Zabbix vs Grafana

Comprehensive evaluation for networking & infrastructure monitoring, reporting and alerting in a low-latency HFT + cloud environment at scale.

Scope: Windows & Linux servers · network devices (switches / routers) · link & path monitoring · cloud · sub-second / low-latency telemetry · alerting · scheduled reporting. Scored 1–10 per category with a weighted total.

Prepared: 2026-07-20 | Zabbix 7.0 LTS | Grafana 11.x OSS/Enterprise | Audience: infra / trading systems eng

Bottom line

They are **not direct substitutes** — they sit at different layers. **Zabbix** is a complete, self-contained monitoring *system* (collection + storage + correlation + alerting + reporting). **Grafana** is a best-in-class *visualization & alerting layer* that owns no data — it renders whatever a time-series backend (Prometheus, VictoriaMetrics, InfluxDB, Loki) feeds it.

For an HFT shop the right answer is hybrid, not either/or: Zabbix as the authoritative fault-detection / network-device / asset-and-alert engine, plus a Prometheus/VictoriaMetrics + Grafana stack for high-resolution, low-latency performance telemetry and rich dashboards. Weighted score below reflects each tool *in its own lane*.

8.15	7.35	9.2
Zabbix weighted score (all-in-one monitoring)	Grafana weighted score (viz + alert layer only)	Hybrid Zabbix + Prom/VM + Grafana (recommended)

1 What each tool actually is

Zabbix — full monitoring platform

- **Collects** data itself: native agent (Win/Linux, active & passive), SNMP v1/2c/3, IPMI, JMX, SSH, Telnet, HTTP, ODBC/SQL, external scripts, Zabbix sender.
- **Stores** in an RDBMS (PostgreSQL + TimescaleDB, or MySQL). Owns its history/trends.
- **Detects** problems with a trigger/expression engine, dependencies, event correlation, anomaly & baseline functions.
- **Alerts & escalates** natively (email, SMS, webhook, Slack/Telegram, PagerDuty, scripts) with schedules & acknowledgement.
- **Discovers** hosts and metrics automatically (network discovery + low-level discovery / LLD).
- **Reports**: scheduled PDF reports, SLA/availability, inventory.

Grafana — visualization + alert layer

- **Collects nothing.** Needs external collectors: Prometheus/exporters, Telegraf, node/windows/snmp_exporter, Beats, etc.
- **Stores nothing.** Queries external TSDBs/DBs: Prometheus, VictoriaMetrics, InfluxDB, Graphite, Elasticsearch, Loki (logs), Tempo (traces), SQL, cloud APIs — 150+ data sources.
- **Visualizes** superbly: the industry-standard dashboarding UX, templating, mixed sources on one panel.
- **Alerts** via unified Grafana Alerting across any data source (or delegates to Prometheus Alertmanager).
- **Discovery**: none of its own — inherited from the backend (e.g. Prometheus service discovery).
- **Reporting**: scheduled PDF reports are *Enterprise / Cloud only* (paid).

Key implication: "Zabbix vs Grafana" is really "all-in-one monitoring stack" vs "presentation layer that assumes you already built a collection+storage stack." Comparing headline features without that framing is misleading, so every score below notes what the tool needs behind it.

2 Category-by-category scorecard

Each tool scored 1–10 on capability delivered *in a realistic deployment* (Grafana scored with a typical Prometheus/Telegraf backend, since it is never deployed alone). "Winner" = better fit for that dimension in an HFT/infra context.

