HyperSDK

Production System Observability

Eight specialized observability views give you deep visibility into system health, processes, containers, alerts, security, debugging, kernel state, and automated explanations.

8 Views — Health Score — Smart Alerts — Explain Mode

8 Observability Views

Complete system visibility from a single dashboard.

System Health

Composite health score (0-100) with CPU, memory, disk, and network subsystem breakdown. Real-time gauge visualization.

Processes

Live process table with CPU/memory usage, sortable columns, process tree view, and kill/signal capabilities.

Containers

Container runtime status across Docker and Podman. Start, stop, inspect, and view logs from the browser.

Alerts

Multi-condition alert rules with duration-based triggers, severity levels, and notification channels.

Security

SELinux status, firewall rules, open ports, failed login attempts, and CVE exposure summary.

Debug

Live top, iostat, vmstat, and netstat output in a browser terminal. No SSH required.

Kernel

Kernel version, loaded modules, sysctl parameters, dmesg tail, and NUMA topology visualization.

Explain

Ask "Why is CPU high?" and get automated root-cause analysis with contributing factors and recommendations.

Health Score

A single number that captures your system's overall state.

0-100
Composite health gauge

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Subsystem scores

Real-time
WebSocket updates

Bottleneck Detection

Bottleneck Type	Indicators	Score Impact
CPU-Bound	User + system CPU > 80%, load average > core count	-20 to -40 points
Memory-Bound	Available memory < 10%, swap usage > 50%	-15 to -35 points
IO-Bound	Disk utilization > 90%, iowait > 20%	-20 to -40 points
Network-Bound	Interface saturation > 80%, packet drops > 0.1%	-10 to -25 points

Subsystem Breakdown

Each subsystem (CPU, memory, IO, network) contributes a weighted score to the composite. The lowest subsystem is highlighted as the primary bottleneck.

Historical Trend

Health score history over 24 hours, 7 days, and 30 days. Spot degradation trends before they become incidents.

Smart Alerts

Multi-condition rules that reduce noise and catch real issues.

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Multi-Condition Rules

Combine CPU, memory, disk, and network thresholds in a single rule. All conditions must be true before the alert fires.

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Duration-Based Triggers

Require conditions to persist for a configurable duration (e.g., CPU > 90% for 5 minutes) to eliminate transient spikes.

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Severity Levels

Info, Warning, Critical, and Emergency severity levels. Each level can route to different notification channels.

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Notification Channels

In-app notifications, webhooks, email, and Slack integration. Configure per-rule or per-severity routing.

Example Alert Rule

```
Name: "High CPU + Memory Pressure"
Conditions: cpu_percent > 90 AND memory_available_mb < 512
Duration: 5m
Severity: Critical
Notify: webhook, slack
```

Explain Mode

"Why is CPU high?" — automated root-cause analysis at your fingertips.

Natural Language Queries

Ask questions like "Why is CPU high?", "Why is memory low?", or "What's causing IO wait?" and get structured answers.

Contributing Factors

Each explanation lists the top contributing factors ranked by impact — specific processes, kernel threads, or subsystem states.

Recommendations

Actionable recommendations accompany each explanation: "Kill process X", "Increase swap", "Reduce IO concurrency".

Point-in-Time Analysis

Analyze the current moment or replay historical data to understand what caused a past incident.

Example Explanation

> ***Q: Why is CPU high?***
>
> *CPU usage is 94.2% (system: 31%, user: 63%). Top factors:*
> *1. **qemu-kvm (PID 4521)** — 42% CPU, running VM "web-prod-03" with 8 vCPUs*
> *2. **java (PID 7832)** — 18% CPU, heap size 4 GB, GC every 2s*
> *3. **kworker/u16:2** — 8% CPU, flushing dirty pages (IO pressure)*

Recommendation: *Consider migrating VM "web-prod-03" to a less loaded host, or reduce its vCPU allocation from 8 to 4.*

Debug Tools

Live system diagnostics in your browser — no SSH required.

Live top

Real-time process monitor with CPU, memory, and thread count. Sort by any column. Updates every second via WebSocket.

Live iostat

Per-device IO statistics: reads/writes per second, throughput, await time, and queue depth. Spot disk bottlenecks instantly.

Live vmstat

Virtual memory statistics: procs, memory, swap, IO, system, and CPU columns. Historical sparkline charts for each metric.

Live netstat

Active connections, listening ports, TCP state distribution, and bandwidth per connection. Filter by port or process.

Observe Everything, Fix Faster

Eight specialized views give your team the visibility they need to detect, diagnose, and resolve issues before users are impacted.