Kunstig intelligens i praksis

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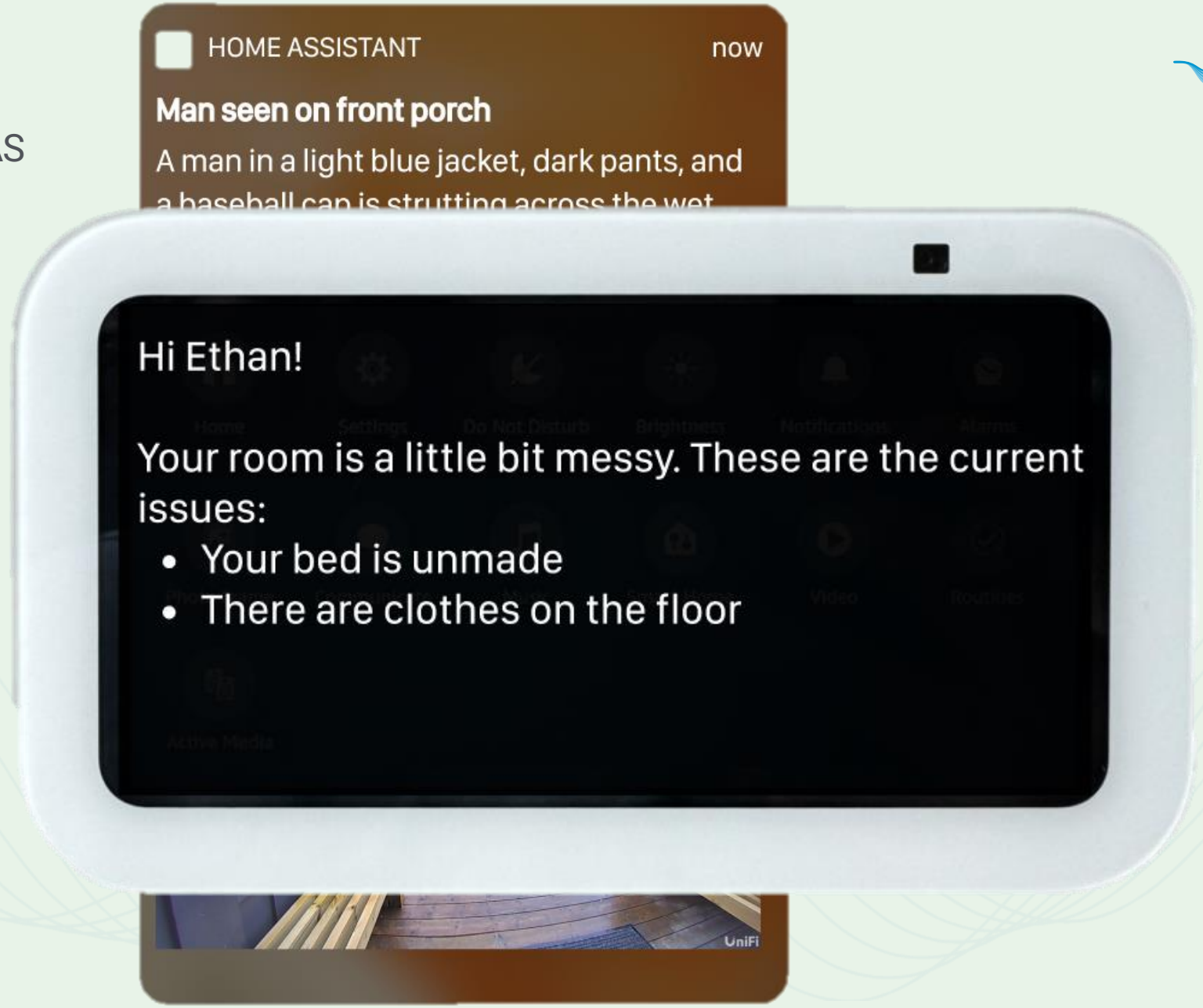
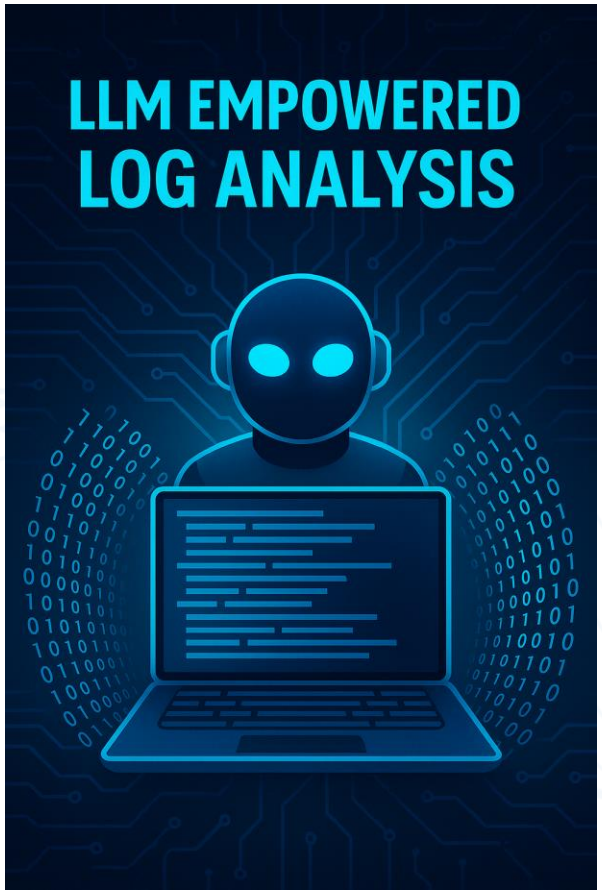
Profesjonell nerd og AI-entusiast



