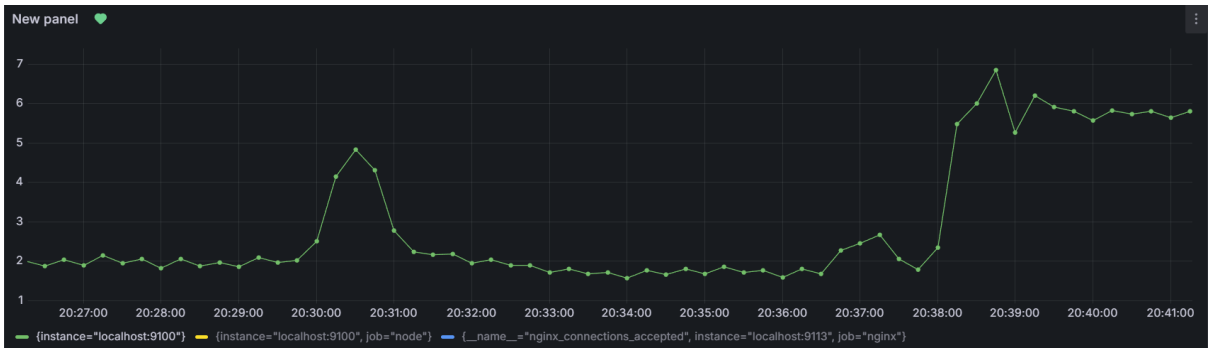
Cloud computing assignment 01

2023320302

데이터과학과

이유찬

1. Dashborad screenshots/query/explanations

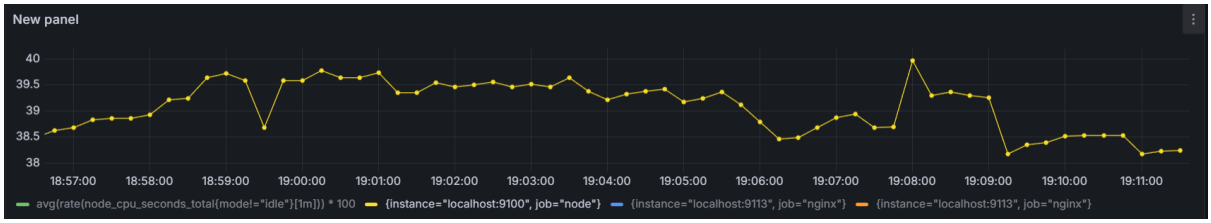


CPU usage

100 * sum by (instance) (rate(node_cpu_seconds_total{mode!="idle"}[1m])) / sum by (instance) (rate(node_cpu_seconds_total[1m]))

Gets the CPU's non-idle time, then divide it with total time passed for all cores for 1 minute window.

Then multiply by 100 to get percentage.



Memory usage

(1 – (node_memory_MemAvailable_bytes / node_memory_MemTotal_bytes)) * 100

Subtracts the ratio of (available memory / total memory) (= unused memory) from 1, to get used memory ratio.

Then multiply by 100 to get percentage.

Nginx accepted connections (blue)

nginx_connections_accepted

Nginx HTTP Requests (Orange)

nginx_http_requests_total

Both used single metric that is scraped from nginx exporter.

(Tried using delta operation to get differences, but didn't matter that much.)

