

Implementasi Docker swarm dengan 2 Node dan 2 Container

PRAKTIKUM TEKNOLOGI CLOUD COMPUTING



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A. Kebutuhan VM

Proses deployment membutuhkan 2 buah VM, dimana masing-masing VM menggunakan OS Ubuntu Server 16.04 LTS dan sudah terinstall docker. 1 VM berfungsi sebagai manager dan 1 VM berfungsi sebagai worker.

B. Konfigurasi NFS Server di VM Manager

NFS Server digunakan untuk sharing document root antara Manager dan Worker. NFS Server diinstall dan dikonfigurasi di VM Manager, berikut langkah - langkahnya :

1. Lakukan update dan install package nfs-kernel-server

```
root@ubuntu:~# apt-get update
```

```
root@ubuntu:~# apt-get install nfs-kernel-server
```

2. Buat folder web untuk sharing document root di var/nfs

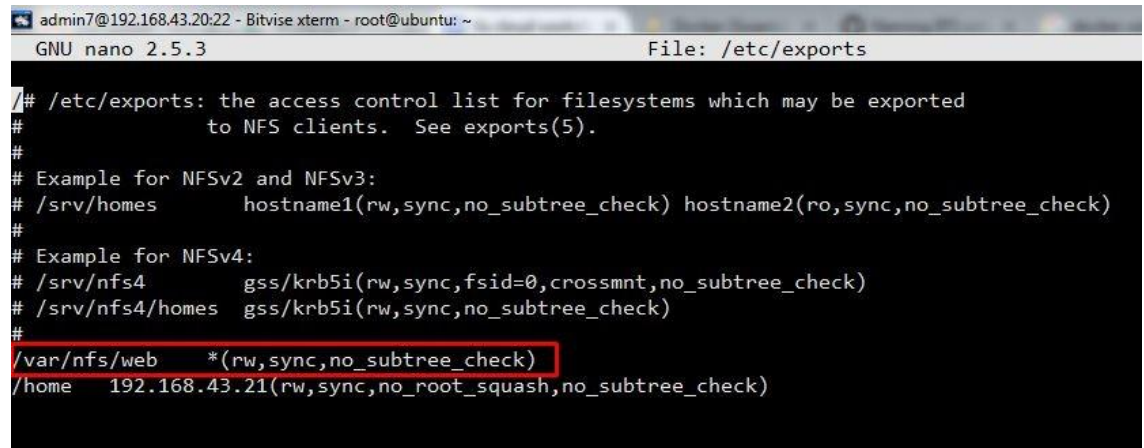
```
root@ubuntu:~# mkdir /var/nfs/web -p
```

3. Beri hak akses folder web

```
root@ubuntu:~# chown nobody:nogroup /var/nfs/web
```

4. Setting agar worker bisa mengakses folder /var/nfs/web di /etc/exports

```
root@ubuntu:~# nano /etc/exports
```



```
admin7@192.168.43.20:22 - Bitvise xterm - root@ubuntu: ~
GNU nano 2.5.3 File: /etc/exports

/# /etc/exports: the access control list for filesystems which may be exported
# to NFS clients. See exports(5).
#
# Example for NFSv2 and NFSv3:
# /srv/homes hostname1(rw,sync,no_subtree_check) hostname2(ro,sync,no_subtree_check)
#
# Example for NFSv4:
# /srv/nfs4 gss/krb5i(rw,sync,fsid=0,crossmnt,no_subtree_check)
# /srv/nfs4/homes gss/krb5i(rw,sync,no_subtree_check)
#
/var/nfs/web *(rw,sync,no_subtree_check)
/home 192.168.43.21(rw,sync,no_root_squash,no_subtree_check)
```

5. Restart service nfs

```
root@ubuntu:~# systemctl restart nfs-kernel-server
```

C. Konfigurasi Docker Swarm

Langkah - langkah konfigurasinya :

1. Inisialisasi swarm init di Manager dengan **docker swarm init**
2. Di Worker lakukan join node ke Manager

```
docker swarm join --token SWMTKN-1-67p6s3yo7t7nu1n1rmqz.juqch.jypdp1sihpnw.j2svx1ff4ti6pj-3lqf9t86ww
n8gn26c8mlayox1 192.168.43.26:2377
```

