Komodo Systems

15 NetOps Tasks Done More Efficiently with Komodo Eye®

Komodo Eye is the superior network monitoring solution for mission-critical networks.

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Executive Summary

In the increasingly complex landscape of mission-critical network infrastructure, traditional monitoring tools and manual processes are no longer sufficient to maintain required uptime, security, and regulatory compliance.



Komodo Eye® transforms Network Operations (NetOps) from a reactive struggle into a proactive, efficient, and highly automated powerhouse.

By bridging the gap between legacy hardware and modern telemetry, Komodo Eye provides a unified "Source of Truth" spanning 88,000 device models from 8,000 manufacturers across Layer 0 (physical power/environment) through Layer 7 (applications and grid logic).

The Efficiency Gap in Modern Networks

Network engineers currently face significant bottlenecks that drain productivity and increase the Mean Time to Repair (MTTR):

- **Manual Resource Drains:** Identifying rogue endpoints or tracing IP connectivity through complex MPLS environments takes hours of hop-by-hop CLI logins and spreadsheet searches.
- **Data Loss from Metric Averaging**: Most legacy tools purge or roll up granular performance data into broad averages after 30 to 90 days, leaving teams blind to multi-year degradation trends like tree growth along microwave paths or gradual battery deterioration.
- **Vendor Silos:** Managing separate, vendor-specific tools across routing, optical, microwave, power, and SCADA equipment creates operational blind spots and fuels inter-team finger-pointing during incidents.

Strategic Impact

Komodo Eye does more than just monitor; it unifies real-time telemetry, semantic log intelligence, and automated closed-loop remediation into a single browser-based platform. By automating CMDB synchronization, maintaining a 5-year granular data lake, and providing hierarchical site journals, Komodo Eye eliminates redundant truck rolls and dramatically reduces Mean Time to Repair (MTTR) across critical networks.

Summary of NetOps Tasks Done More Efficiently with Komodo Eye

Task	Manual or Legacy Approach	With Komodo Eye	Operational Benefit
#1 **Locating Rogue or Silent Devices (MAC-Based Port Tracing)**	**2–4 hours:** Engineers manually log into individual switch CLIs, hop between devices, and search forwarding tables to find where an unmapped or silent device is plugged in.	**Seconds:** Scours forwarding and ARP tables across all switches to pinpoint the exact physical location (e.g., *Summit Substation, Switch 4, Port 118*), even if the device blocks ICMP pings behind a firewall.	**98% reduction** in time spent locating rogue or silent devices.
#2 **Long-Term Encroachment Analysis (Microwave & Fiber)**	**Reactive:** Standard tools roll up or purge high-resolution metrics after 30–90 days, obscuring slow, multi-year physical degradation until a catastrophic link failure occurs.	**Proactive:** Retains unconsolidated 5-minute telemetry (latency, packet loss, jitter, optical levels) for 5 years in ClickHouse, allowing engineers to spot multi-year trends like microwave path fading from tree growth.	**Eliminates emergency link repairs** by enabling scheduled, proactive clearance and maintenance.
#3 **Cross-Tier Root-Cause Correlation (Power to Application)**	**4 to 8 hours:** Disparate tools monitor power, optical paths, and IP routing separately, causing finger-pointing between facilities and network teams when services fail.	**Minutes:** Unifies Layer 0 through Layer 7 in one correlation engine; automatically traces an application or router outage back to a dropped microwave link, a degraded rectifier, or an empty generator tank.	**Up to 85% reduction** in MTTR; resolves cross-domain communication barriers without vendor finger-pointing.

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#4 **Instant IP Connectivity & Path Localization in Complex MPLS**	**30 to 60 minutes:** Manually cross-referencing IPAM spreadsheets, VRF routing tables, and nested MPLS label bindings across core and edge devices.	**Instant:** Layer 3 IP search immediately identifies the device status, communicating router, and exact physical interface/port—even across complex, nested MPLS and VPRN environments.	**Saves approx. 45 minutes** per complex IP connectivity troubleshooting ticket.
#5 **Zero-Touch & Light-Touch Field Provisioning (PON & pLTE)**	**Hours to days per device:** Technicians manually build and push individual configurations for CPEs, leaf switches, and OLTs via CLI. For pLTE, engineers must register endpoint parameters, bind SIM/device credentials, manually program core security policies, and validate connectivity, resulting in high overhead and a ~10% typo error rate.	**Minutes:** Uses dynamic golden configuration templates and northbound API orchestration (e.g., ADTRAN MCP for PON, Nokia MantaRay/NSP for pLTE). Field technicians just mount and power on the pLTE-connected device; Komodo Eye handles downstream provisioning, network-core registration, validation, and ongoing monitoring behind the modem.	Cuts device turn-up time from about **2 hours to under 10 minutes**, eliminating manual CLI errors, speeding up pLTE core cutovers, and ensuring standardized security baselines from day one.
#6 **Junior Technician Mentoring via On-Box AI (Komodo AI Phase 1)**	**Constant Interruptions:** Senior engineers spend up to 20% of their day answering routine technical questions; Tier-1 operators wait hours for an SME during outages.	**Self-Service:** Air-gapped, on-premises RAG AI indexes uploaded technical manuals, SOPs, and acceptance testing records into a local vector database, providing instant, source-grounded CLI guidance.	**Reclaims 1 full day per week** for senior staff (~$31,200 annual labor savings per technical asset).

