

## Project Template

# Observing Cloud Resources

*SRE Project Template*

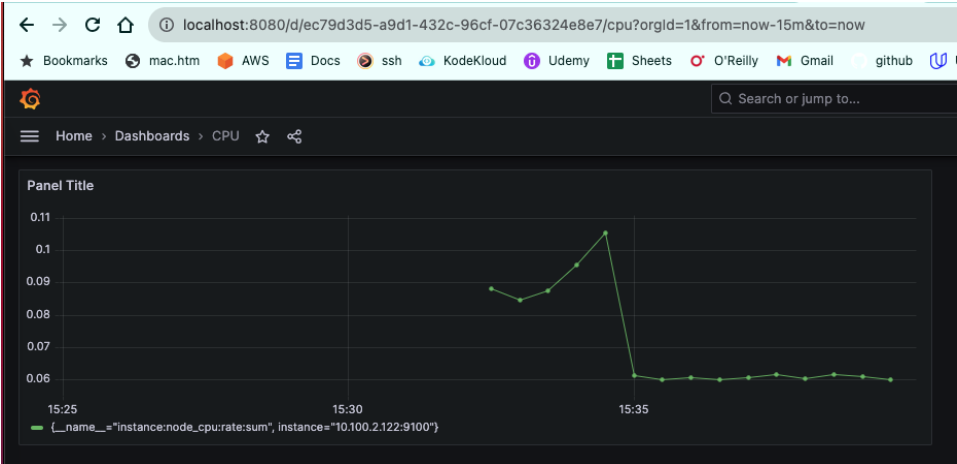

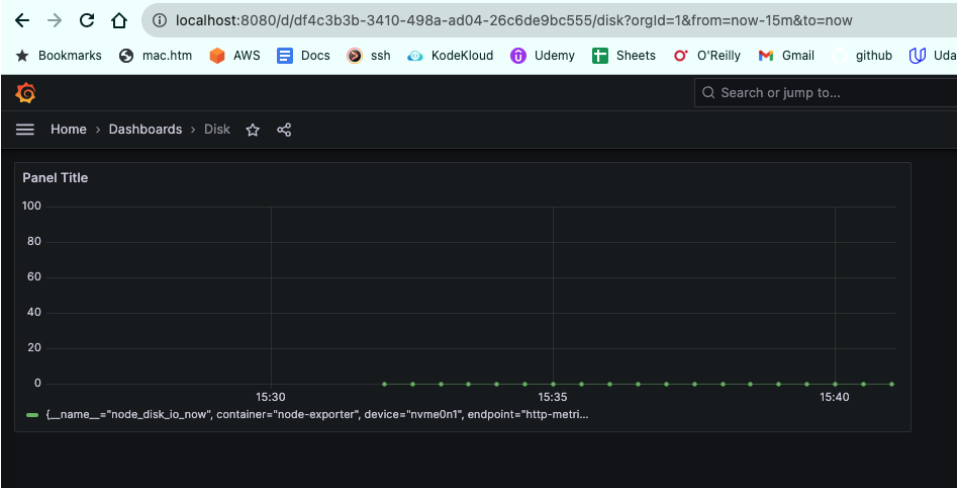
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## Categorize Responsibilities

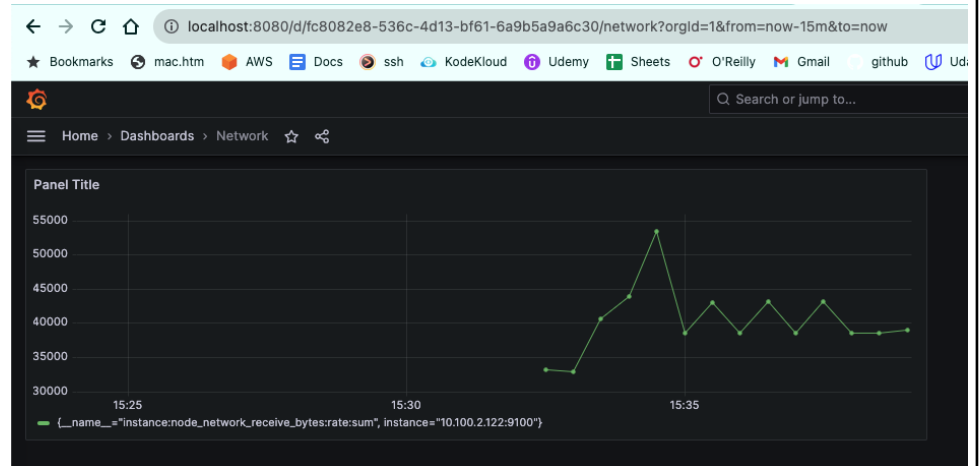
### Prometheus and Grafana Screenshots

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-172-31-43-101:~$  
ubuntu@ip-172-31-43-101:~$ 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 Tue 2023-11-21 08:17:28 UTC; 1h 57min ago  
 Main PID: 798 (node_exporter)  
    Tasks: 4 (limit: 1104)  
   CGroup: /system.slice/node_exporter.service  
           └─798 /usr/local/bin/node_exporter  
  
Nov 21 08:17:28 ip-172-31-43-101 node_exporter[798]: level=info ts=2023-11-21T08:17:28.527Z caller=node_exporter.g  
Nov 21 08:17:28 ip-172-31-43-101 node_exporter[798]: level=info ts=2023-11-21T08:17:28.528Z caller=node_exporter.g  
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Nov 21 08:17:28 ip-172-31-43-101 node_exporter[798]: level=info ts=2023-11-21T08:17:28.528Z caller=tlconfig.go:1  
ubuntu@ip-172-31-43-101:~$
```

Host Metric (CPU, RAM, Disk, Network)	Dashboard										
CPU	 <p>The screenshot shows a Grafana dashboard for CPU usage. The browser address bar indicates the URL: localhost:8080/d/ec79d3d5-a9d1-432c-96cf-07c36324e8e7/cpu?orgId=1&amp;from=now-15m&amp;to=now. The dashboard has a search bar and a navigation menu. The main panel, titled 'Panel Title', displays a line graph of CPU usage. The y-axis ranges from 0.06 to 0.11. The x-axis shows time from 15:25 to 15:35. The graph shows a sharp increase in CPU usage around 15:33, peaking at approximately 0.105, followed by a sharp drop to around 0.06.