TUGAS 2 SISTEM TERDISTRIBUSI
Load Balancing dengan Round Robin

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1. Create microservice3

\# sudo lxc-create -n microservice3 -t download -- --dist "debian" --release "buster"

2. Create microservice4

\# sudo lxc-create -n microservice4 -t download -- --dist "debian" --release "buster"

3. Create microservice5

sudo lxc-create -n microservice5 -t download -- --dist "debian" --release "buster"

```
Downloading the image index
---
DIST     RELEASE ARCH    VARIANT BUILD

debian  buster  amd64   default 20240406_05:24
debian  buster  arm64   default 20240406_05:24
---

Architecture:
amd64

Using image from local cache
Unpacking the rootfs
---

You just created a Debian buster amd64 (20240329_05:24) container.

To enable SSH, run: apt install openssh-server
No default root or user password are set by LXC.
```

4. Jalankan semua microservice yang telah di buat.

sudo lxc-start -n microservice3 sudo lxc-start -n

microservice4 sudo lxc-start -n microservice5

sudo lxc-ls -f

```
NAME            STATE    AUTOSTART GROUPS IPV4         IPV6 UNPRIVILEGED
microservice3   RUNNING 0          -      10.0.3.94   -    false
microservice4   RUNNING 0          -      10.0.3.121  -    false
microservice5   RUNNING 0          -      10.0.3.155  -    false
microservice_1  RUNNING 0          -      10.0.3.39   -    false
microservice_2  RUNNING 0          -      10.0.3.142  -    false
```

Konfigurasi microservice3

1.   Update dan Install nginx

sudo lxc-attach microservice3 apt update apt install

nginx nginx-extras nano

```
root@microservice3:/# apt update
Hit:1 http://deb.debian.org/debian buster InRelease
Hit:2 http://deb.debian.org/debian buster-updates InRelease
Get:3 http://deb.debian.org/debian-security buster/updates InRelease [34.8 kB]
Get:4 http://deb.debian.org/debian-security buster/updates/main amd64 Packages [592 kB]
Get:5 http://deb.debian.org/debian-security buster/updates/main Translation-en [321 kB]
Fetched 948 kB in 1s (905 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
All packages are up to date.
root@microservice3:/# apt install nginx nginx-extras
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  fontconfig-config fonts-dejavu-core geoip-database libfontconfig1 libfreetype6 libgd3 lib
  libicu63 libjbig0 libjpeg62-turbo libluajit-5.1-2 libluajit-5.1-common libnginx-mod-http-
  libnginx-mod-http-dav-ext libnginx-mod-http-echo libnginx-mod-http-fancyindex libnginx-mo
  libnginx-mod-http-image-filter libnginx-mod-http-lua libnginx-mod-http-ndk libnginx-mod-h
  libnginx-mod-http-uploadprogress libnginx-mod-http-upstream-fair libnginx-mod-http-xslt-f
  libnginx-mod-stream libperl5.28 libpng16-16 libtiff5 libwebp6 libxml2 libxpm4 libxslt1.1
  ucf
Suggested packages:
  libgd-tools gdbm-l10n geoip-bin fcgiwrap nginx-doc ssl-cert perl-doc libterm-readline-gnu
  libb-debug-perl liblocale-codes-perl
```

nano /etc/hosts

```
  GNU nano 3.2

127.0.1.1        microservice3
127.0.0.1        localhost
127.0.0.1        micro3.dev
::1              localhost ip6-localhost ip6-loopback
ff02::1          ip6-allnodes
ff02::2          ip6-allrouters
```

exit

Konfigurasi microservice4

1. Update dan Install nginx

sudo lxc-attach microservice4 apt update apt install nginx nginx-extras

nano net-tools curl

```
root@microservice4:/# apt update
Hit:1 http://deb.debian.org/debian buster InRelease
Hit:2 http://deb.debian.org/debian buster-updates InRelease
Get:3 http://deb.debian.org/debian-security buster/updates InRelease [34.8 kB]
Get:4 http://deb.debian.org/debian-security buster/updates/main amd64 Packages [592 kB]
Get:5 http://deb.debian.org/debian-security buster/updates/main Translation-en [321 kB]
Fetched 948 kB in 1s (1133 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
All packages are up to date.
root@microservice4:/# apt install nginx nginx-extras nano
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  fontconfig-config fonts-dejavu-core geoip-database libfontconfig1 libfreetype6 libgd3 libg
  libicu63 libjbig0 libjpeg62-turbo libluajit-5.1-2 libluajit-5.1-common libnginx-mod-http-a
  libnginx-mod-http-dav-ext libnginx-mod-http-echo libnginx-mod-http-fancyindex libnginx-mod
  libnginx-mod-http-image-filter libnginx-mod-http-lua libnginx-mod-http-ndk libnginx-mod-ht
  libnginx-mod-http-uploadprogress libnginx-mod-http-upstream-fair libnginx-mod-http-xslt-fi
  libnginx-mod-stream libperl5.28 libpng16-16 libtiff5 libwebp6 libxml2 libxpm4 libxslt1.1 n
  ucf
Suggested packages:
```

nano /etc/hosts

```
  GNU nano 3.2

127.0.1.1           microservice4
127.0.0.1           localhost
127.0.0.1           micro4.dev
::1                 localhost ip6-localhost ip6-loopback
ff02::1             ip6-allnodes
ff02::2             ip6-allrouters
```

exit

Konfigurasi microservice5 2.

