



ORing



www.ORingnet.com



Monitoring public transportation fleet with Zabbix-ready hardware



Jacek Kondratowicz
ORing EUROPE Managing Director

Get Connected Anytime, Anywhere.

The logo consists of the word "ORing" in a white, italicized, sans-serif font, centered within a dark blue circle with a thin orange border. The background of the entire slide is a dark blue, isometric 3D rendering of a city skyline with glowing blue lines representing a network or data flow.

ORing

Industrial Networking
One-stop Solution Provider

ORing in Vertical Market



Railway



Marine



Solar Energy



IP Surveillance



Oil & Gas



Building
Automation



ORing-PaaS
Cloud



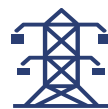
In-Vehicle



ITS



Wind Power



Smart Grid



Mining



Manufacturing
Automation



IIoT

ORing Worldwide



1.Headquarters
(Taiwan)



2.America



3.China



4.Europe



5.India

1

Headquarters

4

Branch offices

70

Dealer

>200

Headcount

50%

R&D Capabilities

ORing Milestones



2005

- Company founded. RD team was established



2011



- Launched EN50155 Transporter Series products



2012



- Launched IEC 61850-3 certified products



2013



- Passed C1D2 Certification in Q3 and integrated MRP and Modbus supporting into ORing switches.



2014



- Reduced X-Roaming time to less than 60ms and launched IEC 60945 certified products for marine applications



2019

- Weidmüller acquired a minor stake in ORing
- Passed TAICS' IoT Cybersecurity Certification and launched KEMA-certified product



2018

- NB-IOT/CAT-M1 product release massive deployment with our IOT products



2017

- ORIO + sensor passed NB-IoT testing conducted by Nokia/Ericsson's lab Launched ORing's first cloud platform



2016

- ORing Launched the First Onboard 2.5G/10G Ethernet Switch with Copper Interface and PoE Functions



2015



- ORing passes IRIS Certification Launched Layer3 10G modular switches



2020

- Celebrates 15th Anniversary
- Unveils WFH Solution to keep Business Running during coronavirus



2021

- Joined ITxPT
- Launched the first industrial WiFi 6 AP



2022

- Obtained 62443-1 certificate and passed 62443-2 VOC tests
- Built strategic partnerships with ITRI to drive net-zero goals
- Formed New Energy Group to expand in the energy market



2023

- Passed Profinet certification
- Verified GHG assertion against ISO 14064-1 and product carbon footprint assertion against ISO 14067
- Became a security strategy partner of Fortinet

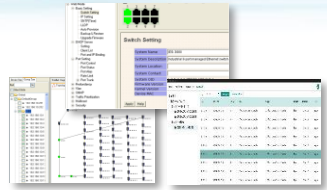


2024

- Launched IEC 62443-4-2 certificate products



Core



ZABBIX



MagiCollect

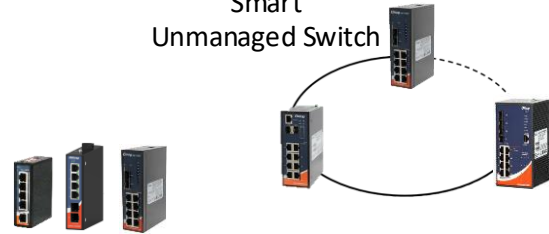


ORinger EMS

MagiConnect

Edge

Smart Unmanaged Switch



Unmanaged Switch

Lite Managed Switch
Managed Switch



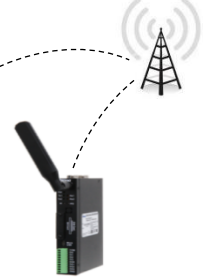
EN50155 series



Wi-Fi AP/CPE



Cellular Router



LPWAN Gateway

Field



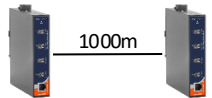
Serial Device Server



Media Converter



PoE Accessories



SPE Switch

Remote I/O



Lighting Controller

Smart Network Adapter



Application



Industrial Hardware and Software Synergy

ORing

ZABBIX

Project Background

Taking De Lijn's buses and trams to the next level

- public transport operator in Flanders, Belgium.
- 3.5 million passengers every year
- 10 million journeys every year
- 8000 employees
- 4500 public transport vehicles – buses and trams

