Monitoring tool

1. **Solution**

* We will use a dedicated instance for monitoring. In this instance I will run the docker containers Grafana, Prometheus. It will collect the data of the instances, which will then be aggregated and displayed on the dashboard.

+ Grafana is a service used to visualize data

+ Prometheus is a service dedicated to aggregating data from data collection services (for example, Node Exporter and CAdvisor).

* With the instances running we will install Node Exporter and CAdvisor dockers.

+ Node Exporter is a service that collects Instance metrics such as CPU, RAM, Volume, Network, etc.

+ CADvisor is Google's Open Source. It is specialized to collect metrics of the docker containers located in each instance.

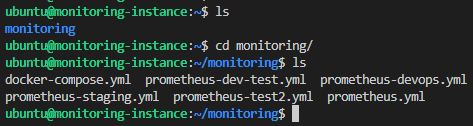
* Process Description:
* The Instance used for monitoring will be installed Grafana and Prometheus dockers.
* There are 4 containers for Prometheus for environments (Dev-Test, Test 2, Staging, Production) and 1 Instance Prometheus that collects information about all instances.
* Grafana takes data from these 5 Prometheus and visualizes it into dedicated dashboards.
* The instances that are running in the cloud are installed with Node Exporter and CAdvisor (optional). Node Exporter will use port 9100 and CAdvisor will use port 8080. So Please check the port of the containers in the instance before installing to avoid conflicts.

1. **Detailed settings:**

All of my source code is on git. The Docker-compose, config files will be in the Monitoring directory. Repo: DEVOPS, Branch : TrietLM.  
Git link: <https://gotoro-gotoro.developer.ocp.oraclecloud.com/gotoro-gotorodev/#projects/gotoro-devops/scm/DEVOPS.git/tree/Main-Monitoring?revision=trietlm>

1. Monitoring Instance Setting

* Instance will include a docker-compose file and 5 prometheus-config files in **monitoring** directory.



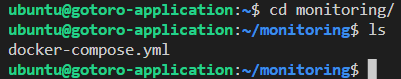
* Docker-compose file and config files: [Link](https://gotoro-gotoro.developer.ocp.oraclecloud.com/gotoro-gotorodev/#projects/gotoro-devops/scm/DEVOPS.git/blob/Main-Monitoring/Monitoring-docker-compose.yml?revision=trietlm)  
    
  Ảnh có chứa văn bản

  Mô tả được tạo tự động
* After running docker-compose:  
    
  Ảnh có chứa văn bản, đồ điện tử, bàn phím

  Mô tả được tạo tự động

1. Cài đặt Node Exporter, Cadvisor:

* Instances will run 2 more containers for Node Exporter, CAdvisor. The docker compose file is in **monitoring** directory.

