

The Devices No One Knew Were Down

A Zabbix field report — Pascal de JESSEY, Someone



Somone in a nutshell



Consulting & projects



Managed services



Support



Training

whoami

- Pascal de JESSEY
- Zabbix Certified Trainer
- Linux and open source user
- Likes to jump from perfectly working planes

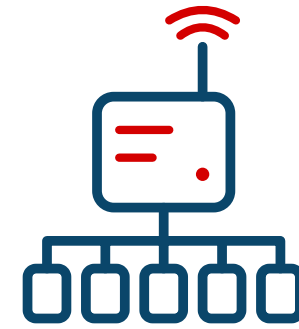


ZABBIX



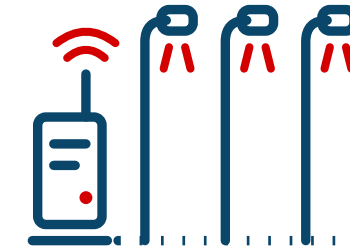
The field

- African energy provider
- ~28,000 devices today
- 100,000 next
- Every one on a cellular SIM



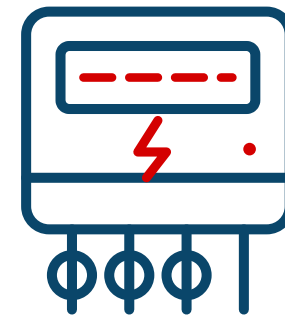
4,091

Data concentrator units



15,764

Lighting cabinets



7,846

High-voltage meters



645

Not yet classified

Nobody knew what was down

Business apps: the only witness

When they were buggy, a dead device looked exactly like an app bug.

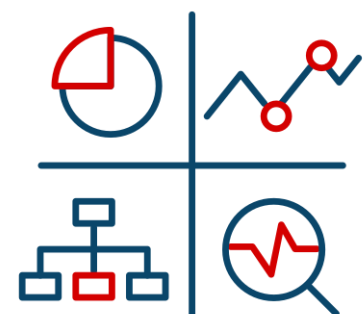
Field swaps broke the inventory

A technician replaces a SIM on site: new IP, nobody is told.

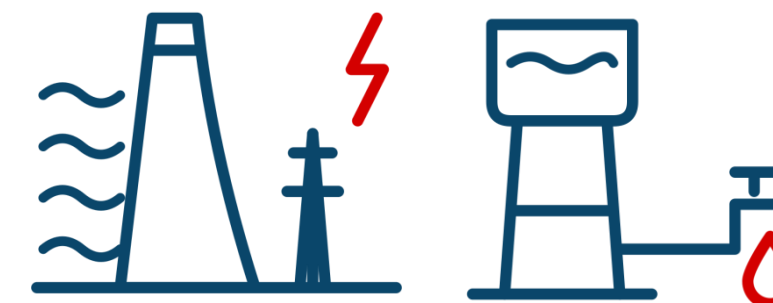
IT heard about outages last

The business found problems before the telecom team did.

The plan: inventory first, alerting later



We are here



Phase 1 · Take stock

What exists, what answers, what we pay for. No HA, few triggers — on purpose.

