PROSES DEPLOYMENT APLIKASI WEB DENGAN DOCKER SWARM

WORKSHOP CLOUD

Disusun Oleh :

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STMIK AKAKOM

YOGYAKARTA

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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
```

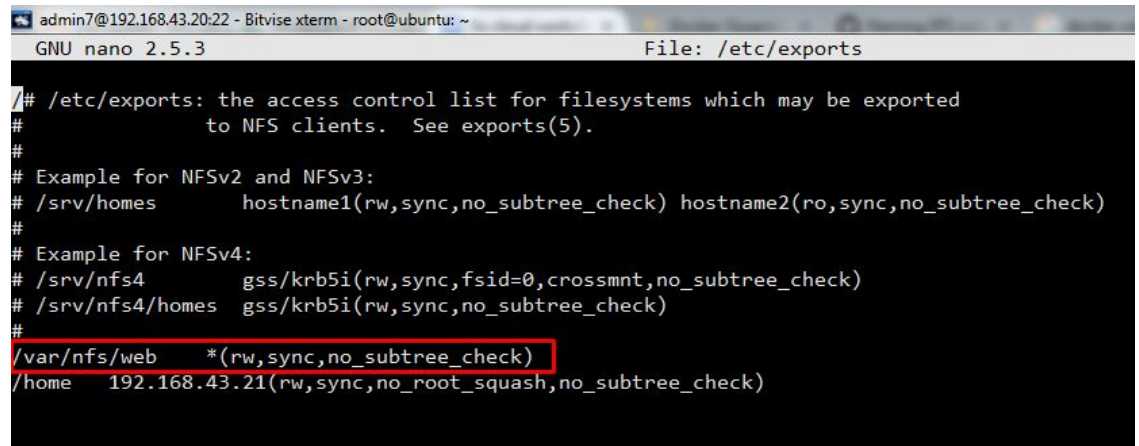2. Buat folder web untuk sharing document root di var/nfs

```
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

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 d
evice=:/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
        PORTS                 NAMES
c105897066ce        tutum/apache-php:latest   "/run.sh"       10 seconds ago      Up 8 seco
nds        80/tcp                web_web.7.0qp9xj34oxl0zplweu8dahvsy
8734b83c3085        tutum/apache-php:latest   "/run.sh"       About an hour ago   Up About
an hour    80/tcp                web_web.3.htdtd63g4e3u8ky5dt788rdhp
a1d3df30e7d8        mariadb:latest          "docker-entrypoint.s…"   About an hour ago   Up About
an hour    3306/tcp              web_mysql.1.sqv8u1q8180begf5xmkny14j7
bcdc658cbbfc        tutum/apache-php:latest   "/run.sh"       About an hour ago   Up About
an hour    80/tcp                web_web.2.dv6eksdddfn9pr3odgnulc17f
```

   Di Worker

```
root@ubuntu:~# docker ps
CONTAINER ID        IMAGE                 COMMAND           CREATED             STATUS
        PORTS                 NAMES
59e31f156b4c        tutum/apache-php:latest   "/run.sh"       About a minute ago   Up About a mi
nute    80/tcp                web_web.6.rzpoyw08p5lrvzfv7t3ux2xpk
1439f8642865        tutum/apache-php:latest   "/run.sh"       About an hour ago   Up About an h
our     80/tcp                web_web.5.ds9ldgsl8kxbowbuiqxsfy1a7
eacccbd9b3e5        tutum/apache-php:latest   "/run.sh"       About an hour ago   Up About an h
our     80/tcp                web_web.4.be73t8c9y74nxmvh9hwq41yga
0ec4e27c4127        tutum/apache-php:latest   "/run.sh"       About an hour ago   Up About an h
our     80/tcp                web_web.1.bgwbu24zkkvwdsi6eeixyt2bn
```

D. Testing Aplikasi Web dan Scalling Service
   1. Testing Aplikasi Web
      Langkah - langkahnya :
         a. Upload aplikasi cms sekolahku ke document root /var/nfs/web di Manager

```
root@ubuntu:/var/nfs/web/sekolah# ls
cms-sekolahku-v2.2.0.zip
```

         b. Lakukan Unzip file tersebut

