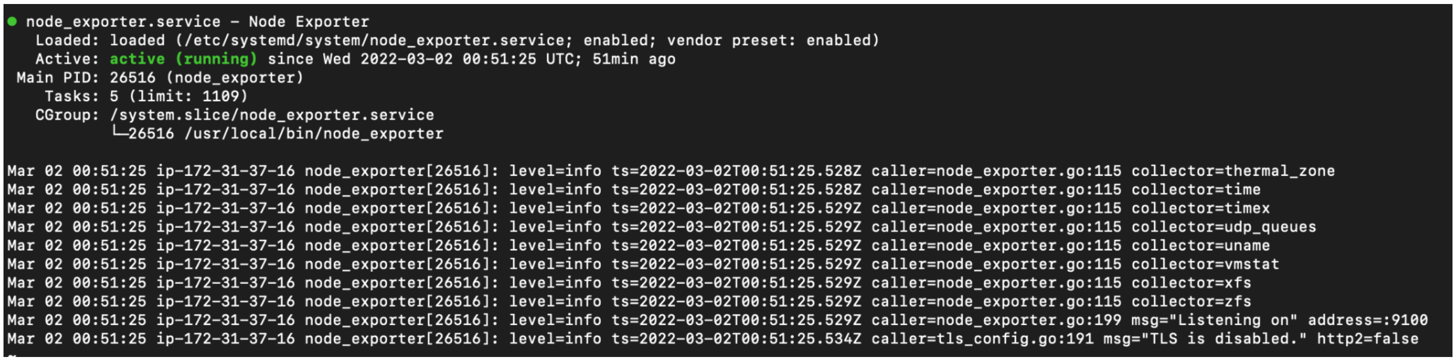
Observing Cloud Resources

SRE Project Template

Categorize Responsibilities

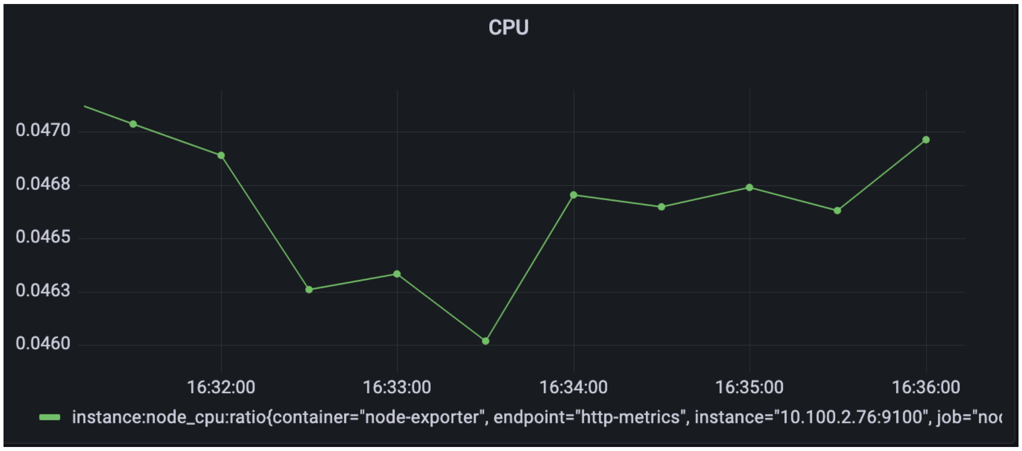
Prometheus and Grafana Screenshots

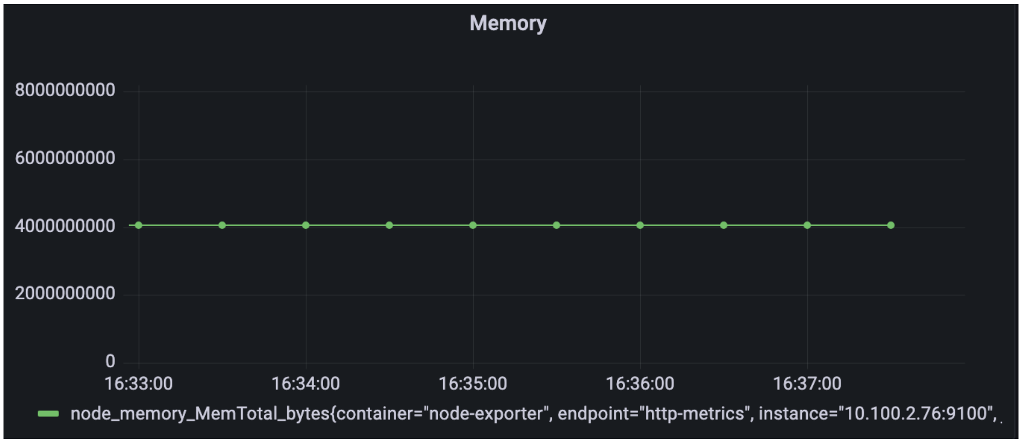
Provide a screenshot of the Prometheus node_exporter service running on the EC2 instance. Use the following command to show that the system is running: `sudo systemctl status node_exporter`