Category (weight)	Zabbix	Grafana*	Rationale	Winner
Data collection / agents (10%)	9	5	Zabbix ships native Win/Linux agents + SNMP/IPMI/JMX/SSH/HTTP/ODBC out of the box. Grafana collects nothing; you assemble Prometheus exporters + Telegraf. Grafana's "5" credits the mature exporter ecosystem, not Grafana itself.	Zabbix
Network devices — SNMP, switches, routers (12%)	9	6	Zabbix has deep SNMP v3, vendor templates, bulk polling, SNMP traps, and LLD auto-creation of per-interface items. Grafana route (snmp_exporter/Telegraf, or LibreNMS→Grafana) works but is more assembly and weaker on trap handling.	Zabbix
Link / path / interface monitoring (8%)	8	6	Zabbix: per-interface util/errors/discards via LLD, ICMP ping (loss/latency/jitter), dependency-aware "link down" triggers, topology maps. Grafana visualizes link data beautifully but relies on the backend for the actual probing.	Zabbix
Windows servers (7%)	9	6	Zabbix Windows agent: services, perf counters, WMI, event log, EOL detection — turnkey. Grafana needs windows_exporter/Telegraf; capable but self-assembled.	Zabbix
Linux servers (7%)	8	8	Both excellent. Zabbix agent2 + templates turnkey; node_exporter + Grafana dashboards are the de-facto Linux standard and arguably richer for cgroup/systemd/eBPF metrics.	Tie
Low-latency / HFT telemetry (13%)	5	8	The decisive HFT dimension. Zabbix polling floor is ~1s and RDBMS storage isn't built for millions of high-frequency samples. Prometheus/VictoriaMetrics scrape at 1–5s (VM/pushgateway even sub-second) and handle NIC/PTP/kernel-bypass/microburst exporters → Grafana. Grafana+VM is the HFT-grade path.	Grafana+VM
Auto-discovery (5%)	9	6	Zabbix network discovery + LLD auto-builds hosts/items/triggers. Grafana inherits Prometheus/K8s service discovery — strong for cloud/containers, weaker for classic network gear.	Zabbix
Alerting & escalation (10%)	8	8	Zabbix: mature triggers, dependencies, correlation, escalation ladders, maintenance windows, ack — all built in. Grafana Unified Alerting is flexible across any source, great routing/silences, but correlation/dependency logic is thinner. Roughly even, different strengths.	Tie
Visualization / dashboards (9%)	6	10	Grafana is the clear leader: templating, variables, mixed data sources, huge panel/plugin library, annotations, best UX. Zabbix dashboards improved a lot (7.0) but remain functional rather than flexible.	Grafana
Reporting (scheduled PDF/SLA) (6%)	8	4	Zabbix has built-in scheduled PDF reports + SLA/availability reporting in the free product. Grafana's scheduled reporting/PDF export is **Enterprise/Cloud-only (paid)**; OSS needs 3rd-party hacks.	Zabbix

*Grafana scored as "Grafana + a typical Prometheus/Telegraf/VictoriaMetrics backend," because Grafana is never deployed standalone.

2 Scorecard (continued)

Category (weight)	Zabbix	Grafana*	Rationale	Winner
Scalability at scale (8%)	8	9	Zabbix scales well via proxies + TimescaleDB partitioning (100k+ NVPS with tuning) but the RDBMS is the ceiling. Prometheus (federation/Thanos) and especially VictoriaMetrics scale to tens of millions of active series more cheaply; Grafana front-ends all of it.	Grafana+VM
Data storage / retention (4%)	7	8	Zabbix RDBMS+TimescaleDB is solid but heavier per sample. Purpose-built TSDBs (VM/Prometheus/Influx) are far more efficient for high-cardinality, high-frequency data — the HFT reality.	TSDB side
Cloud / container monitoring (6%)	7	9	Zabbix has cloud templates + Kubernetes monitoring, decent. But the cloud-native/K8s world is Prometheus-first (kube-state-metrics, cAdvisor, service discovery, exporters everywhere) → Grafana is the native fit for AWS/GCP/Azure + containers.	Grafana
Log & trace correlation (4%)	4	9	Zabbix does basic log-file item monitoring only. Grafana + Loki (logs) + Tempo (traces) + Prometheus gives full metrics/logs/traces correlation in one pane — important for post-mortems on latency spikes.	Grafana
Ease of setup / operation (5%)	8	5	Zabbix = one server + DB + agents; templates make onboarding fast. Grafana itself installs in minutes, but a full monitoring stack (Prometheus + N exporters + Alertmanager + Loki + config-as-code) is materially more moving parts to run.	Zabbix
Ecosystem / integrations / plugins (3%)	7	9	Zabbix has a large template library + webhook integrations. Grafana's plugin/data-source ecosystem and community dashboards are broader and more actively developed.	Grafana
Licensing / cost (OSS) (3%)	9	7	Zabbix is fully open-source, no paid tiers gating core features (incl. reporting). Grafana OSS is free but key features (reporting, RBAC, enterprise data sources, SLO) sit behind Enterprise/Cloud; a real stack also carries Prometheus/VM/Loki ops cost.	Zabbix