</p> <table border="1"><thead><tr><th>Time</th><th>CPU Usage</th></tr></thead><tbody><tr><td>15:25</td><td>0.085</td></tr><tr><td>15:30</td><td>0.085</td></tr><tr><td>15:33</td><td>0.105</td></tr><tr><td>15:35</td><td>0.06</td></tr></tbody></table>	Time	CPU Usage	15:25	0.085	15:30	0.085	15:33	0.105	15:35	0.06
Time	CPU Usage										
15:25	0.085										
15:30	0.085										
15:33	0.105										
15:35	0.06										
Memory	 <p>The screenshot shows a Grafana dashboard for memory usage. The browser address bar indicates the URL: localhost:8080/d/a5c3632f-4631-407d-8912-da009e9a340a/memory?orgId=1&amp;from=now-15m&amp;to=now. The dashboard has a search bar and a navigation menu. The main panel, titled 'Panel Title', displays a line graph of memory usage. The y-axis ranges from 2600000000 to 3000000000. The x-axis shows time from 15:30 to 15:40. The graph shows a sharp increase in memory usage around 15:30, peaking at approximately 2950000000, followed by a sharp drop to around 2650000000.</p> <table border="1"><thead><tr><th>Time</th><th>Memory Usage</th></tr></thead><tbody><tr><td>15:30</td><td>2950000000</td></tr><tr><td>15:35</td><td>2650000000</td></tr><tr><td>15:40</td><td>2650000000</td></tr></tbody></table>	Time	Memory Usage	15:30	2950000000	15:35	2650000000	15:40	2650000000		
Time	Memory Usage										
15:30	2950000000										
15:35	2650000000										
15:40	2650000000										
Disk	 <p>The screenshot shows a Grafana dashboard for disk usage. The browser address bar indicates the URL: localhost:8080/d/df4c3b3b-3410-498a-ad04-26c6de9bc555/disk?orgId=1&amp;from=now-15m&amp;to=now. The dashboard has a search bar and a navigation menu. The