**Strengthen digital transformation,
improve fleet efficiency,
and increase customer satisfaction**



DE
LIJN



Project Background

ItoB - IT on Board

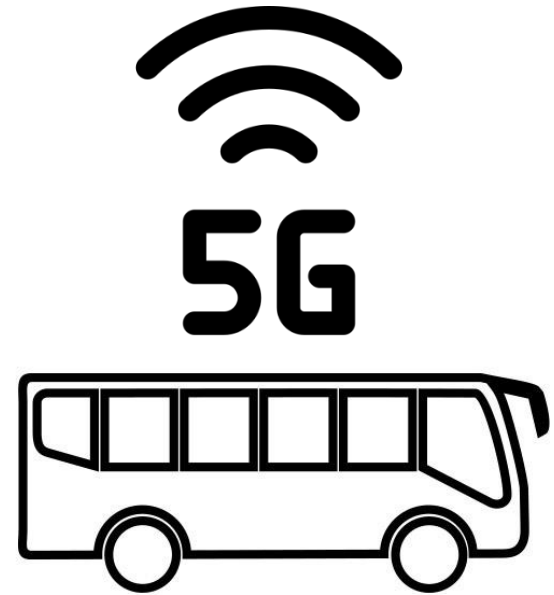
- Better control over data
- Better punctuality
- Seamless Connectivity
- Traffic information
- Vehicle status information
- Improved onboard security
- Improved passengers' comfort