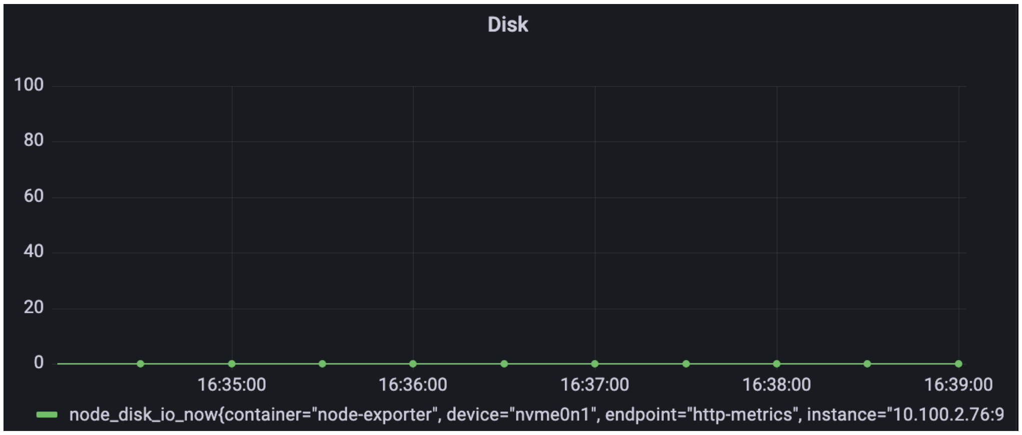


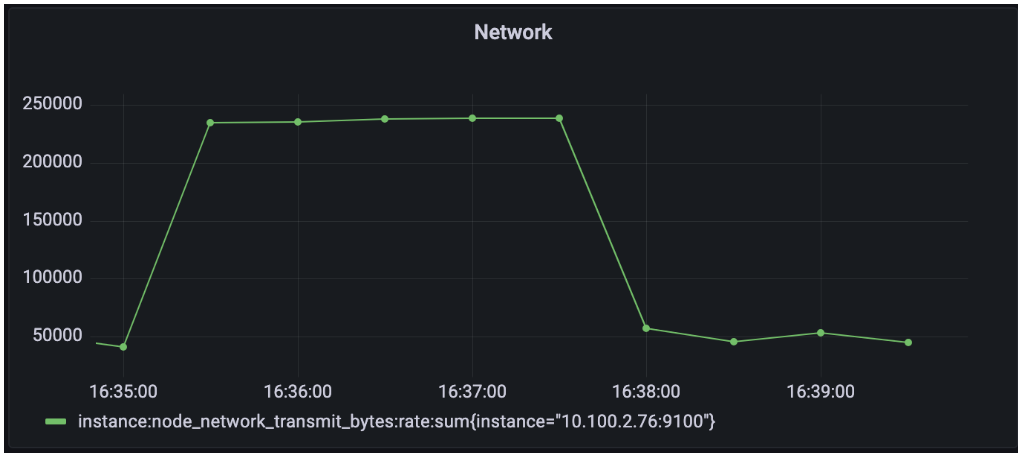
```
● node_exporter.service - Node Exporter
   Loaded: loaded (/etc/systemd/system/node_exporter.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2022-03-02 00:51:25 UTC; 51min ago
 Main PID: 26516 (node_exporter)
    Tasks: 5 (limit: 1109)
   CGroup: /system.slice/node_exporter.service
           └─26516 /usr/local/bin/node_exporter

Mar 02 00:51:25 ip-172-31-37-16 node_exporter[26516]: level=info ts=2022-03-02T00:51:25.528Z caller=node_exporter.go:115 collector=thermal_zone
Mar 02 00:51:25 ip-172-31-37-16 node_exporter[26516]: level=info ts=2022-03-02T00:51:25.528Z caller=node_exporter.go:115 collector=time
Mar 02 00:51:25 ip-172-31-37-16 node_exporter[26516]: level=info ts=2022-03-02T00:51:25.529Z caller=node_exporter.go:115 collector=timex
Mar 02 00:51:25 ip-172-31-37-16 node_exporter[26516]: level=info ts=2022-03-02T00:51:25.529Z caller=node_exporter.go:115 collector=udp_queues
Mar 02 00:51:25 ip-172-31-37-16 node_exporter[26516]: level=info ts=2022-03-02T00:51:25.529Z caller=node_exporter.go:115 collector=uname
Mar 02 00:51:25 ip-172-31-37-16 node_exporter[26516]: level=info ts=2022-03-02T00:51:25.529Z caller=node_exporter.go:115 collector=vmstat