2. ApacheBench load testing

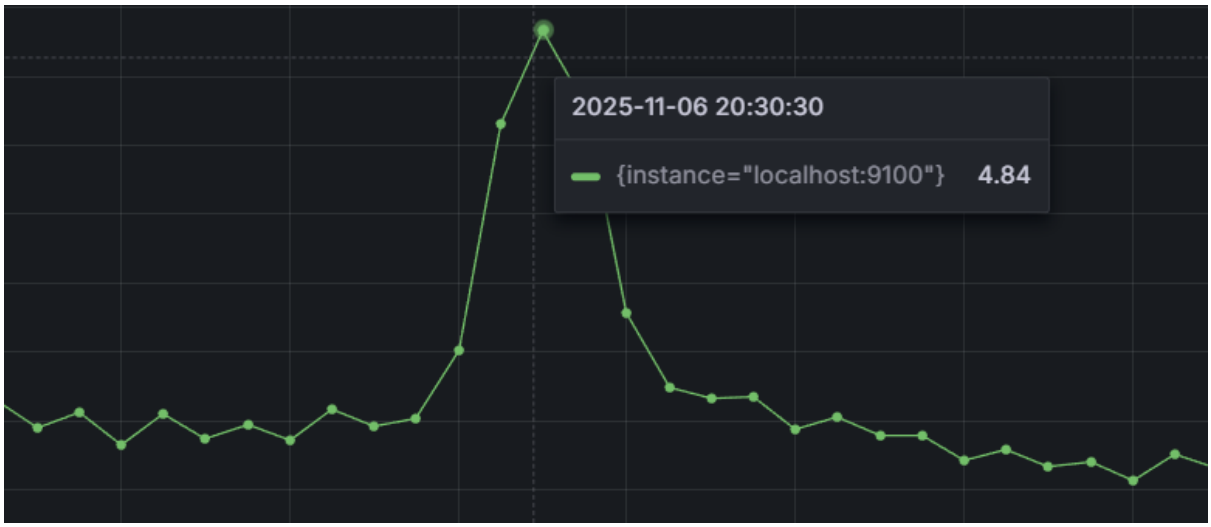
Small load

CPU usage almost had no spike, moving around 1.8%.

Memory usage had small spikes, moving around 38%.

Both accepted connections and requests were growing linearly, as more and more requests were made.

Medium load

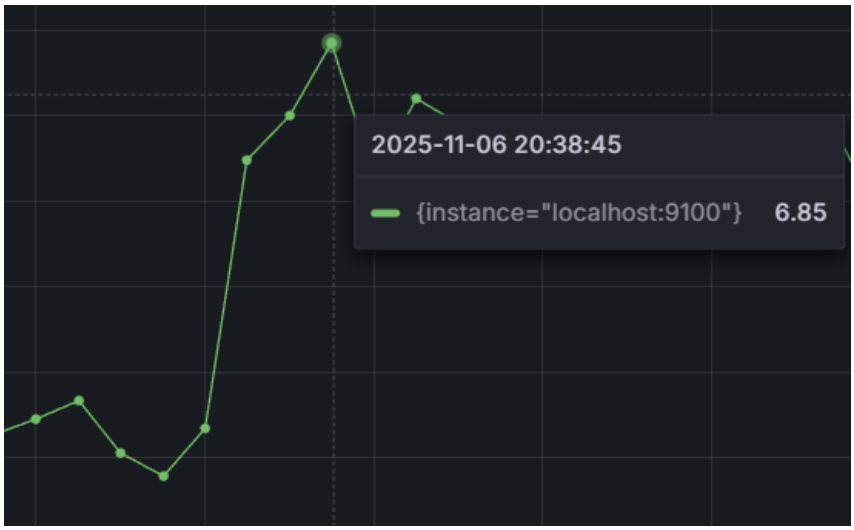


CPU usage had a spike, up to 4.84%.

Memory usage also had small spikes, moving around 39%.

Both accepted connections and requests were growing linearly, as more and more requests were made.

Large load



CPU usage had a big spike, up to 6.85%.

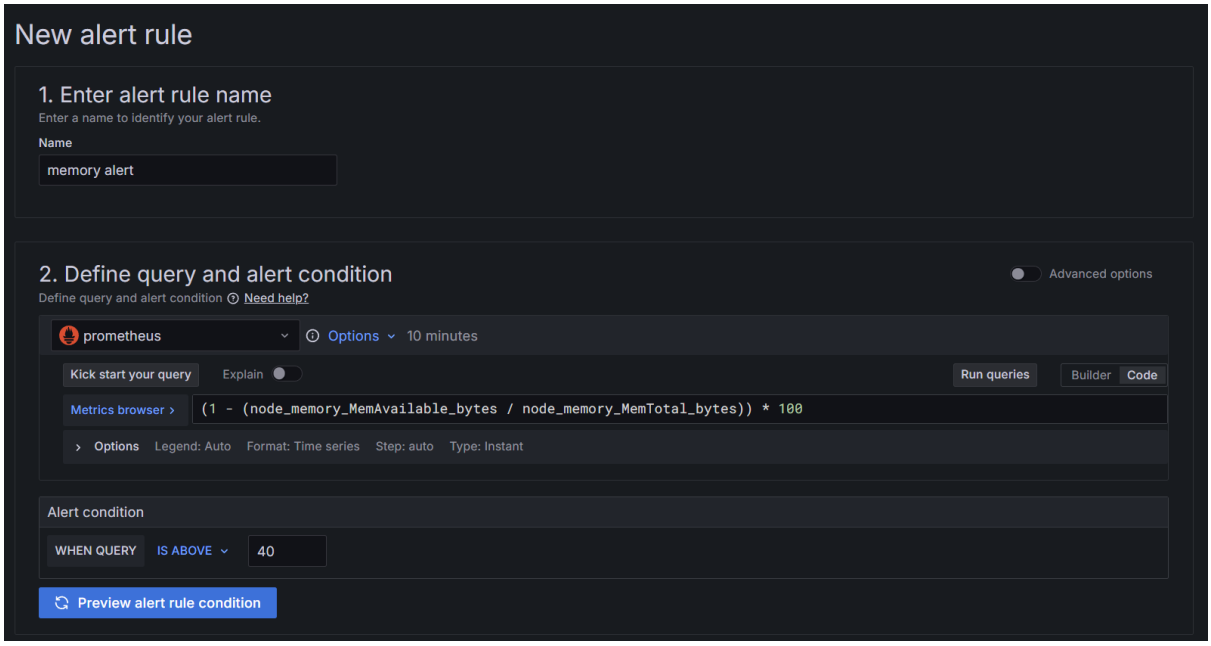
Memory usage also had spikes, moving around 41%.

