

DEVICES & ASSURANCE

i2i NetPulse

A network monitoring system (NMS) for ISPs that shows which customers a fault hits

Customer equipment			ILLUSTRATIVE
SERIAL	MODEL	FIRMWARE	SIGNAL
ZTEG-C8A1F2	ONT · F670L	V9.0.11	-19.8 dBm
HWTG-7B20E1	ONT · HG8245H	V3R017	-21.4 dBm
TPK-40F3A9	Router · EX220	1.2.3	Online
ZTEG-C8B07D	ONT · F670L	V9.0.10	-28.6 dBm
Alarm Low optical power on ZTEG-C8B07D			

ILLUSTRATIVE SCREEN

OVERVIEW

i2i NetPulse is a network monitoring system (NMS) for ISPs. An edge probe on your own network polls switches, routers, OLTs, ONUs, servers and BGP peers, and the platform turns those readings into alerts, dashboards and reports. It is strongest on GPON and EPON fibre networks.

Its distinguishing feature is subscriber impact. NetPulse links ONUs to customers synced from your billing system, so a failed OLT or PON port shows the customers behind it rather than only a list of dead devices. Rules can suppress the flood of per-ONU alerts when a parent fault explains them, which keeps the NOC focused on the cause.

THE CHALLENGE

A fibre ISP watches thousands of ONUs, hundreds of switches and servers, and several BGP sessions. When a splitter or feeder fails, every device below it alarms at once, and the team cannot tell cause from effect or say which customers are affected. Slow degradation goes unseen until the customer calls. Operators need a network monitoring system (NMS) with collection that runs safely inside the network, alerts organised by cause and a link from equipment to subscribers.

AT A GLANCE

- ✓ One probe polls switches, OLTs, servers and BGP peers
- ✓ Alert storms suppressed by parent and child rules
- ✓ Customers behind a failed OLT or PON port listed
- ✓ Fibre routes, splitters and drops kept in a GIS map

Capabilities

Edge probe

A probe you run on your own network polls devices by SNMP and by telnet or SSH command line, pings hosts and listens for syslog. It reports over outbound HTTPS and registers with a one-time token.

- Agentless Linux and Windows drivers
- Prometheus-style exporter polling
- OLT and switch drivers per vendor

Sensors

Sensors cover interfaces, host CPU and memory, PON ports, ONUs, ping, TLS certificates, HTTP, TCP ports, DNS, transceivers, disks, services, containers and BGP peers. Custom SNMP and script sensors extend the set.

Alert engine

Rule types include metric threshold, channel threshold, rate of change, status change, sensor state, power degradation, mass offline, ONU flapping, MAC flapping, loop detection and subscriber online drop. Flap detection, hysteresis and pending duration reduce noise.

Inhibition and maintenance

Parent and child rules let a PON blackout suppress per-ONU alerts. Maintenance windows silence planned work. Bulk acknowledge and resolve, escalation and SLA evaluation support the NOC routine.

Notification routing

Rules send to Telegram, email, WhatsApp or webhook, through recipient groups with quiet hours. Digests and a daily ONU power summary go out on a schedule, and message templates control the wording.

Subscriber impact

Customers and session state sync from i2i billing, and ONUs are linked to customers by MAC. The platform can list the customers behind a device or PON port and alert when the count of online subscribers drops.

Prediction and insights

A model trained per instance predicts ONUs likely to go offline within a day. Views for optical drift, interface flap acceleration and PON saturation, and a customer-impact ranking, help teams act early. The model is about equipment failure, not customer behaviour.

GIS and topology

LLDP builds topology with cable-move detection and stale-link handling. The fibre GIS holds routes, cables, strands, joints, splices, splitters, ODFs and customer drops, and calculates power budgets.

Technical summary

COLLECTION	Edge probe: SNMP, telnet and SSH, ICMP ping, syslog on UDP 514, agentless Linux and Windows drivers
PROBE CONNECTIVITY	Outbound HTTPS to the backend; one-time registration token; no inbound port to the management network
VENDOR DRIVERS	Many GPON and EPON OLT families, Cisco, MikroTik, Huawei and Raisecom switches, and generic SNMP
ALERT CHANNELS	Telegram, email, WhatsApp and webhook, with recipient groups and quiet hours
BILLING INTEGRATION	One-way sync from i2i billing; ONU-to-customer link by MAC address
PREDICTION	Per-instance ONU failure model with a Python sidecar; heuristic views for optical drift and PON saturation
ARCHITECTURE	NestJS API, Next.js web console, React Native field app, Node probe, PostgreSQL and Redis
TENANCY	Multi-tenant with site scoping and role permissions; shared service or dedicated instance

Standards and interfaces

Collection protocols

- SNMP
- Telnet and SSH
- ICMP
- Syslog
- Prometheus-style exporters

Access network

- GPON and EPON OLT and ONU monitoring
- LLDP topology discovery

Related modules

Modules operators often run alongside i2i NetPulse. Each is a separate module; the integrations that exist are listed in the technical summary above.



Where it is used

Cut fibre on a PON

A fibre cut takes a whole PON port offline. The mass-offline rule raises one alert for the port and inhibits the alerts for each ONU beneath it. The operator opens the customer-impact view to see which subscribers are affected and passes the list to support.

Fibre degrading slowly

An optical link loses power a little each day and has not yet crossed a hard threshold. Optical drift insights flag ONUs trending the wrong way, so the field team can clean a connector or replace a splitter before the customer loses service.

One probe per site

An ISP with several POPs installs a probe on each management network. The probes poll switches, servers and BGP peers locally and send results outward over HTTPS, so no inbound firewall rule to the management network is needed.

See i2i NetPulse on your network

Talk to our team about your operator type, your network and where to start. We will show you the module and answer the technical questions.

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