main panel, titled 'Panel Title', displays a line graph of disk usage. The y-axis ranges from 0 to 100. The x-axis shows time from 15:30 to 15:40. The graph shows a sharp increase in disk usage around 15:30, peaking at approximately 100, followed by a sharp drop to around 0.</p> <table border="1"><thead><tr><th>Time</th><th>Disk Usage</th></tr></thead><tbody><tr><td>15:30</td><td>100</td></tr><tr><td>15:35</td><td>0</td></tr><tr><td>15:40</td><td>0</td></tr></tbody></table>	Time	Disk Usage	15:30	100	15:35	0	15:40	0		
Time	Disk Usage										
15:30	100										
15:35	0										
15:40	0										

## 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 - For taking care of the change management governance related to hotfix and to ensure that code has all dependencies satisfied . Release Manager also takes care of the communication to stakeholders about this hotfix and manages the implementation and roll back ( if necessary).*

*Monitoring Engineer - To know if there is any incident or issues and take appropriate action during and after hotfix implementation.*

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 - To discuss the scope of work and to direct and assign the work to the Team Members related to the new product.*

*System Architect - To make recommendations about technology and to document/diagram the infrastructure . System Architect will also highlight any shortcomings and give suggestions to eliminate the same in relation to the new product .*

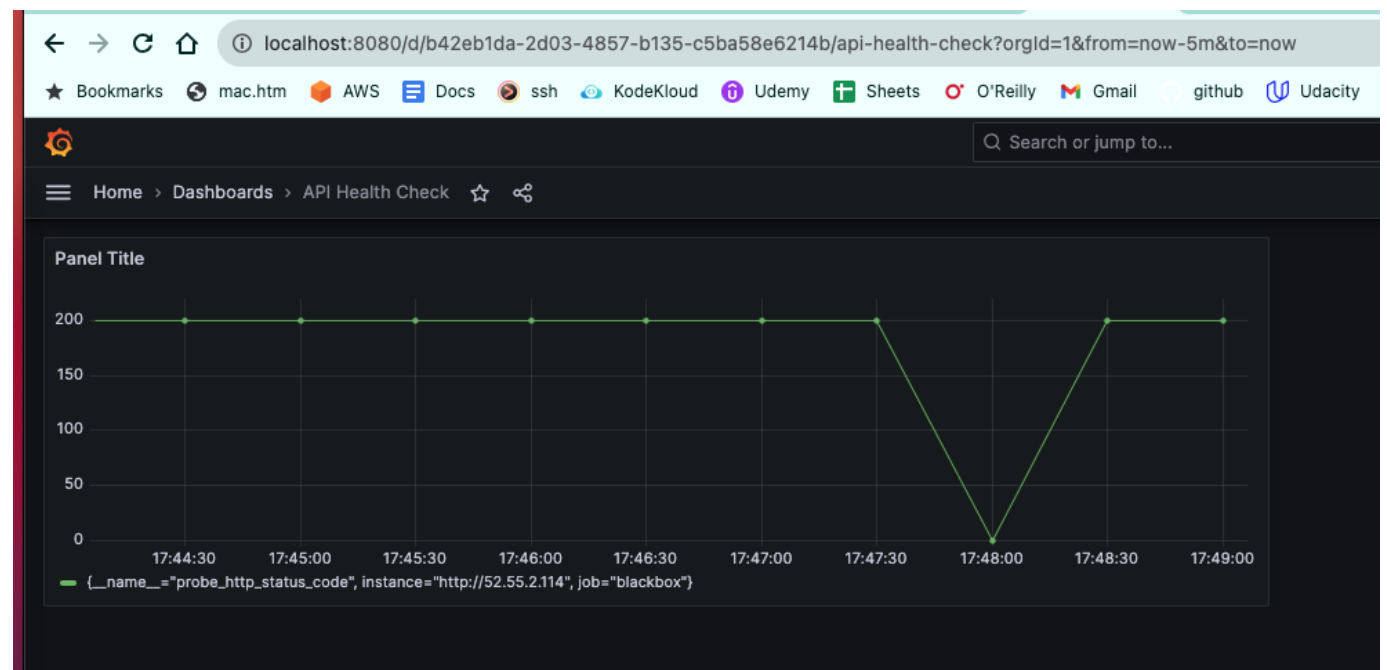
3. The emergency hotfix from question 1 was applied and is causing major issues in production. Which SRE role would primarily be involved in mitigating these issues?