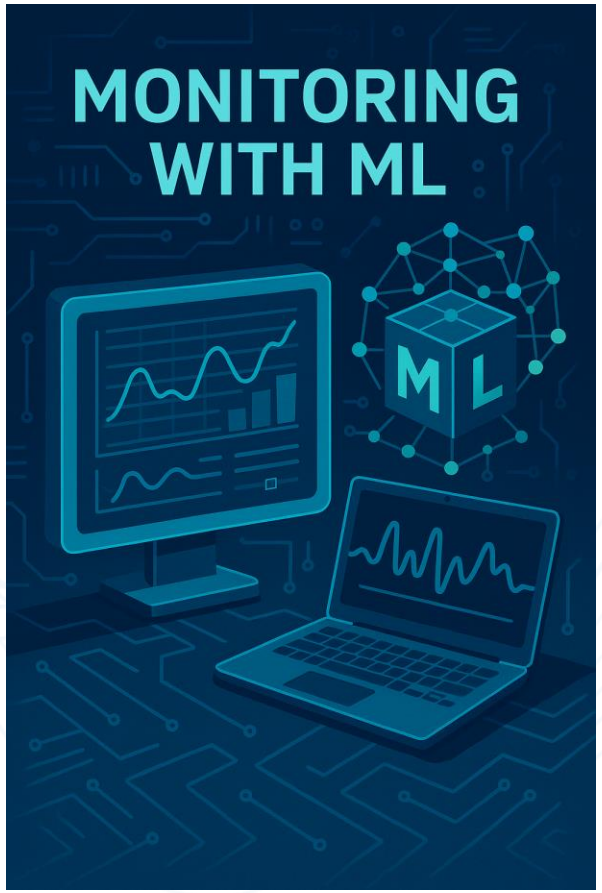
Fra kaos til kontroll – før første kaffekopp!

