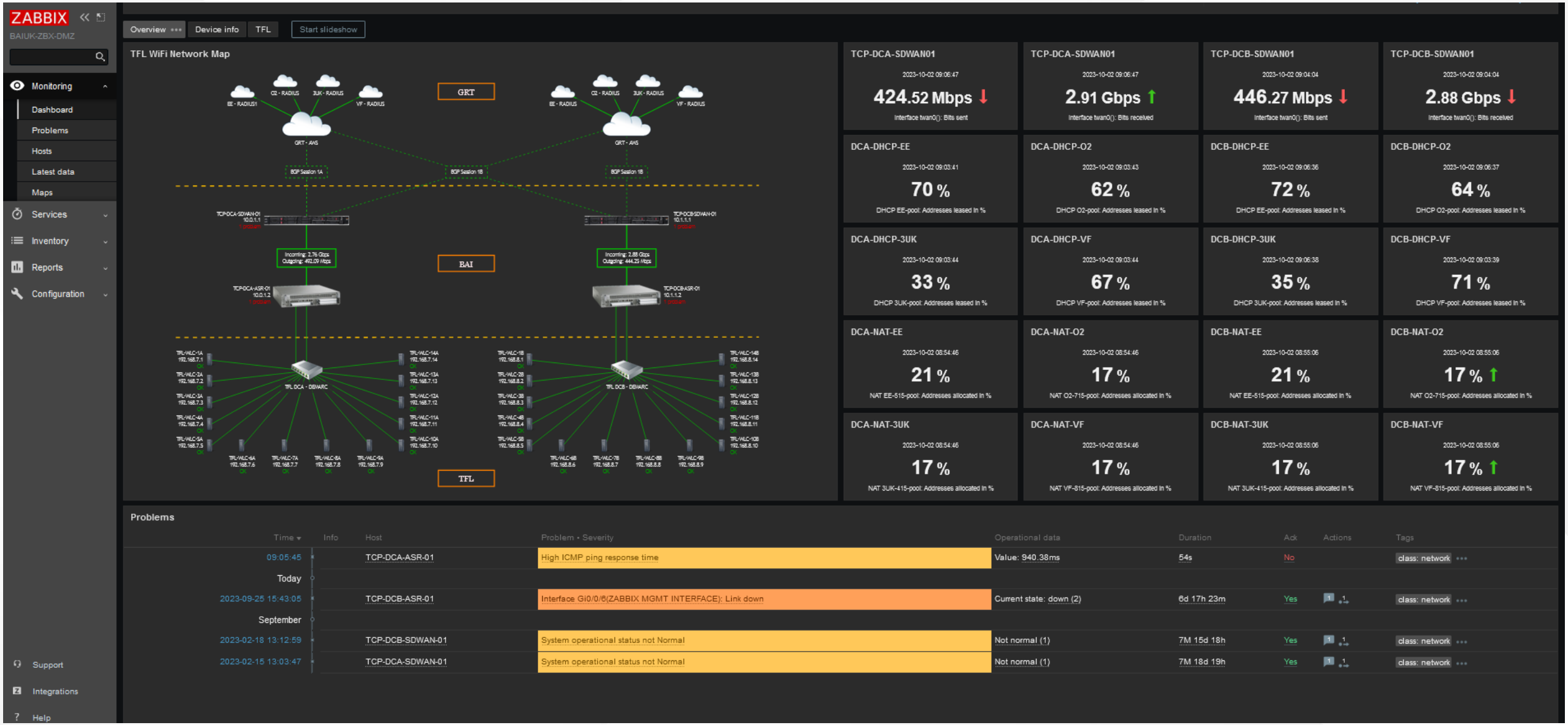
OK event closes: **All problems if tag value match**

Tag for matching: **alarm-number**

Make sure the TAG uses the {ITEM.VALUE} + macro function to get the unique **alarm-number**, which is the same at problem **start** and **resolution.**



Monitoring - NOC - SOC



Questions?

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