Project Background

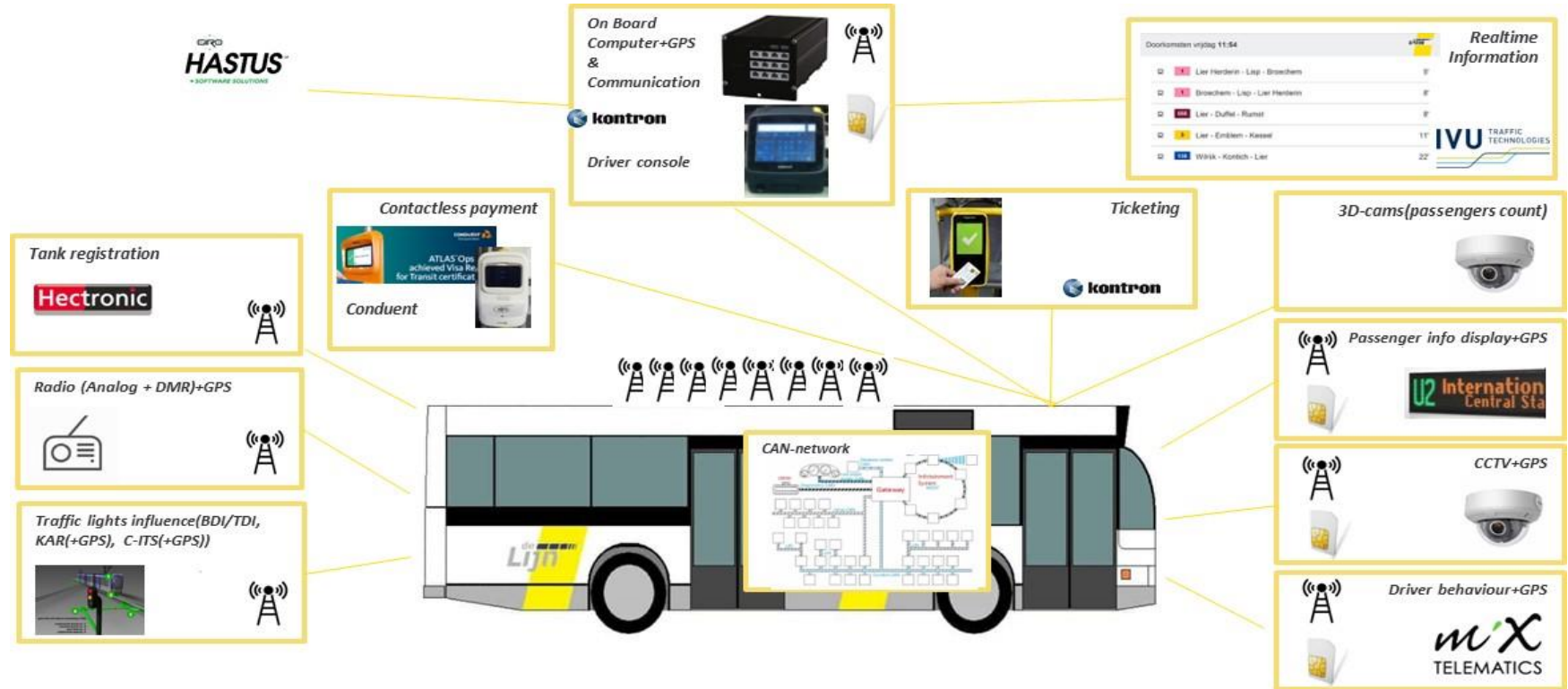


3G sunset by end of 2024



Future-proof communication

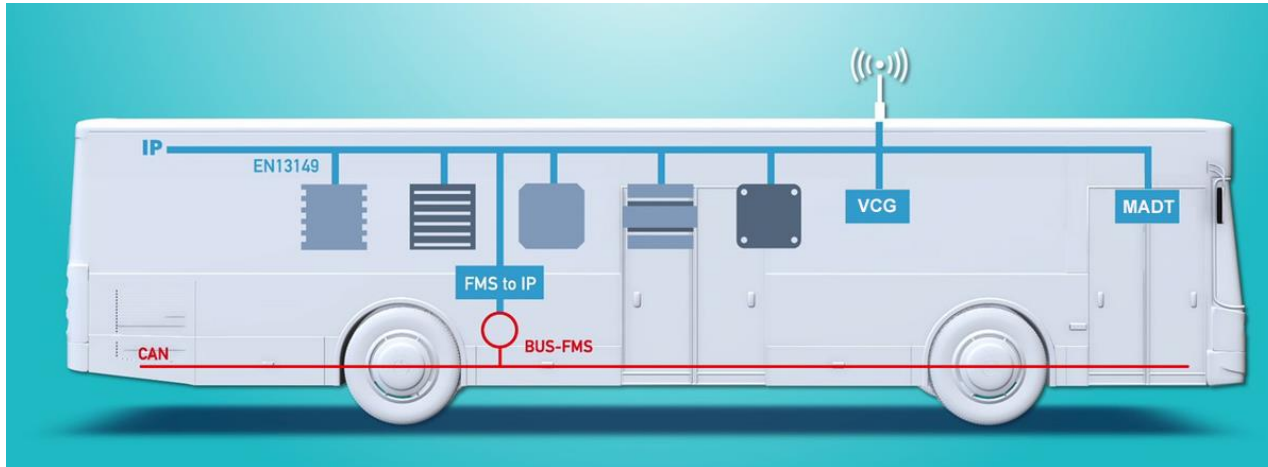
Project Background



ITxPT x IToB

- Design a proactive architectural vision for IT smarts on the vehicles
- Go for a phased implementation
- Use ITxPT as a starting point of inspiration

