Observing Cloud Resources

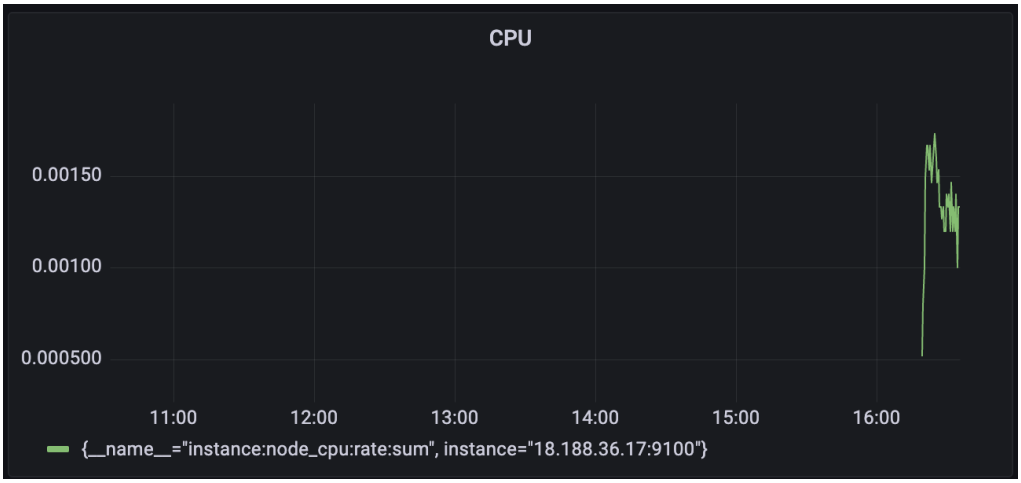
SRE Project Template

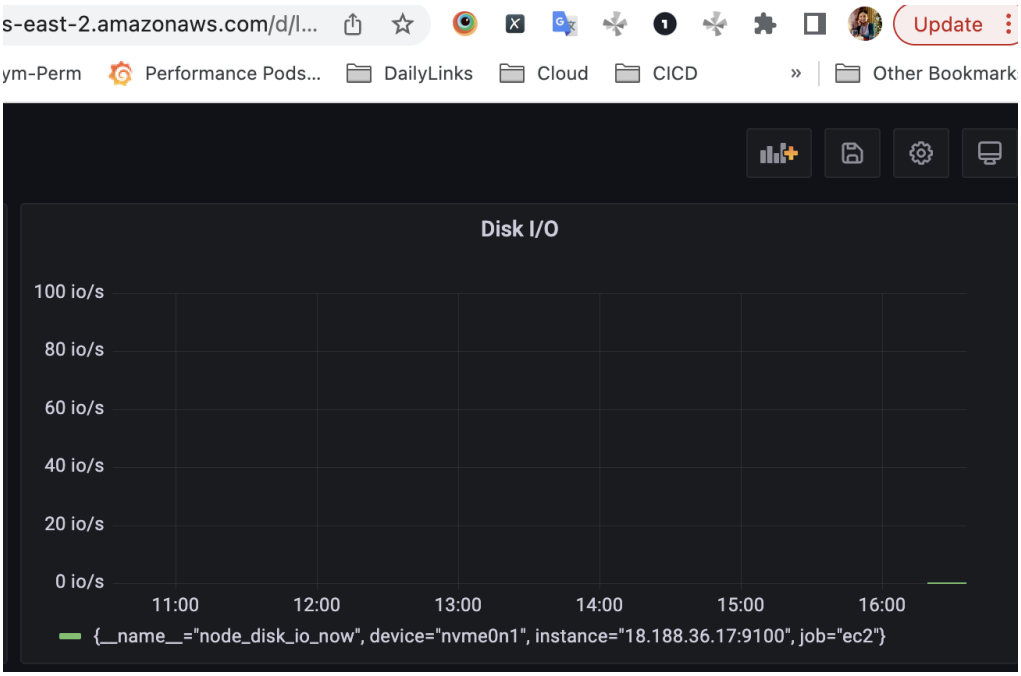
Categorize Responsibilities

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`

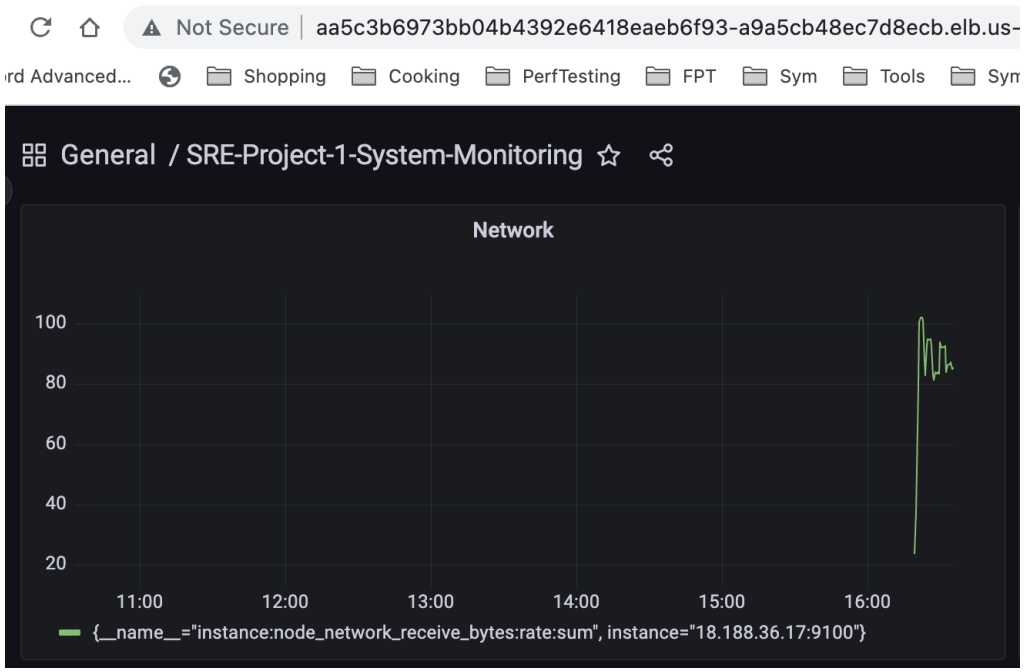
```
ubuntu@ip-172-31-44-15:~$ sudo systemctl status node_exporter
● node_exporter.service - Node Exporter
   Loaded: loaded (/etc/systemd/system/node_exporter.service; enabled; vendor preset: enabled)
   Active: active (running) since Sat 2022-08-13 09:18:08 UTC; 9s ago
 Main PID: 11933 (node_exporter)
    Tasks: 4 (limit: 1109)
   CGroup: /system.slice/node_exporter.service
           └─11933 /usr/local/bin/node_exporter

Aug 13 09:18:08 ip-172-31-44-15 node_exporter[11933]: level=info ts=2022-08-13T09:18:08.813Z caller=node_exporter.go:115 collector=thermal_zone
Aug 13 09:18:08 ip-172-31-44-15 node_exporter[11933]: level=info ts=2022-08-13T09:18:08.813Z caller=node_exporter.go:115 collector=time
Aug 13 09:18:08 ip-172-31-44-15 node_exporter[11933]: level=info ts=2022-08-13T09:18:08.813Z caller=node_exporter.go:115 collector=timex
