



# Distributing Ubuntu-Based Containerized University LMS Workloads with Ease.

## Let's Containerized Your Moodle Apps!

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<https://louca.id/sessions?id=53>



## Maintaining Moodle workloads of (Big) Universities and Companies since 2019.

(deployed) on on-premise, and public cloud services.  
Deploying, Migrating, Optimizing.

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**Contributing to Indonesia FOSS Community  
*since 2007.***

<https://events.opensuse.org/users/11518>

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<https://louca.id/sessions?id=53>



# #01

## INTRODUCTION.

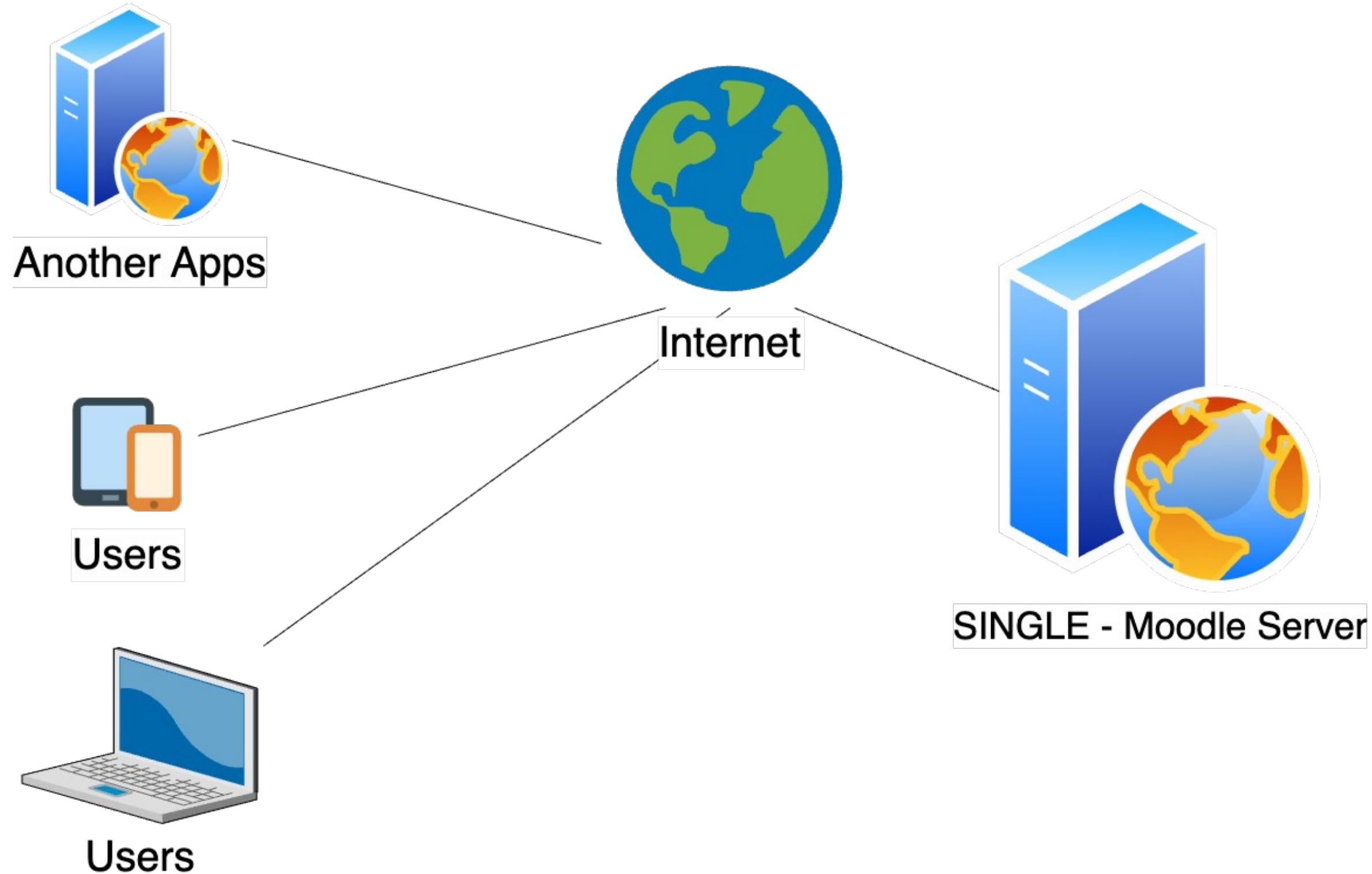
Andi Sugandi  
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<https://louca.id/sessions?id=53>

# GOALS == Happy Moodle Users!



# YEARS AGO!!!

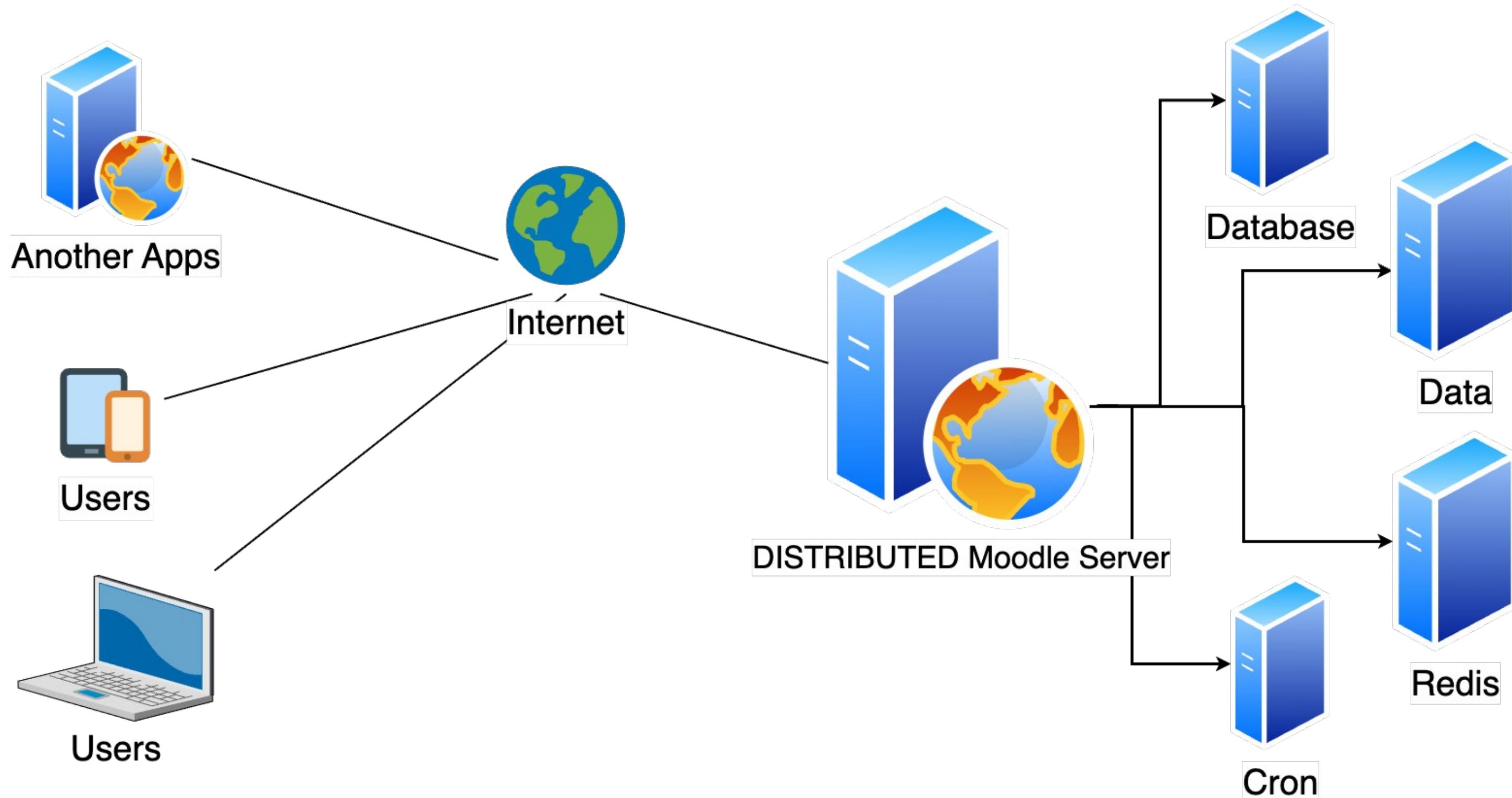




# NOT (YET) *microservices*



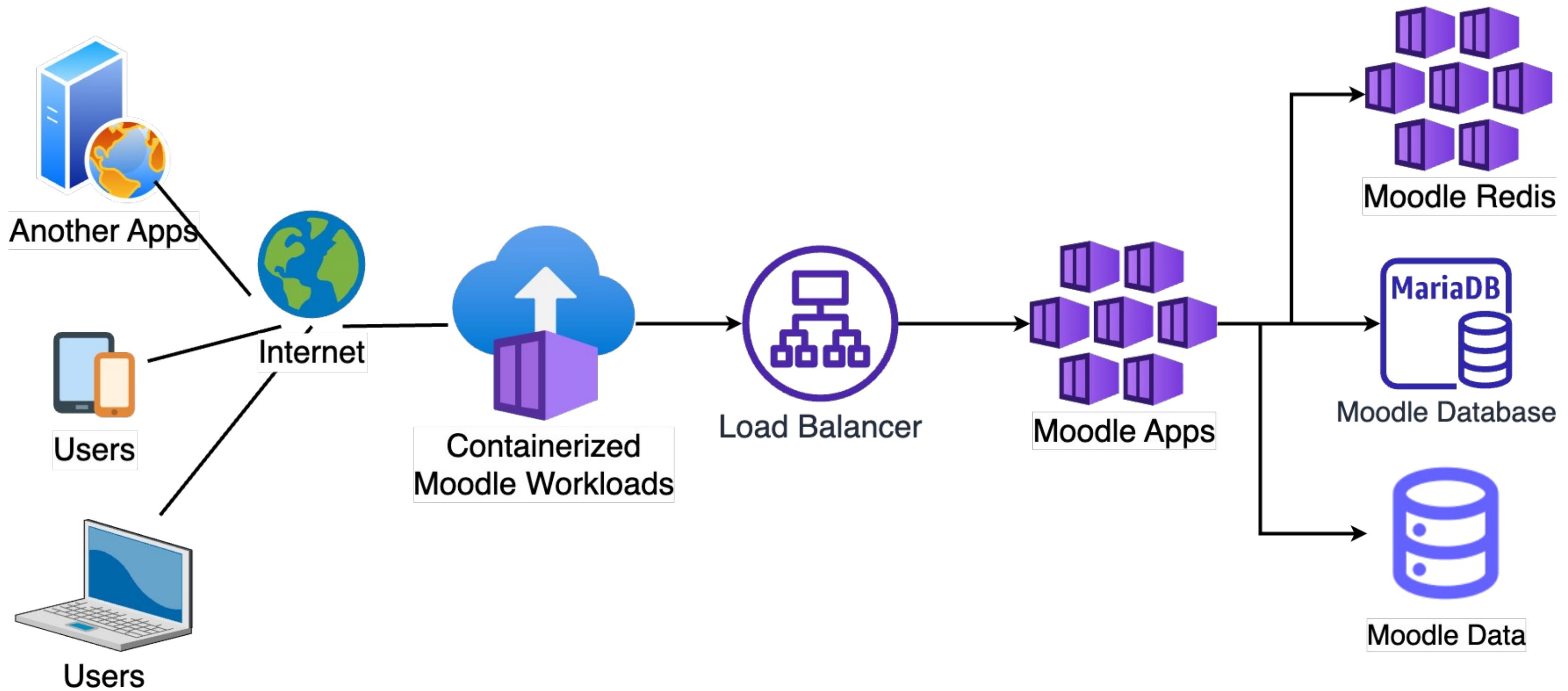
# YESTERDAY!!!





I Want  
More Traffic  
Now!

# TODAY!!!





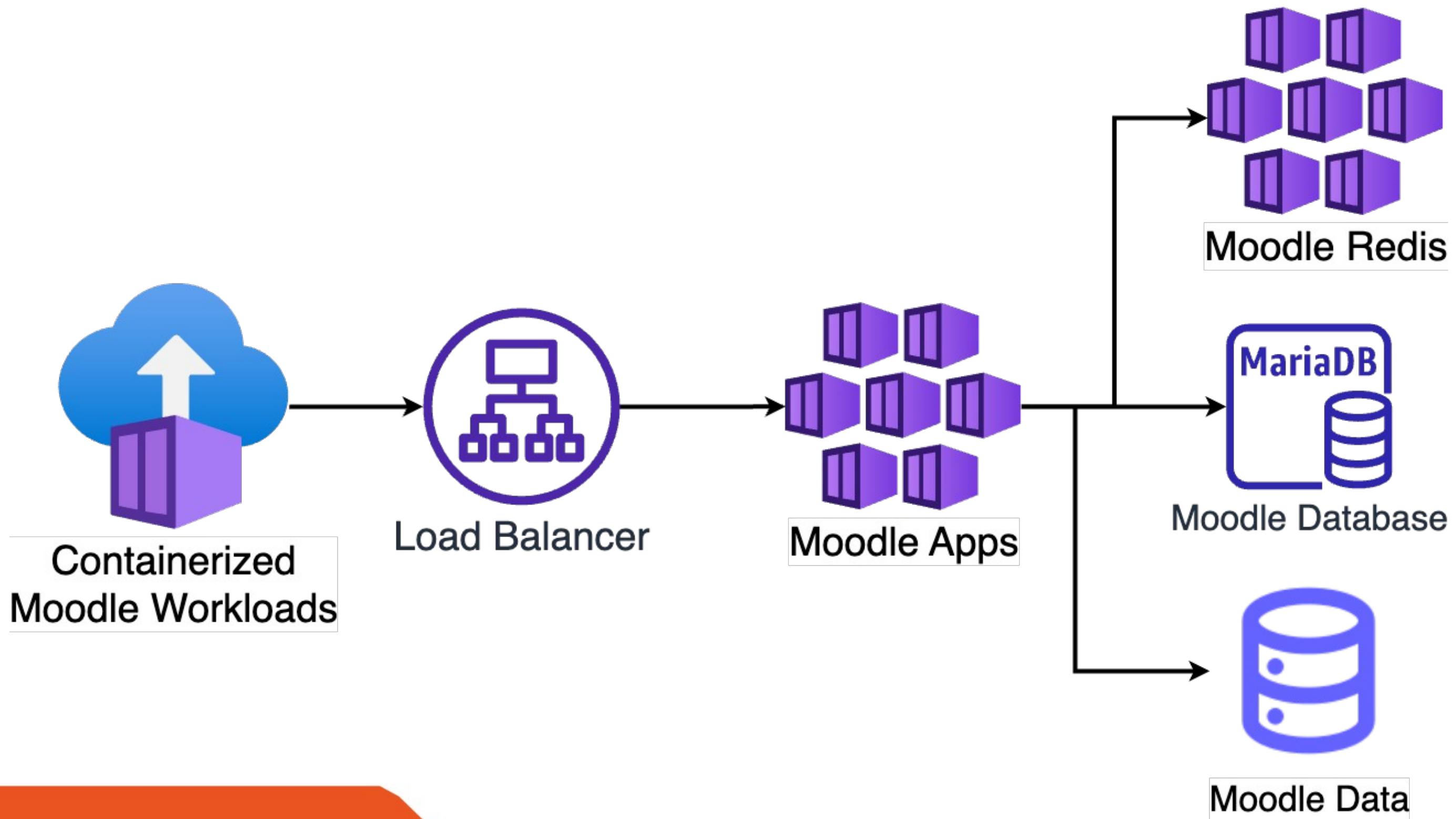
# WHY CONTAINERS?