Update dan Install nginx

sudo lxc-attach microservice5 apt update && apt install nginx nginx-extras

nano -y

nano /etc/hosts

exit

Konfigurasi Hosts ubuntu 22.04 wsl

sudo nano /etc/hosts

```
  GNU nano 6.2                                                              /etc/h
# This file was automatically generated by WSL. To stop automatic generatio
# [network]
# generateHosts = false
127.0.0.1        localhost
127.0.1.1        DESKTOP-3V50F26.         DESKTOP-3V50F26
127.0.1.1        sister.local
127.0.1.1        app.sister.local

10.0.3.39        microservice1.dev
10.0.3.142       microservice2.dev
10.0.3.94        micro3.dev
10.0.3.121       micro4.dev
10.0.3.155       micro5.dev

# The following lines are desirable for IPv6 capable hosts
::1     ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

sudo nano /etc/nginx/sites-available/sister.local

```nginx
log_format upstreamlog '$remote_addr - $remote_user [$time_local] "$request" '
                       'upstream: $upstream_addr '
                       'status: $status '
                       'bytes_sent: $body_bytes_sent '
                       'referer: "$http_referer" '
                       'user_agent: "$http_user_agent" '
                       'upstream_response_time: $upstream_response_time '
                       'request_time: $request_time';

upstream micro {
        server micro3.dev;
        server micro4.dev;
        server micro5.dev;
}
server {
         listen 80;
         listen [::]:80;

         server_name sister.local;
         server_name app.sister.local;

         root /var/www/html/sister;
         index index.html;

         access_log /var/log/nginx/app.sister.local-access.log;
         location /blog {
                 rewrite /blog/?(.*)$ /$1 break;
                 proxy_pass http://microservice1.dev;
         }
         location /aboutus {
                 rewrite /aboutus/?(.*)$ /$1 break;
                 proxy_pass http://microservice2.dev;
         }
         location / {
                 proxy_pass http://micro;
                 proxy_set_header Host $host;
                 proxy_set_header X-Real-IP $remote_addr;
                 proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
                 proxy_set_header X-Forwarded-Proto $scheme;
#                 try_files $uri $uri/ =404;

         }

}
```

Sudo nginx -t

Sudo nginx -s reload

```
HTTP/1.1 200 OK
Server: nginx/1.18.0 (Ubuntu)
Date: Sat, 06 Apr 2024 13:19:43 GMT
Content-Type: text/html
Content-Length: 612
Connection: keep-alive
Last-Modified: Sat, 06 Apr 2024 13:13:52 GMT
ETag: "66114a90-264"
Accept-Ranges: bytes

<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
    body {
        width: 35em;
        margin: 0 auto;
        font-family: Tahoma, Verdana, Arial, sans-serif;
    }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>

<p><em>Thank you for using nginx.</em></p>
</body>
</html>
```

sudo tail -f /var/log/nginx/app.sister.local-access.log

```
127.0.0.1 - - [06/Apr/2024:18:02:20 +0700] "GET / HTTP/1.1" 200 612 "-" "curl/7.81.0"
127.0.0.1 - - [06/Apr/2024:18:02:23 +0700] "GET / HTTP/1.1" 200 612 "-" "curl/7.81.0"
127.0.0.1 - - [06/Apr/2024:18:02:24 +0700] "GET / HTTP/1.1" 200 612 "-" "curl/7.81.0"
127.0.0.1 - - [06/Apr/2024:19:52:45 +0700] "GET / HTTP/1.1" 200 76673 "-" "curl/7.81.0"
127.0.0.1 - - [06/Apr/2024:19:53:29 +0700] "GET / HTTP/1.1" 200 76673 "-" "curl/7.81.0"
127.0.0.1 - - [06/Apr/2024:20:19:38 +0700] "GET / HTTP/1.1" 200 612 "-" "curl/7.81.0"
127.0.0.1 - - [06/Apr/2024:20:19:42 +0700] "GET / HTTP/1.1" 200 612 "-" "curl/7.81.0"
127.0.0.1 - - [06/Apr/2024:20:19:43 +0700] "GET / HTTP/1.1" 200 612 "-" "curl/7.81.0"
```