Aug 13 09:18:08 ip-172-31-44-15 node_exporter[11933]: level=info ts=2022-08-13T09:18:08.814Z caller=node_exporter.go:115 collector=udp_queues
Aug 13 09:18:08 ip-172-31-44-15 node_exporter[11933]: level=info ts=2022-08-13T09:18:08.814Z caller=node_exporter.go:115 collector=uname
Aug 13 09:18:08 ip-172-31-44-15 node_exporter[11933]: level=info ts=2022-08-13T09:18:08.814Z caller=node_exporter.go:115 collector=vmstat
Aug 13 09:18:08 ip-172-31-44-15 node_exporter[11933]: level=info ts=2022-08-13T09:18:08.814Z caller=node_exporter.go:115 collector=xfs
Aug 13 09:18:08 ip-172-31-44-15 node_exporter[11933]: level=info ts=2022-08-13T09:18:08.814Z caller=node_exporter.go:115 collector=zfs
Aug 13 09:18:08 ip-172-31-44-15 node_exporter[11933]: level=info ts=2022-08-13T09:18:08.814Z caller=node_exporter.go:199 msg="Listening on" address=:9100
Aug 13 09:18:08 ip-172-31-44-15 node_exporter[11933]: level=info ts=2022-08-13T09:18:08.814Z caller=tls_config.go:191 msg="TLS is disabled." http2=false
ubuntu@ip-172-31-44-15:~$
```