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#7 **Detecting Substation Power & Battery Plant Deterioration**	**Reactive:** Backup power systems operate as unmonitored "black boxes" until commercial AC fails, resulting in unplanned site outages, equipment damage, and potential reliability/compliance issues.	**Historical Analytics & Alarming:** Tracks granular DC voltage, rectifier load current, battery string impedance, and discharge cycles to flag early power plant degradation before outages strike.	**Saves $15,000–$25,000** per avoided rectifier/battery failure to support continuous utility compliance.
#8 **Detecting Rare Hardware & Firmware Manufacturing Anomalies**	**Virtually Impossible:** Human engineers cannot identify isolated, low-frequency warning signatures buried among millions of daily syslog events.	**Automated Ingestion:** Semantic intelligence categorizes raw syslog, traps, and informs, flagging rare error patterns (e.g., an error appearing only 4 times a year across 10 million devices).	Early detection isolates faulty hardware batches and firmware bugs before they cause wide scale recalls or failures.
#9 **Real-Time Storm & Disaster Risk Assessment via Geocoding**	**Manual Mapping:** Operators manually cross-reference tabular alarm lists against external meteorological radar maps to identify affected geographic zones.	**Real-Time Geocoding:** Every data point, alert, and incoming message is geocoded on ingest, automatically rendering regional failure clusters against storm paths on interactive online or offline maps.	**Reduces decision-making time by 90%** during severe weather events, accelerating crew dispatch.

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#10 **Automated CMDB Inventory Reconciliation & Serial Tracking**	**Weeks of Manual Audits:** Discrepancies between physical network state and CMDB databases cause stale inventory, unmapped assets, and wasted field time.	**Automated Nightly Sync:** Ingests live device states from Itron, Quickbase, AMM, and ServiceNow; automatically detects serial number swaps from SNMP polls and pushes updates back to the CMDB.	Ensures 100% synchronization of discovered assets and serial numbers to potentially recapture **$60,000 to $80,000** in recurring annual manual audit labor.
#11 **Eliminating Redundant Field Visits via Hierarchical Journaling**	**High Frequency:** A morning crew rolls a truck to re-check an asset because maintenance performed by an overnight technician was not documented in an accessible system.	**Hierarchical Context:** On-box site and device journaling captures maintenance notes, SFP replacements, and photos directly in the UI, rolling up from device to site level across shifts.	**Saves $500–$2,000 per avoided truck roll**; preserves critical operational context for incident post-mortems.
#12 **Closed-Loop IPsec Tunnel Self-Healing & Asymmetric Flow Repair**	**1–2 hours per incident:** Monitoring fails to spot "hung" tunnels (passing outbound traffic but receiving zero return), requiring manual isolation and CLI restarts.	**Automated Remediation:** Concurrently monitors traffic counters and policy flows across 10,000–80,000+ tunnels every 5 minutes; automatically soft-bounces the tunnel interface up to 3 times before ticketing.	**Reduces MTTR from hours to seconds**; potentially reclaim hours of manual engineering troubleshooting per tunnel annually.

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#13 **Multi-Vendor NMS Consolidation & Operational Simplification**	**High Context-Switching:** Operators must manage 10–12 separate brand-specific NMS portals (Cisco, Nokia, ADTRAN, microwave), creating operational silos and tool sprawl.	**Single Source of Truth:** Unifies monitoring across 88,000+ device models and 8,000 manufacturers within a single, agentless browser interface.	Eliminates vendor blind spots, retires redundant NMS software licenses, and streamlines daily NOC workflows.
#14 **Monitoring Non-IP Legacy Gear & Low-Bandwidth Bitter Edge**	**Channel Congestion / Blindness:** Legacy gear lacks IP connectivity, while standard ping/SNMP sweeps flood low-bandwidth 900 MHz SCADA channels and cause outages.	**Native Bitter-Edge Support:** Connects directly to legacy serial (1200 baud), TL1 (SONET), and Modbus (breakers/RTUs); uses an indirect "Slow Pinger" to poll radios safely from the base station.	**Avoids multi-million-dollar legacy "rip-and-replace" projects** by maintaining full visibility across aging assets and modern networks.
#15 **Predictive Optical & Fiber Degradation Tracking**	**Reactive Response:** Optical power losses and fiber attenuation declines are only addressed after light levels cross hard failure limits and drop live traffic.	**Mathematical Trend Analysis:** Continuously polls optical Rx/Tx levels every 5 minutes and applies third-derivative algorithms to filter seasonal thermal swings and forecast physical breaks months ahead.	Provides **multi-month lead time** to inspect and repair degrading fiber spans before critical services suffer outages.

Conclusion

As network complexity and regulatory demands escalate, Komodo Eye shifts organizations from reactive firefighting to proactive, structured operational efficiency by consolidating over 88,000 device models across Layer 0 through Layer 7 into a single, high-fidelity "Source of Truth."

Backed by a 5-year ClickHouse data lake and capabilities ranging from automated IPsec self-healing and zero-touch field turn-ups to on-box air-gapped AI mentoring, the platform delivers quantifiable results—reducing rogue device location times by 98%, cutting MTTR, reclaiming an entire day per week for senior engineers, and ensuring audit-ready compliance with strict NERC CIP requirements, such as those applicable to EACMS.

Ultimately, Komodo Eye manages everything from 1200-baud legacy gear to modern high-speed infrastructure within a unified, self-healing ecosystem, ensuring mission-critical networks maintain operational resilience, regulatory compliance, and total control over their physical and logical assets.