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Integration interfaces

flowchart LR
CORE["VAS Experts
ePDG Monitoring"] CORE --> P["Prometheus
CNCF / OpenMetrics"]
CORE --> S["SNMP v2c
EPDG-MIB"]
CORE --> G["Grafana
JSON Provisioning"]
CORE --> W["Webhooks
ChatOps"]
CORE --> AM["Alertmanager
Routing"]
P --> P1["Cloud-native NMS
Thanos / Cortex / Mimir"]
S --> S1["Legacy NMS
HP OpenView, NetAct
IBM Tivoli"]
G --> G1["NOC Wall Displays
Drill-down Analytics"]
W --> W1["Telegram / Slack
PagerDuty / OpsGenie"]
AM --> AM1["Smart routing
Severity-based"]

1. Prometheus (CNCF Standard)

The native `/metrics` endpoint on port **9817** is built into fast-epdg. The format is standard text format Prometheus v0.0.4 (compatible with OpenMetrics). Aggregation is supported with the central Prometheus operator; `remote_write` team support for long-term storage in Thanos, Cortex, Grafana Mimir.

2. SNMP v2c — EPDG-MIB

47 OID covers the Prometheus metric + **14 trap notifications** (with raise/clear pairs according to RFC 3877 ALARM-MIB). Compatible with HP OpenView, IBM Tivoli NetCool, Nokia NetAct, Huawei U2000.

flowchart TB
IANA["IANA PEN
enterprises
.1.3.6.1.4.1"] VAS["VAS Experts
.1.3.6.1.4.1.43823
(vas.expert)"] EPDG["EPDG-MIB
.43823.1"] EPC["EPC Monitoring
.43823.100"]
IANA --> VAS
VAS --> EPDG
EPDG --> EPC
EPC --> OBJ["epdgObjects
.43823.1.1"]
EPDG --> NOTIF["epdgNotifications
.43823.1.2
14 trap types"]
EPDG --> CONF["epdgConformance
.43823.1.3"]
OBJ --> SERVICE["service .1.1.1
4 OID"]
OBJ --> IKE["ikev2 .1.1.2
6 OID"]
OBJ --> GTP["gtp .1.1.3
8 OID"]
OBJ --> DIAM["diameter .1.1.4
7 OID"]
OBJ --> SESS["sessions .1.1.5
8 OID"]
OBJ --> SYS["system .1.1.6"]

8 OID"] OBJ --> NET["network .1.1.7
6 OID"] NOTIF --> TRAPAGR["7 raise / 7 clear
pairs"]

Examples of SNMP requests:

```
# The entire ePDG tree
snmpwalk -v2c -c public <host>.1.3.6.1.4.1.43823.1

# Service availability (Gauge 0..1)
snmpget -v2c -c public <host> .1.3.6.1.4.1.43823.1.1.0
```

3. Grafana

4 JSON dashboard support (35+ panels total):

- **ePDG Overview** — availability, KPI connections, sessions, state of interfaces
- **IKEv2 Details** — Messages, Performance, Errors, IKE SA Lifecycle
- **GTP Details** — GTPv2-C + GTP-U data on PGW nodes
- **Diameter Details** — Application messages, delays, watchdog

Automatic installation through an API that supports Grafana. Adaptive design for Network Control Center (NOC) status monitors with auto-update every 15 seconds.

4. Alertmanager Webhooks

Webhook interface for integration with any notification system: Telegram Bot, Slack, PagerDuty Events API v2, OpsGenie, Microsoft Teams. A separate **SNMP Trap Sender** service converts Alertmanager webhooks to SNMP v2c traps with Enterprise OID.