## Virtual Machines Versus Containers\*

*How IBM WebSphere Hybrid Edition with Red Hat OpenShift can lower server costs and improve response time.*

\*) <https://www.ibm.com/downloads/cas/POANK8YE>

# TODAY!!!





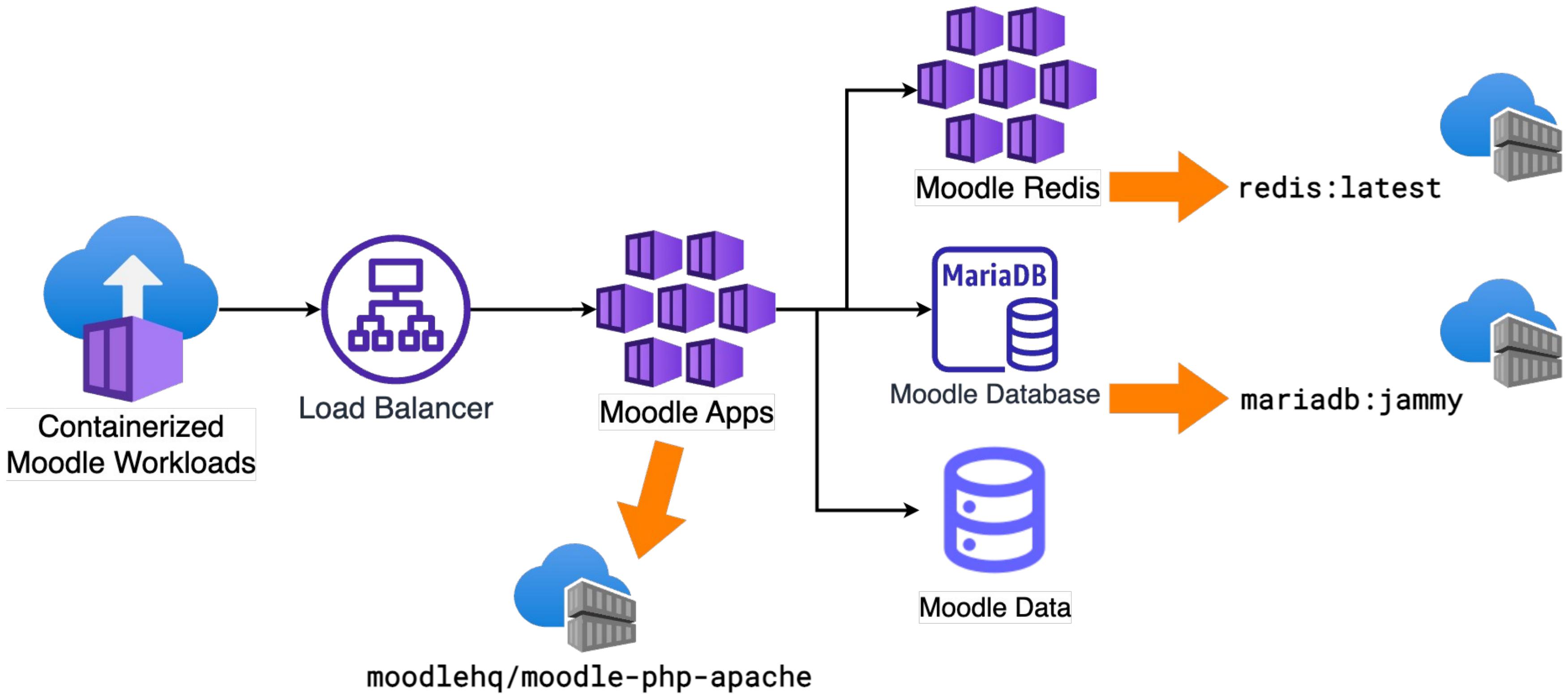
# #02

## CONTAINERIZED THEM ALL IN A CLUSTER!

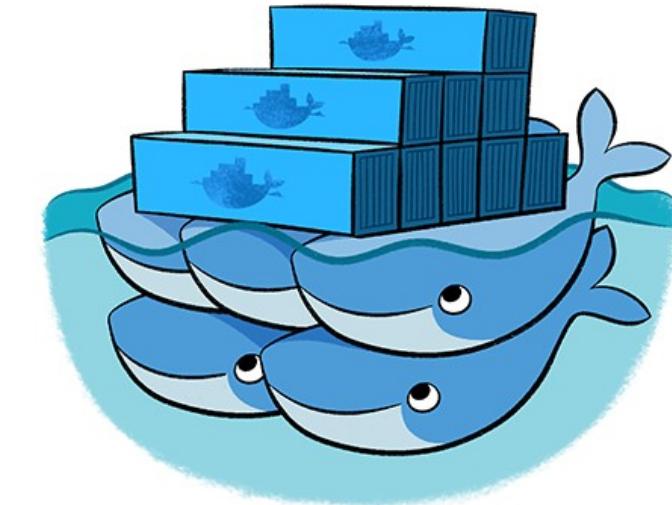
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<https://louca.id/sessions?id=53>