ITxPT



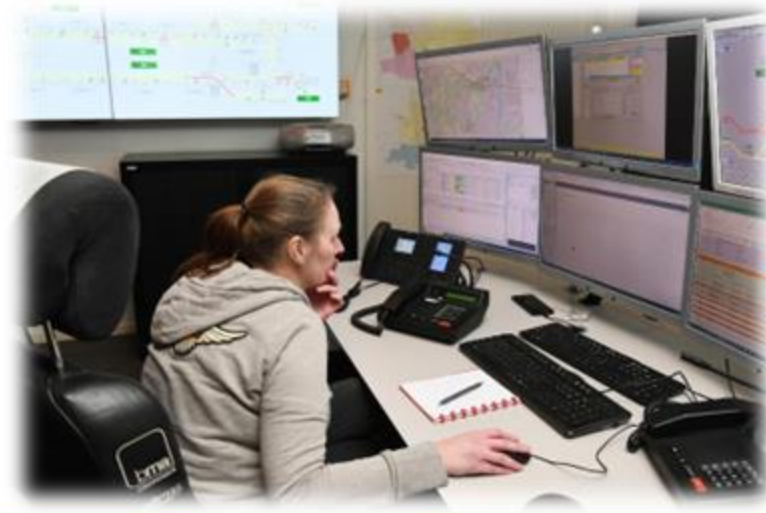
Project Information

- **Timing and planning:** the installation started in January 2024 and must be finished by end of 2024
- **Project size:** 3920 buses, 438 trams
- **Solution requirements:**
 - 5G bus router with E-mark certification
 - 5G tram router with EN50155
 - ITxPT inventory service specification
 - Monitoring and management tool



Monitoring and Management System

- The “health” of the communication modules is hence of utmost importance
- View on the health of the whole fleet
- De Lijn must be able to manage the assets, software and incidents centrally
- Manage rolling out software updates, incidents and technical interventions efficiently
- Asset management - allows De Lijn to verify where each communication module is at any point in time



Project Requirements

- Overview of all communication modules, with their last known location, software/firmware version and status (online/offline and updated at least every 15 minutes)
- Overview of the current errors and incidents
- Configurable definition of an incident condition
- Control the access from the management system to the vehicles
- Several levels of authorization/access control must be possible: admin, Technical, ICT etc...
- SSL connections with De Lijn certificates
- SSH v2 minimum
- SNMP V1, V2 & V3 trap
- Management API over HTTPS
- All actions logged in an audit trail with username, description of the action and timestamp
- Management tools for software/firmware updates
- Software distribution function to the communication modules, by configurable communication module group or vehicle group.

ORing Routers for De Lijn IToB project



IGAR-1004-D5G



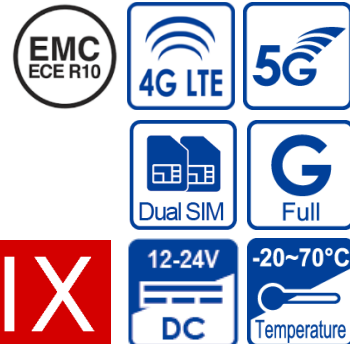
TDGAR-1003-D5G-M12X



IGAR-1004-D5G

Industrial Vehicle 5G Cellular Router with 4x10/100/1000Base-T(X)

- Leading **ECE R10-compliant** router for vehicle application
- 4x10/100/1000Base-T(X) Ethernet with RJ45
- Supports 5G and LTE Modem dial up
- Dual SIM for backup
- Secured Management by HTTPs
- Various kind of WAN Connection Type supported: Dynamic/Static IP, PPPoE, Modem Dial Up, **Bridge mode**
- DHCP / Static IP address assignment
- Iptables configurable to prevent access from unauthorized IP address
- Booting time <90 sec.
- **Zabbix Agent onboard**