*Infrastructure Engineer*

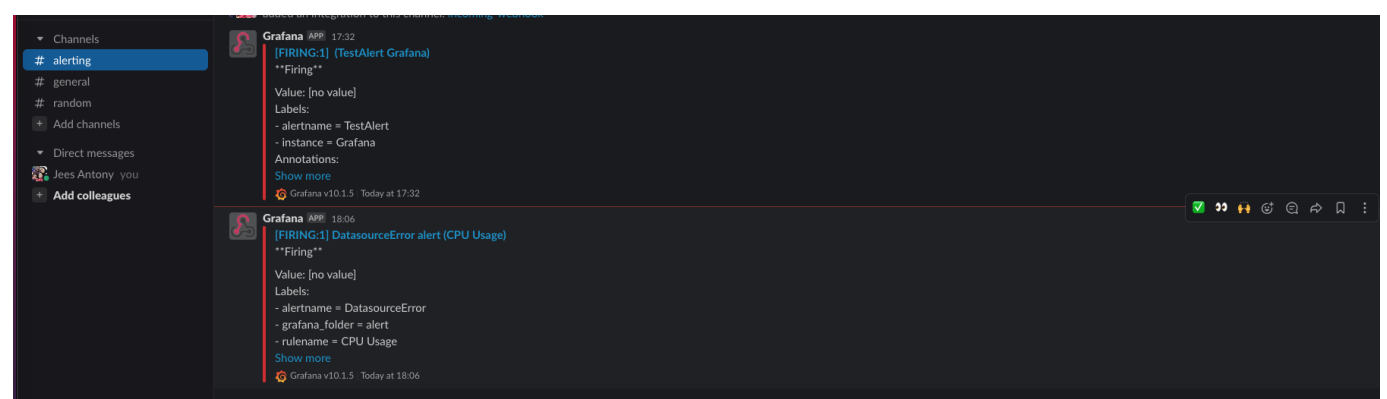
# Team Formation and Workflow Identification

## 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.



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

Alerting

Alert rules

Contact points

Notification policies

Silences

Groups

Admin

Rules that determine whether an alert will fire

Search by data sources

All data sources

State

Firing

Normal

Pending

Rule type

Alert

Recording

Health

Ok

No Data

Error

Search

View as

Grouped

List

State

238 rules 3 firing 5 errors 145 normal 85 recording

+ New alert rule

More
















Grafana

alert > alert

5 errors 5 normal

10s

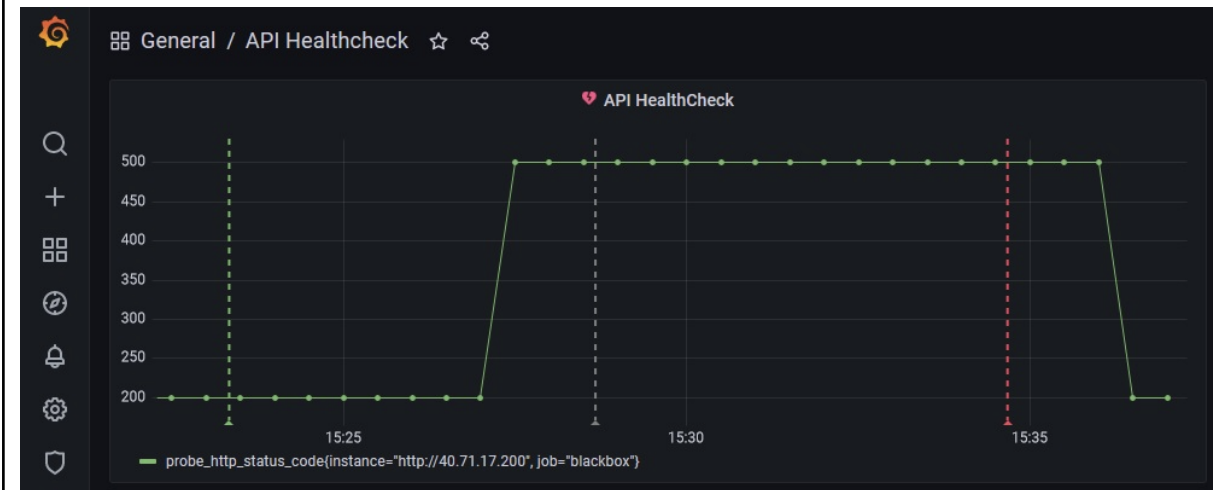
🔍

State	Name	Health	Summary	Next evaluation	Actions
Normal	Flask App is offline	error	flask app is offline	in a few seconds	  
Normal	High CPU Utilisation	error		in a few seconds	  
Normal	Memory Alert	error		in a few seconds	  
Normal	Disk I/O	error		within 10 seconds	  
Normal	Network Alert	error		within 10 seconds	  

Mimir / Cortex / Loki

# 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?

*At 15:27 API endpoint is down*

*At 15:36 API endpoint is healthy again*