# LETS DEPLOY THEM ALL!

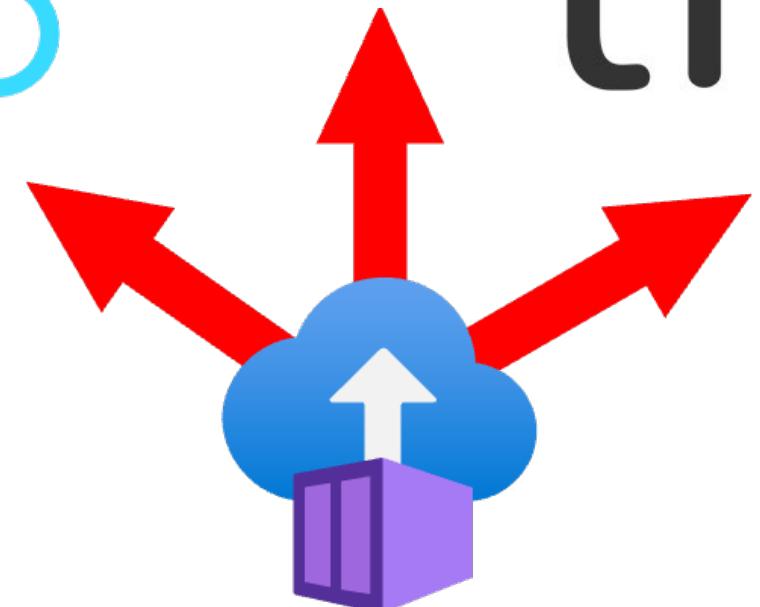


# PRODUCTION-READY WITH EASE



portainer.io

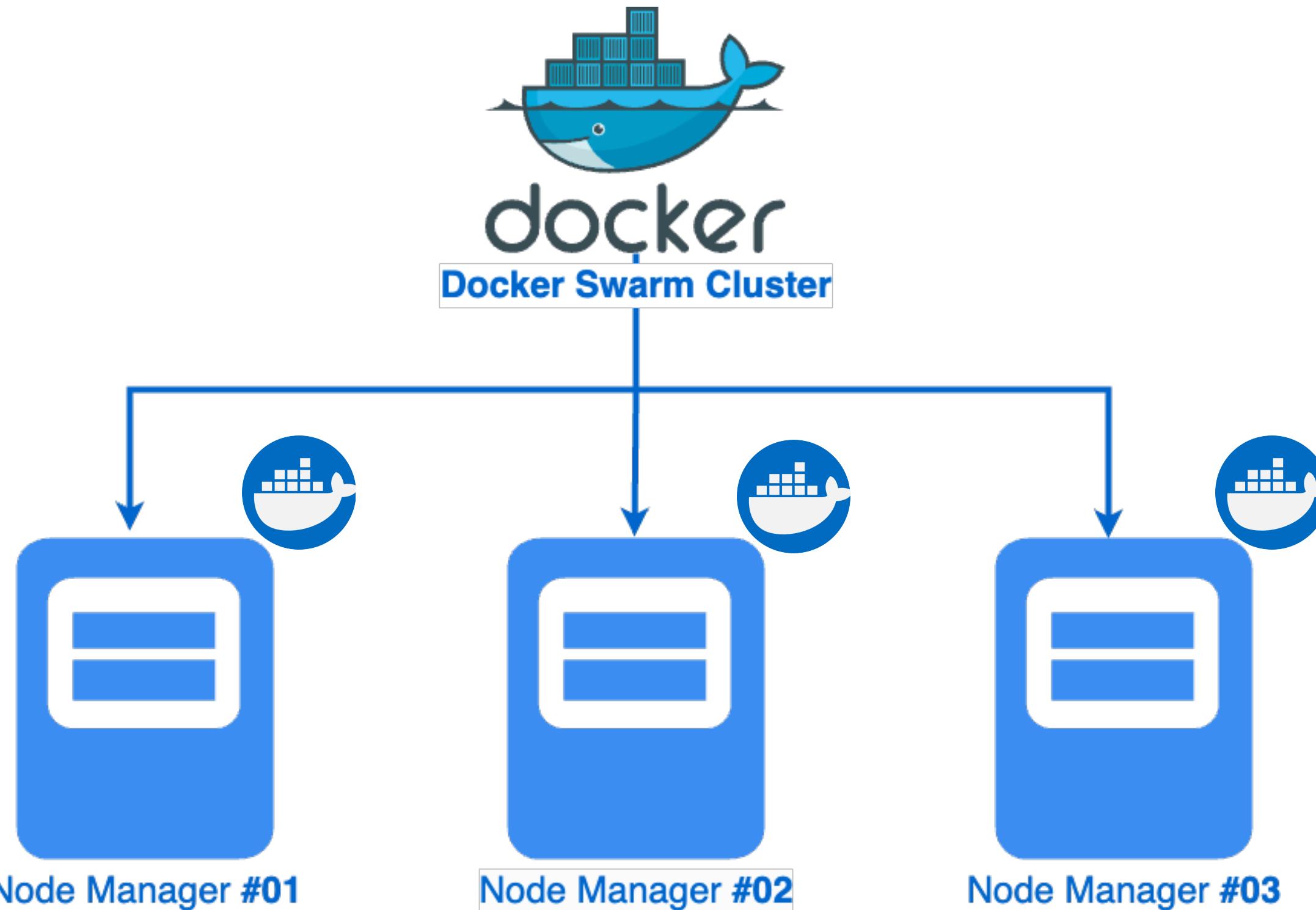
traefik



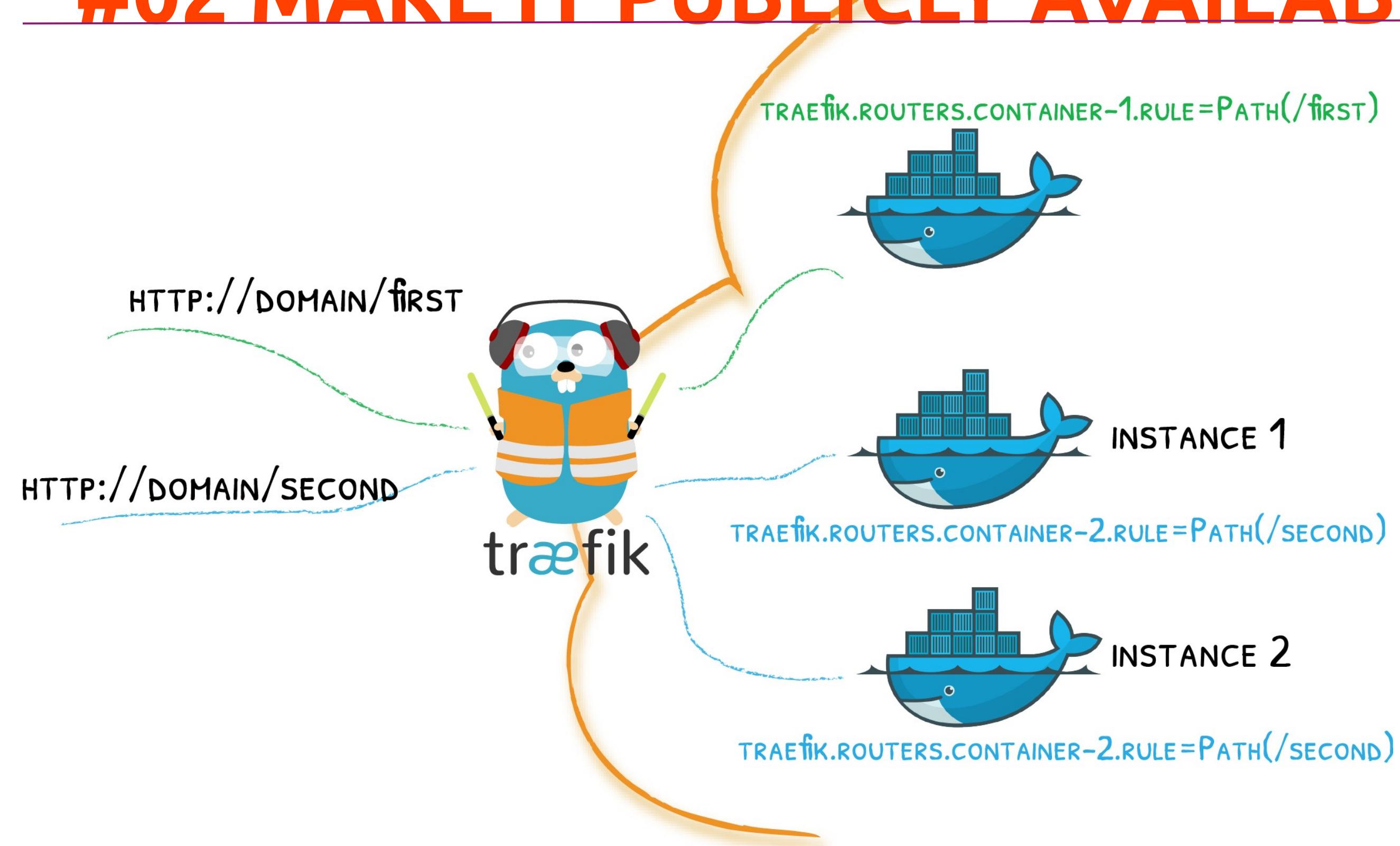
Containerized  
Moodle Workloads



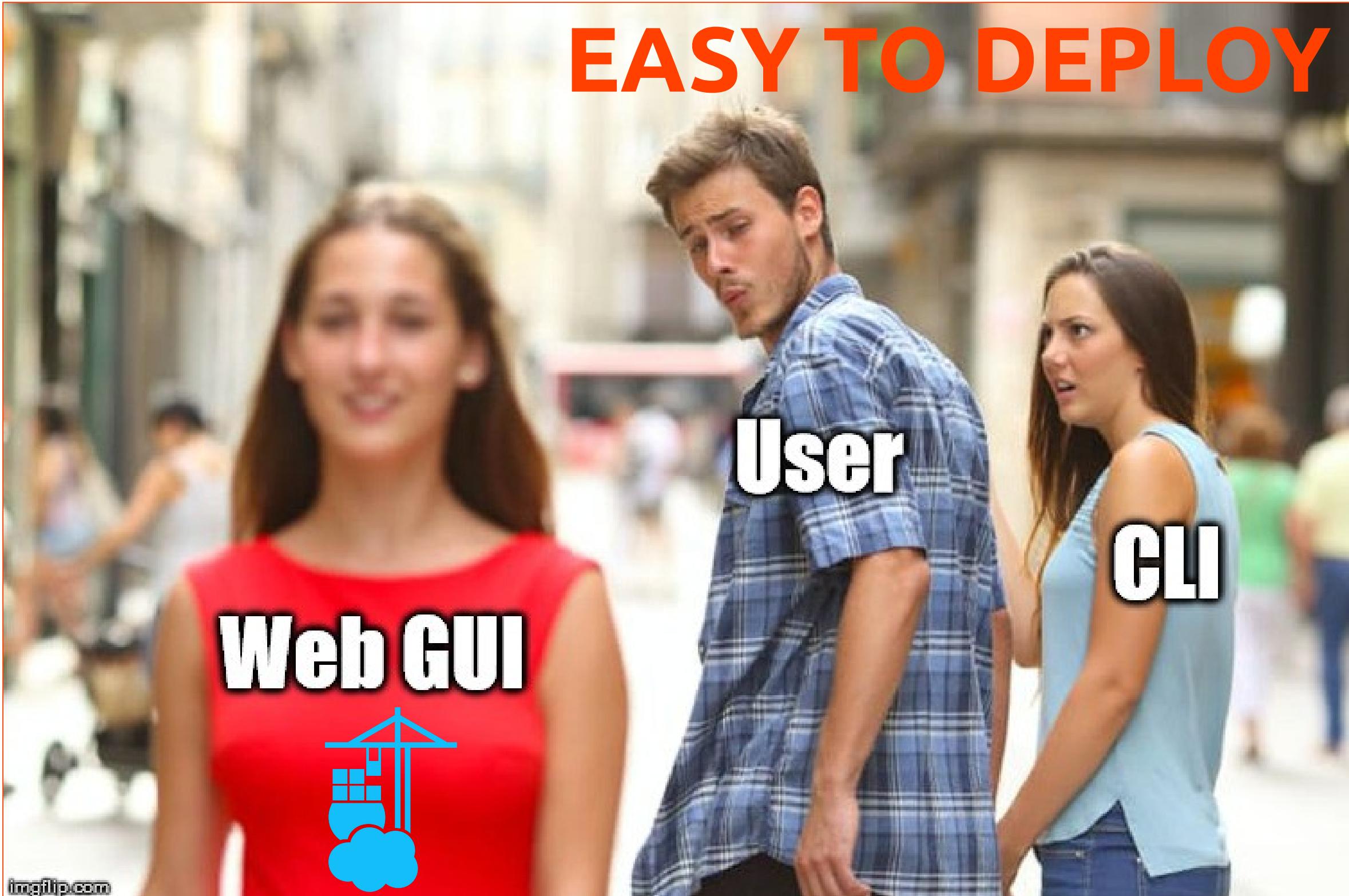
# #01 DOCKER SWARM CLUSTER



## #02 MAKE IT PUBLICLY AVAILABLE



# PORTAINER MAKE THEM EASY TO DEPLOY #03





# #03 UNDER THE HOOD.

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# STEPS

A.

## PREPARE REQUIRED NODES

- NFS Storage: all workloads **must be** available on **all nodes** with **IDENTICAL** Path.

B.

## DEPLOY DOCKER SWARM CLUSTER

- Require 3 Node Managers (min).

C.

## DEPLOY TRAEFIK STACK

- Require “proxy” network.
- Pointing DNS to Traefik Node.

D.

## DEPLOY PORTAINER STACK

- Provide ‘admin’ role at first login.

E.

## DEPLOY MOODLE STACKS

- Provide all docker-compose.yml files properly.





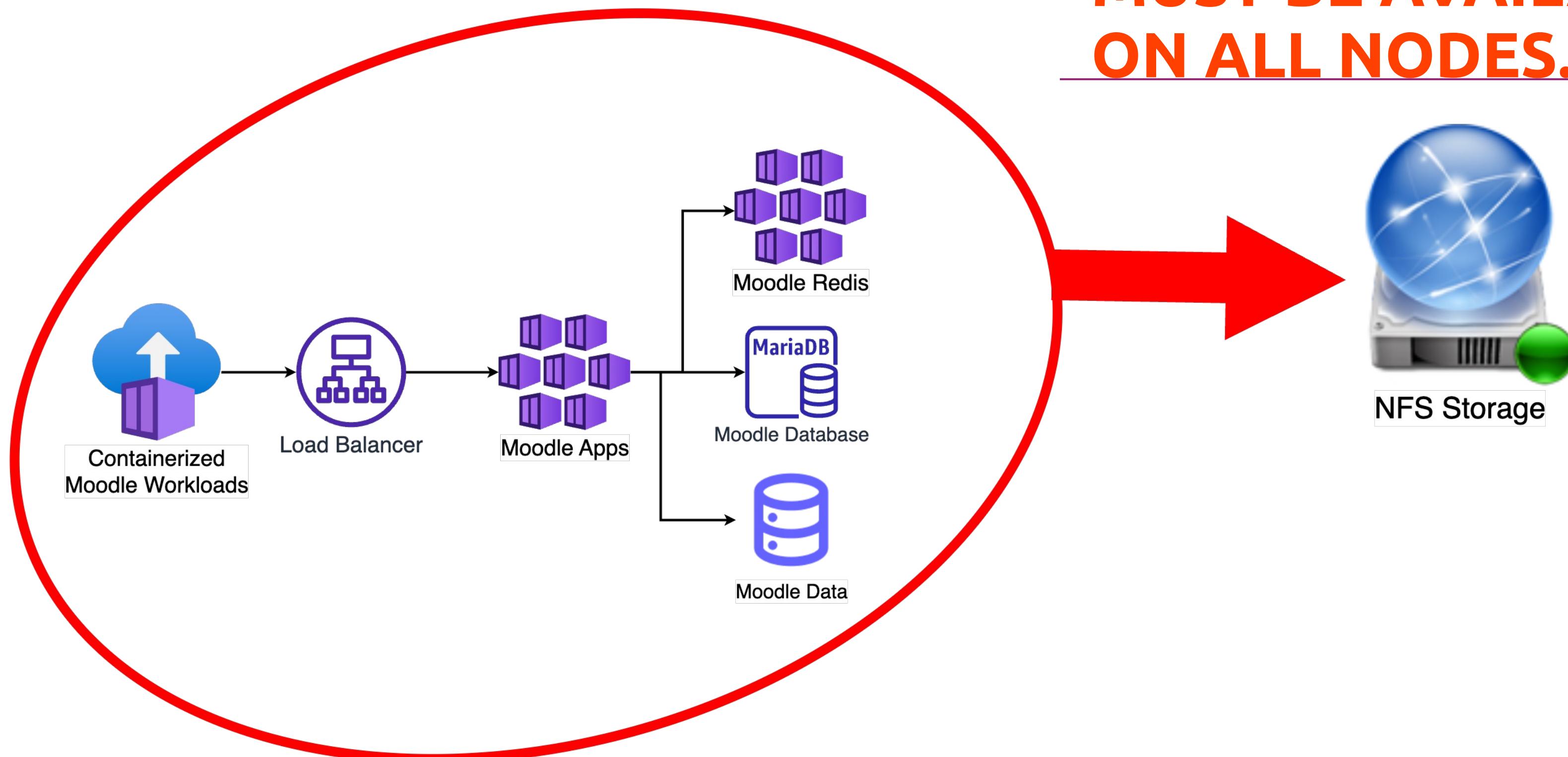
# #03.A

## PREPARE REQUIRED NODES.

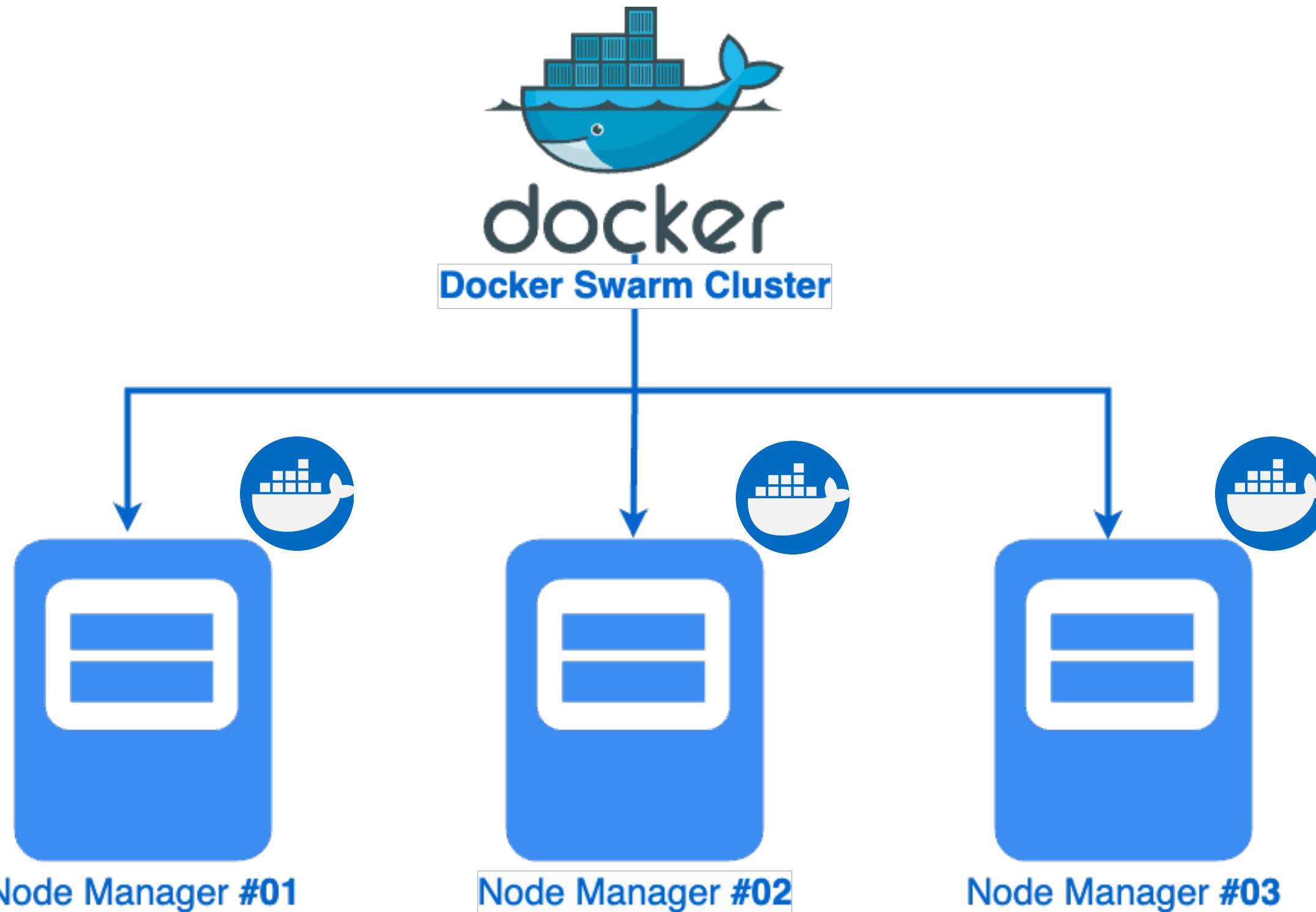
Andi Sugandi  
[andisugandi@gmail.com](mailto:andisugandi@gmail.com)