Host Metric (CPU, RAM, Disk, Network)	Dashboard
CPU	

RAM	 Memory 360 MB 358 MB 356 MB 354 MB 352 MB 11:00 12:00 13:00 14:00 15:00 16:00 {__name__="node_memory_MemAvailable_bytes", instance="18.188.36.17:9100", job="ec2"}
DISK	 s-east-2.amazonaws.com/d/l... Update ym-Perm Performance Pods... DailyLinks Cloud CICD Other Bookmark Disk I/O 100 io/s 80 io/s 60 io/s 40 io/s 20 io/s 0 io/s 11:00 12:00 13:00 14:00 15:00 16:00 {__name__="node_disk_io_now", device="nvme0n1", instance="18.188.36.17:9100", job="ec2"}

NETWORK



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.

Release manager - Because this role is responsible for change management and code releases. When the code needs to be deployed to production, it goes to this person, who ensures the code has all dependencies satisfied and ensures proper communication is sent to the stakeholders. The release manager executes the code release and any rollback procedures if needed

Monitoring engineer - Because this role is responsible for creating dashboards for essential metrics such as the "four golden signals," creating and managing alert rules, and is usually the first to know if an incident occurs. Additionally, this person manages the monitoring rules and governance for monitoring newly created or existing IT infrastructure.

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.

Team lead - Because this role is responsible for ensuring each team member's work is scoped and contributes to the team. In other words, this person wants to ensure everyone on the team is doing what is expected of them, no side projects for different groups or taking on more responsibilities than what is asked of them. Additionally, the team lead contributes to architecture design meetings and helps form workflow for the team.

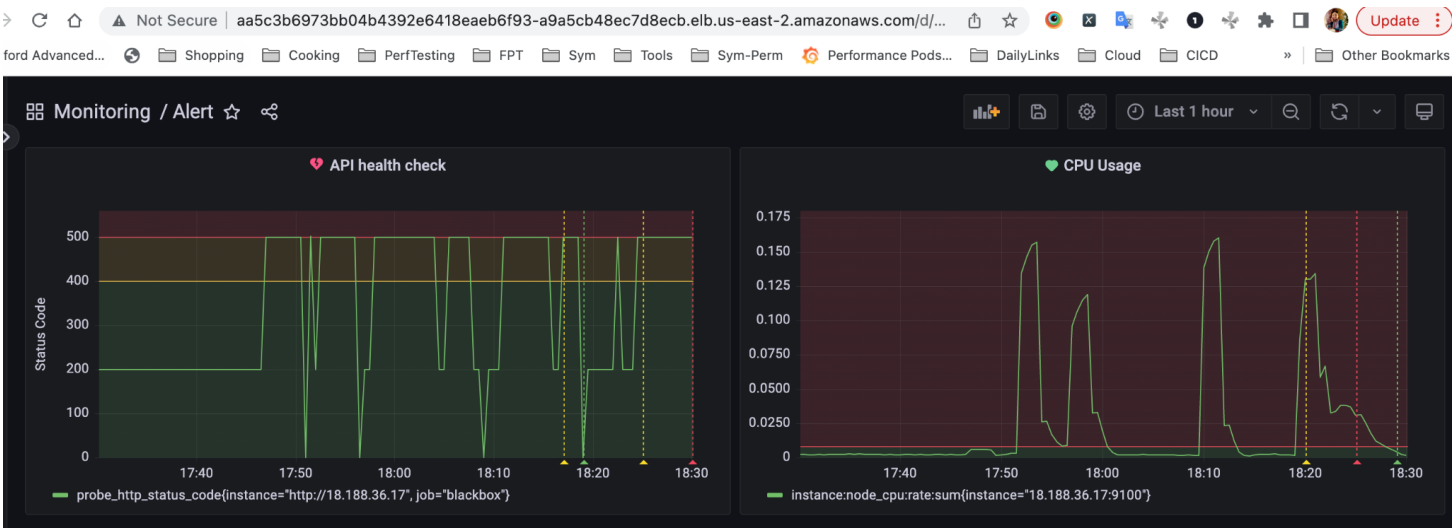
S**ystem architect** - Because this role is responsible for creating infrastructure that is easily scalable and replicable. Additionally, this role documents all infrastructure, reviews existing infrastructure, highlights any shortcomings, and provides ways to eliminate those. They also