Phase 2 · Monitor

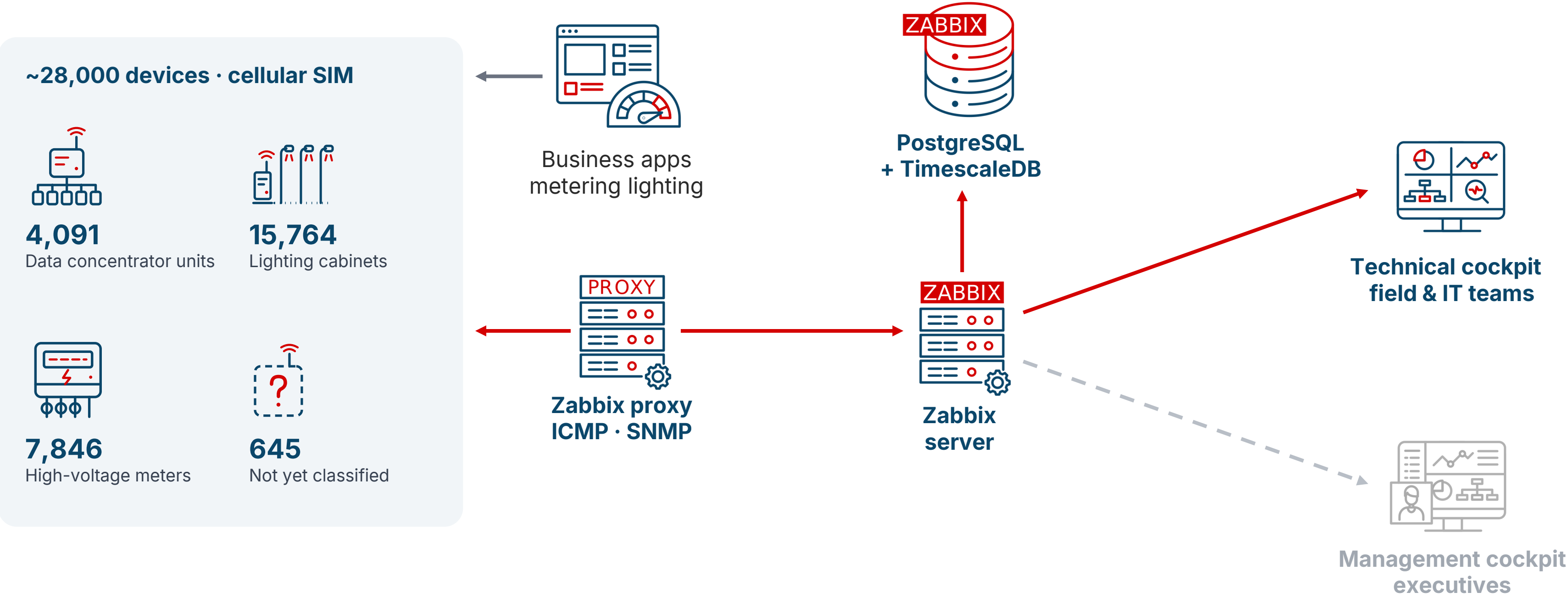
Scale to 100,000 devices: HA and more proxies, alerting, ticketing, management cockpit live.

Phase 3 · Extend

Power plants and water assets — where the question becomes production vs consumption.

You can't alert on a fleet you haven't inventoried: the first job was to find out what is really out there.

Zabbix architecture



Two independent paths: if the app says "down" and Zabbix says "up", it's the app.

Inside Zabbix



System information  		
Parameter	Value	Details
Zabbix server is running	Yes	zabbix-server:10051
Zabbix server version	7.4.13	New update available
Zabbix frontend version	7.4.13	New update available
Software update last checked	2026-09-23	
Latest release	7.4.15	Release notes 
Number of hosts (enabled/disabled)	28352	28352 / 0
Number of templates	369	
Number of items (enabled/disabled/not supported)	472039	471716 / 192 / 131
Number of triggers (enabled/disabled [problem/ok])	254	233 / 21 [6 / 227]
Number of users (online)	5	2
Required server performance, new values per second	588.3	
High availability cluster	Disabled	

28k

hosts on Zabbix 7.4

~471k enabled items, one server

588

new values per second

required server performance

94%

of it on one proxy

553 VPS · ~360k items

What actually hurt



Cellular is noisy

~400–900 ms average latency, ~13% ICMP loss. 5 s timeout, checked against real field delays.



Identity drifts

SIM swapped in the field = new IP. Which host is this now?



Mass onboarding

Tens of thousands of hosts from an inventory nobody fully trusts.

Finding #1

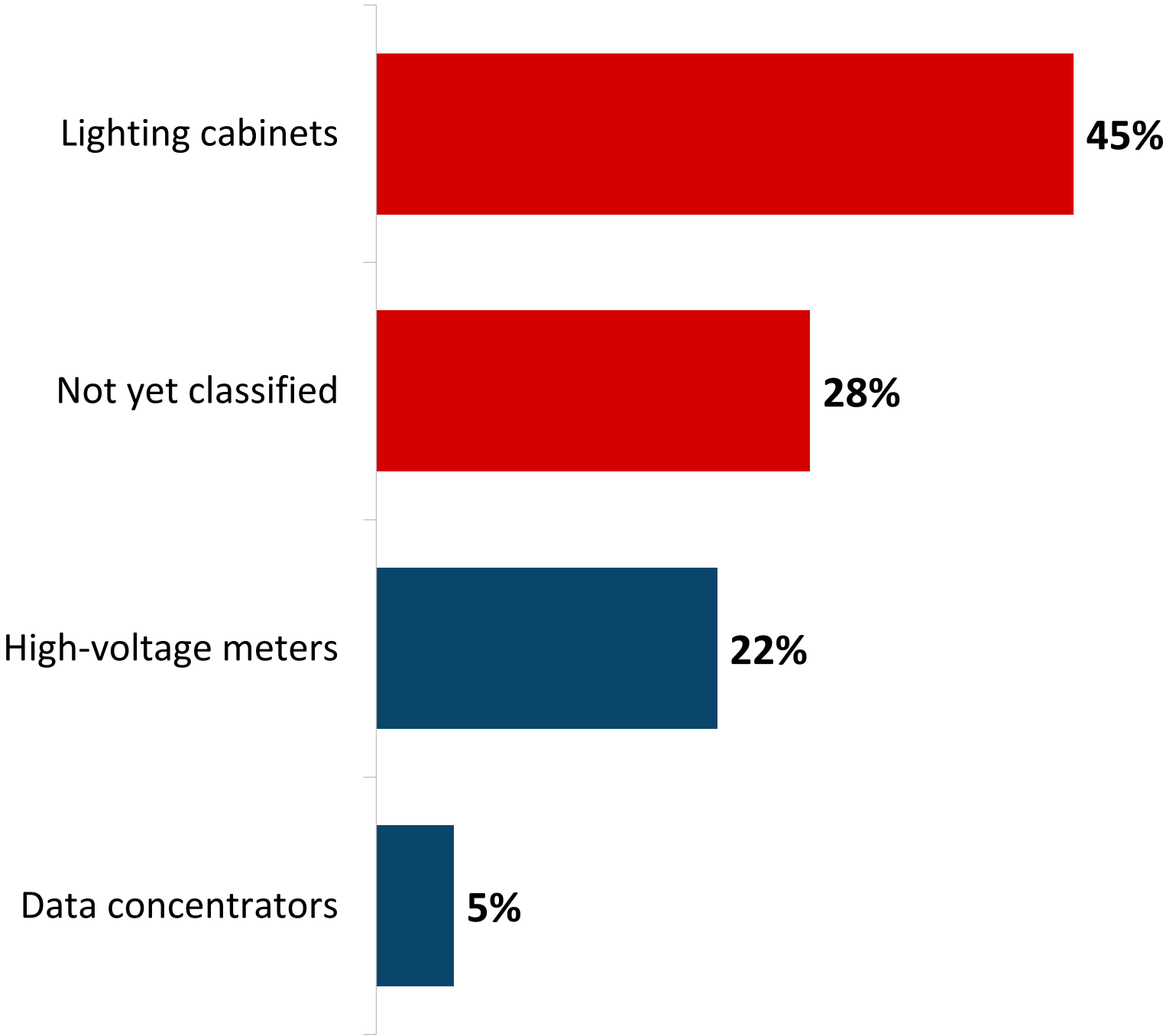
Down, and nobody knew

33%

of the fleet unreachable

About 9,300 devices down. For the first time, a work list to size field teams.