Logg-analyse



Kameraovervåkning

Maskinlæring



Sensitivitet: Intern

Verktøy

Datacenter GPU's

Ollama

n8n

Sensitivitet: Intern

Large Language Model

LLM

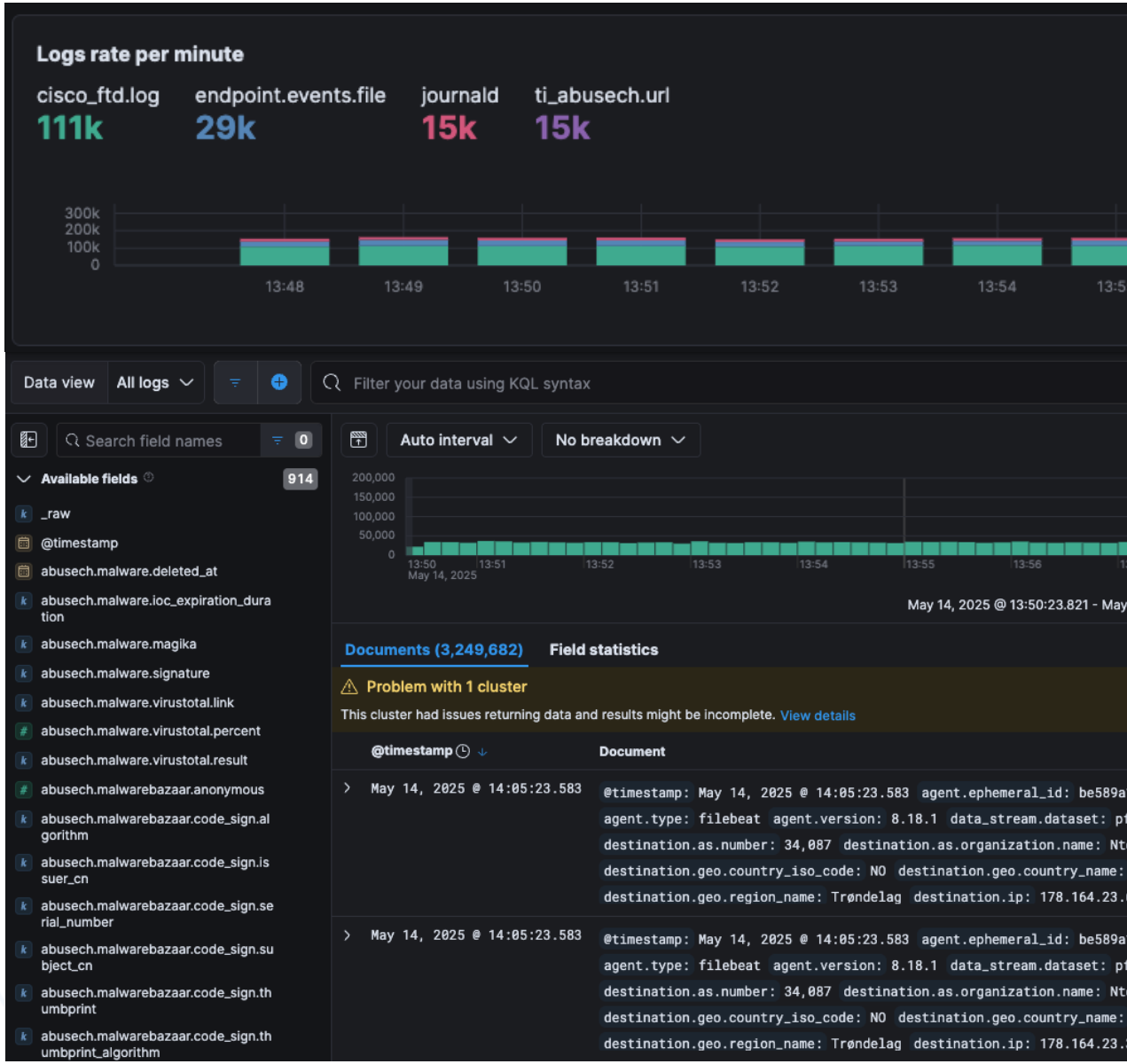
Sensitivitet: Intern

Log analysis with qwen3:32b

Logginnsamling

- Elastic Stack for logg og analyse
- 250 millioner logglinjer daglig
- Kilder: nettverksutstyr, servere og systemer
- Totalt ***30 milliarder+*** logglinjer lagret

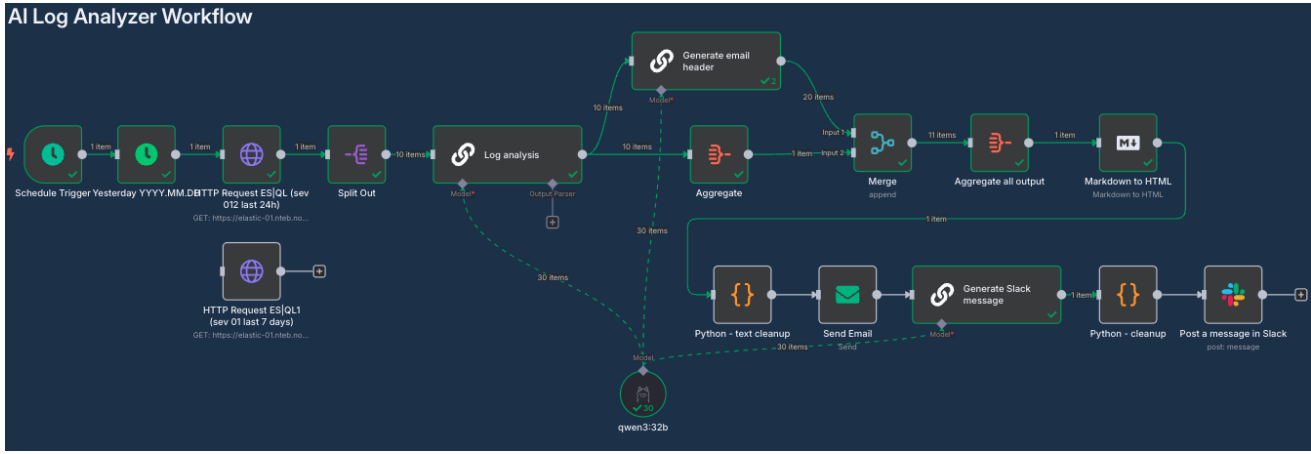
→ Manuell gjennomgang?



Sensitivitet: Intern

Automasjon og analyse

- n8n workflow for automatisk analyse
- Qwen3 forklarer logg og foreslår løsning
- Prompt er viktig – analysen må være gjenkjennelig hver dag og for hver linje



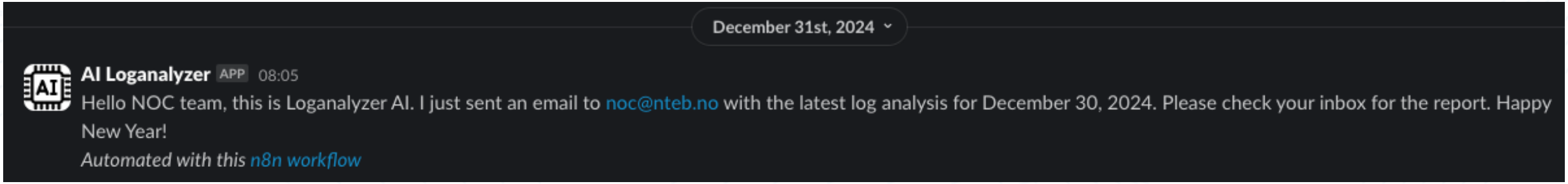
Sensitivitet: Intern

Varsling

Varsel på Slack og rapport på mail

Teksten genereres av Qwen3 – varierer daglig («keep it in a merry tone»)

Daglig – hver morgen



Sensitivitet: Intern

Eksempel på analyse

Good morning, NOC team! 🌞 Here's your daily log analysis for Tuesday, May 13, 2025. Below you'll find the top 10 talkers from the past 24 hours (ending at 2025-05-14T00:00:00), highlighting the hosts with the most repeated log entries. Let's dive in!