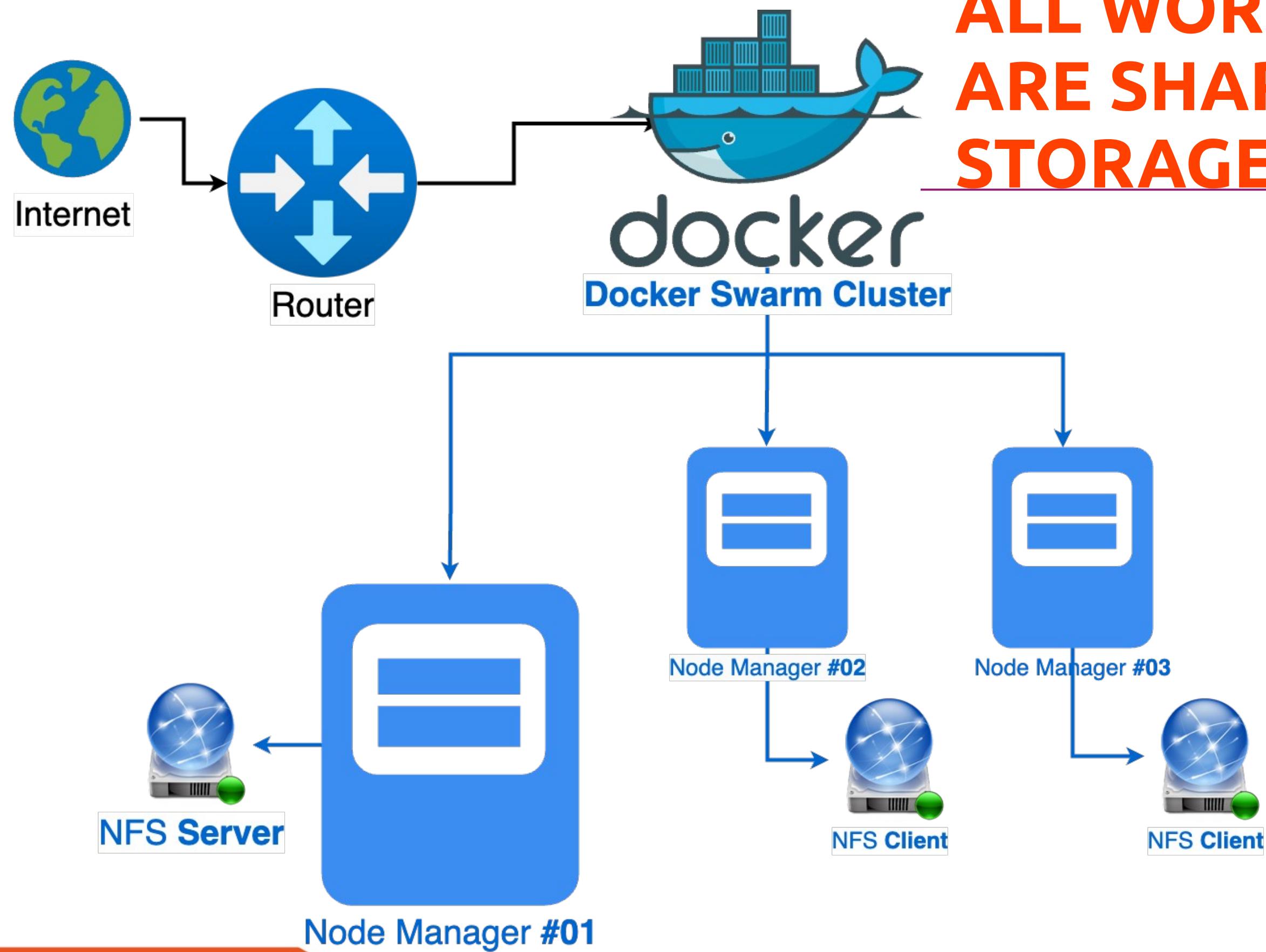
<https://louca.id/sessions?id=53>

**ALL WORKLOADS  
MUST BE AVAILABLE  
ON ALL NODES.**



# DOCKER SWARM CLUSTER





**ALL WORKLOADS  
ARE SHARED via NFS  
STORAGE.**

# CREATE YOUR OWN NFS / EFS STORAGE.

Create storage volume

Name: louca23-nfs-disk

Size: 128 GiB

Format: qcow2

Create Cancel

Add disk

Source:  Use existing

Pool: default

Volume: louca23-nfs-disk

Persistence:  Always attach

Hide additional options

Cache: default

Bus: virtio

## PREPARE NFS PARTITION

```
$ sudo parted /dev/vdb print
```

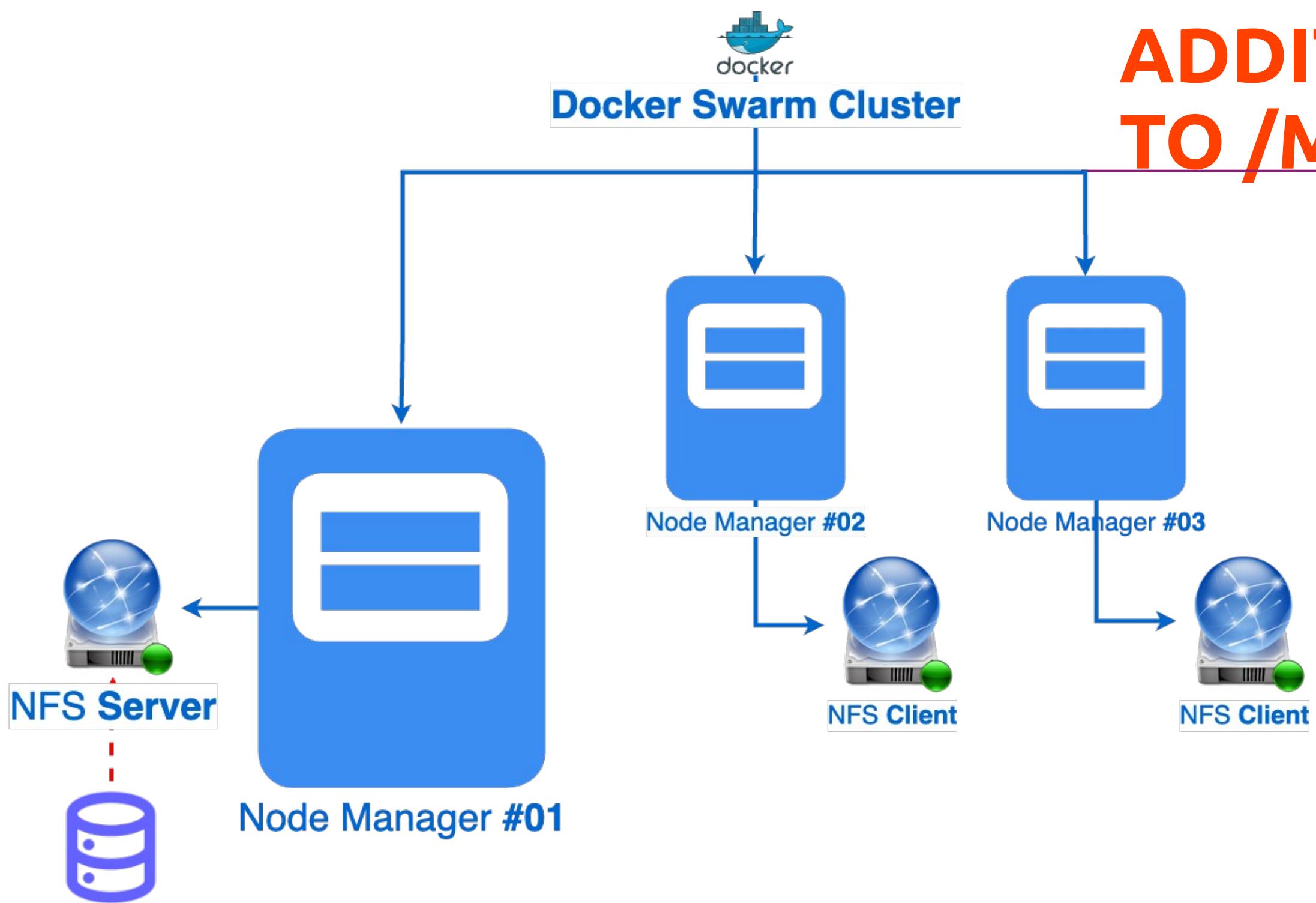
```
Error: /dev/vdb: unrecognised disk label
Model: Virtio Block Device (virtblk)
```

```
Disk /dev/vdb: 137GB
Sector size (logical/physical): 512B/512B
Partition Table: unknown
Disk Flags:
```



Node-Master-01

# MOUNT ADDITIONAL DISK TO /MNT/NFS



/dev/vdb1 --> /mnt/nfs

## CREATING NFS PARTITION

```
$ sudo parted /dev/vdb mklabel gpt
```

```
$ sudo parted /dev/vdb mkpart nfsdata \  
xfs 2048s 128GB
```

```
$ sudo mkfs -t xfs /dev/vdb1
```

```
$ sudo mkdir /mnt/nfs
```



Node-Master-01

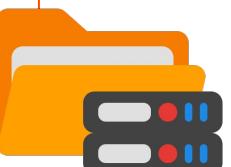
# MAKE NFS STORAGE AVAILABLE *via FSTAB*

```
$ sudo lsblk --fs | grep -A 2 'vdb'
```

```
vdb
└vdb1 xfs edf117e6-363e-4096-8436-4a6a45a566d8 127G
```

```
$ grep ^[^#] /etc/fstab | grep 'nfs'
```

```
/dev/disk/by-uuid/edf117e6-363e-4096-8436-4a6a45a566d8
/mnt/nfs xfs defaults 0 0
```



Node-Master-01

# MAKE NFS STORAGE AUTOMOUNTED *via FSTAB*

```
$ sudo mount -av
```

```
{...}  
/mnt/nfs : successfully mounted
```

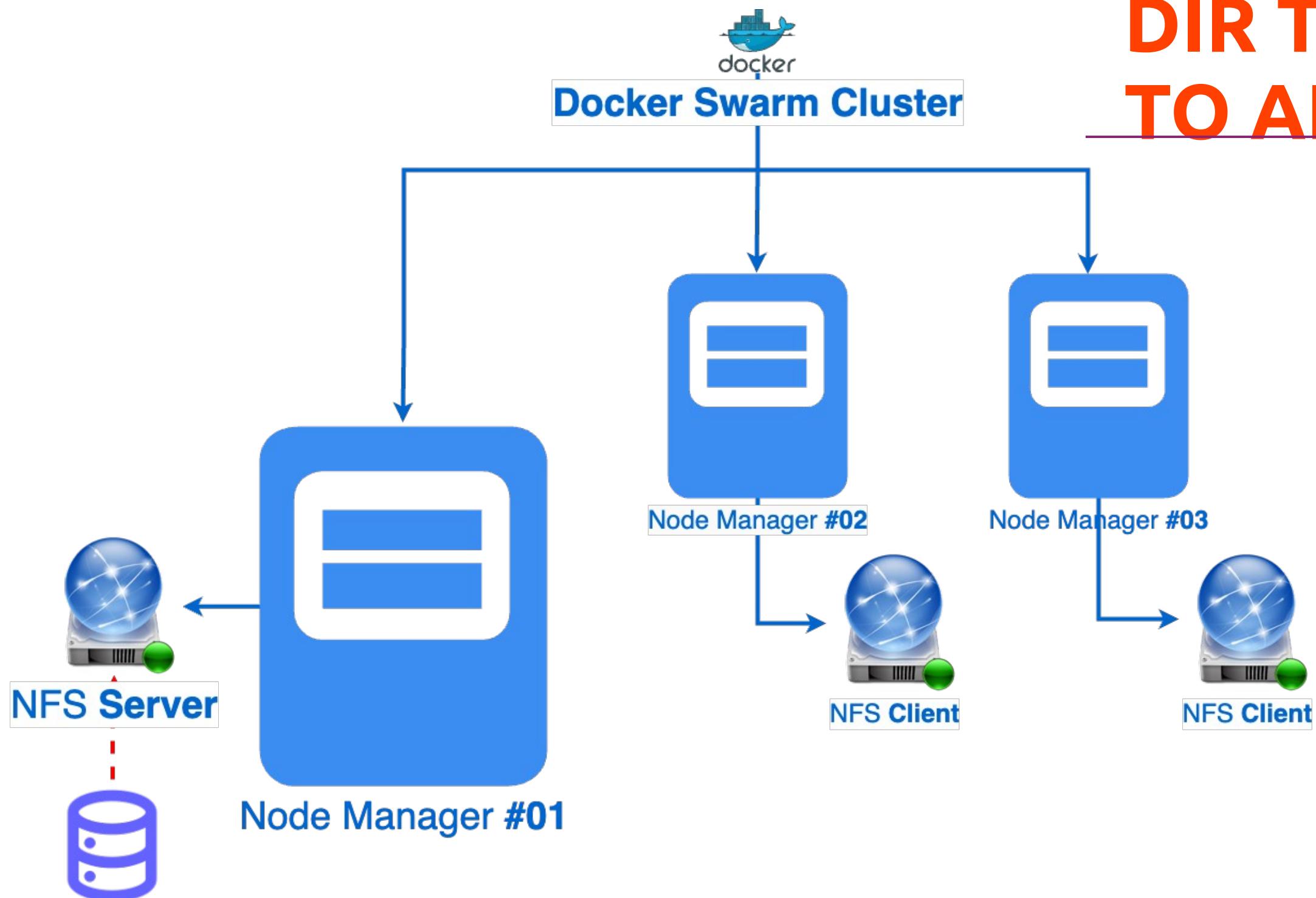
```
$ mount | grep 'nfs'
```

```
/dev/vdb1 on /mnt/nfs type xfs  
(rw,relatime,attr2,inode64,logbufs=8,logbsize=32k,noquota)
```