% unreachable, by device family



Finding #2

Paying for silence

252 k€

a year, paid for SIMs that never talk

Measured: SIMs with no sign of life for 60+ days.



~7,000

SIMs silent for 60+ days

× 36 €

per SIM, per year



+ oversized plans

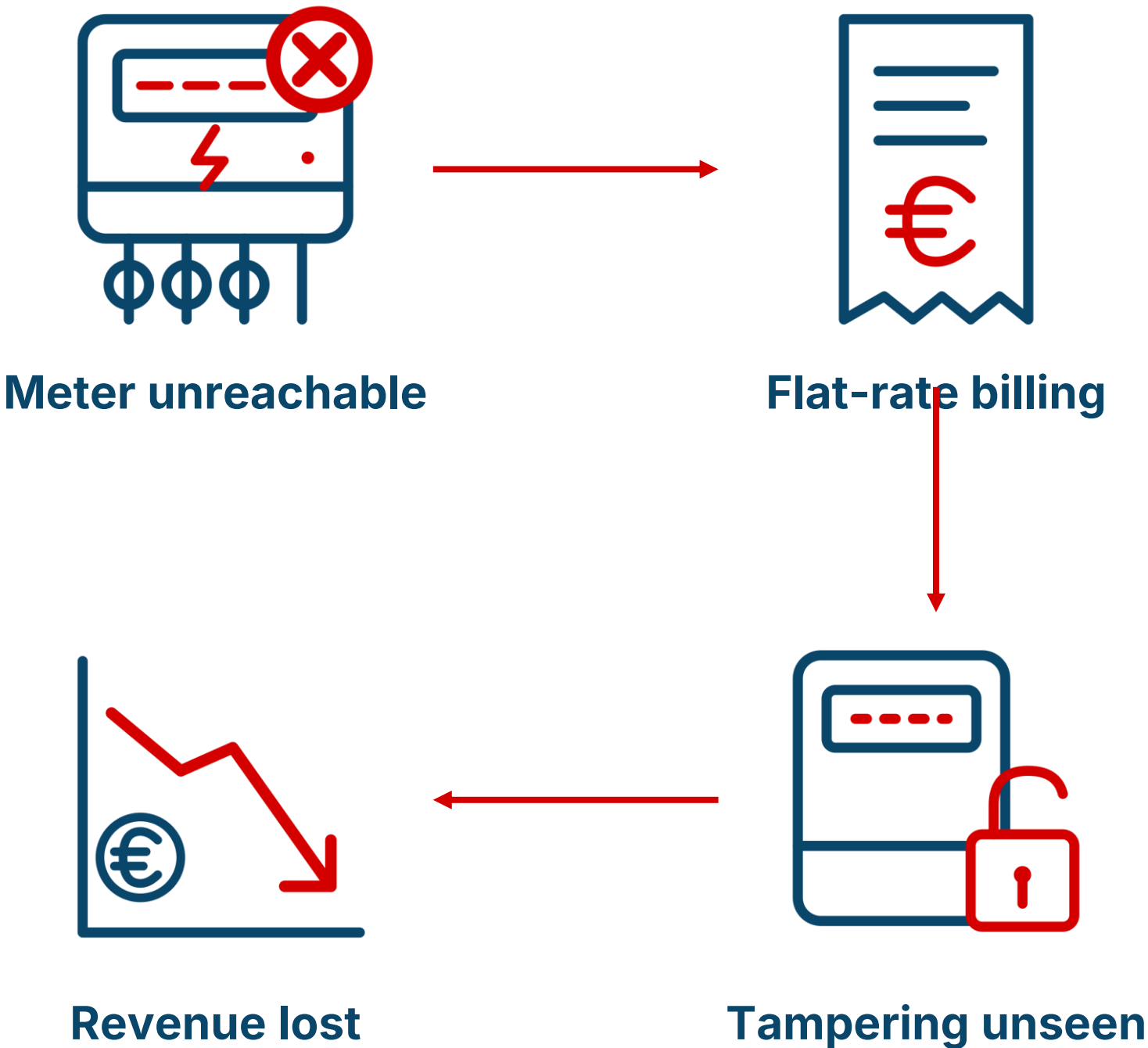
on the SIMs that do talk

Finding #3

Lost energy

22%

of high-voltage meters unreachable



Business customers billed on estimates — and some meters turn out to be tampered with.