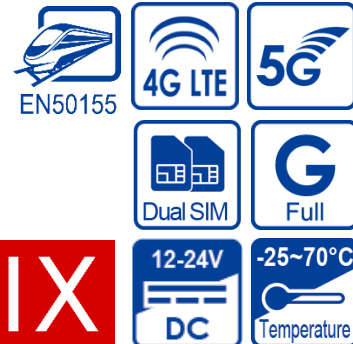


ZABBIX

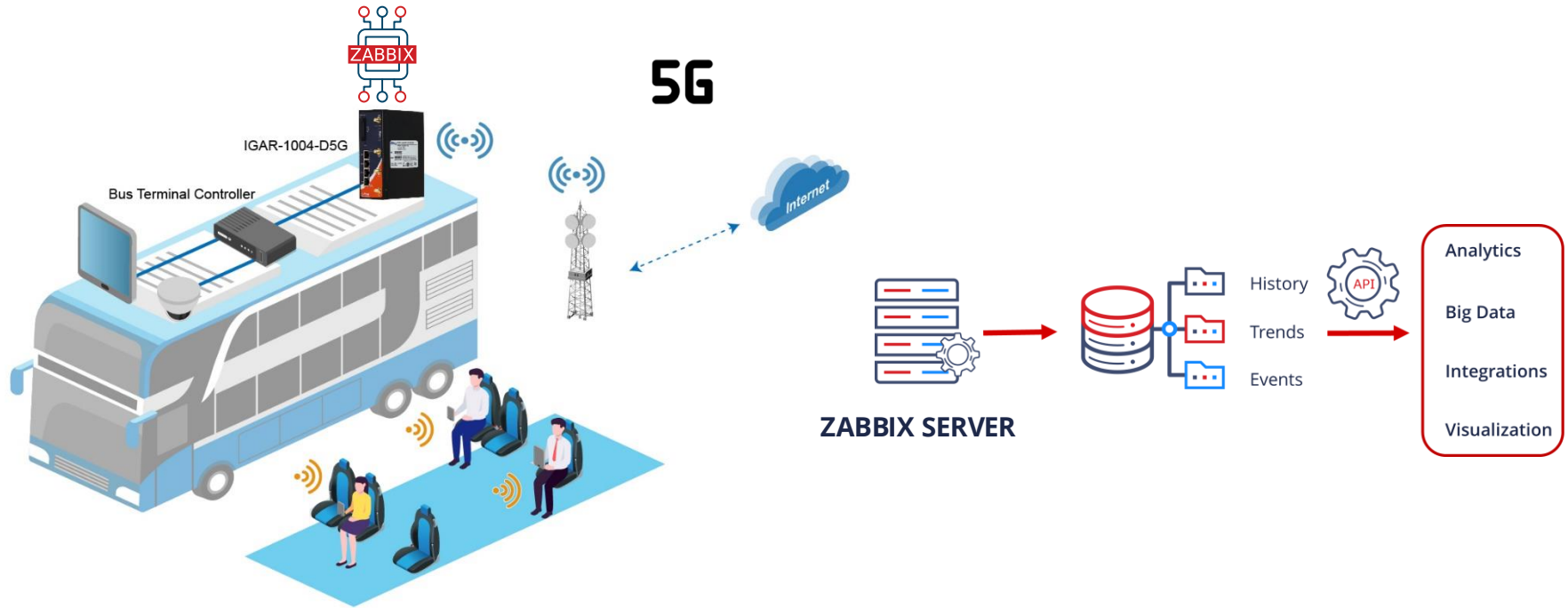
TDGAR-1003-D5G-M12X

Industrial EN50155 5G Cellular Router with 3x10/100/1000Base-T(X), M12 Connector

- Leading **EN50155** router for rolling stock application
- 3x10/100/1000Base-T(X) Ethernet with M12 X-coding
- Supports 5G and LTE Modem dial up
- Dual SIM for backup
- Secured Management by HTTPs
- Various kind of WAN Connection Type supported: Dynamic/Static IP, PPPoE, Modem Dial Up, **Bridge mode**
- DHCP / Static IP address assignment
- Iptables configurable to prevent access from unauthorized IP address
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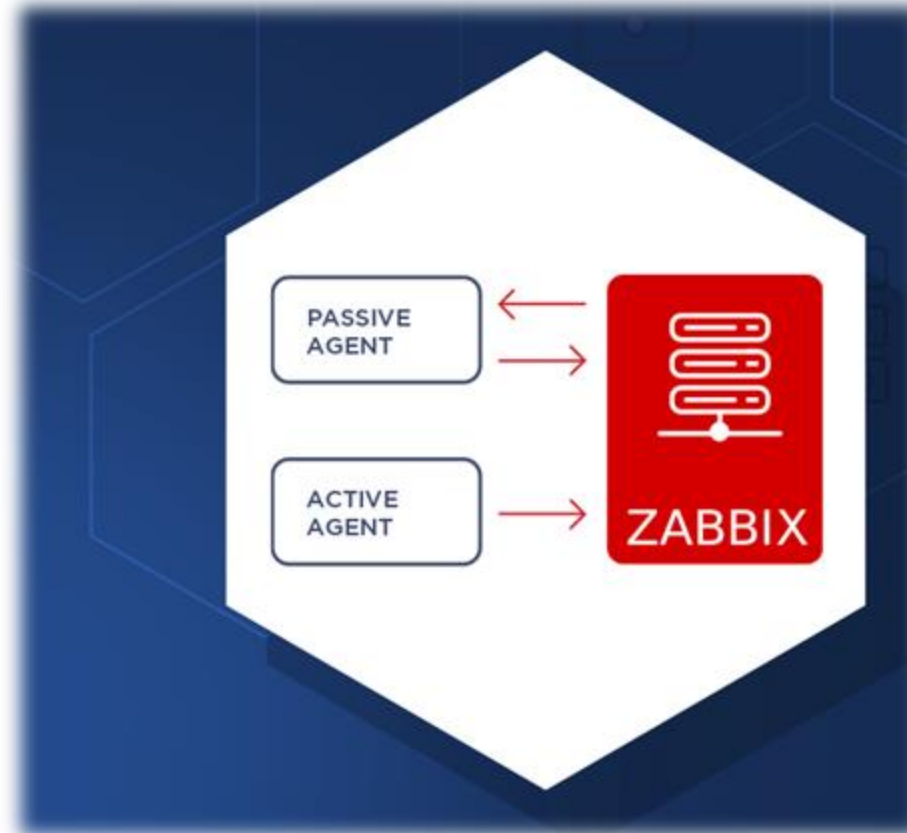


Project Architecture



Why Zabbix?

- Open-Source, Flexible and Powerful Tool
- Configurable Active and Passive Mode
- Reliability and Good Technical Support Service
- Scalability
- User Management
- Auto Discovery with Device Templates
- Group Management
- Items Management
- Triggers and Problems Configuration
- Customizable Dashboard
- Alarms and Notifications
- Dynamic Traps
- Scripts for Software Distribution Function



Available Device Metrics

- Device online/offline status
- Device information – name, serial number, IP, IMEI, IMSI, firmware version, config file version
- GPS position
- Resources usage – CPU load, System load, memory space
- 5G modem and link status
- SIM card status
- Radio Type and Service Provider
- Signal parameters
- WAN interface traffic
- LAN interface traffic
- Dynamic event reports with Zabbix Traps