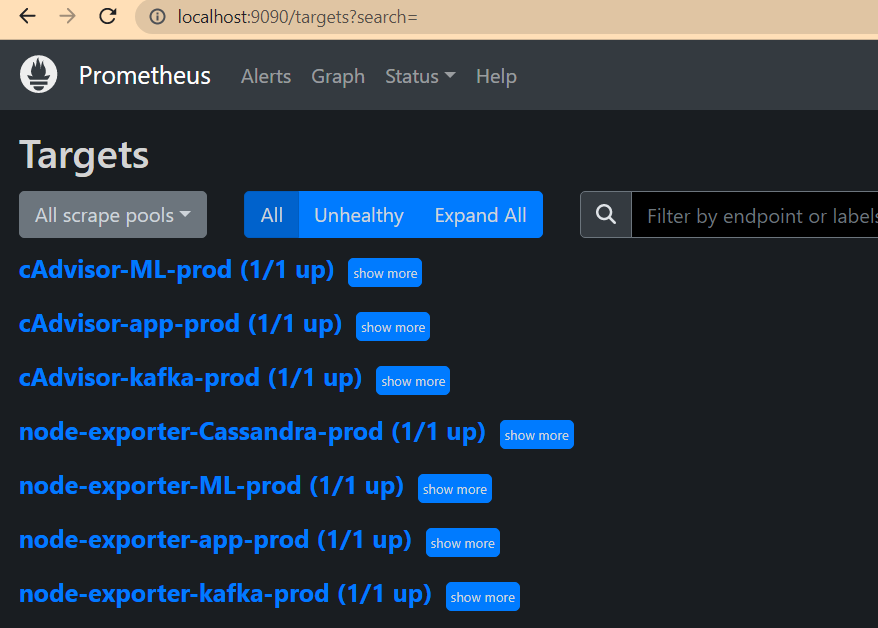


* Docker Docker-compose file: [Link](https://gotoro-gotoro.developer.ocp.oraclecloud.com/gotoro-gotorodev/#projects/gotoro-devops/scm/DEVOPS.git/blob/Main-Monitoring/Node-Exporter/DEV-docker-compose-Node.yml?revision=trietlm)

Ảnh có chứa văn bản

Mô tả được tạo tự động

* After the installation is complete, we can check the status of Prometheus. You can map port 9090, 9091, 9092, 9003, 9094 from the monitoring instance IP to your localhost. In case the Mornitoring Instance has a public IP, We can go to ***“<public IP>:port***” to check.



1. **Design dashboard on Grafana:**
2. Set up data source.

* We have created a Load Balancer to call Grafana in the Monitor instance. I also created a domain for it. We can access the URL to enter Grafana.  
  + URL: <http://monitor.dev.gotoro.io/>

+ User: admin

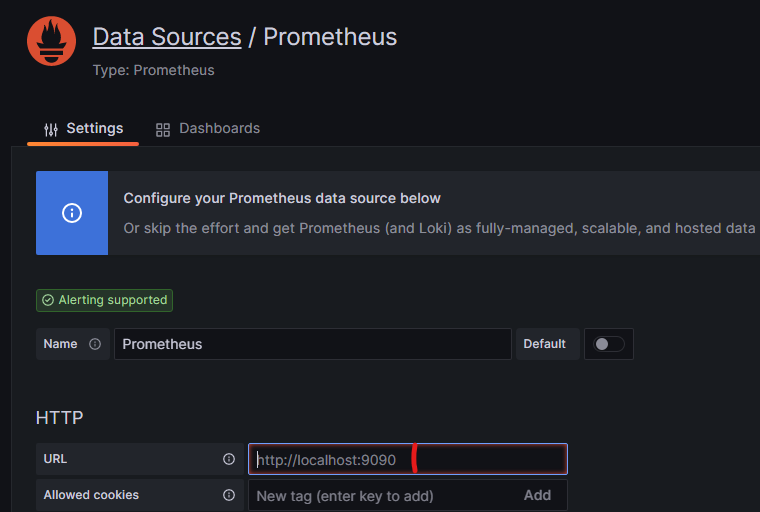
+ Password: GoToro@2023

* First, add the data source. Here is Prometheus.