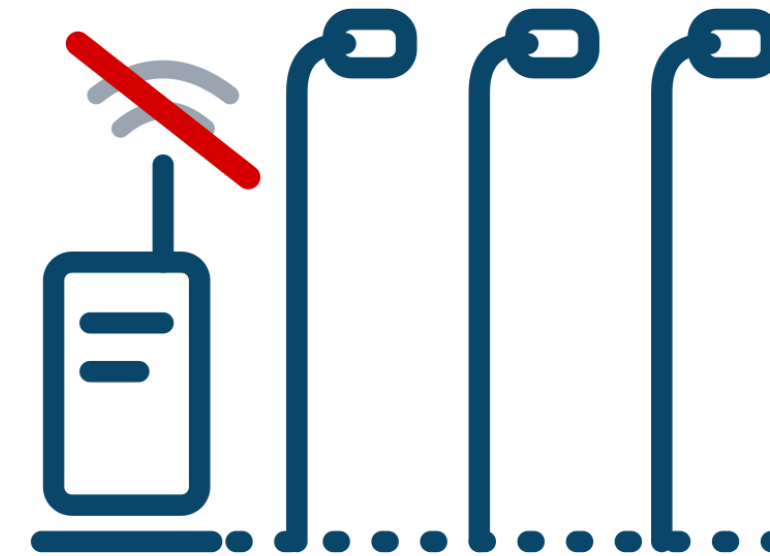
Finding #4

Dark streets

45%

of lighting cabinets unreachable

Lights off or stuck on a schedule nobody can change.

**"It's the network."***— business teams***"It's the app."***— IT teams***Now: the same Zabbix data for both.**

What is still unsolved

This is a field report, not a success story (yet). The management cockpit is validated but not live.

Orphan-SIM detection

Needs calibration against the operator's billing data.

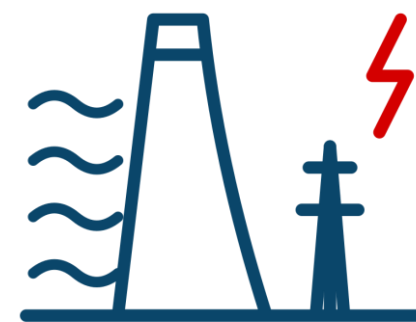
SIM swap = new identity

No reliable way yet to follow a device across IP changes.

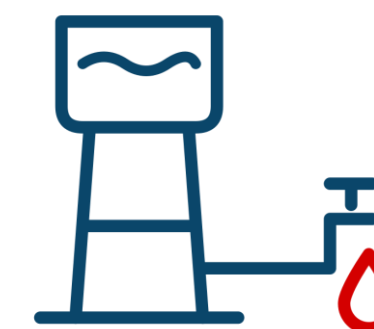
From 28k to 100k

One server, one proxy, no HA — fine for phase 1, not for 100k.

Next: production vs consumption



Power plants



Water assets

Three things to take home

1



Measure independently.

If the app says "down" and Zabbix says "up", it's the app.

2



Unreachable costs money.

252 k€ of silent SIMs, 22% of business meters, 45% of lighting cabinets.

3



Inventory is monitoring.

A third of the fleet down, 645 devices nobody can name. Start by taking stock.

Thank you!

Last talk of the day — time to land softly!

See you at the party tonight : skydiving stories, SIM-swap ideas, or just a drink.

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