Node-Master-01

# CREATING PROJECT DIR THAT IS SHARED TO ALL NODES.



/mnt/nfs/moodle.\$your-domain

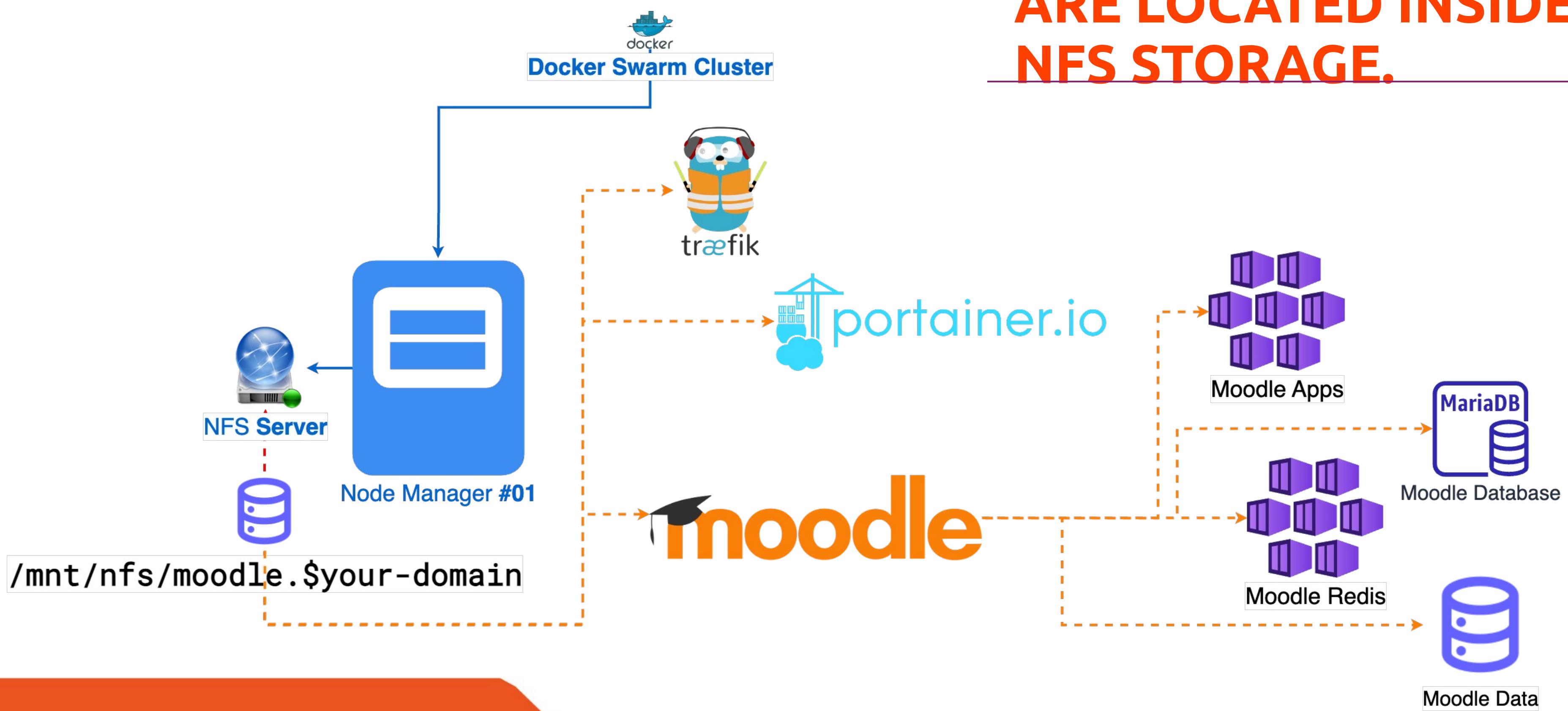
## CREATING PROJECT DIR.

```
$ sudo mkdir /mnt/nfs/moodle.$your-domain && \  
sudo chown ubuntu:ubuntu !$
```

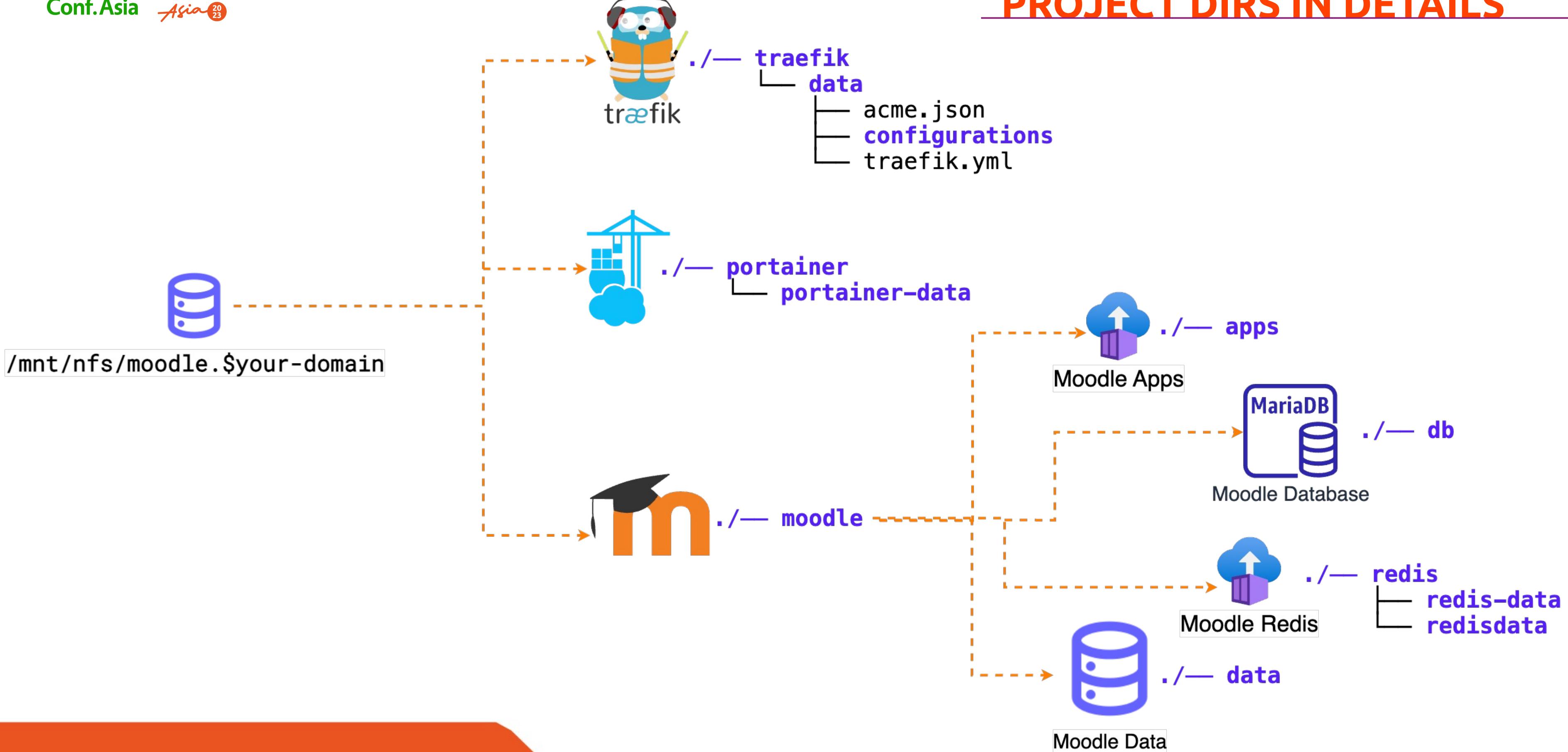


Node-Master-01

ALL PROJECT DIRS  
ARE LOCATED INSIDE  
NFS STORAGE.

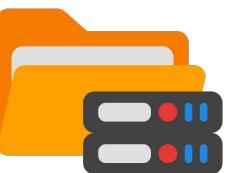


## PROJECT DIRS IN DETAILS



## CREATING PROJECT FOLDERS

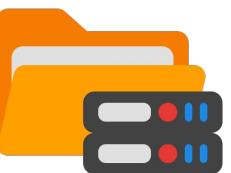
```
$ cd /mnt/nfs/moodle.$your-domain  
  
$ mkdir -pv traefik \  
portainer \  
moodle/{apps, db, data, redis}
```



Node-Master-01

# DEPLOYING NFS SERVER

```
$ sudo apt update && \  
sudo apt install nfs-kernel-server
```



Node-Master-01

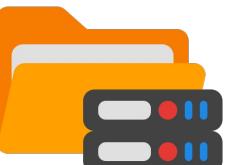
# CONFIGURING NFS SERVER

```
$ grep ^[^#] /etc/exports
```

```
/mnt/nfs/moodle.$your-domain  
10.0.253.0/24(rw,sync,no_root_squash,no_subtree_check)
```

```
$ sudo exportfs -av
```

```
exporting 10.0.253.0/24:/mnt/nfs/moodle.$your-domain
```

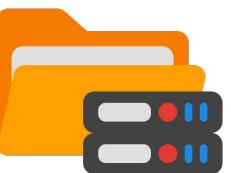


Node-Master-01

## DEPLOYING NFS CLIENTS

```
$ sudo apt update && \  
    sudo apt install nfs-common
```

```
$ sudo mkdir /mnt/nfs/moodle.$your-domain && \  
    sudo chown ubuntu:ubuntu !$
```



Node-Master-{02,03}

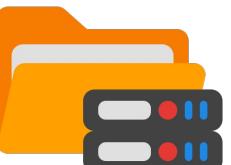
# CONFIGURING NFS CLIENTS

```
$ grep ^[^#] /etc/fstab | grep 'nfs'
```

```
10.0.253.111:/mnt/nfs/moodle.$your-domain \
/mnt/nfs/moodle.$your-domain nfs4 defaults,user,exec 0 0
```

```
$ sudo mount -av
```

```
{...}
/mnt/nfs/moodle.$your-domain: successfully mounted
```



Node-Master-{02,03}

# CONFIGURING NFS CLIENTS

```
$ mount | grep 'nfs'
```

```
10.0.253.111:/mnt/nfs/moodle.$your-domain on /mnt/nfs/moodle.  
$your-domain type nfs4  
(rw,nosuid,nodev,relatime,vers=4.2,rsize=1048576,wsize=104857  
6,namlen=255,hard,proto=tcp,timeo=600,retrans=2,sec=sys,clien  
taddr=10.0.14.112,local_lock=none,addr=10.0.253.111,user)
```



Node-Master-{02,03}



# #03.B

## DEPLOY DOCKER SWARM CLUSTER.

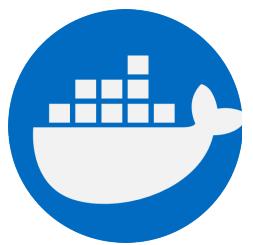
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[andisugandi@gmail.com](mailto:andisugandi@gmail.com)

<https://louca.id/sessions?id=53>

# INSTALLING DOCKER PACKAGES

*Install Docker Engine on Ubuntu*

<https://docs.docker.com/engine/install/ubuntu>

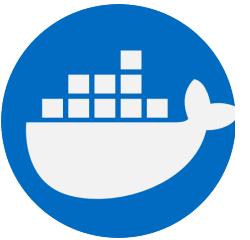


Node-Master-{01,02,03}

# DEPLOYING DOCKER SWARM CLUSTER

*Create a swarm*

<https://docs.docker.com/engine/swarm/swarm-tutorial/create-swarm/>

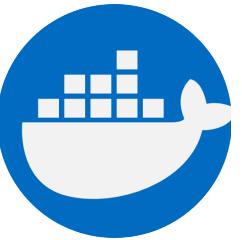


Node-Master-{01,02,03}

## INITIATE 1ST NODE-MANAGER/LEADER

```
$ docker swarm init --advertise-addr 10.0.253.111
```

Swarm initialized: current node (your\_node\_id\_is\_unique) is now a manager.



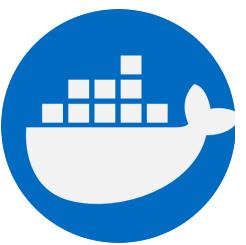
Node-Master-01

## PROVIDING NODE MANAGER TOKEN

```
$ docker swarm join-token manager
```

To add a manager to this swarm, run the following command:

```
docker swarm join --token XXXYYY-3-your-token-id-is-long-
unique 10.0.253.111:2377
```

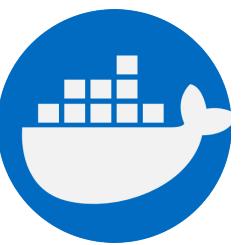


Node-Master-01

## JOINING NODE MANAGERS TO SWARM

```
$ docker swarm join --token \  
XXXXYYY-3-your-token-id-is-long-unique \  
10.0.253.111:2377
```

This node joined a swarm as a manager.

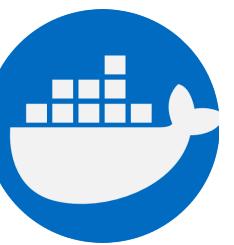


Node-Master-{02,03}

# LISTING NODE MANAGERS ON SWARM

```
$ docker node ls
```

ID	HOSTNAME	STATUS	AVAILABILITY	MANAGER STATUS	ENGINE VERSION
your_unique_node_id *	louca23-master01	Ready	Active	Leader	24.0.6
your_unique_node_id	louca23-master02	Ready	Active	Reachable	24.0.6
your_unique_node_id	louca23-master03	Ready	Active	Reachable	24.0.6



Node-Master-01



# #03.c

## DEPLOY TRAEFIK STACK.

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<https://louca.id/sessions?id=53>

# DEPLOYING TRAEFIK STACK



traefik

```
traefik/
  └── data
      ├── acme.json
      ├── traefik.yml
      └── configurations
          └── dynamic.yml
```

## CREATING TRAEFIK PROJECT DIRS.

```
$ cd /mnt/nfs/moodle.$your-domain/traefik
```

```
$ mkdir -pv data/configurations
```

```
$ touch data/{acme.json,traefik.yml}
```

```
$ touch data/configurations/dynamic.yml
```



Node-Master-01

## SETUP PERMISSIONS ON PROJECT DIRS.

```
$ sudo chmod 600 data/acme.json
```

```
$ sudo chown root:root -R \
/mnt/nfs/moodle.$your-domain/traefik
```



## PROVIDING TRAEFIK YAML FILES

traefik/

└ data

  └ acme.json

  └ traefik.yml --> <https://s.id/louca23-traefik-yml>

configurations

  └ dynamic.yml --> <https://s.id/louca23-dynamic-yml>



Node-Master-01

## PROVIDING CREDENTIALS FOR DASHBOARD

```
$ sudo apt update \  
    && sudo apt install apache2-utils
```

```
$ sudo htpasswd -nb admin your-super-secret-password
```

```
admin:$xxyy$ABCDEFHijklmn0QRSTUVWXYZ!@#$%^
```



Node-Master-01

## PROVIDING OVERLAY NETWORK

```
$ docker network create --driver=overlay proxy
```

```
$ mkdir ~/traefik/ && cd $!
```

```
$ touch docker-compose.yml
```

```
docker-compose.yml --> https://s.id/louca23-traefik-compose-yml
```



Node-Master-01

# DEPLOYING TRAEFIK STACK

```
$ docker stack deploy -c docker-compose.yml trafik
```

```
$ docker stack ps trafik
```

NAME	IMAGE	NODE	CURRENT STATE
trafik_traefik.1	traefik:v2.10	louca23-master01	Running 15 seconds ago



Node-Master-01

# Traefik Dashboard

traefik 2.10.4    [Dashboard](#)    [HTTP](#)    [TCP](#)    [UDP](#)    [Plugins](#)    [Traefik Hub](#)    [Dark theme](#)    [?](#)

→] Entrypoints

TRAEFIK :8080 WEB :80 WEBSECURE :443

HTTP

Routers Explore →

Success 100% 10 Warnings 0% 0 Errors 0% 0

Services Explore →

Success 100% 9 Warnings 0% 0 Errors 0% 0

Middlewares Explore →

Success 100% 4 Warnings 0% 0 Errors 0% 0

TCP

Routers Explore →

Services Explore →

Middlewares Explore →



# #03.D

## DEPLOY PORTAINER STACK.

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<https://louca.id/sessions?id=53>