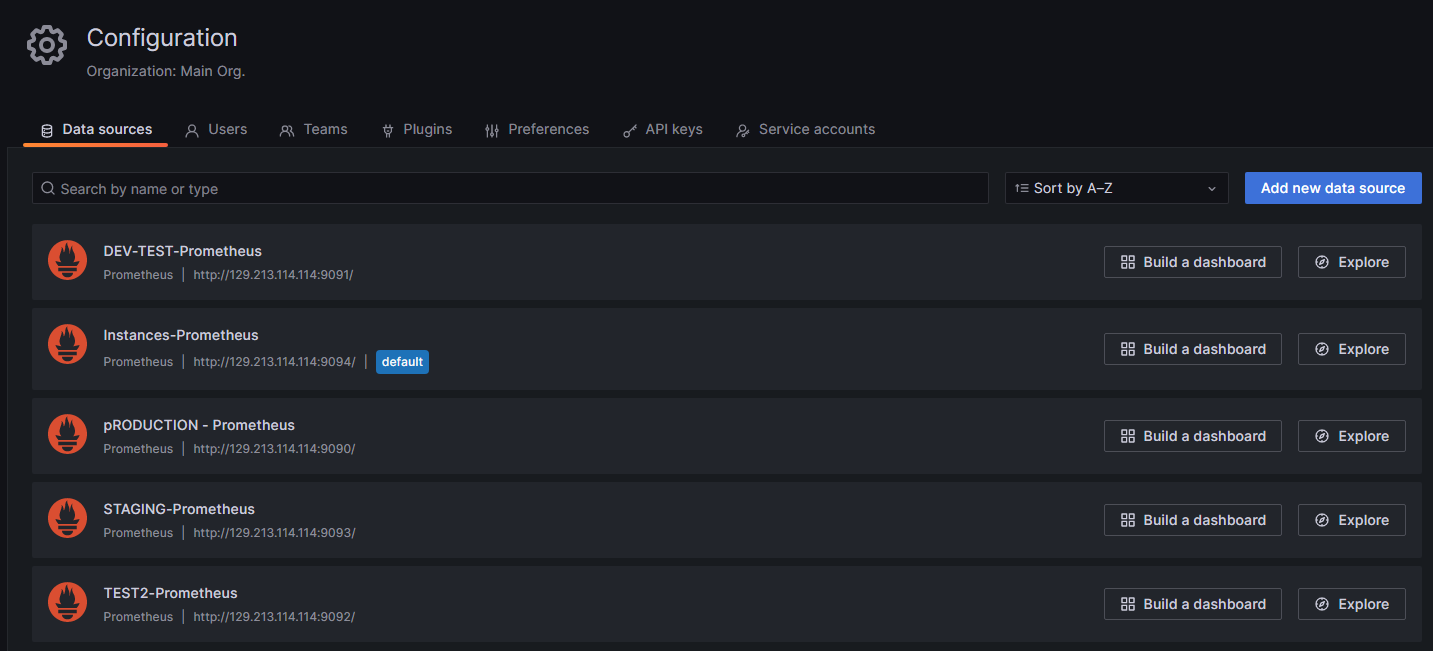
Ảnh có chứa văn bản, ảnh chụp màn hình, màn hình, màu đen

Mô tả được tạo tự động

* Fill Prometheus URL. And Save.



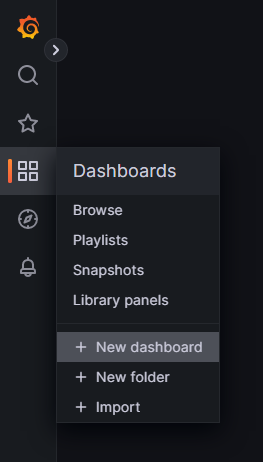
* Data source list in Grafana:



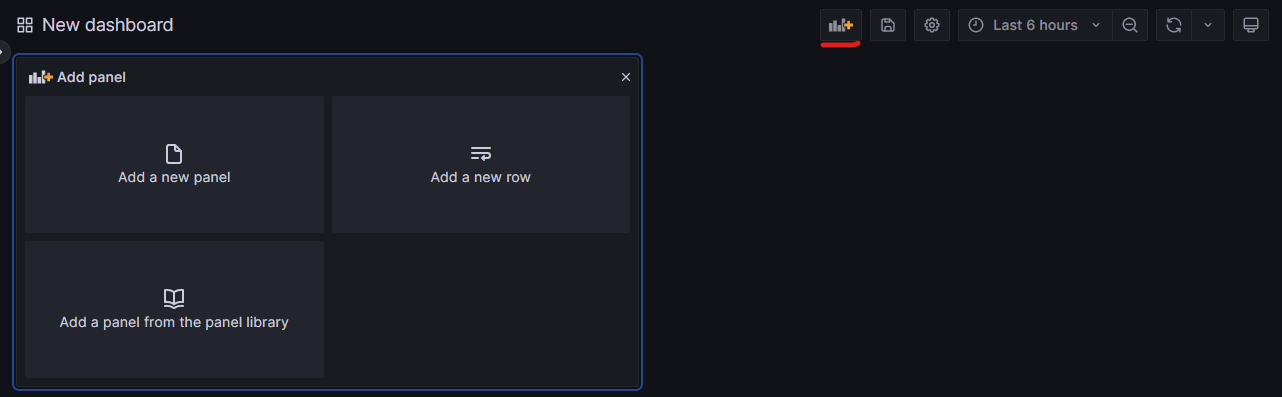
1. Design Dashboard:

* Create new Dashboard:

+ In the left sidebar of Dashboard > New Dashboard

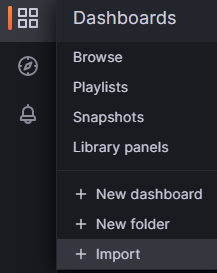


+ Click Add Panel in the upper toolbar. We can add a new panel to design or add a row to contain panels with the same content

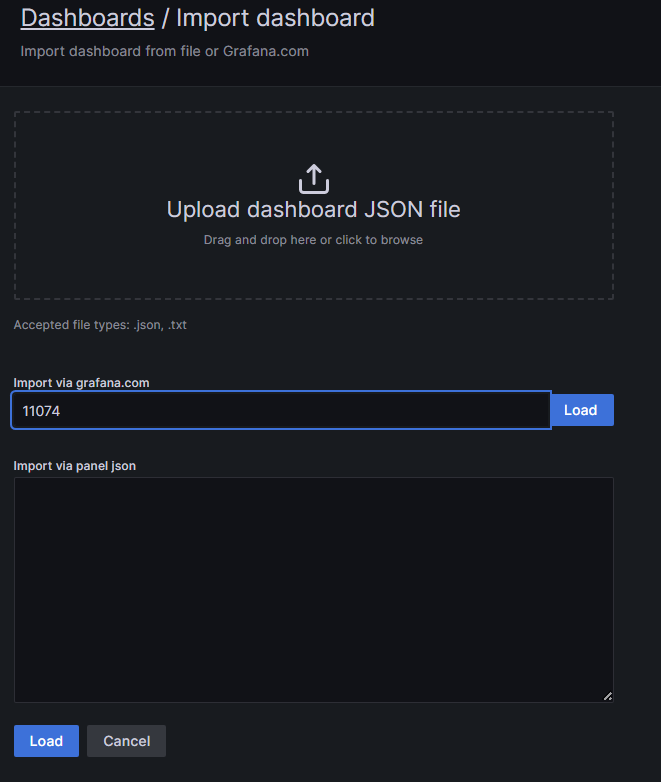


* Another way to create and design dashboards. We will import the dashboards available on Grafana or import the dashboards Json file.
* The current dashboards in use are imported from Grafana and then edited the queries.
* Frequently used Grafana dashboard IDs: 193, 1860, 11074, 11067, …

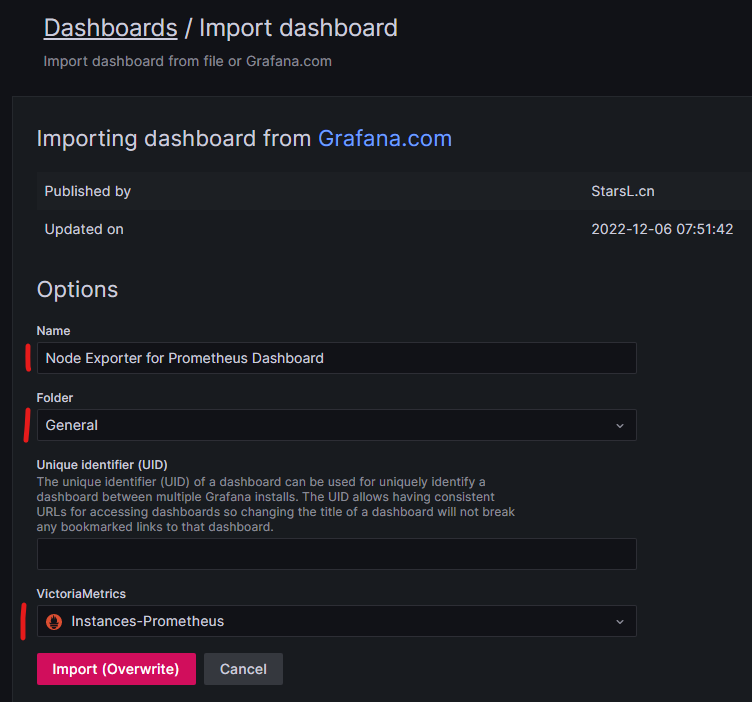
+ In the left sidebar of Dashboard > Import