make recommendations on ways to implement newer technologies and architecture and provide migration paths from existing infrastructure.
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?
Infrastructure engineer - This role is divided between 50% development tasks and 50% operations tasks. This person controls their own destiny as far as managing operations tasks because they can potentially use 50% of their time to automate some of those tasks. This person is also responsible for planning and executing system patches and updates

Team Formation and Workflow Identification

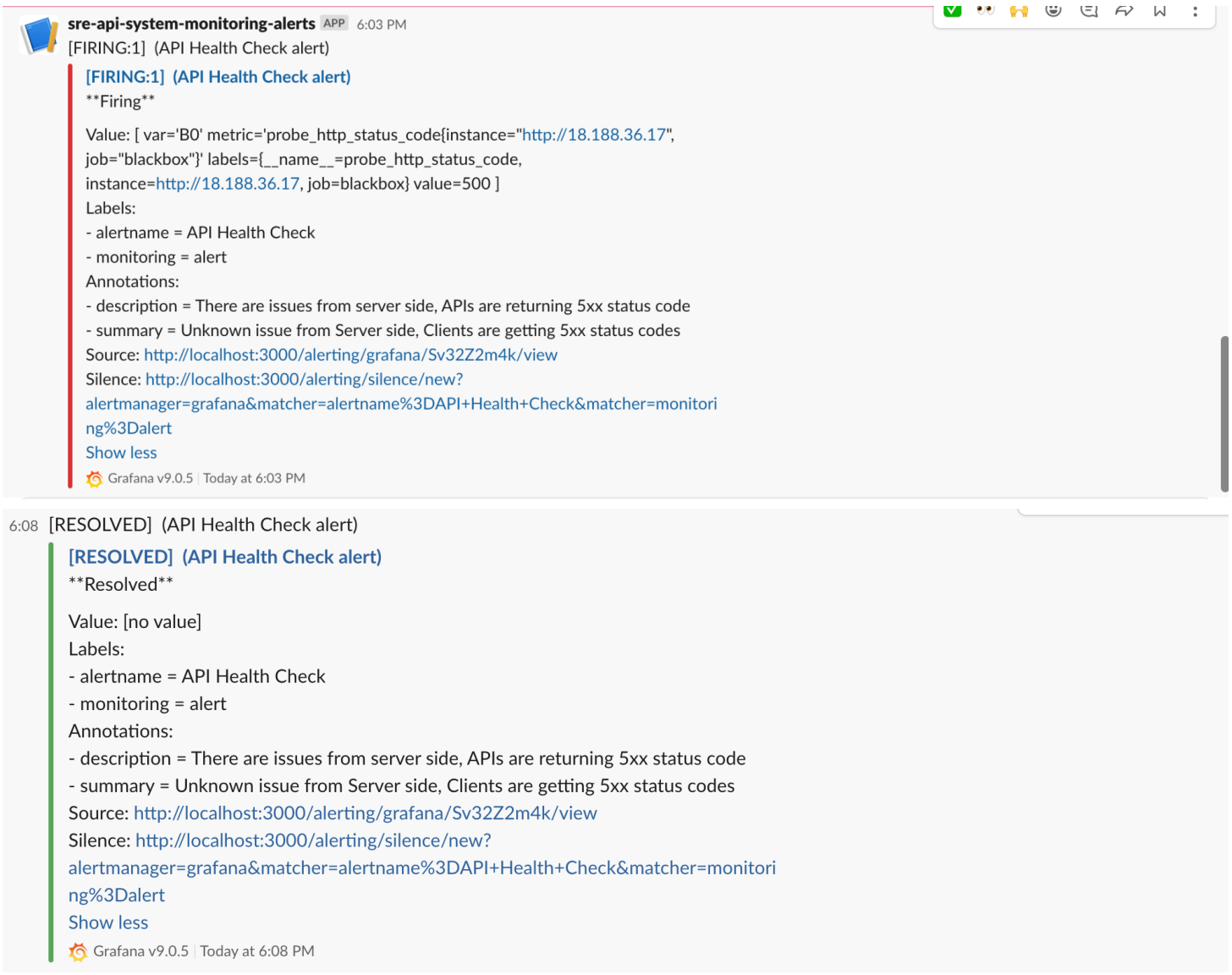
API Monitoring and Notifications

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.

- API



- CPU