3. Buat docker volume htdocs bertipe nfs di Manager maupun worker

```
root@ubuntu:~# docker volume create --driver local --opt type=nfs --opt o=addr=192.168.43.20 --opt device=/var/nfs/web htdocs
```

```
root@ubuntu:~# docker volume ls
DRIVER          VOLUME NAME
local           htdocs
local           vol_web
root@ubuntu:~# docker volume inspect htdocs
[
  {
    "CreatedAt": "2018-07-28T19:04:27+07:00",
    "Driver": "local",
    "Labels": {},
    "Mountpoint": "/var/lib/docker/volumes/htdocs/_data",
    "Name": "htdocs",
    "Options": {
      "device": ":/var/nfs/web",
      "o": "addr=192.168.43.20",
      "type": "nfs"
    },
    "Scope": "local"
  }
]
```

4. Buat folder mysql di root Manager

5. Buat file app.yml, berikut isinya :

```
version: "3.3"
volumes:
  htdocs:
    driver: local
    driver_opts:
      type: nfs
      o: addr=192.168.43.20
      device: ":/var/nfs/web"
services:
  web:
    image: tutum/apache-php
    environment:
      - ALLOW_OVERRIDE=true
    volumes:
      - type: volume
        source: htdocs
        target: /app
    ports:
      - "80:80"
    networks:
      - overlay
    deploy:
```

```

    replicas: 7
    restart_policy:
      condition: on-failure
  mysql:
    image: mariadb
    volumes:
      - type: bind
        source: ./mysql
        target: /var/lib/mysql
    environment:
      MYSQL_ROOT_PASSWORD: root
      MYSQL_USER: admin
      MYSQL_PASSWORD: test
      MYSQL_DATABASE: database
    ports:
      - "8889:3306"
    networks:
      - overlay
  deploy:
    replicas: 1
    restart_policy:
      condition: on-failure

networks:
  overlay:

```

6. Deploy file app.yml dengan perintah :

```

root@ubuntu:~# docker stack deploy -c app.yml swarm_web

root@ubuntu:~# docker network rm swarm_web_overlay
swarm_web_overlay
root@ubuntu:~# docker stack deploy -c app.yml web
Creating network web_overlay
Creating service web_web
Creating service web_mysql

```

7. Secara otomatis akan terbentuk 2 buah service

```

root@ubuntu:~# docker service ls

```

ID	NAME	MODE	REPLICAS	IMAGE	PORTS
0kjz6em01o15	swarm_web_mysql	replicated	1/1	mariadb:latest	*:8889->3306/tcp
qsclov87f3eu	swarm_web_web	replicated	7/7	tutum/apache-php:latest	*:80->80/tcp

8. Lakukan cek apakah container sudah berjalan di Manager dan Worker
- Di Manager

```
root@ubuntu:~# docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS
c105897066ce	tutum/apache-php:latest	"/run.sh"	10 seconds ago	Up 8 seconds
8734b83c3085	tutum/apache-php:latest	"/run.sh"	About an hour ago	Up About an hour
a1d3df30e7d8	mariadb:latest	"docker-entrypoint.s..."	About an hour ago	Up About an hour
bc6dc658cbbfc	tutum/apache-php:latest	"/run.sh"	About an hour ago	Up About an hour

Di Worker

```
root@ubuntu:~# docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS
59e31f156b4c	tutum/apache-php:latest	"/run.sh"	About a minute ago	Up About a minute
1439f8642865	tutum/apache-php:latest	"/run.sh"	About an hour ago	Up About an hour
eaccbd9b3e5	tutum/apache-php:latest	"/run.sh"	About an hour ago	Up About an hour
0ec4e27c4127	tutum/apache-php:latest	"/run.sh"	About an hour ago	Up About an hour

D. Testing Aplikasi Web dan Scalling Service

1. Testing Aplikasi Web

Langkah - langkahnya :

- a. Upload aplikasi website penjualan ke document root /var/nfs/web di Manager



```
root@ubuntu:~# cd /var/nfs/web/app
root@ubuntu:~# ls
```

admin	assets	login_act.php	malasngoding_kios.sql	README.md
aplikasi_penjualan_php_mysql	index.php	logo	PANDUAN	INSTALL.txt