# DEPLOYING PORTAINER STACK



portainer/  
└ portainer-data

## CREATING PROJECT DIR.

```
$ cd /mnt/nfs/moodle.$your-domain/portainer  
  
$ mkdir -pv portainer-data  
  
$ sudo chown root:root -R \  
/mnt/nfs/moodle.$your-domain/portainer
```



Node-Master-01

## PROVIDING PORTAINER YAML FILE

```
$ mkdir ~/portainer/ && cd $!
```

```
$ touch docker-compose.yml
```

docker-compose.yml --> <https://s.id/louca23-portainer-compose-yml>



Node-Master-01

# DEPLOYING PORTAINER STACK

```
$ docker stack deploy -c docker-compose.yml portainer
```

```
$ docker stack ps portainer
```

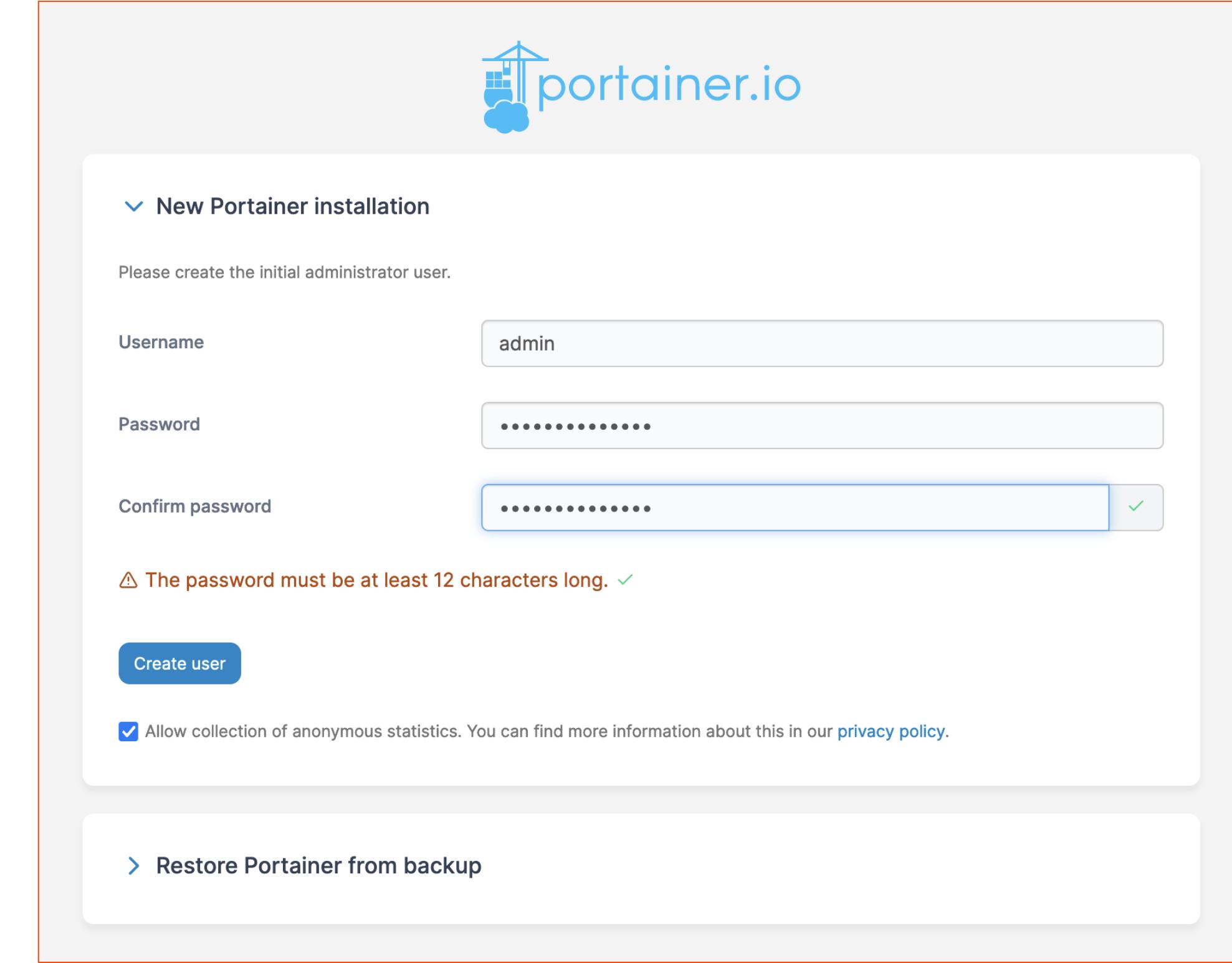
NAME	IMAGE	NODE	CURRENT STATE
portainer_portainer.1	portainer/portainer-ce:latest	louca23-master03	Running 25 seconds ago



Node-Master-01



# [https://portainer.\\$your-domain](https://portainer.$your-domain)



The image shows the "New Portainer installation" setup screen from the Portainer.io web interface. At the top right is the Portainer logo (a blue icon of a building with a bridge) and the text "portainer.io". Below it is a section titled "New Portainer installation" with the sub-instruction "Please create the initial administrator user." A "Create user" button is at the bottom left of this section. To the right of the "Create user" button is a checked checkbox for "Allow collection of anonymous statistics. You can find more information about this in our [privacy policy](#)". Below this is a "Restore Portainer from backup" link. The main input fields are "Username" (set to "admin"), "Password" (a series of dots), and "Confirm password" (also a series of dots). A red warning message "⚠ The password must be at least 12 characters long. ✓" is displayed next to the "Password" field. The entire form is enclosed in a light gray box with a red border.

portainer.io

✓ New Portainer installation

Please create the initial administrator user.

Username admin

Password

Confirm password

⚠ The password must be at least 12 characters long. ✓

Create user

Allow collection of anonymous statistics. You can find more information about this in our [privacy policy](#).

> Restore Portainer from backup

# Portainer Home Page

Environments

Home 



awesome-admin ▾

## Latest News From Portainer

 dismiss

New Portainer CE 2.19 - now with improved page load performance and a change to how we view Kubernetes ConfigMaps and Secrets.

There's also a bunch of resolved issues in this release and some important changes to be aware of. See the [release notes](#) for details.

If you'd like to try Portainer Business edition, you can get a license for 3 nodes free [here](#).



Environments

Q Search by name, group, tag, status, URL...  

 Refresh

 Kubeconfig

Click on an environment to manage

Platform 

Connectio... 

Status 

Tags 

Groups 

Agent Ver... 

Clear all

Sort By 

 local

 Up

→ 2023-10-06 07:51:50 Swarm 24.0.6 /var/run/docker.sock



Group: Unassigned



No tags



Local

 Live connect

2 stacks

2 services

1 container



1



0



0



0

0 volumes

1 image



12 CPU

 Disconnected

24.5 GB RAM

3 nodes



Items per page

10

# Portainer – Swarm, Cluster Visualizer



## Cluster visualizer

**louca23-master01** ⚡

manager

CPU: 4

Memory: 8.18 GB

ready

trafik\_traefik

Image: traefik:v2.10

Status: running

Update: 2023-10-06 07:30:37

**louca23-master02** ⚡

manager

CPU: 4

Memory: 8.18 GB

ready

**louca23-master03** ⚡

manager

CPU: 4

Memory: 8.18 GB

ready

portainer\_portainer

Image: portainer/portainer-ce:latest

Status: running

Update: 2023-10-06 07:47:42



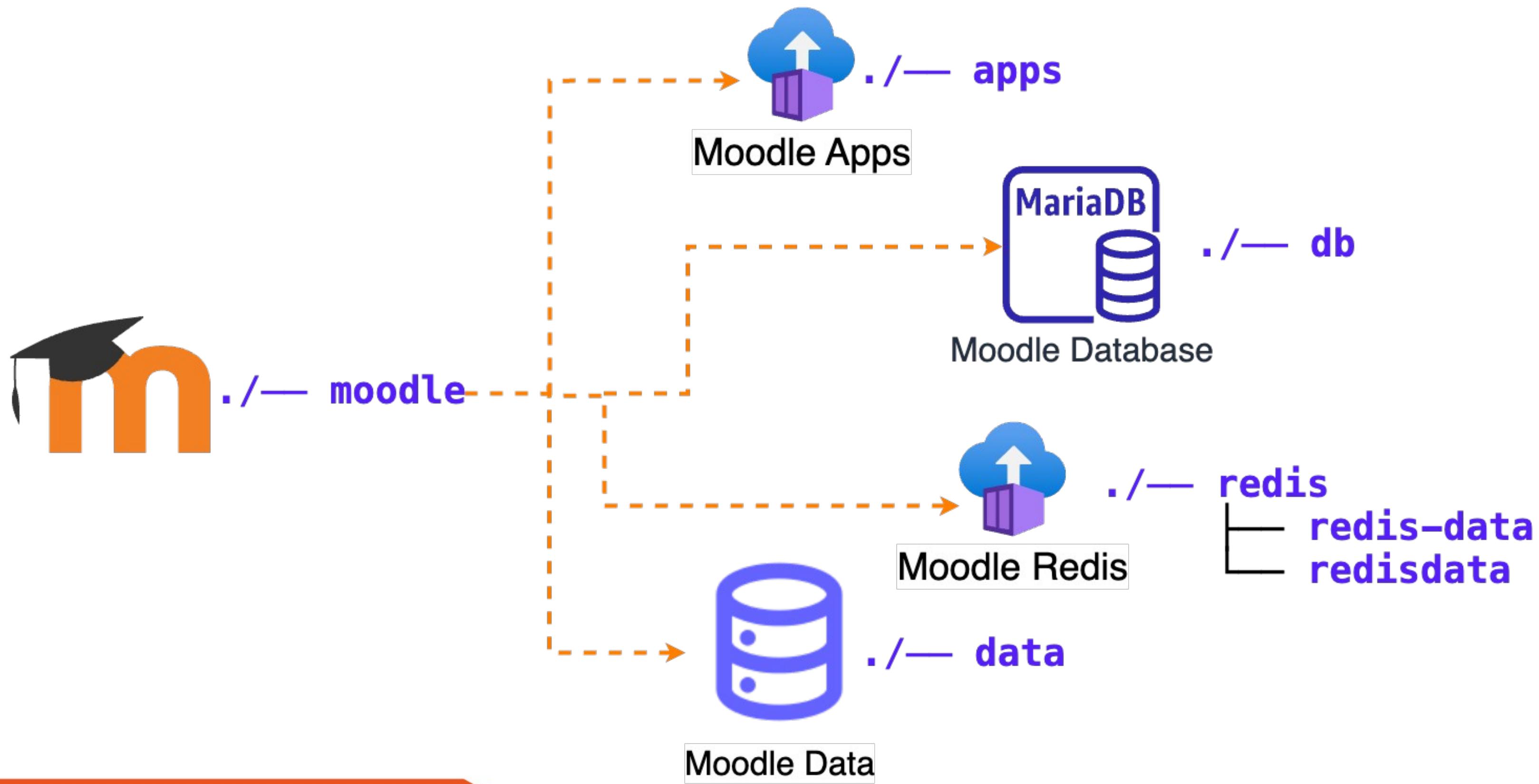
# #03.E

## DEPLOY MOODLE STACKS.

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<https://louca.id/sessions?id=53>

# DEPLOYING MOODLE STACKS



# MOODLE PROJECT DIRS STRUCTURE



```
moodle /  
    ├── apps  
    ├── data  
    ├── db  
    └── redis  
        ├── redis-data  
        └── redisdata
```

<https://download.moodle.org/releases/latest/>

## Latest release

Install Moodle on your own server (requires a web server with PHP and a database) by downloading one of the following packages or [obtaining Moodle via Git](#).

Alternatively, try Moodle on your personal computer with an installer package which includes all other software required to make it run (Apache, MySQL and PHP).

- [Moodle installer package for Mac OS X](#)
- [Moodle installer package for Windows](#)

Version	Information	.tgz	.zip
<b>Moodle 4.3</b> <a href="#">MOODLE_403</a>  7 Oct 2023 4 days 9 hours ago	<p>This is the latest official update of Moodle 4.3.</p> <ul style="list-style-type: none"><li>• <a href="#">Release notes</a></li><li>• <a href="#">Fixed issues</a></li><li>• <a href="#">Upgrading notes</a></li><li>• <a href="#">Requires: PHP 8.0, MariaDB 10.6.7 or MySQL 8.0 or Postgres 13 or MSSQL 2017 or Oracle 19c</a></li><li>• <a href="#">Language packs</a></li></ul>	<a href="#">Download tgz</a>  63.6 MB 1241 today  <a href="#">[md5]</a> <a href="#">[sha256]</a>	<a href="#">Download zip</a>  83.7 MB 2090 today  <a href="#">[md5]</a> <a href="#">[sha256]</a>

## DOWNLOADING MOODLE APPS

```
$ mkdir ~/moodle/ && cd $!
```

```
$ wget -c -t inf $MOODLE_DOWNLOADS.sha256 \
$MOODLE_DOWNLOADS
```

MOODLE\_DOWNLOADS=https://download.moodle.org/download.php/direct/stable403/moodle-4.3.tgz



Node-Master-01

## PROVIDING APPS DIR WITH MOODLE APPS

```
$ sha256sum -c *.sha256
```

```
moodle-4.3.tgz: OK
```

```
$ tar xfz *.tgz
```

```
$ sudo rsync -a moodle/ \
/mnt/nfs/moodle.$your-domain/moodle/apps/
```



Node-Master-01

## SETUP PERMISSIONS ON PROJECT DIRS.

```
$ cd /mnt/nfs/moodle.$your-domain/moodle
```

```
$ mkdir -pv redis/{redisdata,redis-data}
```

```
$ sudo chown 33:33 -R apps data \
  && sudo chown 999:999 db
```



[https://portainer.\\$your-domain/#!/2/docker/secrets](https://portainer.$your-domain/#!/2/docker/secrets)

Secrets > Add secret

## Create secret

Name   

Secret

Encode secret

Labels [+ add label](#)

### Access control

Enable access control

 **Administrators**  
I want to restrict the management of this resource to administrators only

 **Restricted**  
I want to restrict the management of this resource to a set of users and/or teams

### Actions

[Create the secret](#)

[https://portainer.\\$your-domain/#!/2/docker/secrets](https://portainer.$your-domain/#!/2/docker/secrets)

Secrets > Add secret

## Create secret

Name   

Secret

Encode secret

Labels [+ add label](#)

Access control

Enable access control

 **Administrators**  
I want to restrict the management of this resource to administrators only

 **Restricted**  
I want to restrict the management of this resource to a set of users and/or teams

Actions

[Create the secret](#)