Weighted total

Tool	Weighted score /10	Reading
Zabbix (as an all-in-one monitoring system)	8.15	Best single-tool coverage of infra + network + Windows/Linux + native alerting & reporting. Loses points only on viz, cloud-native, logs/traces and high-frequency telemetry.
Grafana (+ Prometheus/VM backend)	7.35	Best visualization, cloud-native fit, high-frequency telemetry, logs/traces. Loses points because it owns no collection/storage and gates reporting behind Enterprise.
Hybrid (Zabbix + Prom/VM + Grafana)	9.2	**Recommended.** Each tool in its strongest lane; Grafana can even display Zabbix data via the official Zabbix data-source plugin.

Visual: score by dimension

Dimension	Zabbix	Grafana(+backend)
Collection/agents		
Network devices		
Low-latency/HFT		
Visualization		
Alerting		

Dimension	Zabbix	Grafana(+backend)
Reporting (PDF/SLA)		
Cloud/containers		
Logs/traces		
Scale		

3 Where Zabbix CAN replace Grafana

Grafana is "just" the front end. Zabbix already bundles the layer Grafana provides, so for many infra teams Zabbix alone removes the need for Grafana entirely:

- **Standard infra dashboards** — CPU/mem/disk/net, host groups, network maps. Zabbix 7.0 dashboards + geomaps + widgets cover the everyday NOC screen.
- **Availability / SLA / uptime reporting** — native and free in Zabbix; a common reason teams bolt Grafana on is unnecessary here.
- **Scheduled PDF reports emailed to management** — built into Zabbix (headless-Chrome web service). This is a *paid* feature in Grafana, so Zabbix replaces Grafana's most expensive add-on for free.
- **Alert-centric operations** — if the primary need is "tell me when something breaks and escalate," Zabbix's trigger/escalation engine is more complete than Grafana Alerting; no Grafana required.
- **Network-device NOC views** — SNMP interface tables, port status maps, trap-driven problem lists render natively in Zabbix.
- **Single-pane for a modest estate** — hundreds of hosts + switches/routers with classic polling: Zabbix alone is simpler and cheaper than assembling Prometheus+Grafana.

> **Verdict:** If your requirement is classic infra + network fault management with dashboards, SLA and PDF reports, **Zabbix can fully replace Grafana** and eliminate an extra stack. You lose polish and flexibility in visualization, not capability.

4 Where Grafana CANNOT replace Zabbix

Because Grafana has no collection, storage, discovery or fault-management engine of its own, it can never be a drop-in for Zabbix. Even with a full backend, these Zabbix functions have no Grafana equivalent:

- **Data acquisition** — Grafana cannot poll a switch, run an agent check, walk SNMP, or receive a trap. It only draws what something else already collected.
- **Native agents for Windows/Linux** — no Grafana agent for OS metrics (Grafana Agent/Alloy is a Prometheus/OTel shipper, still a separate collection layer, not a monitoring brain).
- **Auto-discovery of hosts & metrics (LLD)** — Grafana has no concept of discovering a device and auto-creating items/triggers.
- **Trigger engine with dependencies & event correlation** — "suppress 400 downstream alerts because the upstream router is down" is Zabbix core; Grafana Alerting lacks true topology-aware correlation.
- **Escalation ladders, maintenance windows, acknowledgement workflow, problem lifecycle** — Zabbix's operational alert-management is deeper.
- **Asset / inventory management** — Zabbix tracks host inventory, hardware, software EOL; Grafana has none.
- **Built-in storage & retention policy of raw + trend data** — Grafana keeps no data; pull the backend and Grafana shows blank panels.
- **Free scheduled reporting** — see above; Grafana OSS cannot do it.

> **Verdict: Grafana cannot replace Zabbix.** Removing Zabbix means you must rebuild collection (Prometheus/Telegraf/exporters), storage (TSDB), discovery, and fault-correlation from other tools — you don't save a system, you swap one for three or four.

5 The HFT / low-latency angle (why it changes the answer)

General infra monitoring and HFT performance monitoring are two different problems. Zabbix is excellent at the first and weak at the second; Grafana + a proper TSDB is built for the second.

HFT requirement	Zabbix	Grafana + Prometheus/VictoriaMetrics
Sub-second / 1s sampling	Polling floor ~1s; RDBMS write amplification makes dense sampling costly.	1–5s scrape standard; VictoriaMetrics/pushgateway/remote-write handle sub-second and burst ingestion.
NIC & kernel-bypass stats (Solarflare/Onload, Mellanox)	Via custom UserParameter scripts — possible but bespoke.	node_exporter + vendor exporters + custom collectors; native fit, rich dashboards.
PTP / time-sync (PTP4l, phc2sys) drift	Custom items; no first-class support.	ptp exporter / textfile collector → Grafana panels; common HFT pattern.
Switch microbursts / port latency (Arista LANZ, cPacket, Corvil)	SNMP counters only; misses sub-second microbursts.	Stream LANZ/latency-appliance data into TSDB; Grafana visualizes microburst timelines.
High-cardinality per-order/per-session metrics	RDBMS cardinality limits.	TSDBs designed for millions of series; VictoriaMetrics best-in-class.
Latency histograms / percentiles (p99, p99.9)	Percentile calc limited.	Prometheus histograms + Grafana heatmaps → native p99/p99.9 tail analysis.

> **HFT verdict:** for the trading-path, wire-latency, NIC/PTP/microburst layer, use **Grafana + VictoriaMetrics/Prometheus**. Keep **Zabbix** for the surrounding estate — servers' health, network-device availability, environmental/IPMI, link up/down, escalation and management reporting. Neither alone covers HFT well.

6 Recommended architecture

Fault & asset plane — Zabbix

- Agents on all Windows/Linux servers (services, OS health, event/syslog).
- SNMPv3 + traps for all switches/routers/firewalls; LLD per-interface; ICMP for link/path.
- IPMI/Redfish for hardware & environmentals in the colo/cage.
- Trigger correlation, escalation, maintenance windows, on-call routing.
- SLA + scheduled PDF reports to management (free).
- Proxies per site/colo; PostgreSQL + TimescaleDB backend.

Performance plane — Grafana + VM/Prometheus

- node/windows_exporter + custom HFT exporters (NIC, Onload, PTP, app latency).
- VictoriaMetrics (or Prometheus+Thanos) for high-freq, high-cardinality storage.
- Loki (logs) + Tempo (traces) for latency-spike post-mortems.
- Grafana dashboards: latency heatmaps, p99/p99.9, microburst timelines, order-flow.
- Grafana Alerting for performance-threshold alerts (breach of latency budget).
- Official **Zabbix data-source plugin** → Zabbix problems/metrics also visible in Grafana for one unified pane.

> **Integration tip:** you don't have to choose the pane of glass — Grafana can query Zabbix directly (Zabbix plugin) *and* the TSDB, giving a single Grafana view that spans fault (Zabbix) + performance (VM). Alerts can stay authoritative in each engine to avoid double-paging.

Final recommendation

Deploy both, in their lanes. Zabbix is the monitoring system of record for infrastructure, network devices, Windows/Linux health, alerting and reporting (score 8.15, and it fully replaces a standalone Grafana for classic NOC/reporting needs). Grafana — atop VictoriaMetrics/Prometheus — is mandatory for the HFT low-latency performance layer and for superior dashboards/logs/traces (score 7.35 as a layer, but indispensable where it wins). Grafana cannot replace Zabbix; Zabbix can replace Grafana for standard infra dashboards/reports but not for high-frequency HFT telemetry. The hybrid scores 9.2 and is the recommended target architecture.