#1: switch1234 C4K_SUPERVISOR-2-FPGASOFTERROR

Full log message: `switch1234 (10.0.0.1) C4K_SUPERVISOR-2-FPGASOFTERROR: Memory inconsistency detected`
*This message has repeated **24 times** in the last 24 hours.*

Explanation

- **Hardware-level transient error in the supervisor module**: The FPGASOFTERROR indicates a **soft error** (non-permanent) in the Field-Programmable Gate Array (FPGA) on the Catalyst 4000 supervisor module. The "memory inconsistency" suggests a mismatch in expected vs. actual FPGA memory states, often caused by **bit-flip errors** (e.g., due to cosmic rays, power instability, or thermal stress).
- **Potential environmental or firmware instability**: Recurring soft errors could signal underlying issues such as:
  - **Power supply fluctuations** affecting the supervisor module.
  - **Thermal stress** (overheating) degrading hardware reliability.
  - **Outdated firmware** with known FPGA memory handling bugs.
  - **Cosmic radiation-induced bit flips** in memory (rare but possible in high-altitude or poorly shielded environments).

Possible Fix

- **Upgrade supervisor firmware/software**: Check if the supervisor module's firmware or the switch's IOS version is outdated. Cisco often releases fixes for FPGA-related soft errors in newer releases. Use show version to confirm the current firmware and consult Cisco's bug toolkit for known workarounds.
- **Environmental and hardware diagnostics**:
  - Monitor **temperature** via show environment to ensure the supervisor module is within spec (typically 0–50°C). Overheating can destabilize FPGAs.
  - Verify **power supply stability** with show power to rule out voltage fluctuations. Replace faulty PSUs if necessary.
- If errors persist, **replace the supervisor module** as a hardware fault (e.g., degraded FPGA memory cells) may be the root cause.

Additional Recommendations:

- Enable logging to a centralized syslog server to track error patterns and correlate with other events (e.g., power outages, configuration changes).
- If the device is in a high-altitude location, consider relocating it to reduce cosmic radiation exposure (though this is rarely the primary cause).
- For temporary mitigation, schedule a reload of the supervisor module during off-peak hours to reset transient errors.

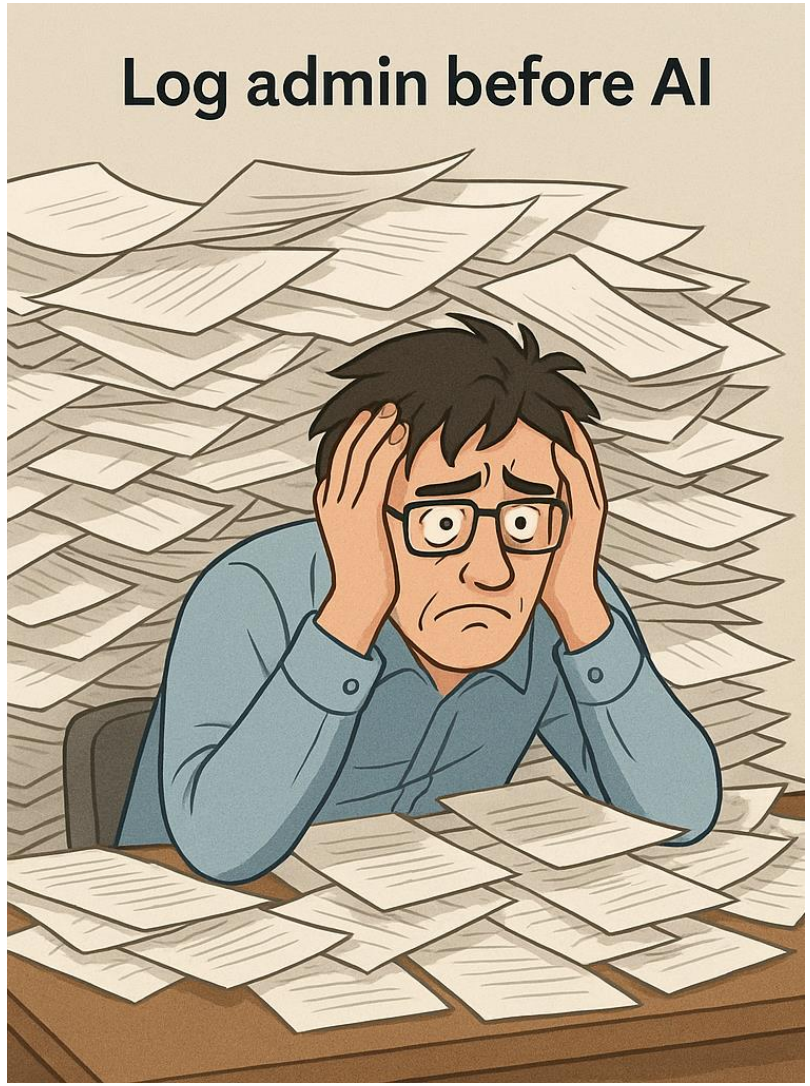
Sensitivite

Men vent…?

Hva vet vel Qwen3 om Cisco?

Og den kan ikke spørre internett om hjelp??

Alt dette fra 32.000.000.000 ord med vekting seg mellom???