The screenshot displays a configuration interface with a dark blue sidebar on the left and a white main content area on the right. The sidebar contains a tree menu with categories like System Information, Interface Configuration, Network Services, Firewall Settings, NAT Settings, VLAN Setting, VPN Settings, QoS Setting, Event Settings, Administration, and Diagnostics. Under Event Settings, sub-items include E-mail, SNMP Traps, SMS, and Zabbix Traps (highlighted in purple). The main content area is titled 'Event Settings → Zabbix Traps'. It features a 'Zabbix Traps' dropdown menu set to 'Enabled'. Below this is a table of event types with checkboxes for sending Zabbix traps. The 'Zabbix Trap Settings' section includes input fields for the Zabbix Server Address (192.168.10.222), Listen Port (10051), Connection type (PSK), PSK Identity, PSK, and Trap Key (trapper). 'Apply' and 'Reset' buttons are at the bottom.

Event Settings → Zabbix Traps

Zabbix Traps:

Event Types:

	Send Zabbix Trap
Hardware Reset (Cold Start):	<input checked="" type="checkbox"/>
Software Reset (Warm Start):	<input checked="" type="checkbox"/>
SIM1 Failure:	<input checked="" type="checkbox"/>
SIM2 Failure:	<input type="checkbox"/>
G1, G2 Port Link Status Changed:	<input checked="" type="checkbox"/>
GW Port Link Status Changed:	<input checked="" type="checkbox"/>
Login Failure:	<input checked="" type="checkbox"/>
Firmware Upgrade Success:	<input checked="" type="checkbox"/>
Firmware Upgrade Failure:	<input checked="" type="checkbox"/>
Configuration Restore Success:	<input checked="" type="checkbox"/>
Configuration Restore Failure:	<input checked="" type="checkbox"/>