Both accepted connections and requests were growing linearly, as more and more requests were made.

For all of them, 'Nginx HTTP requests' were slightly bigger than 'Nginx accepted connections'.

3. Alerts

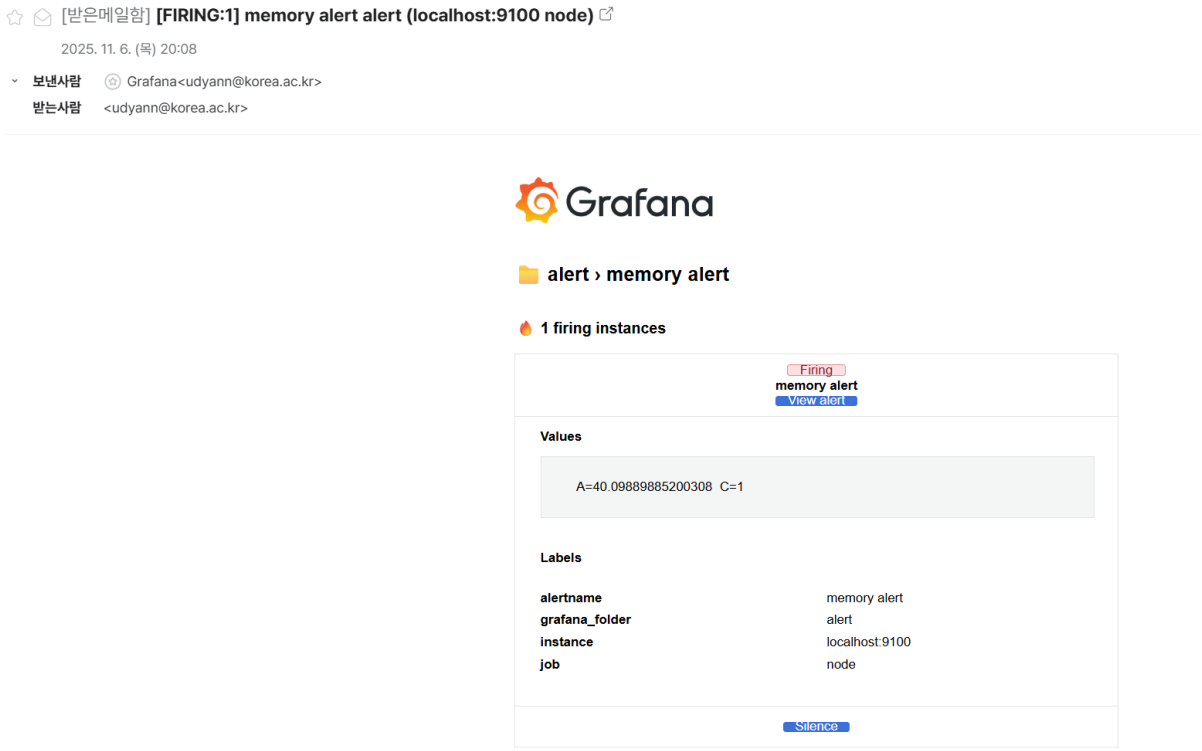
Query: same with above's memory query



If memory usage is over 40%, fire alert.

I used apache bench (ab -n 100000 -c 1000) to make it fire.

The alert:



The dashboard: