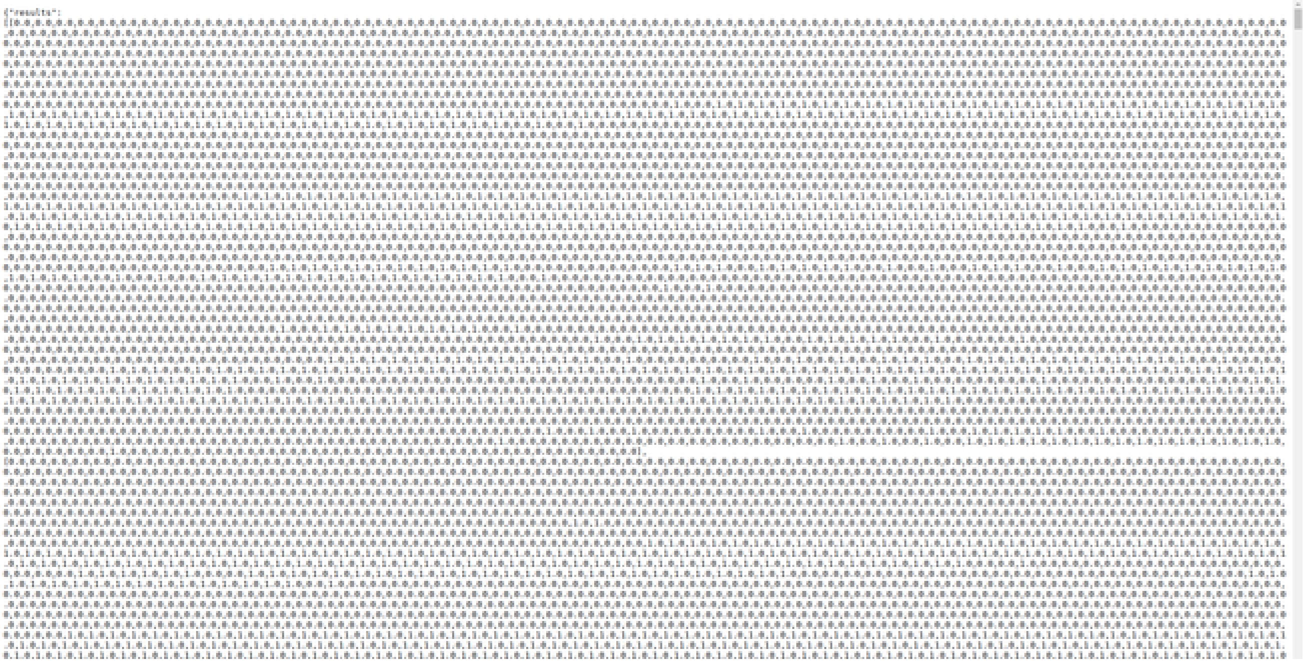
Overstory K8s Assignment

Part-2 Cloud-prediction application deployment:

1. This application is deployed on Minikube with three nodes on local machine.
2. Download the repo from GITHUB and run below command to install Minikube.
3.
```
cd Minikube
bash minikube.sh
```
4. Run the below command to check the node status
5.
```
kubectl get nodes
```
6. Create a namespace for our application deployment
7.
```
kubectl create ns overstory
```
8. Now deploy the cloud-prediction application using below commands
9.
```
cd manifests
kubectl apply -f . -n overstory
```
10. Check the deployment status using below command
11.
```
kubectl get pods -n overstory
```
12. You should the pods running successfully, If not debug app using describe command
13.
```
kubectl describe pod <POD_NAME_HERE> -n overstory
```
14. List the service created in the namespace to access the pod
15.
```
kubectl get svc -n overstory
#get the external port from above command
```
16. This application is exposed on NodePort
17. Get the IP address of the node using below command
18.
```
kubectl get nodes -o wide
```
19. Now make a request to the application using below address

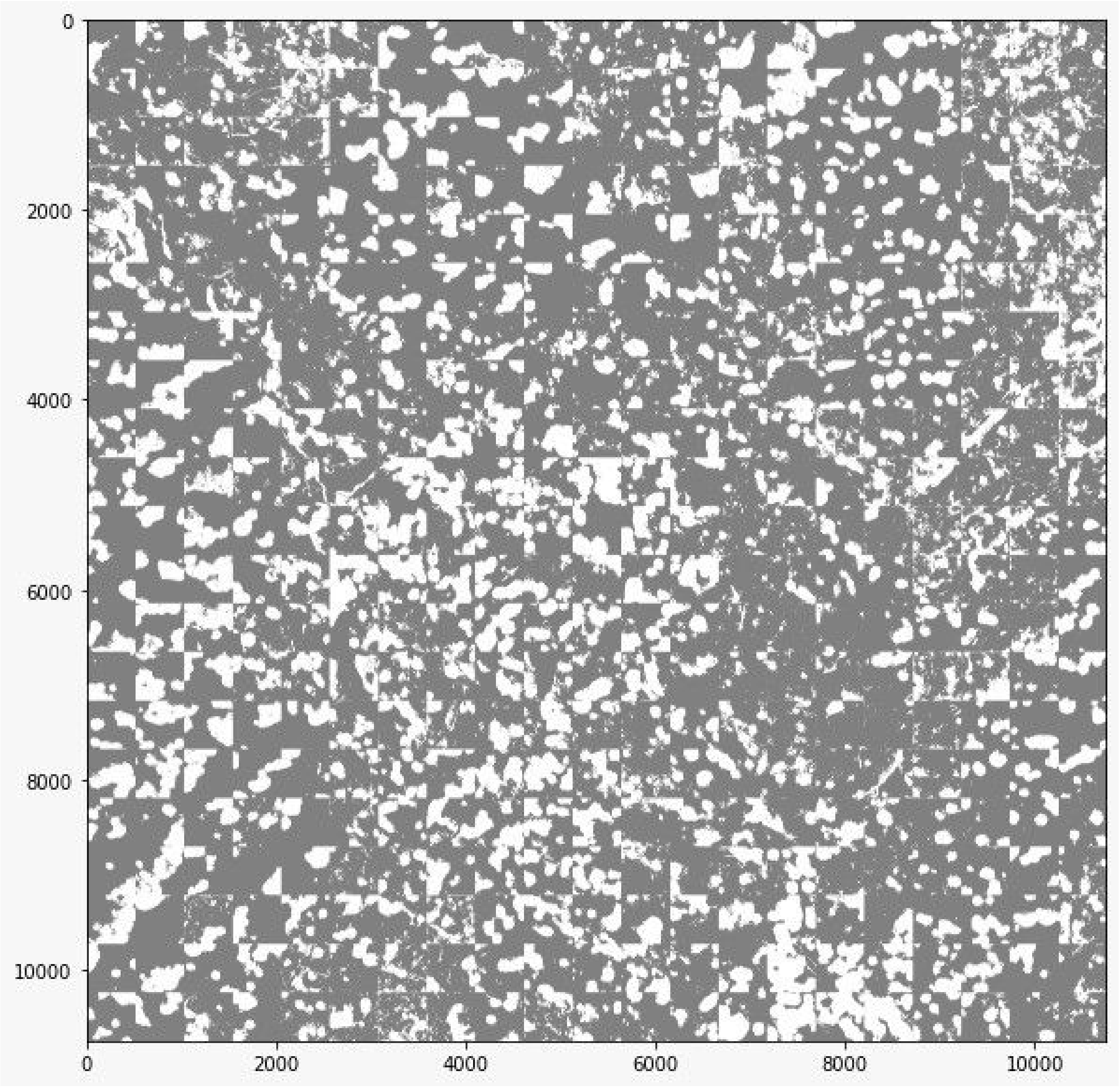
20.
```
http://<NODE_IP>:<PORT>/get-prediction?image_path=image.tif

Example: http://192.*.*.*:30823/get-prediction?image_path=image.tif
```

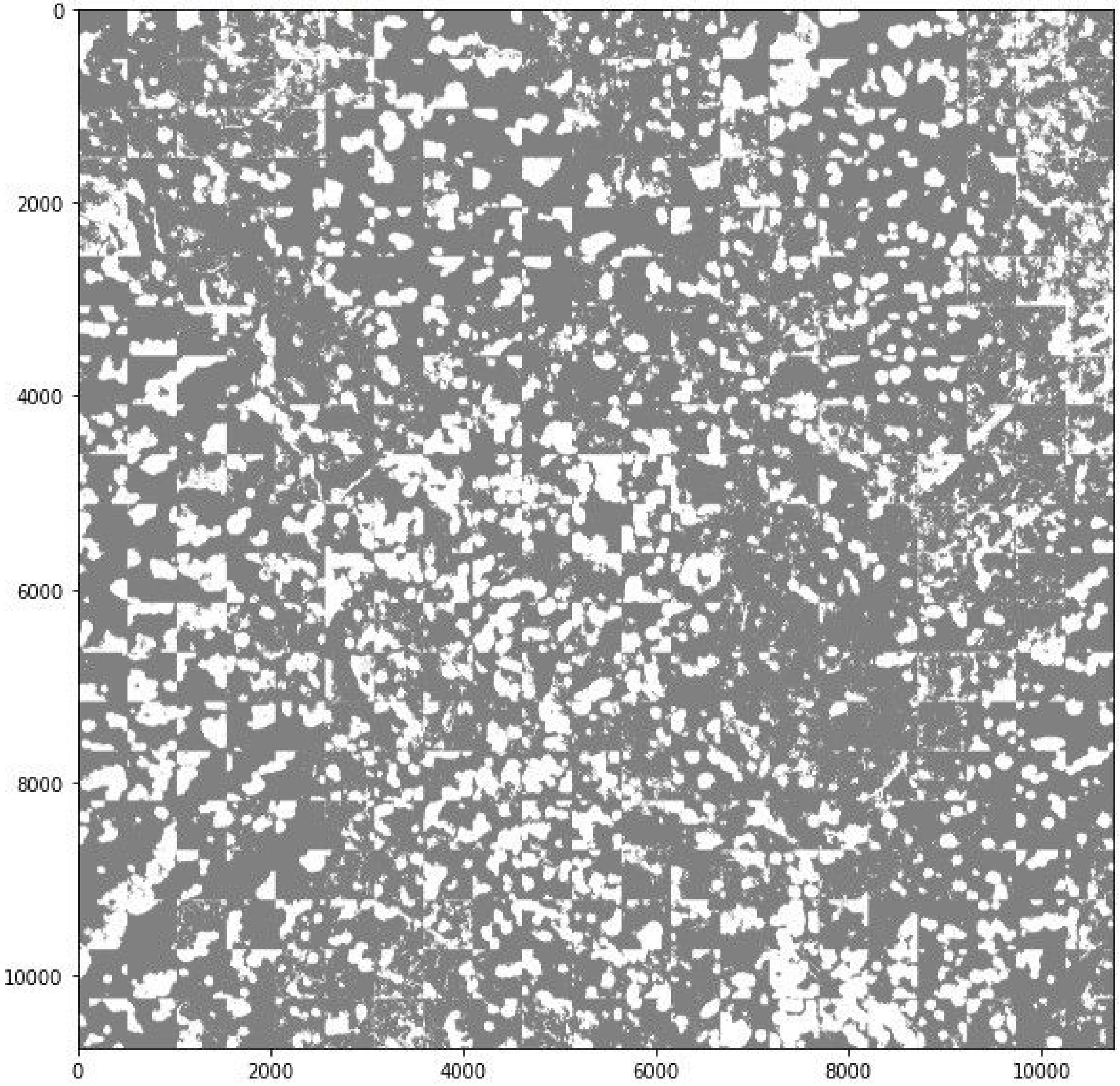
21. Let the page load for some time. After few minutes you will see the array like below
22. 

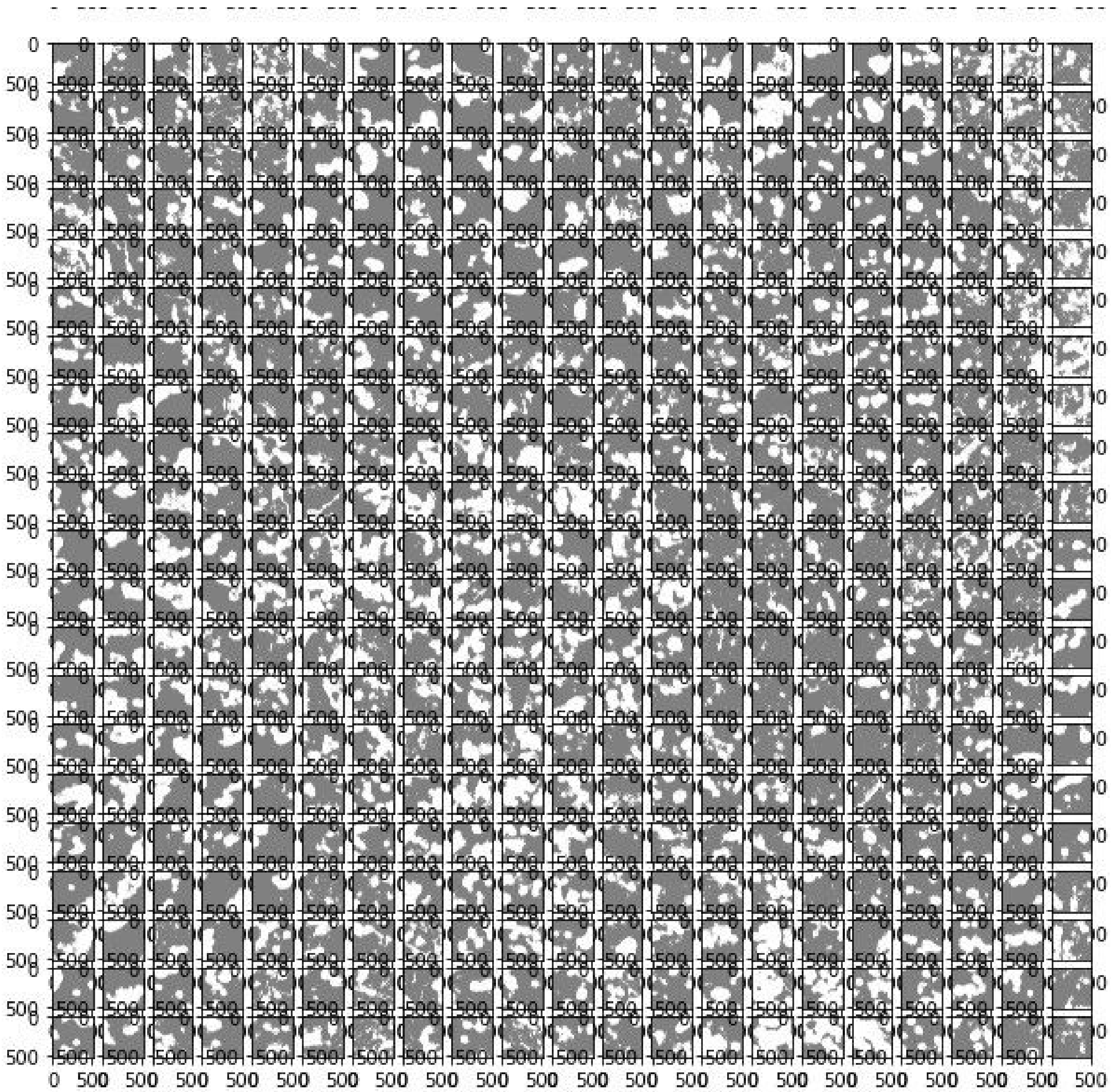
{"results":
[illegible]

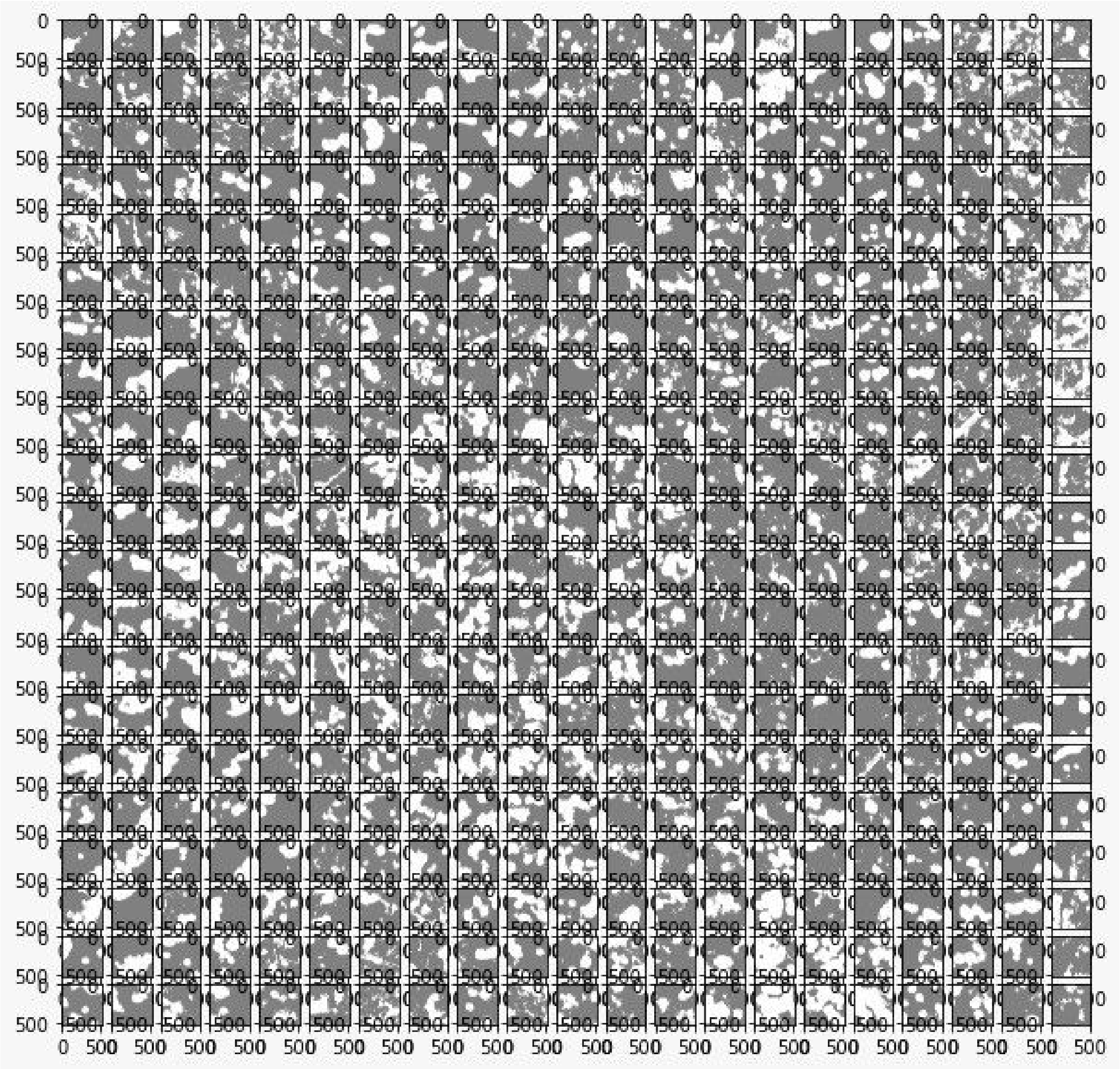
23. Please find the switched images below
24.