[FIRING:1] (High_CPU_Usage_Alert alert)

Today

[FIRING:1] (High_CPU_Usage_Alert alert)

Firing

Value: [var='B0' metric='instance:node_cpu:rate:sum{instance="18.188.36.17:9100"}' labels={__name__=instance:node_cpu:rate:sum, instance=18.188.36.17:9100} value=0.030933333333333334]

Labels:

- alertname = High_CPU_Usage_Alert
- monitoring = alert

Annotations:

- description = Spike in CPU usage
- summary = High CPU usage

Source: http://localhost:3000/alerting/grafana/XtFQWhmVz/view

Silence: http://localhost:3000/alerting/silence/new?alertmanager=grafana&matcher=alertname%3DHigh_CPU_Usage_Alert&matcher=monitoring%3Dalert

Dashboard: http://localhost:3000/d/6P8ki2m4z

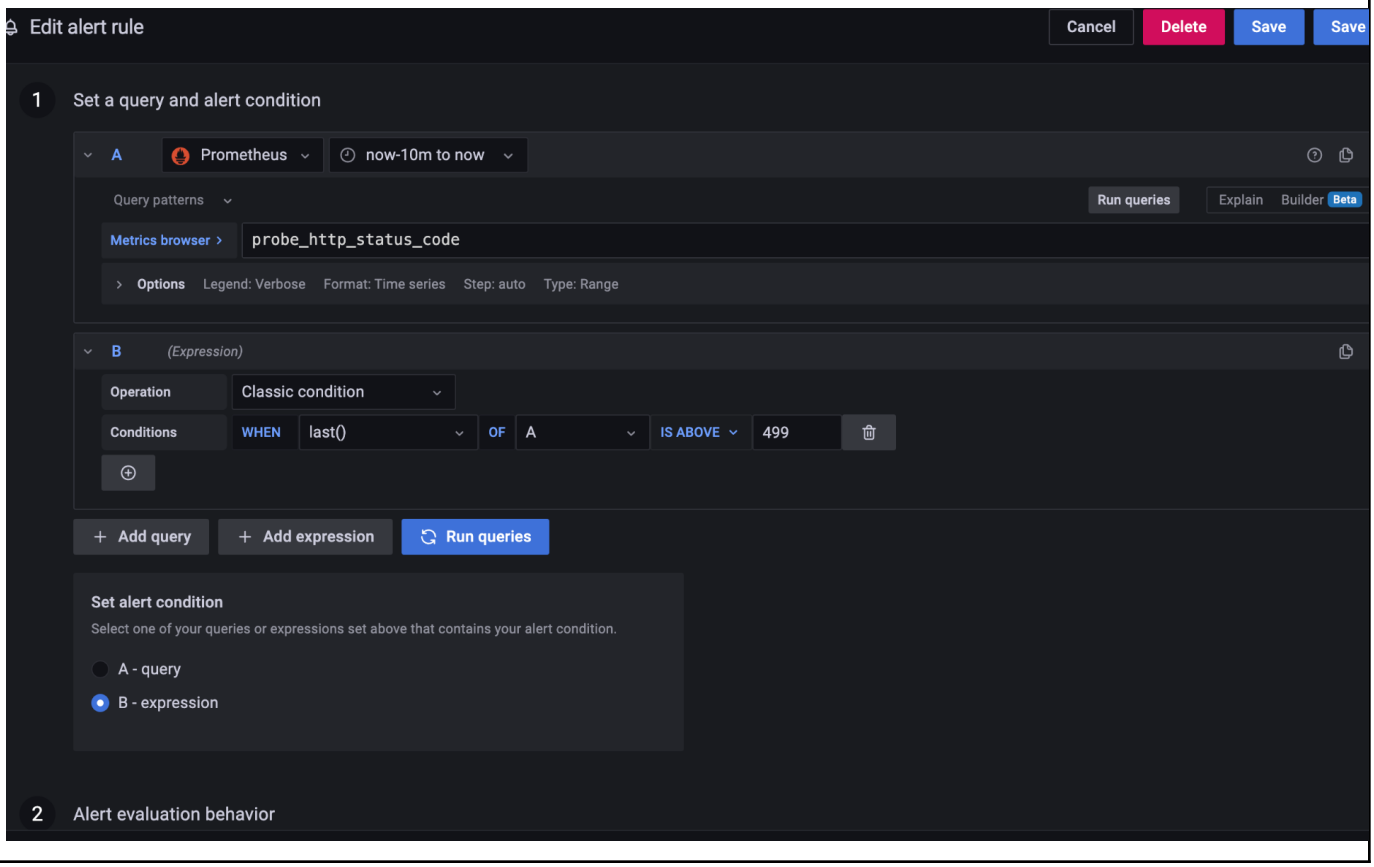
Panel: http://localhost:3000/d/6P8ki2m4z?viewPanel=4