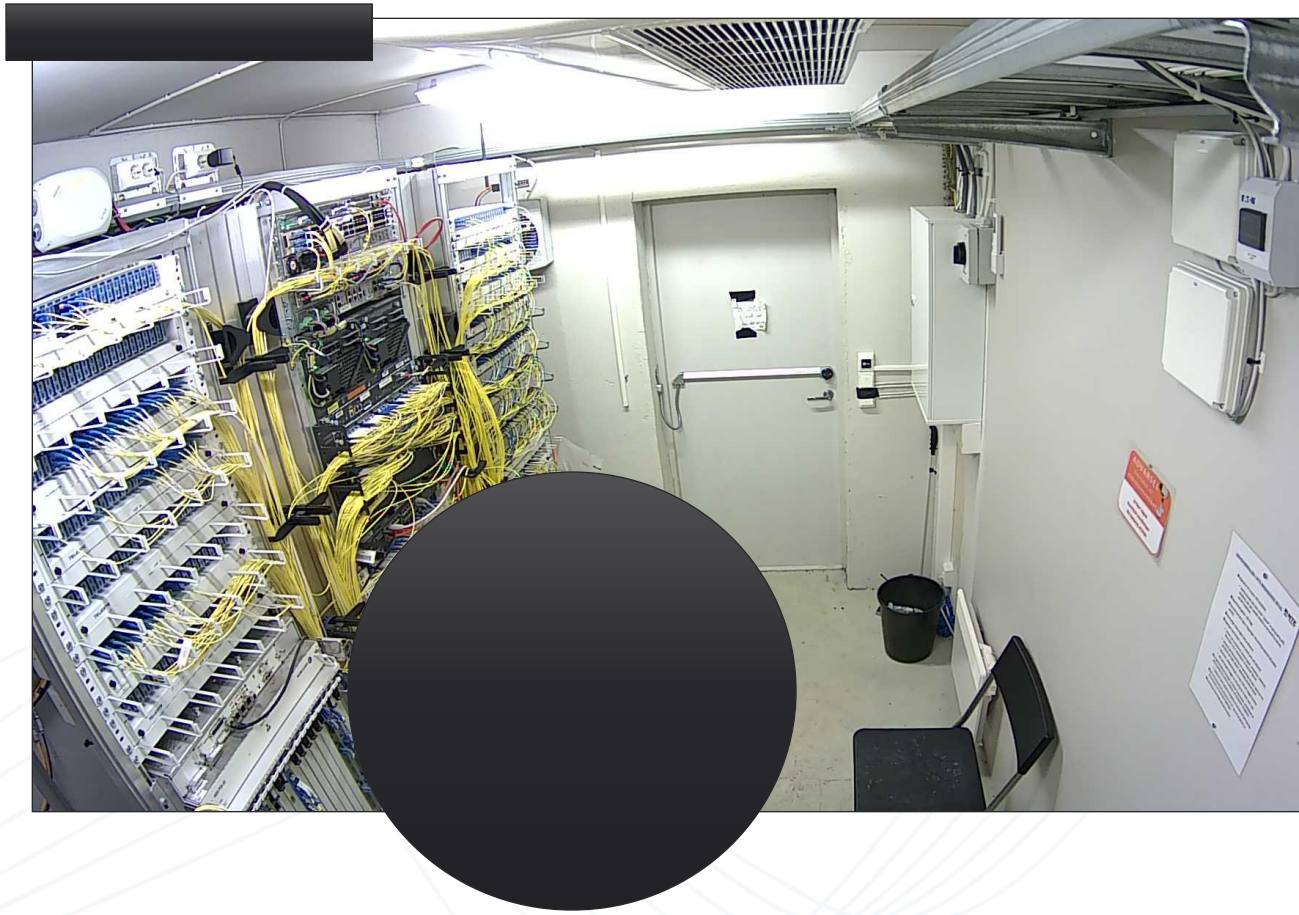
Sensitivitet: Intern

Surveillance analysis with Llama3.2-vision:90b

Kameraovervåkning og LLM

Fortsatt en beta-versjon i test

- Omfang: Ca. 300 kameraer i nodehytter og datarom
- Snapshots/video-opptak tas ved object recognition («person»)



Sensitivitet: Intern

Analyseprosess

- Send video/snapshot til Llama3.2-vision
- Få strukturert output i JSON med følgende informasjon:
  - Category
  - Description
  - Company
  - Overlay
- God prompt = god output
- Kategorien skal stemme med kritikalitet:

OK

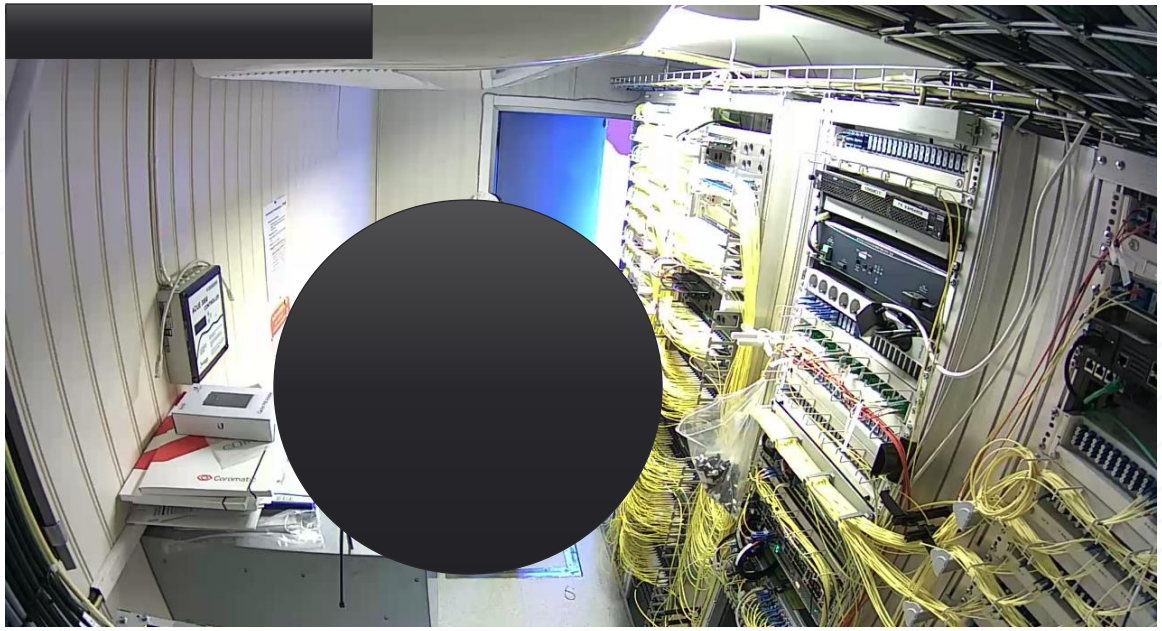
WARNING

CRITICAL

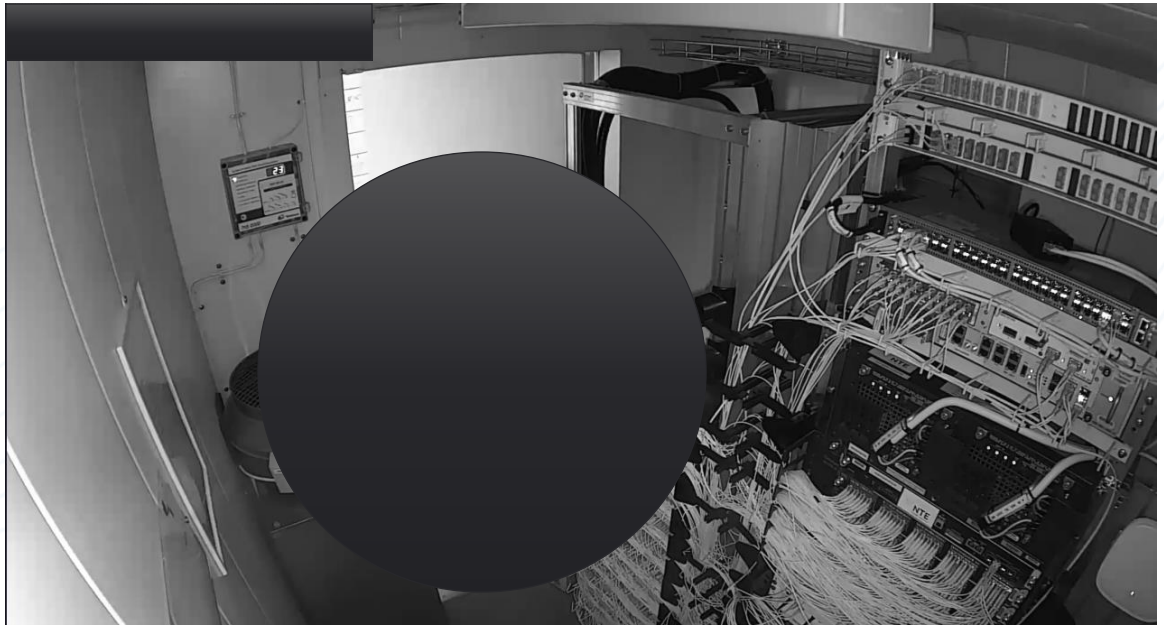
Sensitivitet: Intern

Eksempelanalyse

{
"Category": "OK",
"Description": "A man is standing in front of a door, wearing a blue vest with the word ABC' on it. He appears to be working on something near the door.",
"Company": ”ABC",
"Overlay": ”LOCATION-XYZ 2025/01/01 11:14:09"
}



{
"Category":"WARNING",
"Description":"A man is entering a room with a large number of wires and cables. He is wearing a white jacket and dark pants. The man appears to be looking around the room cautiously, and seems to be trying to avoid detection.",
"Company": "Unknown",
"Overlay": ”LOCATION-XYZ 2025/01/01 10:12:30"
}



Sensitivitet: Intern

Varsling og logging

Systemet logger og varsler:

Logg → Database

Varsel → Overvåkningssystemet vårt

Host	State	Time	Output
NODE-XYZ	WARNING	2025-01-20 10:39:10	AI: Man seems to be avoiding detection by camera
NODE-XYZ	WARNING	2025-01-20 10:39:01	Door is open
router1234	CRITICAL	2025-01-20 06:01:49	Interface GigagitEthernet0/0/5 is down
server1234	WARNING	2025-01-20 05:58:33	Memory usage 90.6% - total: 31.3GiB, used: 27.9GiB

Sensitivitet: Intern

GDPR og personvern

- Bilder og opptak slettes etter 7 dager, metadata etter 30
- Ingen kobling mellom metadata og bilder
- Behandlingsgrunnlag: Berettiget interesse (Art. 6.1.f)
- Data sikres med tilgangskontroll, logging og kryptering
- Overvåkning er tydelig skiltet
- Rutiner for innsyn og sletting er på plass

- ROS og DPIA er gjennomført!