+ Fill Grafana Dashboard ID or Json file. > Click Load



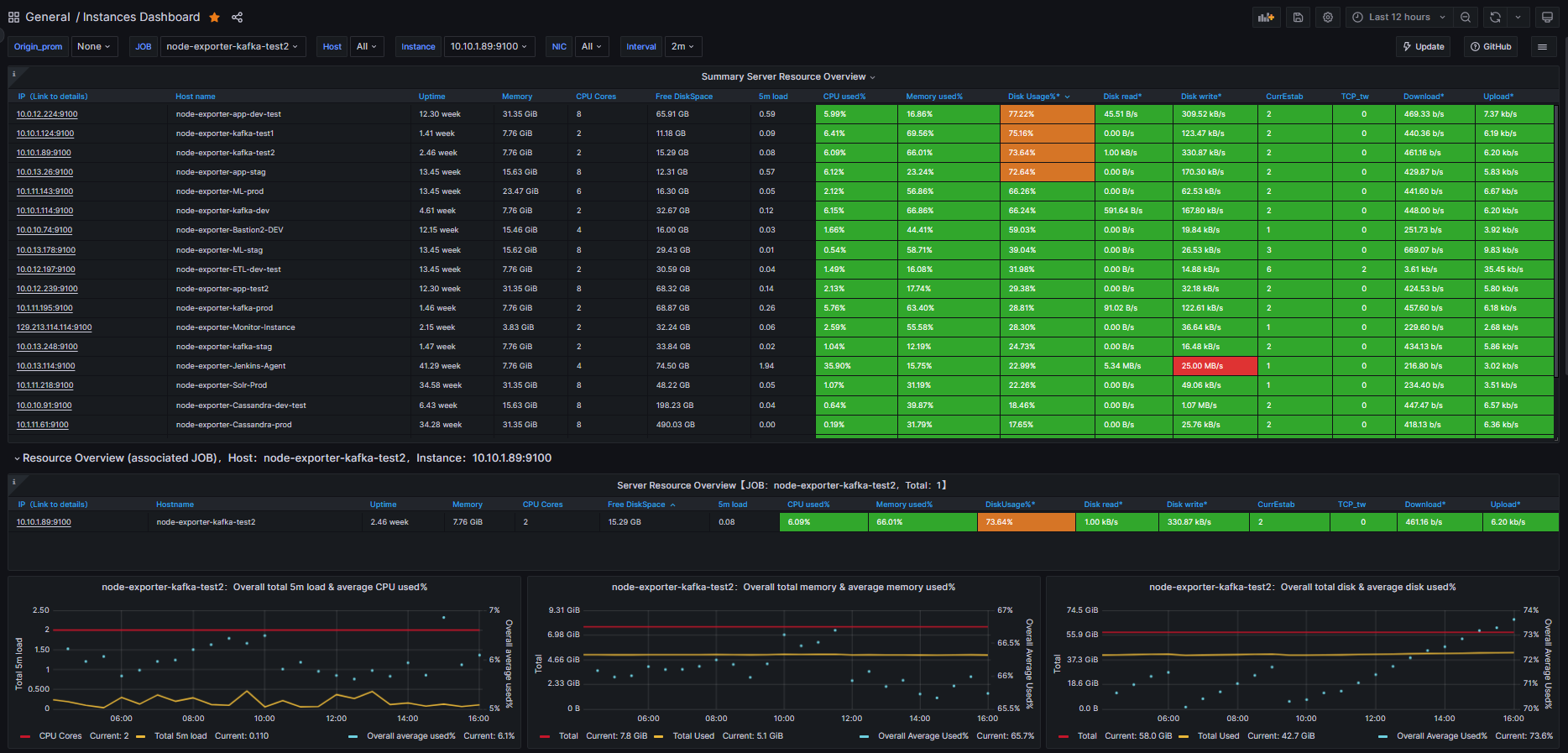
+ Fill Name, Choose folder and Data Source