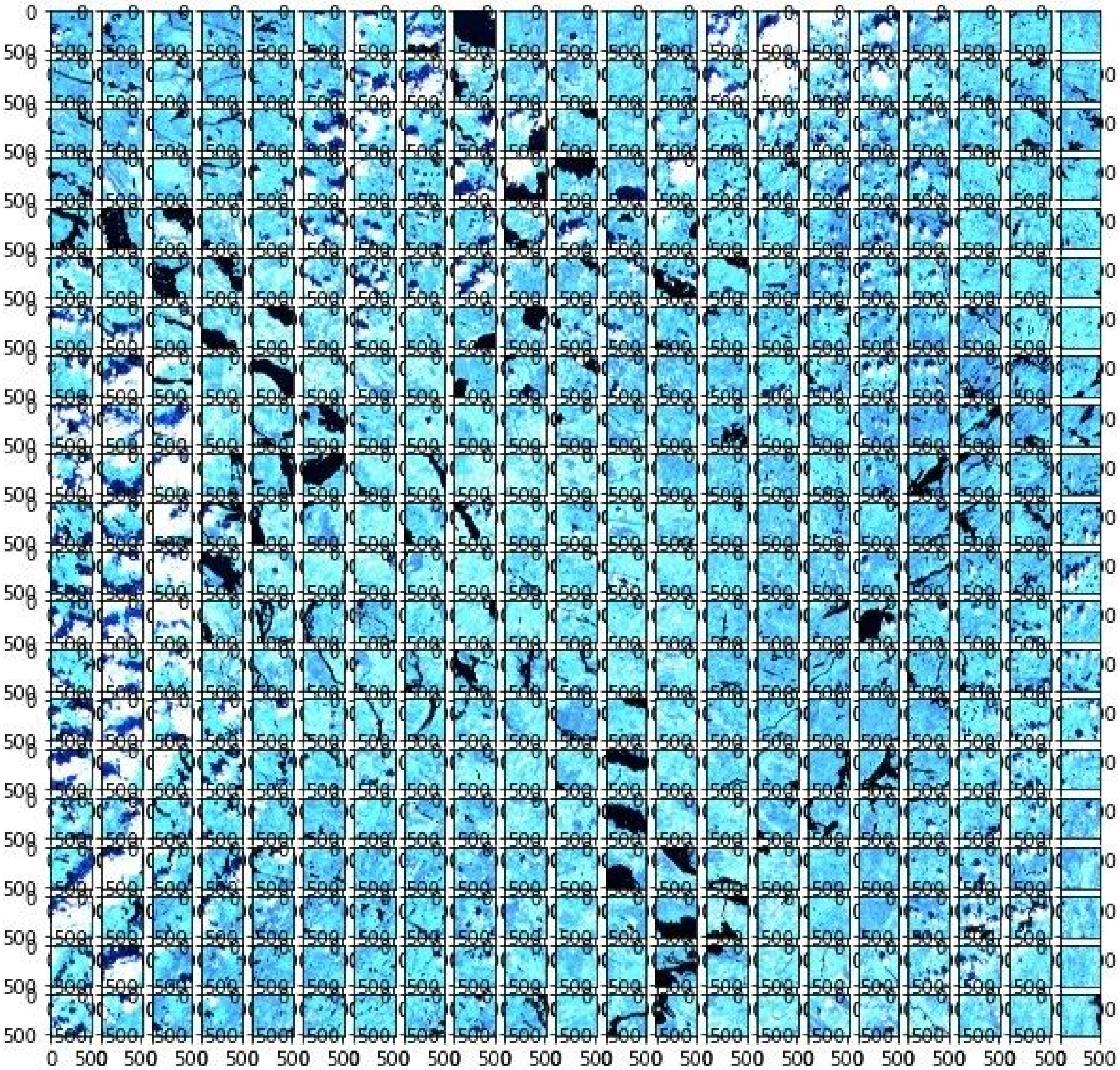

0
2000
4000
6000
8000
10000
0
2000
4000
6000
8000
10000

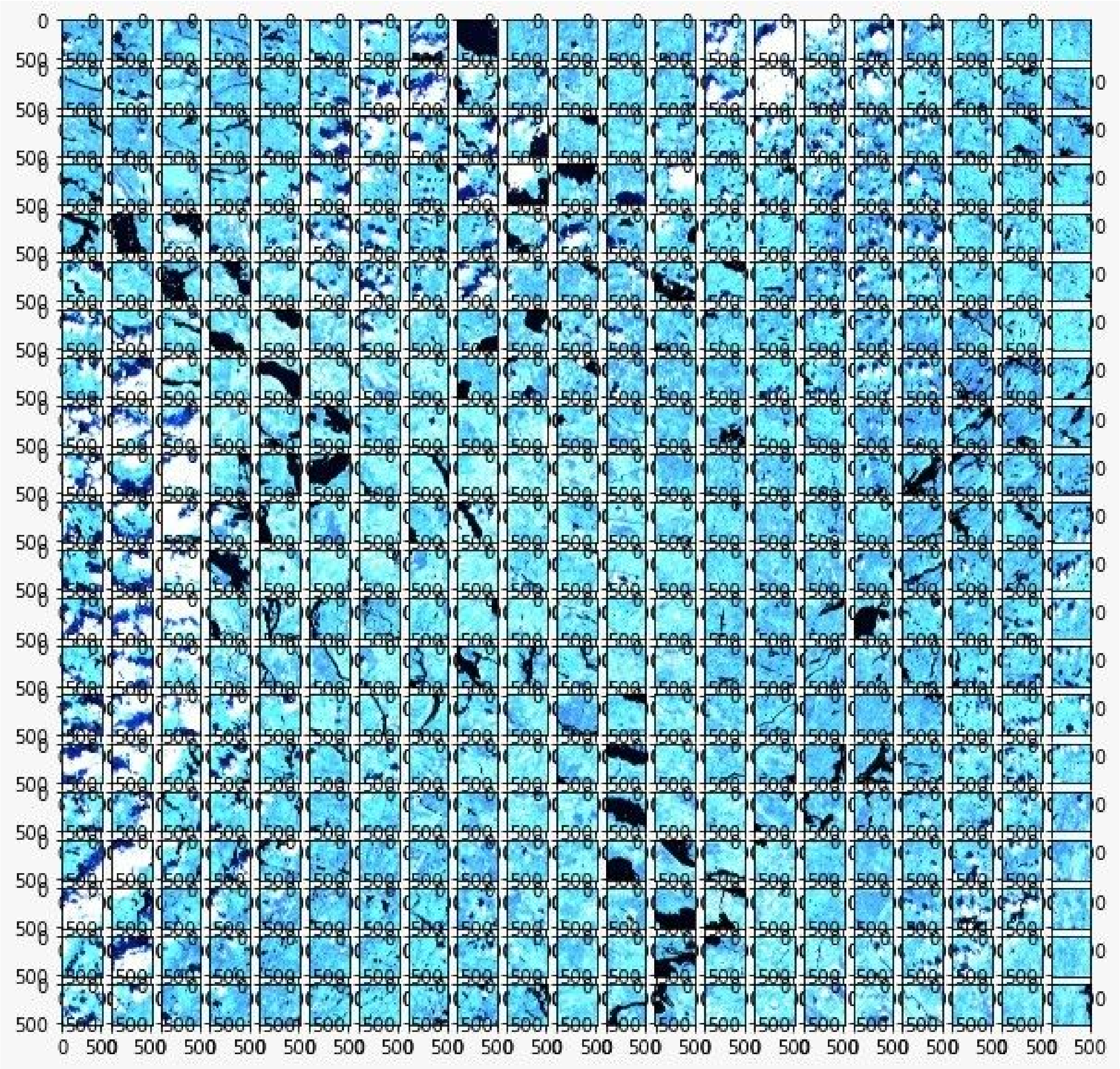
```
<matplotlib.image.AxesImage at 0x7f571ba6ff10>
```


0
2000
4000
6000
8000
10000
0
2000
4000
6000
8000
10000

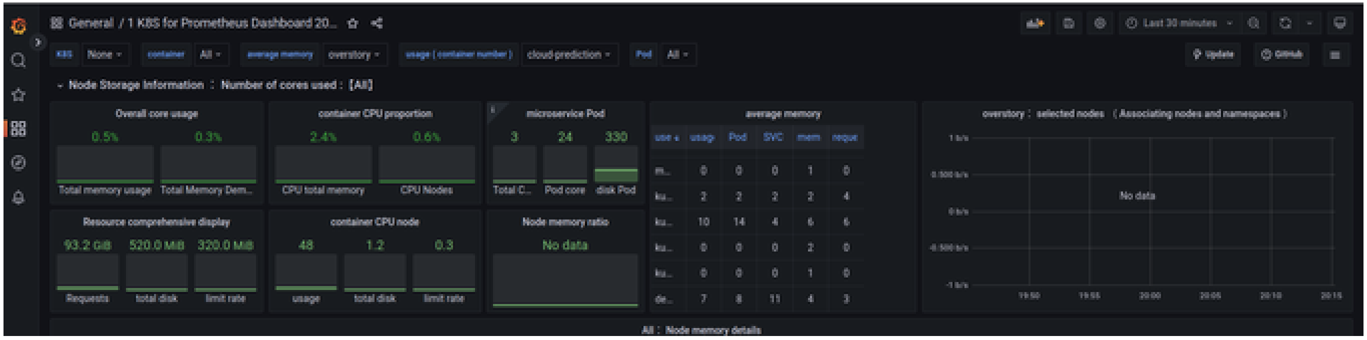

0
500


0
500
0
500


0
500
0
500



Monitoring Screenshots:



Node Storage Information ： Number of cores used : [All]

Overall core usage

0.5% Total memory usage

0.3% Total Memory Dem...