Mar 02 00:51:25 ip-172-31-37-16 node_exporter[26516]: level=info ts=2022-03-02T00:51:25.529Z caller=node_exporter.go:115 collector=xfs
Mar 02 00:51:25 ip-172-31-37-16 node_exporter[26516]: level=info ts=2022-03-02T00:51:25.529Z caller=node_exporter.go:115 collector=zfs
Mar 02 00:51:25 ip-172-31-37-16 node_exporter[26516]: level=info ts=2022-03-02T00:51:25.529Z caller=node_exporter.go:199 msg="Listening on" address=:9100
Mar 02 00:51:25 ip-172-31-37-16 node_exporter[26516]: level=info ts=2022-03-02T00:51:25.534Z caller=tls_config.go:191 msg="TLS is disabled." http2=false
```

Host Metric **(CPU, RAM, Disk, Network)**	**Dashboard**
`instance:node_cpu:ratio`	

<table>
<tr>
<td>node_memory_MemTotal_bytes</td>
<td>


</td>
</tr>
<tr>
<td>node_disk_io_now</td>
<td>


</td>
</tr>
<tr>
<td>instance:node_network_transmit_bytes:rate:sum</td>
<td>


</td>
</tr>
</table>

Responsibilities

1. The development team wants to release an emergency hotfix to production. Identify two roles of the SRE team who would be involved in this and why.

The release manager and infrastructure engineer should be involved in the emergency hotfix. Release manager is responsible for change management and code releases, will make sure the hotfix code meets all its dependencies and execute the code release. The infrastructure engineer will create infrastructure that is needed for the new release.

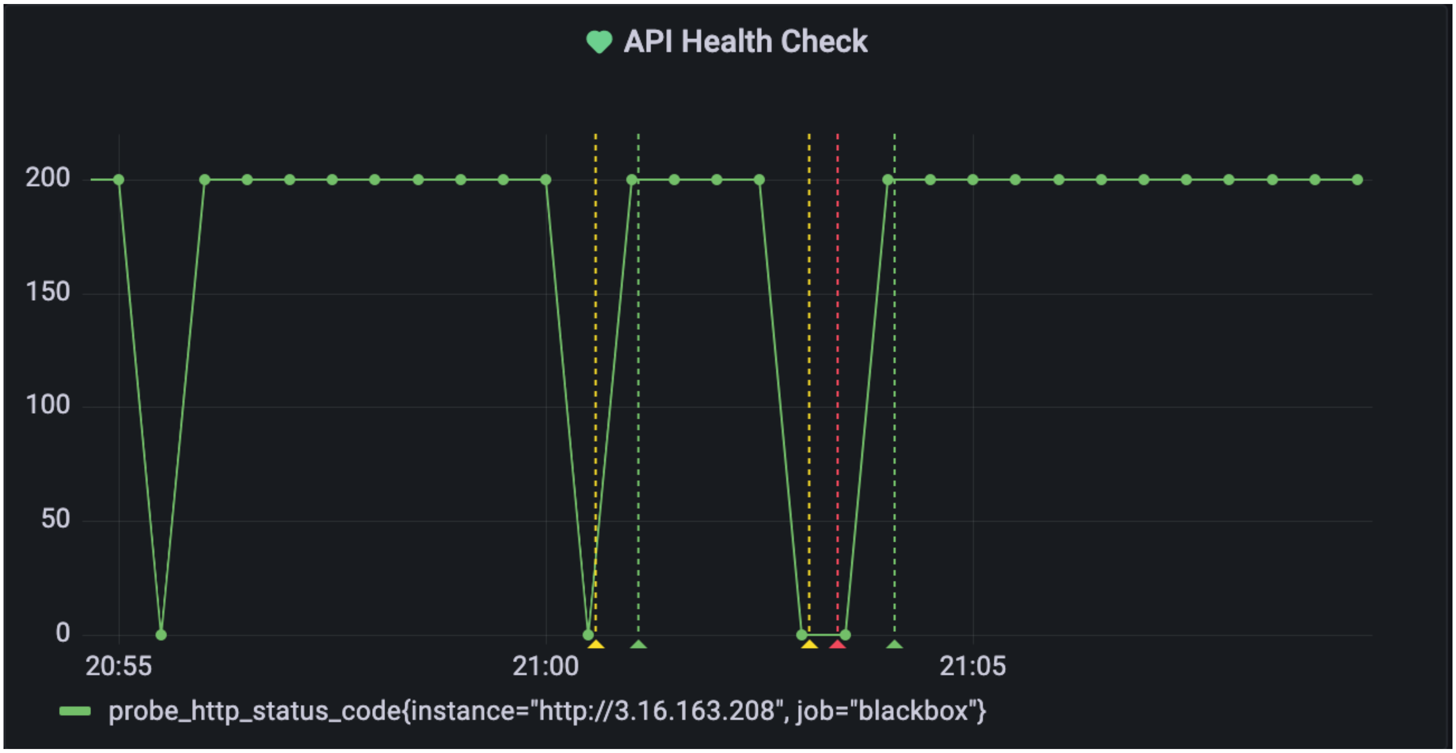
2. The development team is in the early stages of planning to build a new product. Identify two roles of the SRE team that should be invited to the meeting and why.

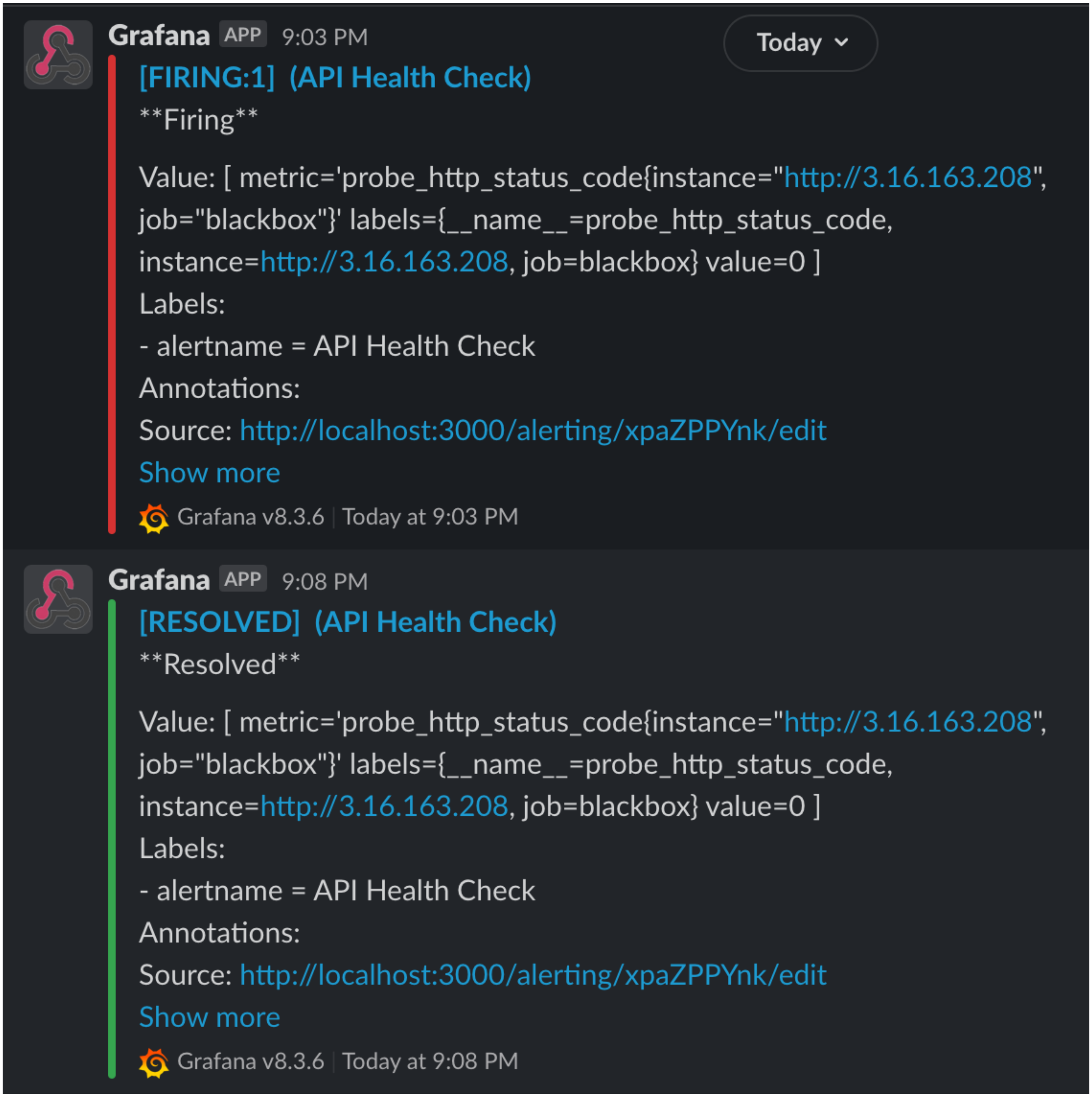
In the early stage of the planning to build a new product, the SRE team lead and system architect could be involved in the meeting. SRE team lead could attend architecture team meetings and form the workflow of the SRE team. System architect will provide consulting to design scalable, fault tolerant architecture.

3. The emergency hotfix from question 1 was applied and is causing major issues in production. Which SRE role would primarily be involved in mitigating these issues?

When major issues happen in production, monitoring engineers and release managers will be needed. Monitoring engineer will react to incidents and troubleshoot the issues. Release managers execute any rollback procedures and communicate to the stakeholders.

Team Formation and Workflow Identification

API Monitoring and Notifications
Display the status of an API endpoint: Provide a screenshot of the Grafana dashboard that will show at which point the API is unhealthy (non-200 HTTP code), and when it becomes healthy again (200 HTTP code).

Create a notification channel: Provide a screenshot of the Grafana notification which shows the summary of the issue and when it occurred.



Grafana APP 9:03 PM

[FIRING:1] (API Health Check)

Firing

Value: [metric='probe_http_status_code{instance="http://3.16.163.208", job="blackbox"}' labels={__name__=probe_http_status_code, instance=http://3.16.163.208, job=blackbox} value=0]

Labels:

- alertname = API Health Check

Annotations:

Source: http://localhost:3000/alerting/xpaZPPYnk/edit

Show more

Grafana v8.3.6 | Today at 9:03 PM

Grafana APP 9:08 PM

[RESOLVED] (API Health Check)

Resolved

Value: [metric='probe_http_status_code{instance="http://3.16.163.208", job="blackbox"}' labels={__name__=probe_http_status_code, instance=http://3.16.163.208, job=blackbox} value=0]

Labels:

- alertname = API Health Check

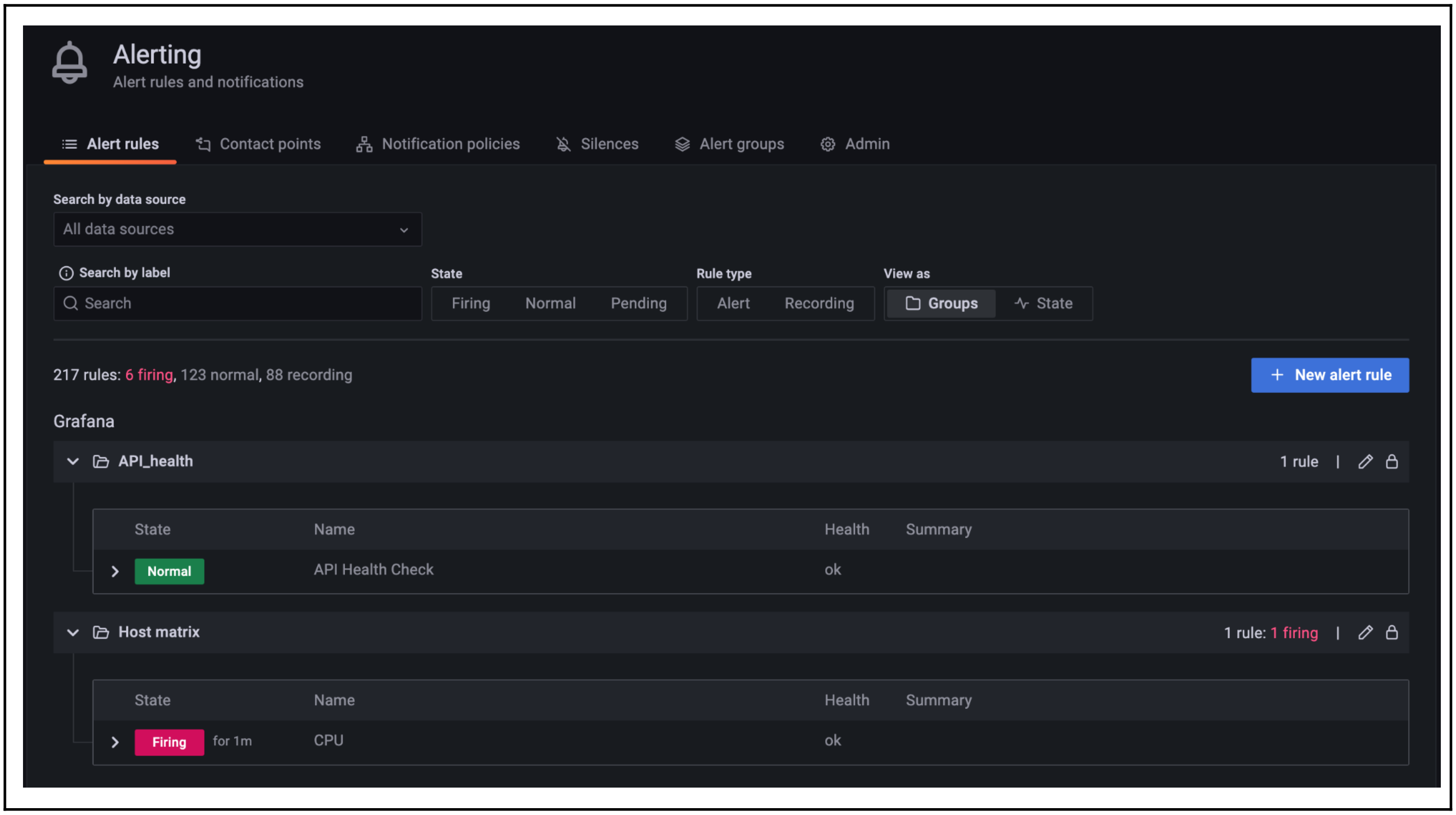
Annotations:

Source: http://localhost:3000/alerting/xpaZPPYnk/edit

Show more

Grafana v8.3.6 | Today at 9:08 PM

Configure alert rules: Provide a screenshot of the alert rules list in Grafana.



Alerting

Alert rules and notifications

Search by data source: All data sources

Search by label: Search

State: Firing | Normal | Pending

Rule type: Alert | Recording

View as: Groups | State

217 rules: 6 firing, 123 normal, 88 recording

Grafana

API_health — 1 rule

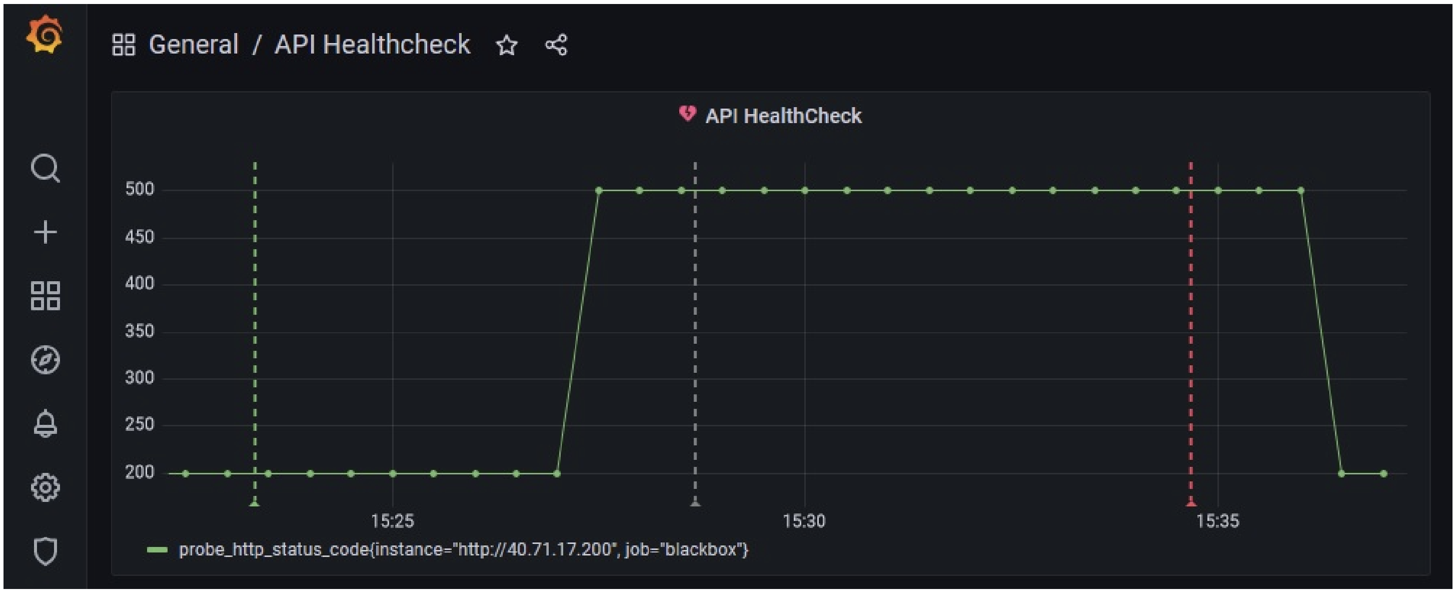
State	Name	Health	Summary
Normal	API Health Check	ok	

Host matrix — 1 rule: 1 firing

State	Name	Health	Summary
Firing for 1m	CPU	ok	

Applying the Concepts

Graph 1



4a. Given the above graph, where does it show that the API endpoint is down? Where on the graph does this show that the API is healthy again?