```
root@ubuntu:/var/nfs/web/sekolah# unzip cms-sekolahku-v2.2.0.zip
```

         c. Buka browser dan akses ke 192.168.43.20 (ip Manager) dan install

Proses Installasi CMS Sekolahku

Step 1	**Step 2**	Step 3
Konfigurasi Database	Informasi Situs	Konfigurasi Akun

Informasi Situs

Jenjang Sekolah

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Nama Sekolah / Kampus

AKAKOM

Alamat

Bantul

Slogan

Code for life

< Sebelumnya   Selanjutnya >

Proses Installasi CMS Sekolahku

Step 1	Step 2	**Step 3**
Konfigurasi Database	Informasi Situs	Konfigurasi Akun

Konfigurasi Akun

Nama Akun

admin

Nama Lengkap

admin7

Email

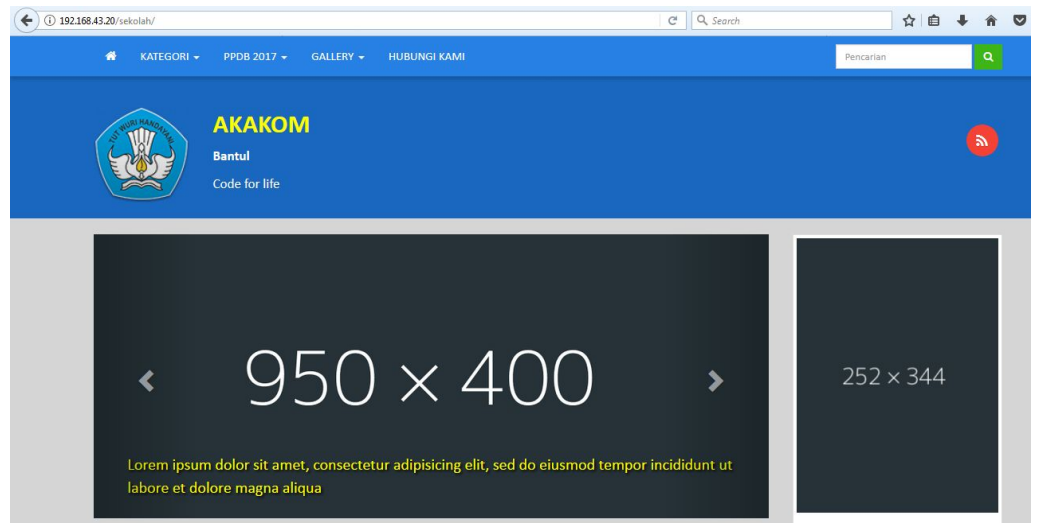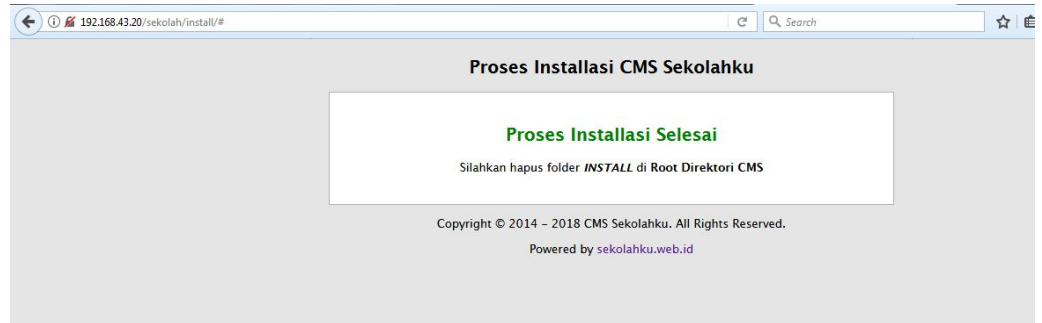admin7@gmail.com

Kata Sandi

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< Sebelumnya   INSTALL

Proses Installasi CMS Sekolahku

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2. Testing Scalling

```
root@ubuntu:~# docker service ls
ID                  NAME            MODE          REPLICAS      IMAGE
     PORTS
giyflwoh4g4i        web_mysql       replicated    1/1           mariadb:latest
     *:8889->3306/tcp
xqlzs8ql0w7q        web_web         replicated    5/5           tutum/apache-php:lat
est    *:80->80/tcp
```

Di Manager

```
root@ubuntu:~# docker ps
CONTAINER ID        IMAGE                    COMMAND               CREATED            STATUS
          PORTS               NAMES
1f1bc87f1a02        tutum/apache-php:latest  "/run.sh"             About a minute ago Up About
 a minute    80/tcp              web_web.5.kyviwe41uo8oeinqgej5bwp8s
83a1081ba09a        mariadb:latest           "docker-entrypoint.s…"  12 minutes ago     Up 12 mi
nutes       3306/tcp             web_mysql.1.4v289835pqumjv3cjb77fm8yy
051277c58262        tutum/apache-php:latest  "/run.sh"             12 minutes ago     Up 12 mi
nutes       80/tcp              web_web.2.nnxbod92kp5w9kfhuhco1n3w0
```

Di Worker

```
root@ubuntu:~# docker ps
CONTAINER ID        IMAGE                    COMMAND               CREATED            STATUS
          PORTS               NAMES
d1282f2c45df        tutum/apache-php:latest  "/run.sh"             3 minutes ago      Up 3 minutes
            80/tcp              web_web.4.mgd344c35roojzq1rsjxfd702
ec723d942ef3        tutum/apache-php:latest  "/run.sh"             3 minutes ago      Up 3 minutes
            80/tcp              web_web.3.kpvtkjgud14pu741wei5pin6m
e5af19457806        tutum/apache-php:latest  "/run.sh"             13 minutes ago     Up 13 minutes
            80/tcp              web_web.1.v66ltlc1osf9gcpn6ii46snr4
root@ubuntu:~#
```