Zabbix Trap Settings:

Zabbix Server Address: (ex. x.x.x.x)

Listen Port:

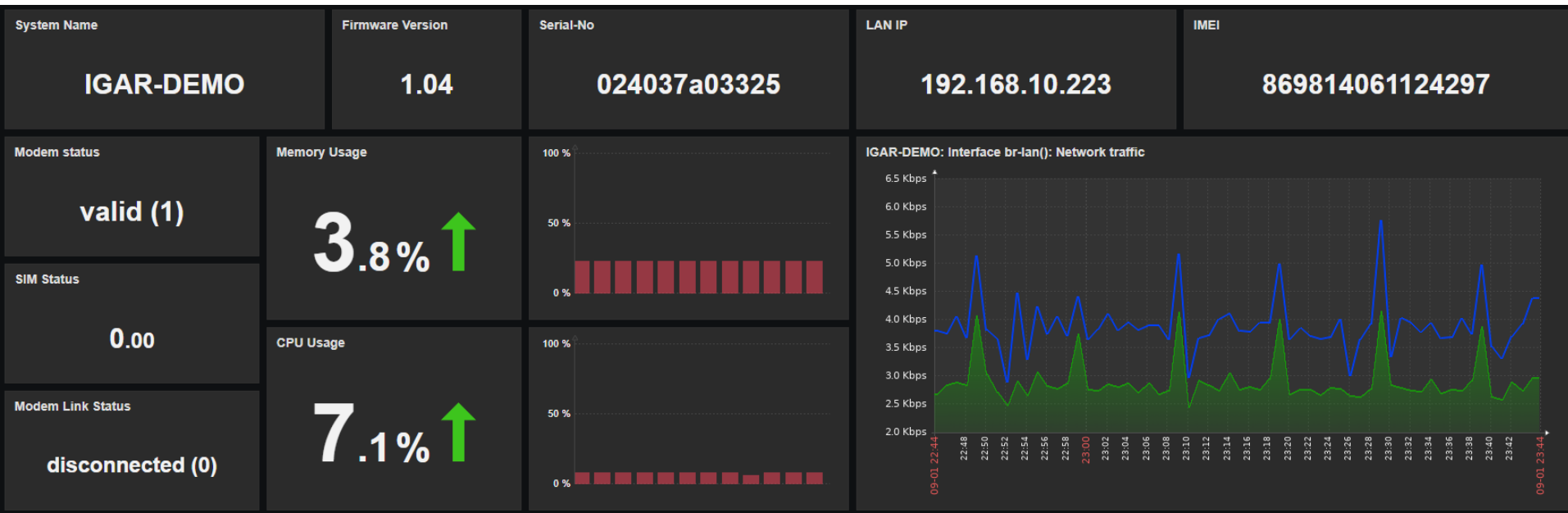
Connection: PSK

PSK Identity:

PSK:

Trap Key:

Dashboard



Dashboard



ORing Devices

IGAR

1

TDGAR

1



Problem hosts

Host group ▲	Without problems	With problems	Total
IGAR		1	1
ORing Device		2	2
TDGAR		1	1

Problems

Time	Recovery time	Status	Info	Host	Problem • Severity ▼	Duration	Update	Actions
2024-08-31 21:08:07		PROBLEM		IGAR-DEMO	/rom: Disk space is critically low (used > 90%)	1d 2h 38m	Update	✓ 1
2024-08-31 21:06:02		PROBLEM		TDGAR-DEMO	/rom: Disk space is critically low (used > 90%)	1d 2h 40m	Update	

Thank You!

The image features a solid dark blue background. In the center, the text "Thank You!" is written in a bold, white, sans-serif font. To the right of the text, there are several thick, overlapping, curved lines. One line is a vibrant orange, another is a bright white, and a third is a lighter, medium blue. These lines curve and overlap in a way that suggests movement and connection, creating a modern, abstract graphic element.