The API is down at 15:27 while a 500 HTTP code was returned other than 200 success codes. And at about 15:36 the HTTP status code returns to 200 showing the API is healthy again.

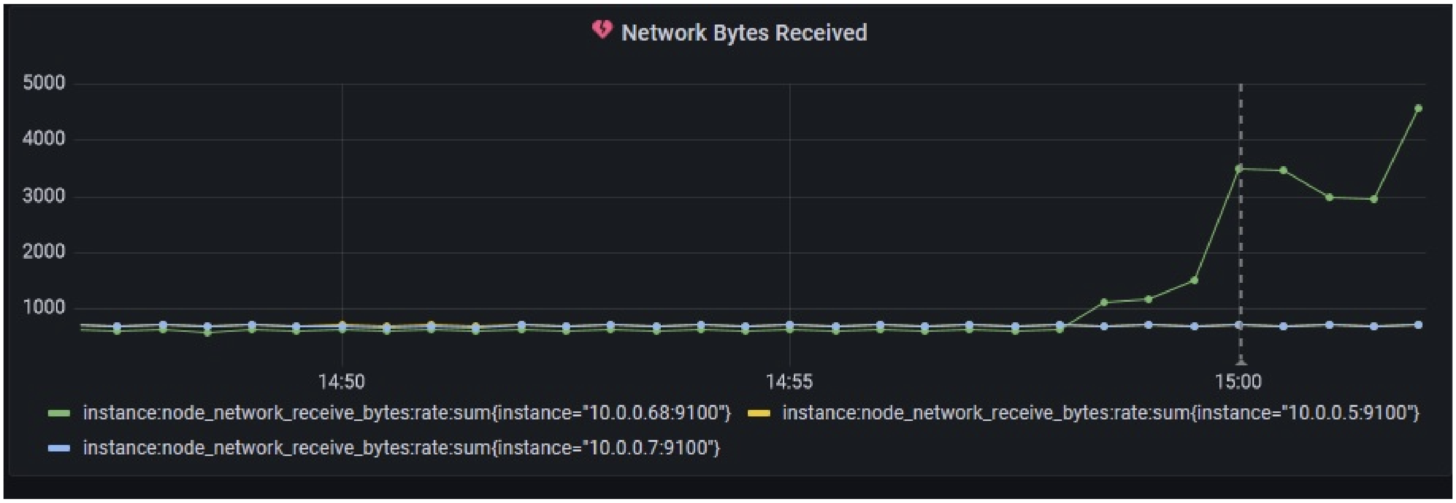
4b. If there was no SRE team, how would this outage affect customers?

If there was no SRE, the team would be working in black without knowing whether the system is healthy or not. The discovery of the system error may be reported by users/ customers before the team realizes something went wrong, which will harm the reputation of the company.

4c. What could be put in place so that the SRE team could know of the outage before the customer does?

The monitoring should be in place to monitor the health of the API endpoint and alert the team when the API is not healthy. This will make sure the team will identify the problem before the customer does.

Graph 2



5a. Given the above graph, which instance had the increase in traffic, and approximately how many bytes did it receive (feel free to round)?

The instance in green which IP equals to “10.0.0.68” had an increase in traffic. The bytes it received reached 4700 at its peak.

5b. Which team members on the SRE team would be interested in this graph and why?

Monitoring engineers on the SRE team would be interested in this graph. The increase in traffic may cause the system to saturate and cause increased latency, the monitoring engineer will also check whether alerts are fired and response incident when there is any.