## PROVIDING MOODLE YAML FILE

```
$ cd ~/moodle
```

```
$ touch docker-compose.yml
```

docker-compose.yml --> <https://s.id/louca23-moodle-compose-yml>



Node-Master-01

[https://portainer.\\$your-domain#!/2/docker/stacks/newstack](https://portainer.$your-domain#!/2/docker/stacks/newstack)

Stacks > Add stack

## Create stack

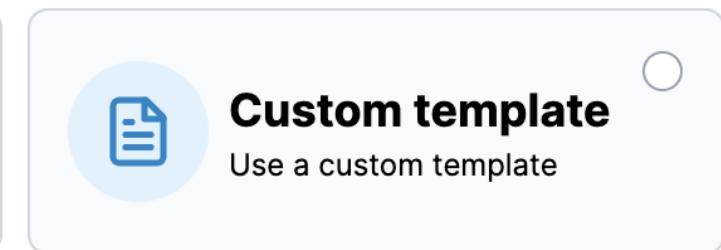
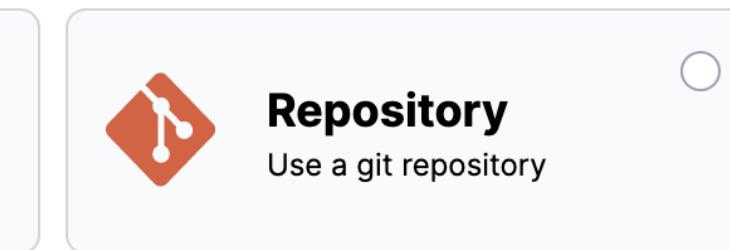
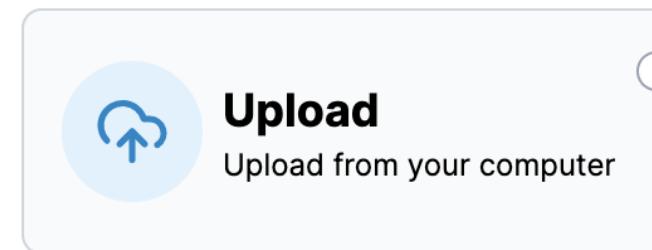
   awesome-admin ▾

Name

moodle-your-domain

This stack will be deployed using the equivalent of the docker stack deploy command.

### Build method



### Web editor

Cmd+F for search 

You can get more information about Compose file format in the [official documentation](#).

 Define or paste the content of your docker compose file here

 Copy to clipboard

```
1  version: '3.9'  
2  
3  services:  
4    mariadb:  
5      image: mariadb:jammmy  
6      volumes:  
7        - /mnt/nfs/moodle.$your-domain/moodle/db:/var/lib/mysql  
8    networks:  
9      - louca23network  
10   deploy:  
11     placement:  
12       constraints:  
13         - node.hostname == louca23-master01
```



```
8 networks:
9   - louca23network
10 deploy:
11   placement:
12     constraints:
13       - node.hostname == louca23-master01
14   labels:
15     - traefik.enable=false
16   restart_policy:
17     condition: any
18 environment:
19   MYSQL_ROOT_PASSWORD_FILE: /run/secrets/db_mysql_root_password
20   MYSQL_DATABASE: louca23db
21   MYSQL_USER: louca23user
22   MYSQL_PASSWORD_FILE: /run/secrets/db_mysql_user_password
23 secrets:
24   - db_mysql_root_password
25   - db_mysql_user_password
~~
```

## Environment variables

These values will be used as substitutions in the stack file. To reference the .env file in your compose file, use 'stack.env'

 Advanced mode

 Switch to advanced mode to copy & paste multiple variables

 + Add an environment variable

 Load variables from .env file

## Access control

Enable access control 



### Administrators

I want to restrict the management of this resource to administrators only



### Restricted

I want to restrict the management of this resource to a set of users and/or teams

## Actions

 Deploy the stack

# LISTING MOODLE STACKS ON SWARM

```
$ docker stack ps moodle
```

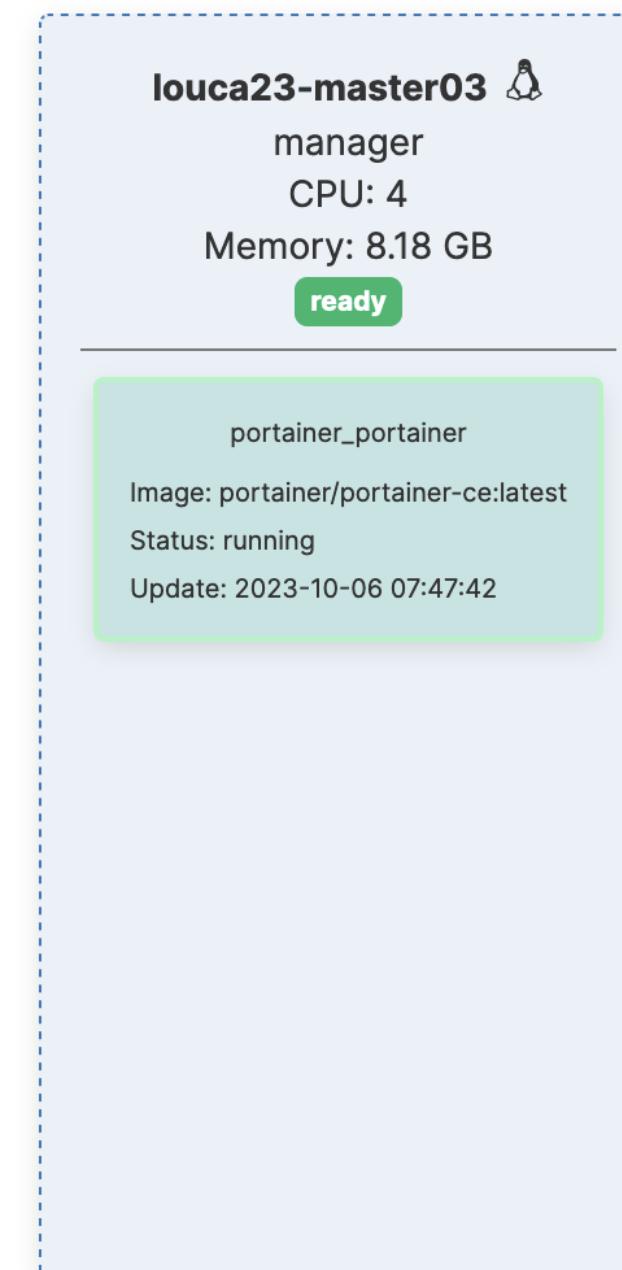
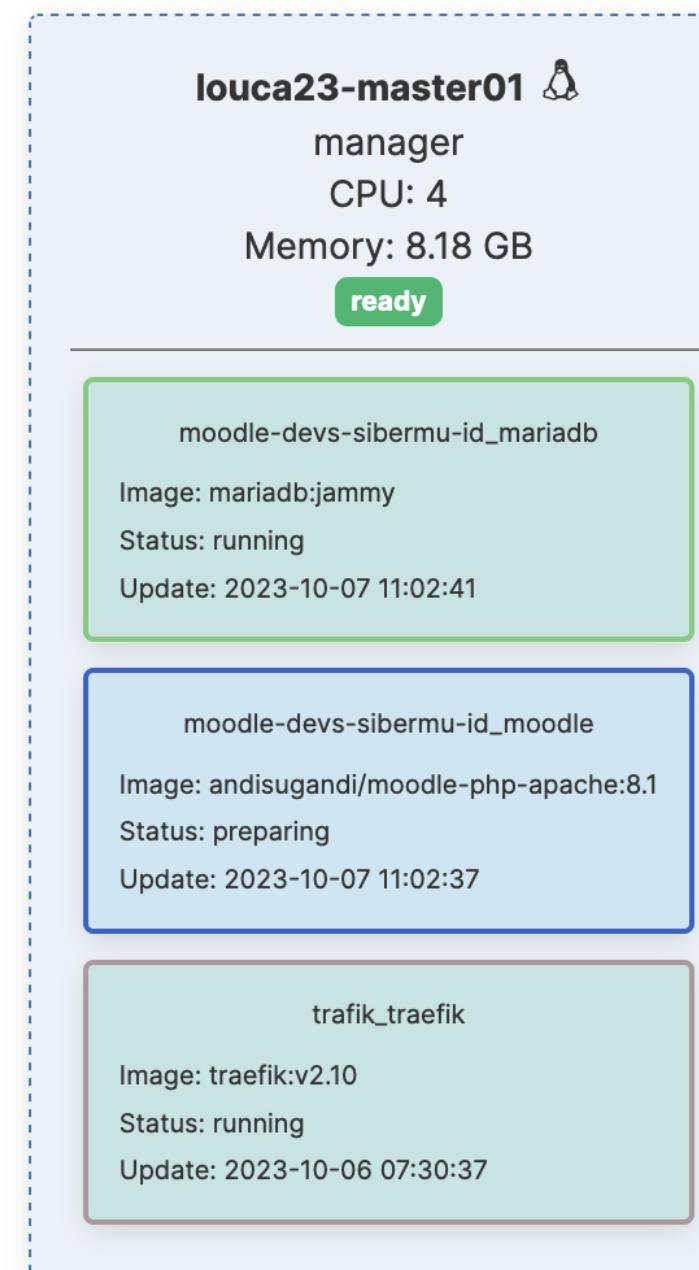
NAME	IMAGE	NODE	CURRENT STATE
moodle_mariadb.1	mariadb:jammy	louca23-master01	Running 1 minutes ago
moodle_moodle.1	andisugandi/moodle-php-apache:8.1	louca23-master01	Running 1 minutes ago
moodle_redis.1	redis:latest	louca23-master02	Running 1 minutes ago



Node-Master-01

[https://portainer.\\$your-domain/#!/2/docker/swarm/visualizer](https://portainer.$your-domain/#!/2/docker/swarm/visualizer)

### Cluster visualizer



[https://moodle.\\$your-domain](https://moodle.$your-domain) – Installing via Web UI

## Installation

### Language

#### Choose a language

Please choose a language for the installation. This language will also be used as the default language for the site, though it may be changed later.

Language

English (en)

[Next »](#)



# Installing via Web UI – Confirm Paths

It is not possible to access Moodle using multiple addresses. If your site is accessible via multiple addresses then choose the easiest one and set up a permanent redirect for each of the other addresses.

If your site is accessible both from the Internet, and from an internal network (sometimes called an Intranet), then use the public address here.

If the current address is not correct, please change the URL in your browser's address bar and restart the installation.

## Moodle directory

The full path to the directory containing the Moodle code.

## Data directory

A directory where Moodle will store all file content uploaded by users.

This directory should be both readable and writeable by the web server user (usually 'www-data', 'nobody', or 'apache').

It must not be directly accessible over the web.

If the directory does not currently exist, the installation process will attempt to create it.

### Web address

### Moodle directory

### Data directory

[« Previous](#) [Next »](#)



# Installing via Web UI – Choose Database Driver

## Installation

### Database

#### Choose database driver

Moodle supports several types of database servers. Please contact server administrator if you do not know which type to use.

Type

MariaDB (native/mariadb)

« Previous Next »



# Installing via Web UI – Database Settings

The database is where most of the Moodle settings and data are stored and must be configured here.

The database name, username, and password are required fields; table prefix is optional.

The database name may contain only alphanumeric characters, dollar (\$) and underscore (\_).

If the database currently does not exist, and the user you specify has permission, Moodle will attempt to create a new database with the correct permissions and settings.

This driver is not compatible with legacy MyISAM engine.

Database host

Database name

Database user

Database password

Tables prefix

Database port

Unix socket

[« Previous](#) [Next »](#)

# Installing via Web UI – Copyright Notice (HTTP)

[Skip to main content](#)

## Installation

### **Moodle - Modular Object-Oriented Dynamic Learning Environment**

#### Copyright notice

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#### Confirm

Have you read these conditions and understood them?

Cancel  
 Continue

Powered by [Moodle](#)

## CHANGING MOODLE APPS TO USING HTTPS

```
$ cd /mnt/nfs/moodle.$your-domain/moodle/apps/  
  
$ sudo sed -i 's/http/https/g' config.php  
  
$ sudo echo '$CFG->sslproxy = true;' >> config.php
```



# Installing via Web UI – Copyright Notice (HTTPS)

## Installation

### Moodle - Modular Object-Oriented Dynamic Learning Environment

#### Copyright notice

Copyright (C) 1999 onwards Martin Dougiamas (<https://moodle.com>)

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See the Moodle License information page for full details: <https://moodledev.io/general/license>

#### Confirm

Have you read these conditions and understood them?

Cancel

Continue

?

# Installing via Web UI – Server Checks

## Installation - Moodle 4.2.2+ (Build: 20231006)

### Moodle 4.2.2+ (Build: 20231006)

For information about this version of Moodle, please see the online [Release Notes](#).

### Server checks

Name	Information	Result
unicode		
database	mariadb (11.1.2-MariaDB-1:11.1.2+maria~ubu2204)	
php		
pcreunicode		
php_extension	iconv	
php_extension	mbstring	
php_extension	curl	
php_extension	openssl	
php_extension	tokenizer	
php_extension	soap	
php_extension	ctype	
php_extension	zip	
php_extension	zlib	
php_extension	gd	
php_extension	simplexml	
php_extension	spl	
php_extension	pcre	
php_extension	dom	
php_extension	xml	
php_extension	xmlreader	
php_extension	intl	
php_extension	json	
php_extension	hash	
php_extension	fileinfo	
php_extension	sodium	
php_extension	exif	
php_setting	memory_limit	
php_setting	file_uploads	
php_setting	opcache.enable	

php_extension	openssl	must be installed and enabled	
php_extension	tokenizer	should be installed and enabled for best results	
php_extension	soap	should be installed and enabled for best results	
php_extension	ctype	must be installed and enabled	
php_extension	zip	must be installed and enabled	
php_extension	zlib	must be installed and enabled	
php_extension	gd	must be installed and enabled	
php_extension	simplexml	must be installed and enabled	
php_extension	spl	must be installed and enabled	
php_extension	pcre	must be installed and enabled	
php_extension	dom	must be installed and enabled	
php_extension	xml	must be installed and enabled	
php_extension	xmlreader	must be installed and enabled	
php_extension	intl	must be installed and enabled	
php_extension	json	must be installed and enabled	
php_extension	hash	must be installed and enabled	
php_extension	fileinfo	must be installed and enabled	
php_extension	sodium	must be installed and enabled	
php_extension	exif	should be installed and enabled for best results	
php_setting	memory_limit	recommended setting detected	
php_setting	file_uploads	recommended setting detected	
php_setting	opcache.enable	recommended setting detected	

Your server environment meets all minimum requirements.