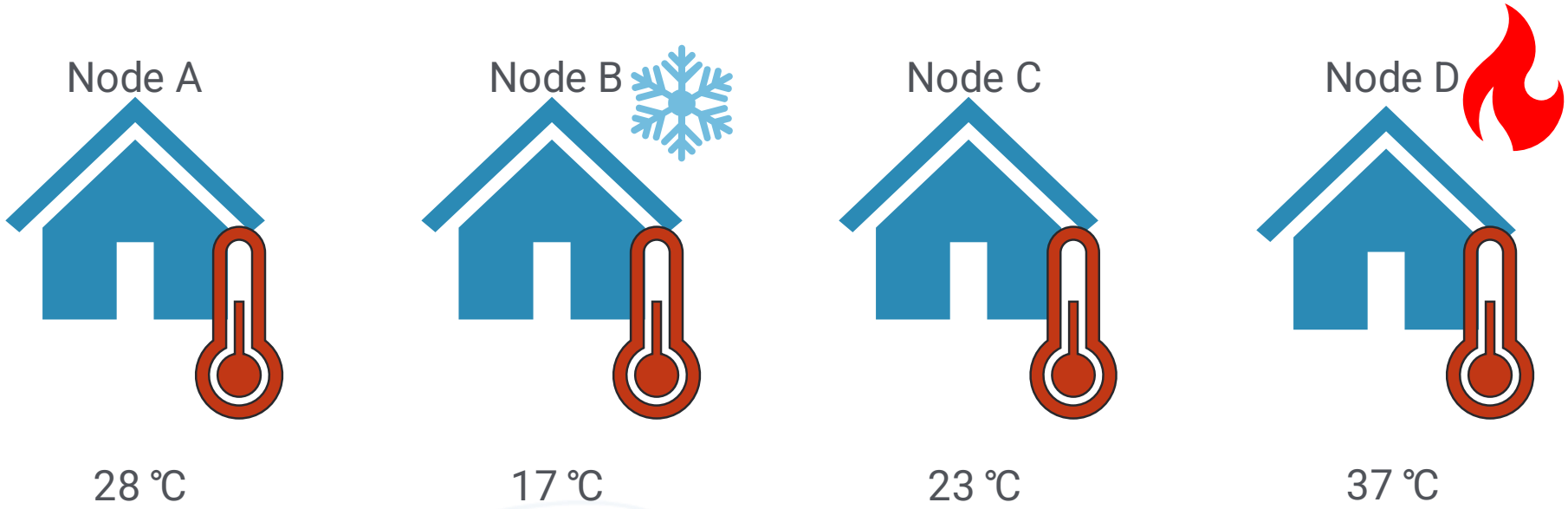
Sensitivitet: Intern

Monitoring with Machine Learning (ML)

Verdier som varierer

Temperatur, trafikk, CPU, radiosignal, etc

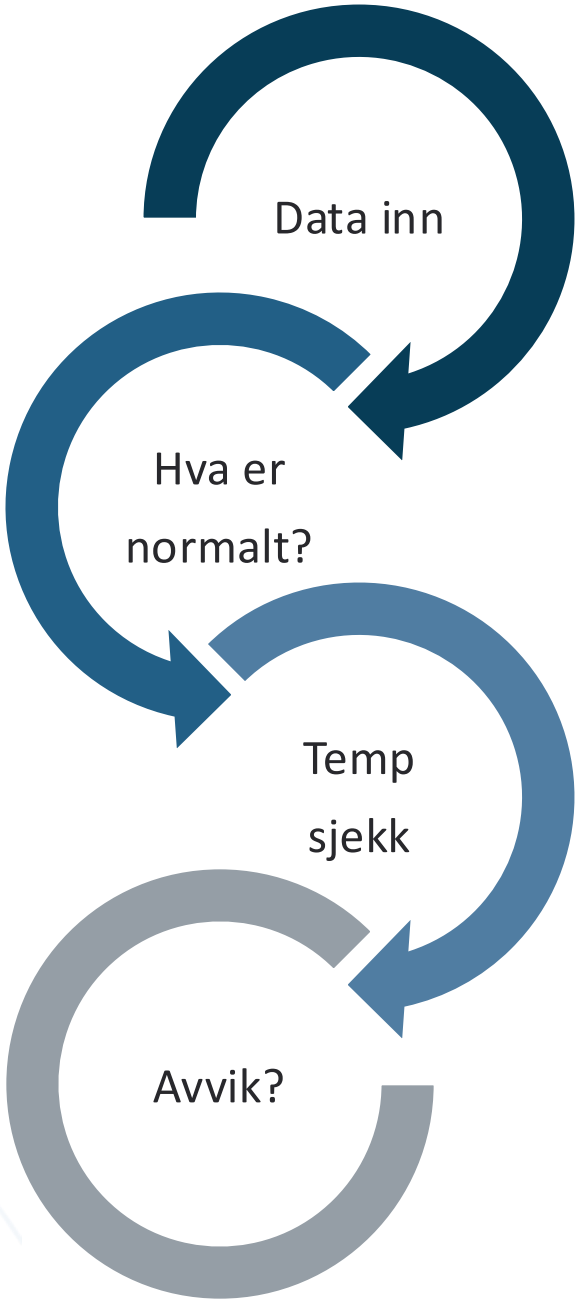
Temperatur i nodehytter



Sensitivitet: Intern

Hvordan gjør vi dette?