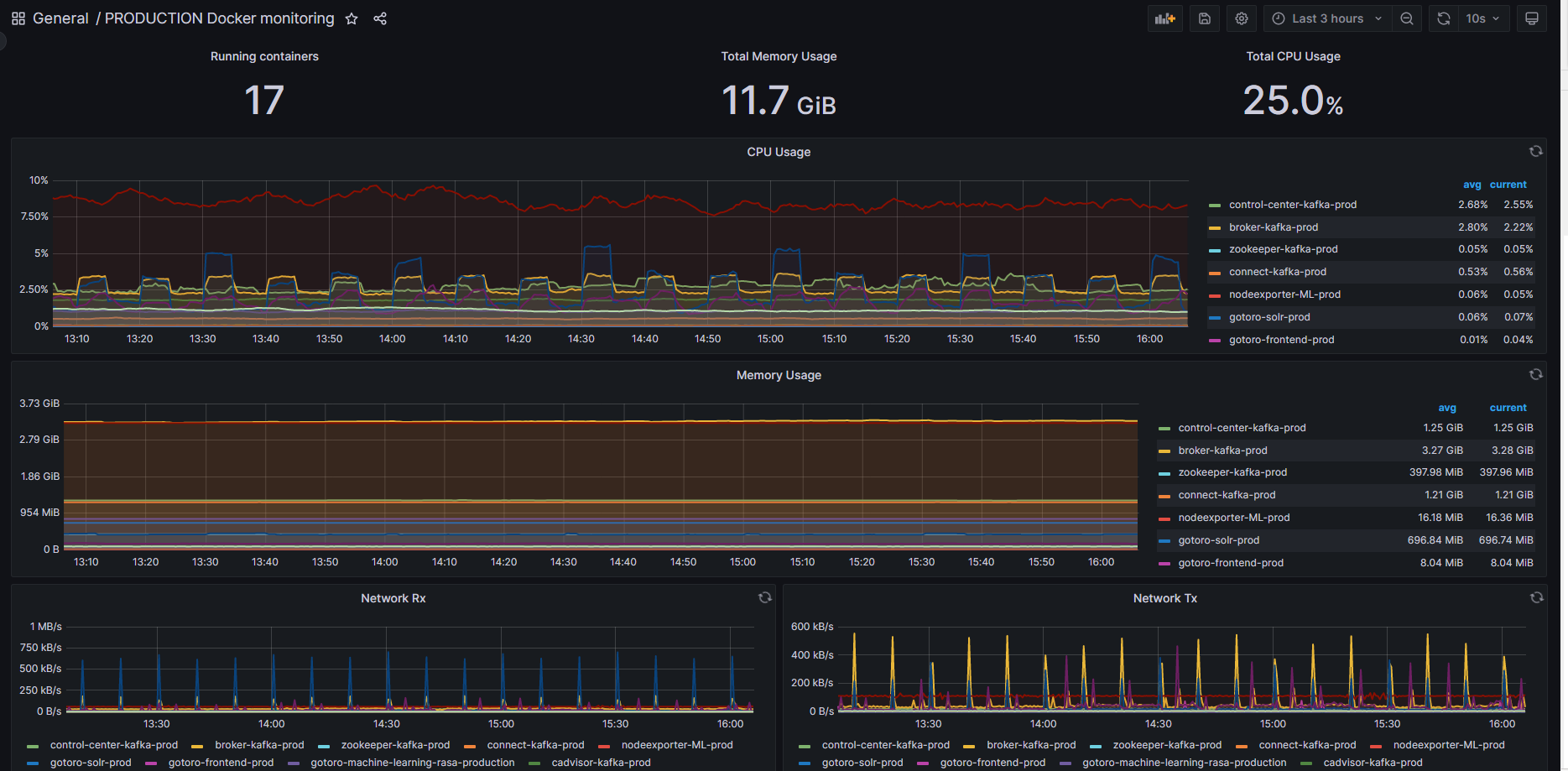
+ Click Import

1. **Some images of monitoring dashboard**

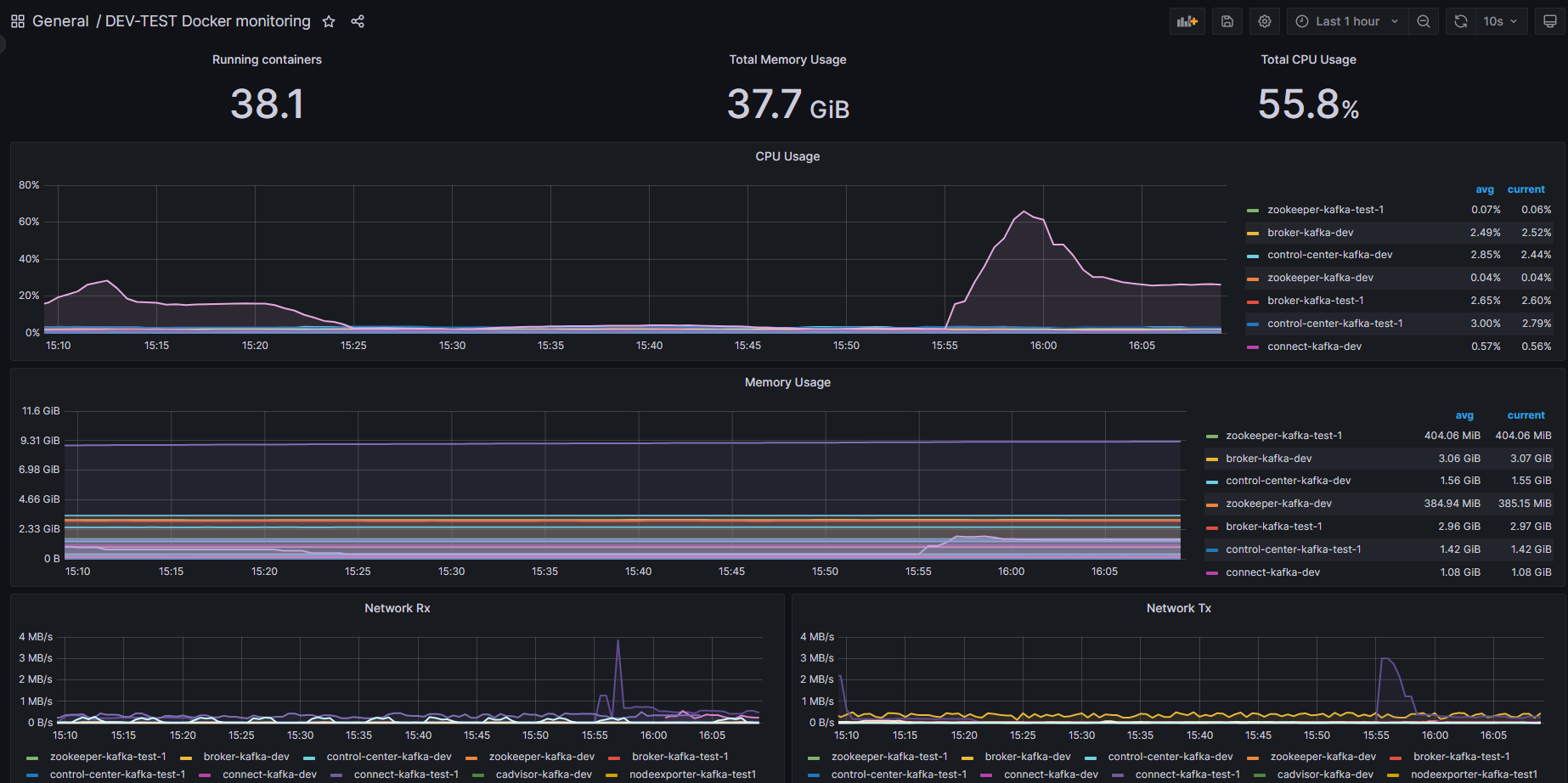