Continue

# Installing via Web UI – Installation Process

## Installation

### System

Success (21.65 seconds)

### antivirus\_clamav

Success (0.02 seconds)

### availability\_completion

Success (0.04 seconds)

### availability\_date

Success (0.02 seconds)

### availability\_grade

Success (0.03 seconds)

### availability\_group

Success (0.02 seconds)

Success (0.04 seconds)

### tiny\_h5p

Success (0.04 seconds)

### tiny\_link

Success (0.03 seconds)

### tiny\_media

Success (0.04 seconds)

### tiny\_recordrtc

Success (0.04 seconds)

### logstore\_database

Success (0.03 seconds)

### logstore\_standard

Success (0.11 seconds)

Continue

# Installing via Web UI – General Settings

## Installation

On this page you should configure your main administrator account which will be used to log in. You need to provide a username, password as well as a valid email address. You can create more admin accounts later.

### General

Username



awesome-admin

Choose an authentication method



Manual accounts

New password



The password must have at least 8 characters, at least 1 uppercase letter(s), at least 1 lowercase letter(s), at least 1 special character(s)

.....

Force password change

First name



Louca23 Admin

Last name



User

Email address



andisugandi@gmail.com

Email visibility



Visible to everyone

City/town

Bandung

Email address andisugandi@gmail.com

Email visibility Visible to everyone

City/town Bandung

Select a country Indonesia

Timezone Asia/Jakarta

Description

HTML format

### > Additional names

### > Optional

Update profile

Cancel



# Installing via Web UI – Site Registration (Skip it)

moodle-louca2023 Home Dashboard My courses Site administration LU Edit mode

## Registration information

Name: Louca 2023

Site listing: Do not list my site

Description:

Language: English

Country: Indonesia

Admin email address: andisugandi@gmail.com

Notifications of new Moodle releases, security alerts and other important news:  Yes, notify me of new Moodle releases, security alerts and other important news

Moodle newsletter:  Yes, I would like to receive the Moodle newsletter

Privacy notice and data processing agreement:  I agree to the [Privacy notice and data processing agreement](#) !

## More information

Register your site

! Required

Skip

# Installation is Finished - Moodle Dashboard Page

moodle-louca2023 Home Dashboard My courses Site administration LU Edit mode

Welcome, Louca23 Admin! 🙌

Timeline

Next 7 days Sort by dates Search by activity type or name

No in-progress courses

Calendar

All courses

◀ September October 2023 November ▶

Mon	Tue	Wed	Thu	Fri	Sat	Sun
2	3	4	5	6	7	8

Expand to explore

This side panel can contain more features.

Got it

?

# Moodle Notification Page

moodle-louca2023 Home Dashboard My courses Site administration

LU Edit mode

**Support and services**

Need support for your Moodle site? Find a [Moodle Certified Services Provider](#) near you.



Thank you for choosing Moodle!

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Moodle 4.2.2+ (Build: 20231006)  
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?



A graphic consisting of three dark gray, rounded rectangular blocks arranged horizontally. The first block contains the letter 'Q', the second block contains the symbol '&', and the third block contains the letter 'A'. The blocks have a slight shadow, giving them a 3D appearance.



Andi Sugandi  
andisugandi@gmail.com

Surakarta | October, 8th 2023



# #03.F

## DEPLOY GRAFANA STACKS.

<https://louca.id/sessions?id=53>

## DEPLOYING GRAFANA & PROMETHEUS STACKS

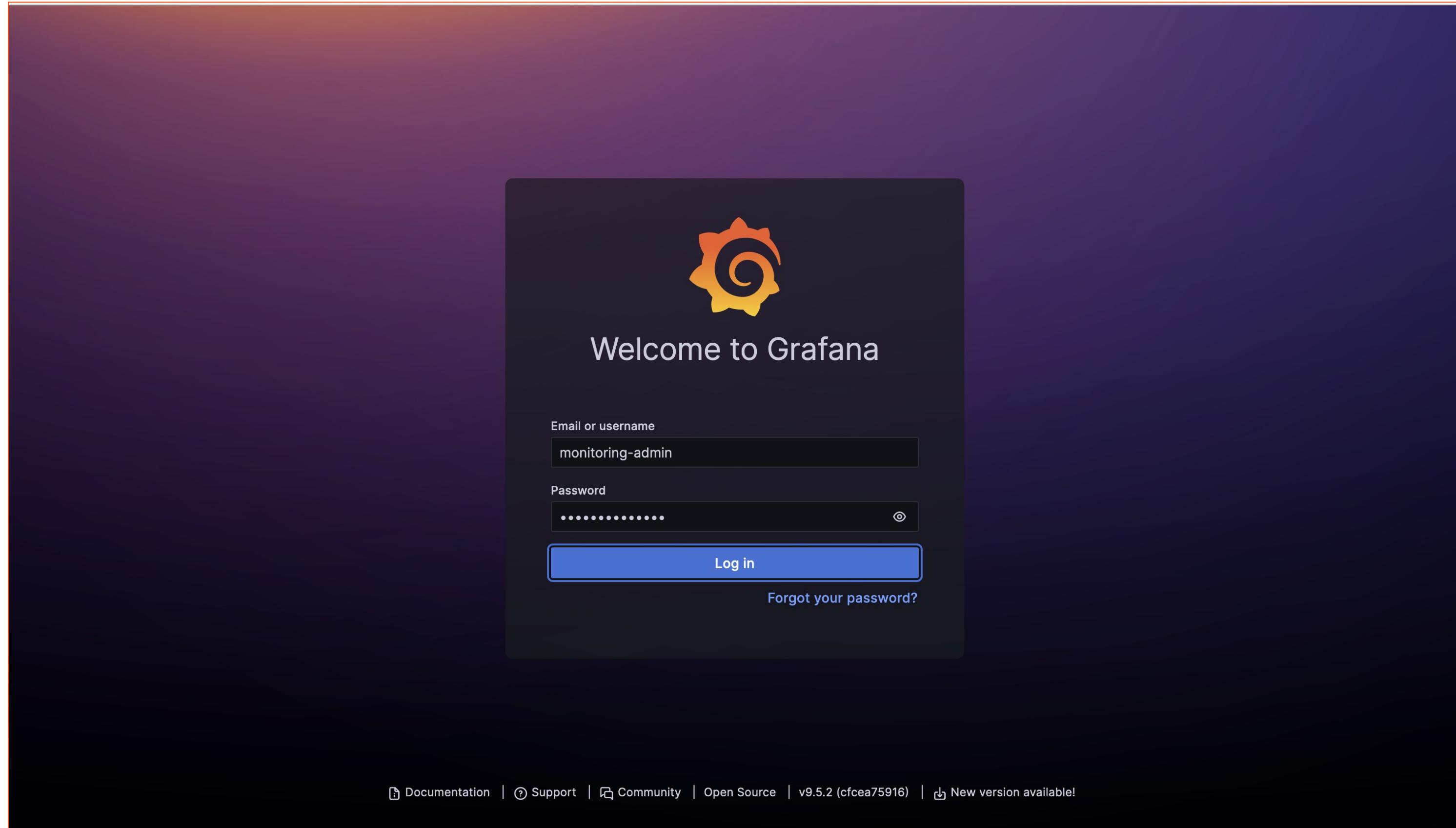
*Monitoring a Swarm Cluster with Prometheus and Grafana*

<https://www.portainer.io/blog/monitoring-a-swarm-cluster-with-prometheus-and-grafana>

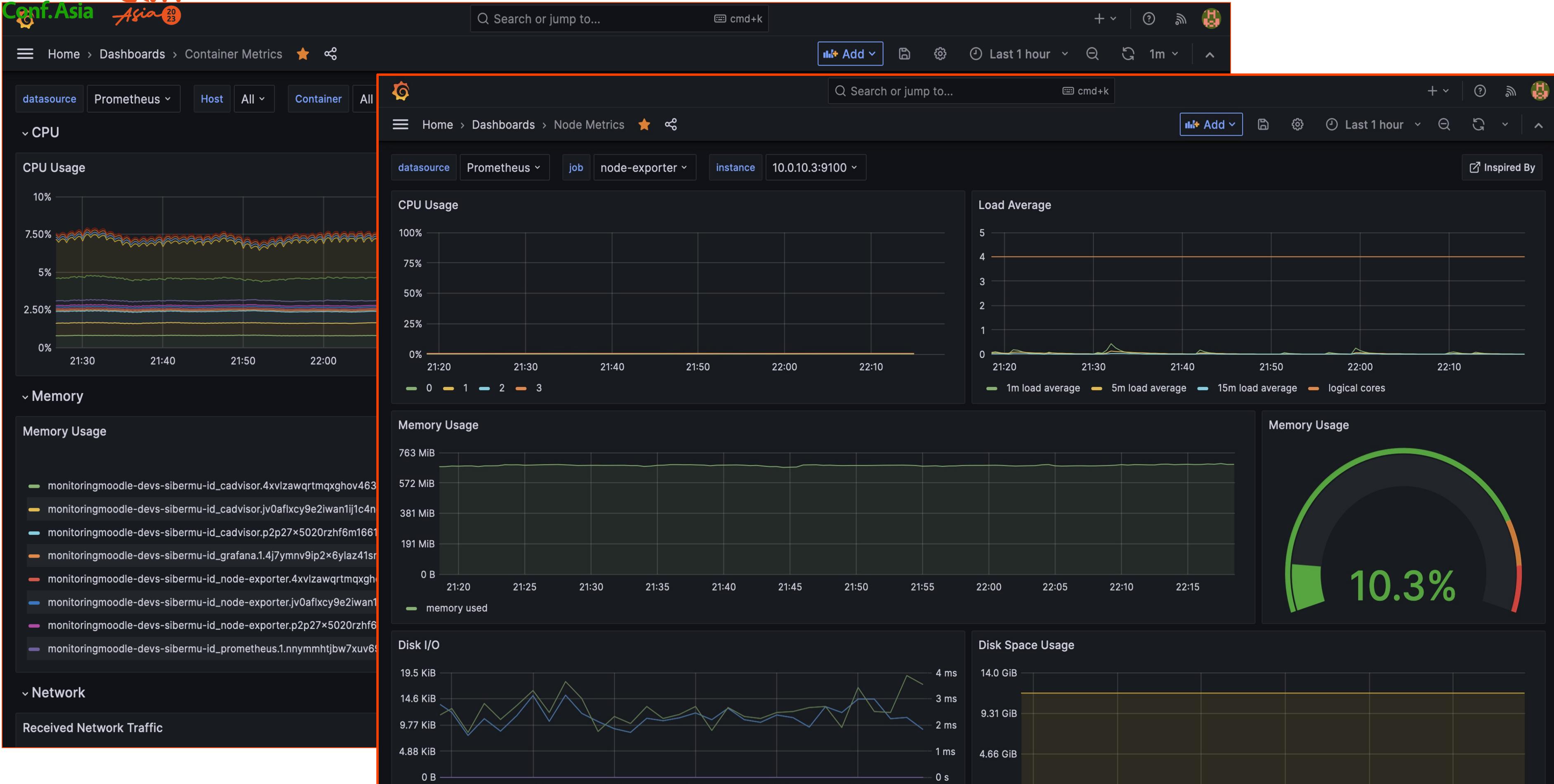


Node-Master-01

# DEPLOYING GRAFANA & PROMETHEUS STACKS



# DEPLOYING GRAFANA & PROMETHEUS STACKS



# Portainer – Swarm, Cluster Visualizer

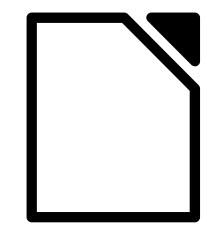
Cluster visualizer

The screenshot shows the Portainer interface with a sidebar on the left containing various icons for managing Docker hosts, images, volumes, secrets, and more. The main area is titled "Cluster visualizer" and displays three nodes:

- louca23-master01** (manager): CPU: 4, Memory: 8.18 GB, Status: ready. Contains:
  - monitoringmoodle-devs-sibermu-id\_cadvisor: Image: gcr.io/cadvisor/cadvisor:v0.47.0, Status: running, Update: 2023-10-07 11:45:18, Memory limit: 128 MB
  - monitoringmoodle-devs-sibermu-id\_node-exporter: Image: prom/node-exporter:v1.5.0, Status: running, Update: 2023-10-07 11:44:40, Memory limit: 128 MB
  - moodle-devs-sibermu-id\_mariadb: Image: mariadb:jammy, Status: running, Update: 2023-10-08 22:32:50
  - trafik\_traefik: Image: traefik:v2.10, Status: running, Update: 2023-10-06 07:30:37
- louca23-master02** (manager): CPU: 4, Memory: 8.18 GB, Status: ready. Contains:
  - monitoringmoodle-devs-sibermu-id\_cadvisor: Image: gcr.io/cadvisor/cadvisor:v0.47.0, Status: running, Update: 2023-10-07 11:45:18, Memory limit: 128 MB
  - monitoringmoodle-devs-sibermu-id\_node-exporter: Image: prom/node-exporter:v1.5.0, Status: running, Update: 2023-10-07 11:44:40, Memory limit: 128 MB
  - monitoringmoodle-devs-sibermu-id\_prometheus: Image: portainer/template-swarm-monitoring:prometheus-v2.44.0, Status: running, Update: 2023-10-07 11:44:46
  - moodle-devs-sibermu-id\_moodle: Image: andisugandi/moodle-php-apache:8.1, Status: running, Update: 2023-10-08 22:32:59
  - moodle-devs-sibermu-id\_redis: Image: redis:latest, Status: running, Update: 2023-10-08 22:32:54
- louca23-master03** (manager): CPU: 4, Memory: 8.18 GB, Status: ready. Contains:
  - monitoringmoodle-devs-sibermu-id\_cadvisor: Image: gcr.io/cadvisor/cadvisor:v0.47.0, Status: running, Update: 2023-10-07 11:45:18, Memory limit: 128 MB
  - monitoringmoodle-devs-sibermu-id\_grafana: Image: portainer/template-swarm-monitoring:grafana-9.5.2, Status: running, Update: 2023-10-07 11:44:43
  - monitoringmoodle-devs-sibermu-id\_node-exporter: Image: prom/node-exporter:v1.5.0, Status: running, Update: 2023-10-07 11:44:40, Memory limit: 128 MB
  - portainer\_portainer: Image: portainer/portainer-ce:latest, Status: running, Update: 2023-10-06 07:47:42



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