Show less

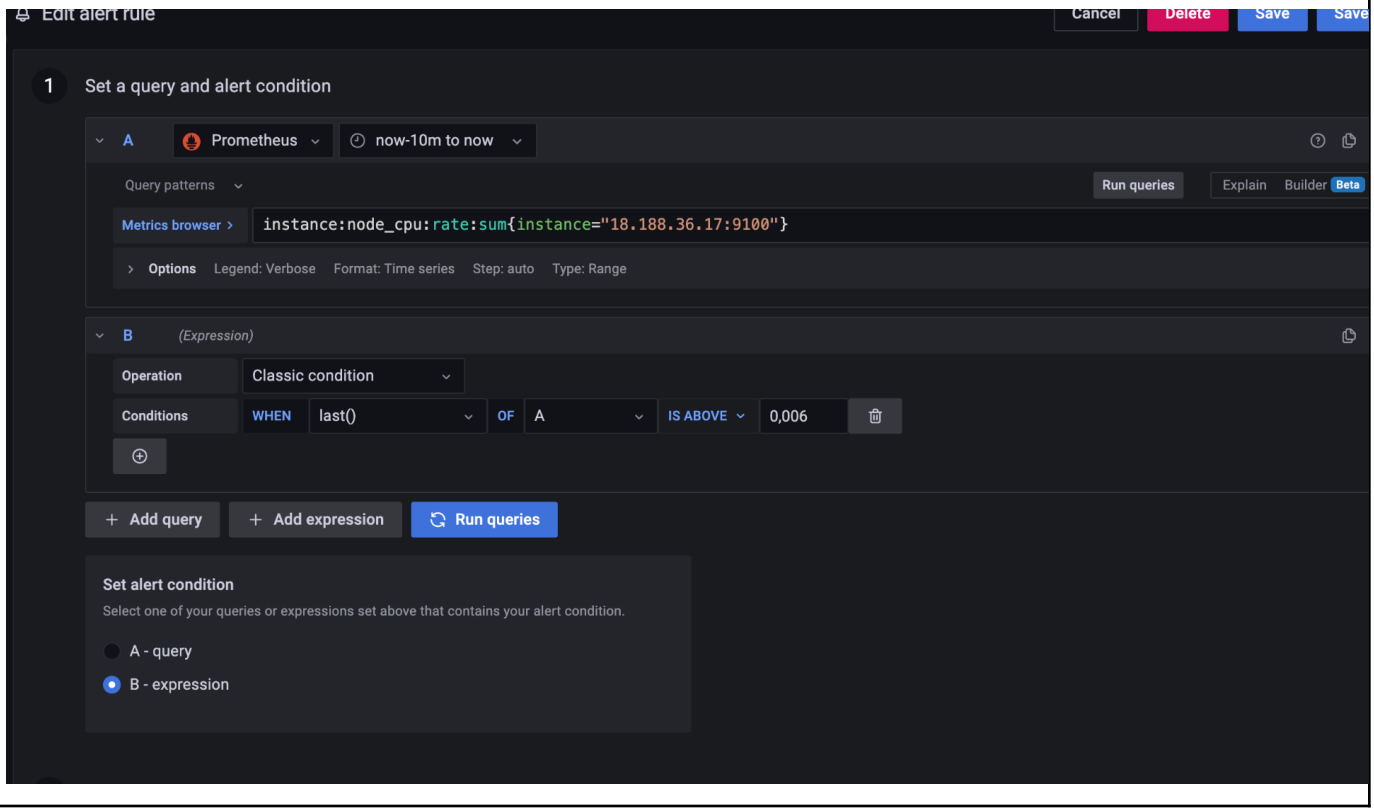
Grafana v9.0.5 | Today at 6:25 PM

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

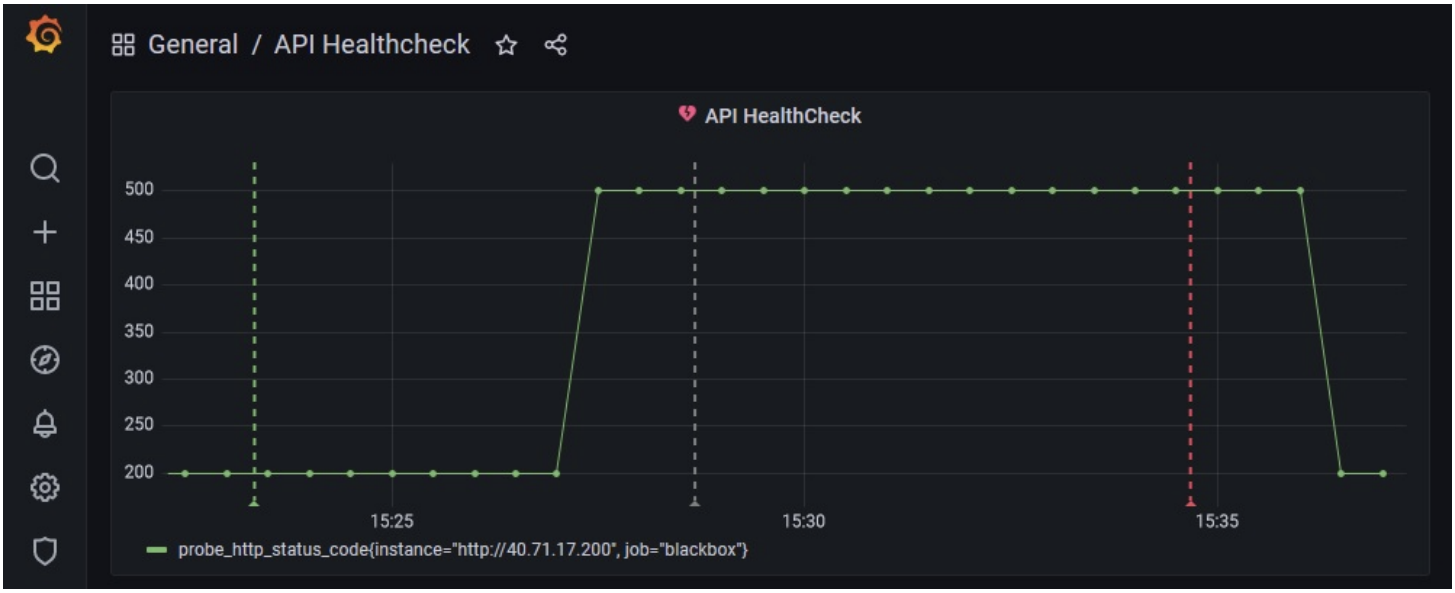
- API



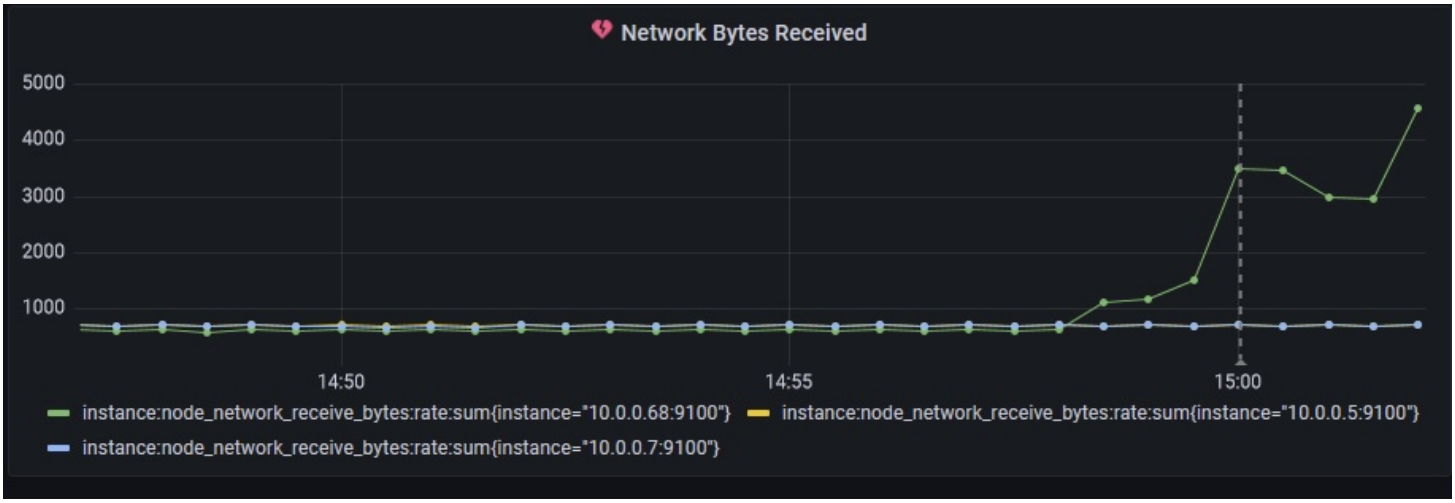
- CPU


Edit alert rule
Cancel
Delete
Save
Save
1
Set a query and alert condition
A
Prometheus
now-10m to now
Query patterns
Run queries
Explain
Builder
Beta
Metrics browser
instance:node_cpu:rate:sum{instance="18.188.36.17:9100"}
Options
Legend: Verbose
Format: Time series
Step: auto
Type: Range
B
(Expression)
Operation
Classic condition
Conditions
WHEN
last()
OF
A
IS ABOVE
0,006
Add query
Add expression
Run queries
Set alert condition
Select one of your queries or expressions set above that contains your alert condition.
A - query
B - expression

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 request is down at 15:27 *The API endpoint is healthy again at 15:36*
4b. If there was no SRE team, how would this outage affect customers?
Customers are unable to run requests against sever with public ip '40.71.17.200'
4c. What could be put in place so that the SRE team could know of the outage before the customer does?
Out Stage occurs in shorter period of time because SRE got alert right after the few requests got error and spike in CPU usage

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)?

Instance 10.0.0.68 with port 9100 and it received arround ~3500 bytes at 15:00

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

Infrastructure Engineer – because they spend 50% effort on operation tasks, so they have to know what happen with server 10.0.0.68 and why the traffic are increased quickly to avoid any outage for this instance in further