* Instances Monitoring Dashboard



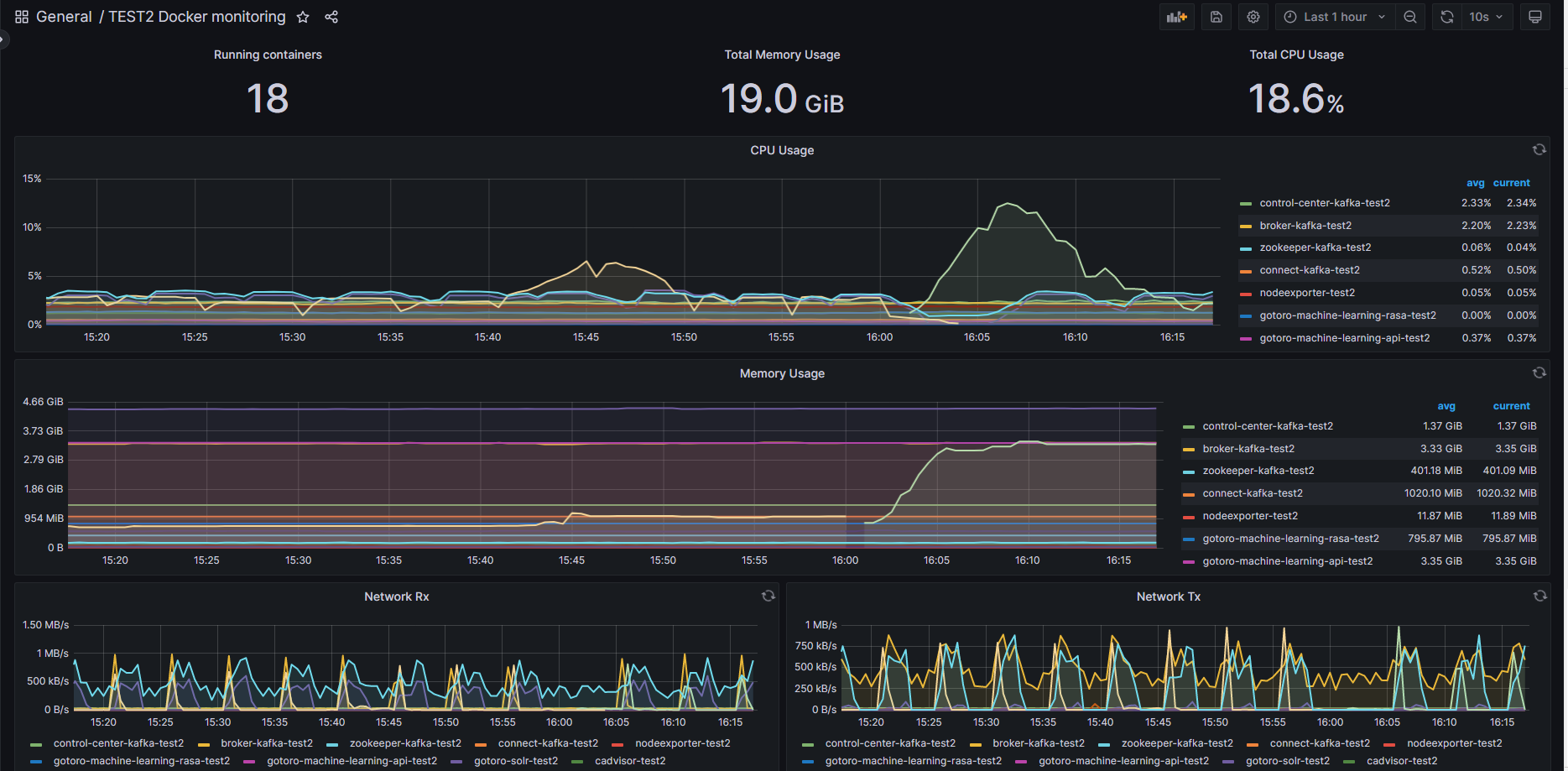
* Production Monitoring



* DEV-TEST Monitoring



* TEST2 Monitoring



* Staging Monitoring

Ảnh có chứa văn bản, trong nhà, màn hình, ảnh chụp màn hình

Mô tả được tạo tự động