- b. Buka browser dan akses ke 192.168.43.20 (ip Manager)

Tampilan login

Silahkan Login ..

	malasngoding

<input type="button" value="Login"/>	

Tampilan awal web

MALAS
NGODING
COM

[Dashboard](#)
[Data Barang](#)
[Entry Penjualan](#)
[Ganti Foto](#)
[Ganti Password](#)
[Logout](#)

Data Barang

[+Tambah Barang](#)

Stok **tic tac** yang tersisa sudah kurang dari 3 . silahkan pesan lagi !!

Jumlah Record15
Jumlah Halaman2

Cetak

Cari barang di sini ..

No	Nama Barang	Harga Jual	Jumlah	Opsi
1	roti unibis	Rp 6,500,-	350	Detail Edit Hapus
2	tim tam	Rp 6,000,-	792	Detail Edit Hapus
3	tic tac	Rp 4,000,-	2	Detail Edit Hapus

Tampilan Create/Tambah barang

Tambah Barang Baru

Nama Barang

Nama Barang ..

Jenis

Jenis Barang ..

Suplier

Suplier ..

Harga Modal

Modal per unit

Harga Jual

Harga Jual per unit

Jumlah

Jumlah

Batal

Simpan

Tampilan read/detail barang

Detail Barang

[← Kembali](#)

Nama	roti unibis
Jenis	makanan
Suplier	pt.makamur jaya
Modal	Rp.5,000,-
Harga	Rp.6,500,-
Jumlah	350
Sisa	20

Tampilan Edit/edit barang

Edit Barang

[← Kembali](#)

Nama	<input type="text" value="roti unibis"/>
Jenis	<input type="text" value="makanan"/>
Suplier	<input type="text" value="pt.makamur jaya"/>
Modal	<input type="text" value="5000"/>
Harga	<input type="text" value="6500"/>
Jumlah	<input type="text" value="350"/>

Simpan

Tampilan delete/hapus barang

Apakah anda yakin ingin menghapus data ini ??

OKCancel

Data Barang

+Tambah Barang

Stok **tic tac** yang tersisa sudah kurang dari 3 . silahkan pesan lagi !!

Jumlah Record15

Jumlah Halaman2

Q

Cari barang di sini ..

No	Nama Barang	Harga Jual	Jumlah	Opsi
1	roti unibis	Rp.6,500,-	350	<div>DetailEditHapus</div>

2. Testing Scalling

```
root@ubuntu:~# docker service ls
ID                NAME                MODE                REPLICAS                IMAGE
giyflwoh4g4i     web_mysql           replicated           1/1                      mariadb:latest
xqlzs8ql0w7q     web_web             replicated           2/2                      tutum/apache-php:lat
est *:80->80/tcp
root@ubuntu:~#

root@ubuntu:~# docker service scale web_web=5
web_web scaled to 5
overall progress: 5 out of 5 tasks
1/5: running
2/5: running
3/5: running
4/5: running
5/5: running
verify: Service converged
```



```

root@ubuntu:~# docker service ls

```

ID	NAME	MODE	REPLICAS	IMAGE
giyflwoh4g4i	web_mysql	replicated	1/1	mariadb:latest
xqlzs8ql0w7q	web_web	replicated	5/5	tutum/apache-php:lat

Di Manager

```

root@ubuntu:~# docker ps

```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS
1f1bc87f1a02	tutum/apache-php:latest	"/run.sh"	About a minute ago	Up About
83a1081ba09a	mariadb:latest	"docker-entrypoint.s..."	12 minutes ago	Up 12 m...
051277c58262	tutum/apache-php:latest	"/run.sh"	12 minutes ago	Up 12 m...

Di Worker

```

root@ubuntu:~# docker ps

```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS
d1282f2c45df	tutum/apache-php:latest	"/run.sh"	3 minutes ago	Up 3 minutes
ec723d942ef3	tutum/apache-php:latest	"/run.sh"	3 minutes ago	Up 3 minutes
e5af19457806	tutum/apache-php:latest	"/run.sh"	13 minutes ago	Up 13 minutes