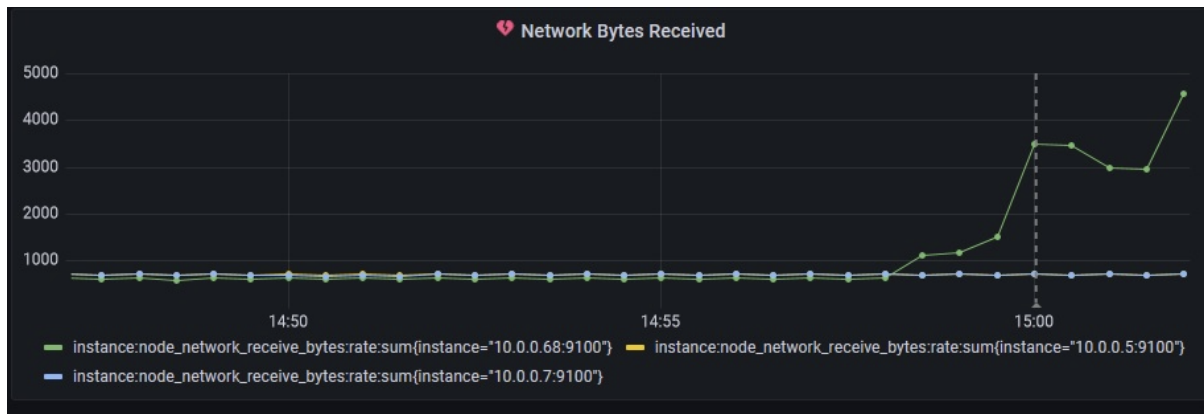
4b. If there was no SRE team, how would this outage affect customers?

*If there is no SRE Team , there wouldn't be monitoring and alerting. Hence the issue will come to notice only after reporting by customer. This will cause delay in resolving the issue and can cause loss of reputation.*

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

*Synthetic monitoring should be in place so that the SRE Team receives the callout immediately after the endpoint is down.*

## 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 had the increase in traffic. It received approximately 450 bytes.*

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

*Monitoring Engineer and System Architect on the SRE Team would be interested in this graph.*

*As Monitoring Engineer is responsible for creating the dashboard for important metrics and take care of alert rules , he/she will be interested to know the details about the current traffic data.*

*As System Architect is responsible for making recommendations about new technologies , he/she will be interested to know the current data about traffic. This data will help him/her to highlight any shortcomings of existing Infrastructure.*