- **Steg 1:**
  - Innsamling av data
- **Steg 2:**
  - Tren modeller – lær «normalkurven»
- **Steg 3:**
  - Send faktisk temperatur til modellen (hvert 2.minutt)
- **Steg 4:**
  - Hvis modellen sier «dette ser rart ut» → Alarm

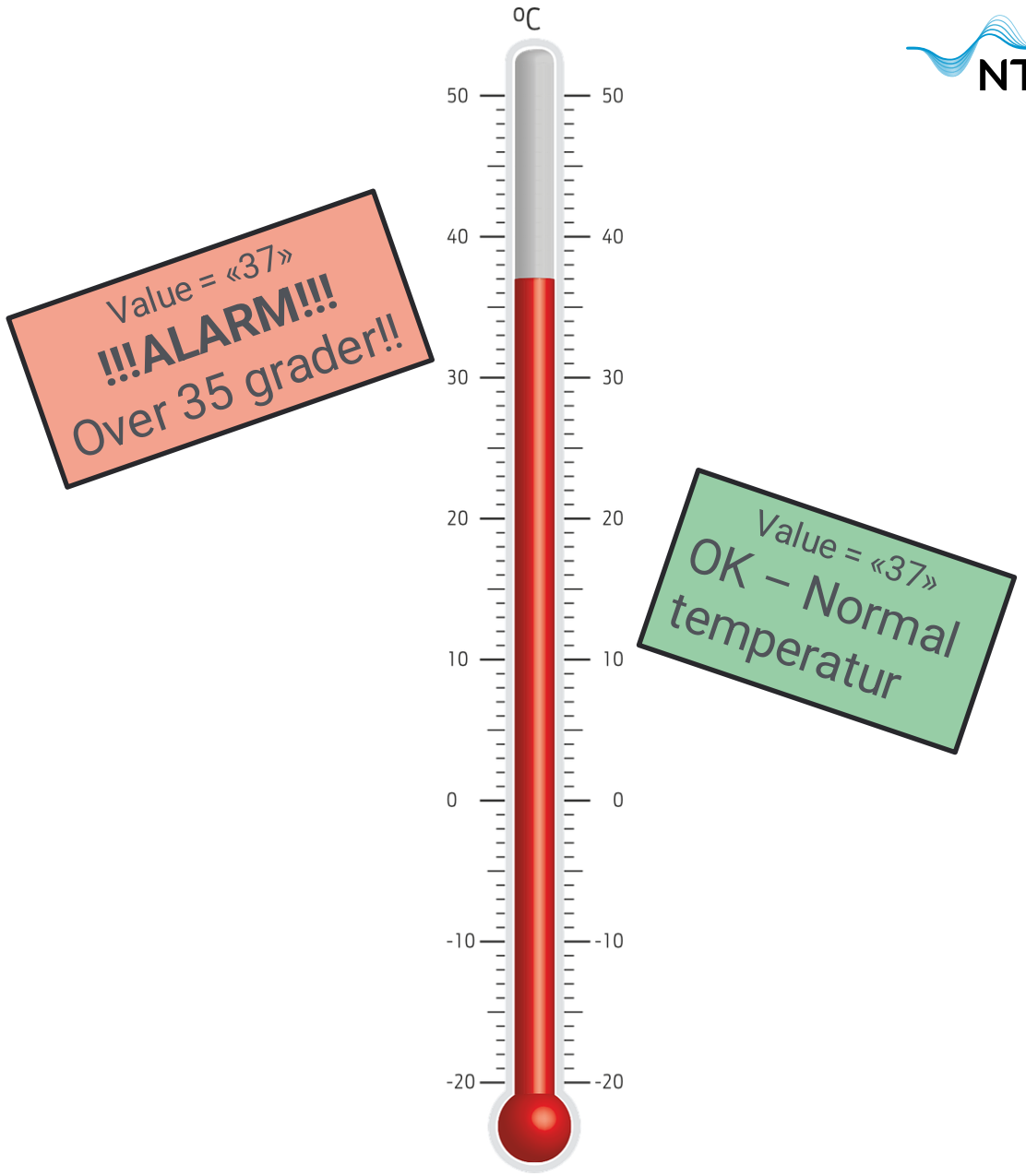


Sensitivitet: Intern

Hvordan hjelper det oss?

Mindre støy – kun reelle alarmer

- Før:
  - Global terskel → falske alarmer og plutselige problemer
- Nå:
  - Dynamiske terskler pr node → Nøyaktige varsler
- Framover:
  - Flere målinger med normal variasjon



Sensitivitet: Intern

Praktisk KI – mindre støy, mer oversikt, bedre beslutninger

Sensitivitet: Intern

TAKK!

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