container CPU proportion

2.4% CPU total memory

0.6% CPU Nodes

microservice Pod

3 Total C...

24 Pod core

330 disk Pod

Resource comprehensive display

93.2 GiB Requests

520.0 MiB total disk

320.0 MiB limit rate

container CPU node

48 usage

1.2 total disk

0.3 limit rate

Node memory ratio

No data

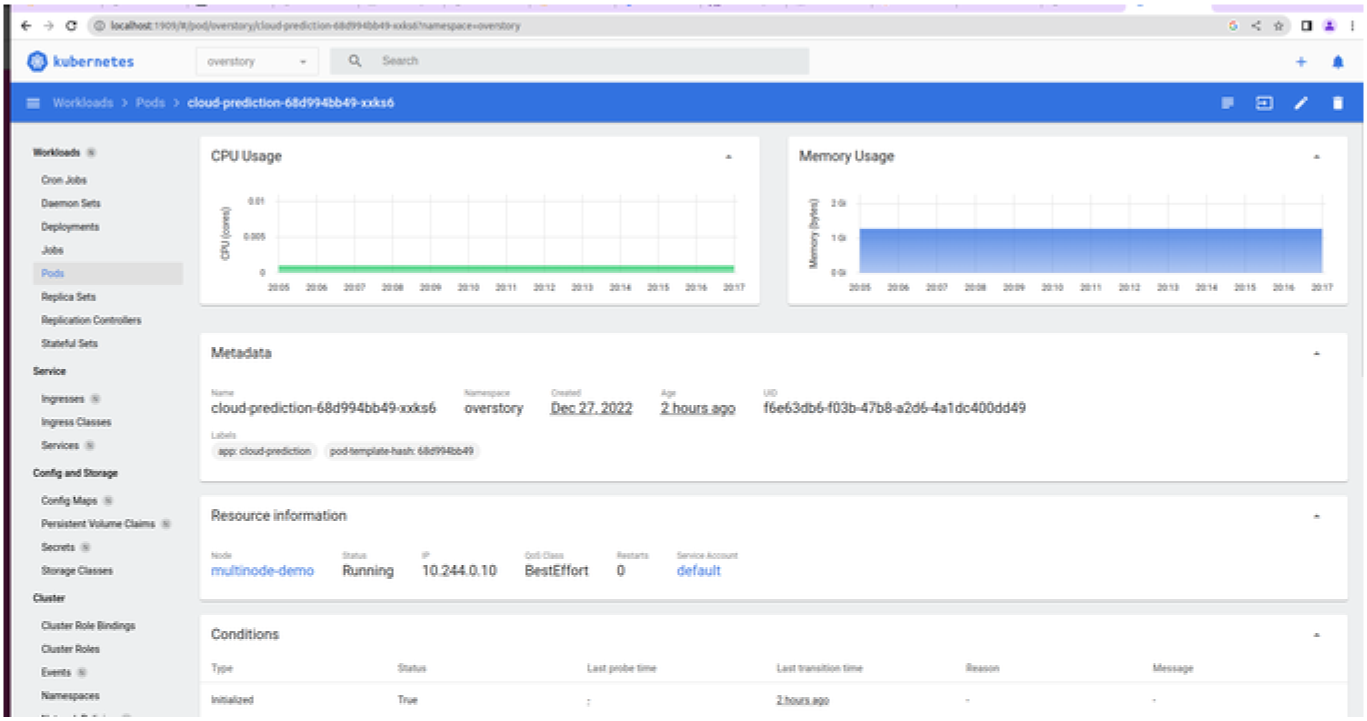
average memory

use ↓	usag	Pod	SVC	mem	reque
m...	0	0	0	1	0
ku...	2	2	2	2	4
ku...	10	14	4	6	6
ku...	0	0	0	2	0
ku...	0	0	0	1	0
de...	7	8	11	4	3

overstory ： selected nodes （Associating nodes and namespaces）

No data

All ： Node memory details



Metadata

Name: cloud-prediction-68d994bb49-xxks6
Namespace: overstory
Created: Dec 27, 2022
Age: 2 hours ago
UID: f6e63db6-f03b-47b8-a2d6-4a1dc400dd49
Labels: app: cloud-prediction   pod-template-hash: 68d994bb49

Resource information

Node: multinode-demo
Status: Running
IP: 10.244.0.10
QoS Class: BestEffort
Restarts: 0
Service Account: default

Conditions

Type	Status	Last probe time	Last transition time	Reason	Message
Initialized	True	-	2 hours ago	-	-

Part-1 Architecture of GKE cluster setup

GCP_CLUSTER.drawio