UNIVERSITÀ DI PARMA

DIPARTIMENTO DI SCIENZE MATEMATICHE, FISICHE ED INFORMATICHE
Corso di Laurea in Informatica

Docker 4 : Routing

LABORATORIO DI RETI DI CALCOLATORI - a.a. 2023/2024
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Docker networking

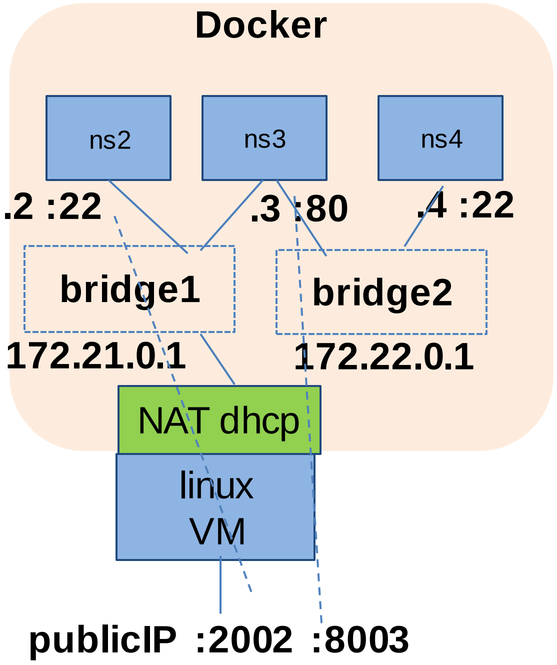
Attiviamo 2 reti IPv4 (172.21.0.0/24 e 172.22.0.0/24) con tre container connessi come in figura.

```
docker network create -d bridge  bridge1 --subnet=172.21.0.0/24
docker network create -d bridge  bridge2 --subnet=172.22.0.0/24
```

```
 docker run -d -p 2002:22  --name ns2 --network bridge1 --ip 172.21.0.2  nginx-ssh
 docker run -d -p 8003:80  --name ns3 --network bridge1 --ip 172.21.0.3  nginx-ssh
 docker run -d              --name ns4 --network bridge2 --ip 172.22.0.4  nginx-ssh
 docker network connect bridge2 ns3 --ip 172.22.0.3      # seconda interfaccia di ns3
```

```
#verifica indirizzi ip di ns3
docker exec ns3  ip a
```

```
# rimuovi tutto
docker rm -f ns4 ns3 ns2
docker network rm bridge1 bridge2
```



docker-compose.yaml

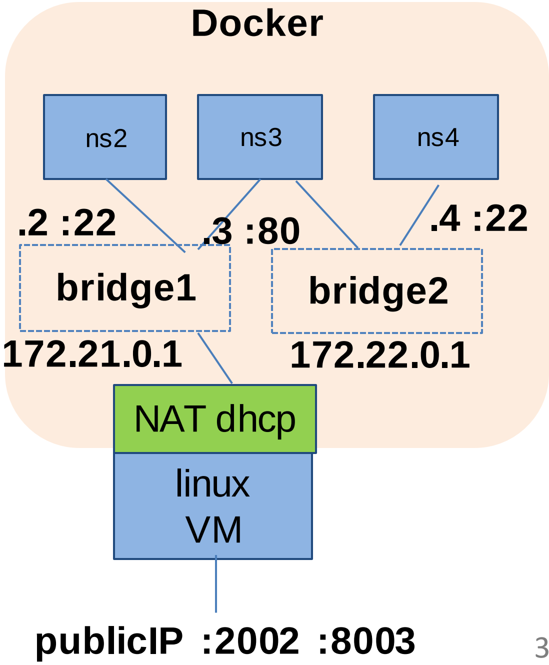
```
version: "3"

networks:
 bridge1:
  name: bridge1
  driver: bridge
  ipam:
   config:
    - subnet: 172.21.0.0/24
 bridge2:
  name: bridge2
  driver: bridge
  ipam:
   config:
    - subnet: 172.22.0.0/24

services:
 ns2:
  container_name: ns2
  hostname: ns2
  image: nginx-ssh
  networks:
   bridge1:
    ipv4_address: 172.21.0.2
  ports:
   - "2002:22"
  volumes:
    - /home/ubuntu/SHARE/:/var/www/html
```

```
ns3:
 container_name: ns3
 hostname: ns3
 image: nginx-ssh
 networks:
  bridge1:
   ipv4_address: 172.21.0.3
  bridge2:
   ipv4_address: 172.22.0.3
  ports:
   -"8003:80"
 volumes:
   - /home/ubuntu/SHARE/:/var/www/html

ns4:
 container_name: ns4
 hostname: ns4
 image: nginx-ssh
 networks:
  bridge2:
    ipv4_address: 172.22.0.4
 volumes:
   - /home/ubuntu/SHARE/:/var/www/html
```



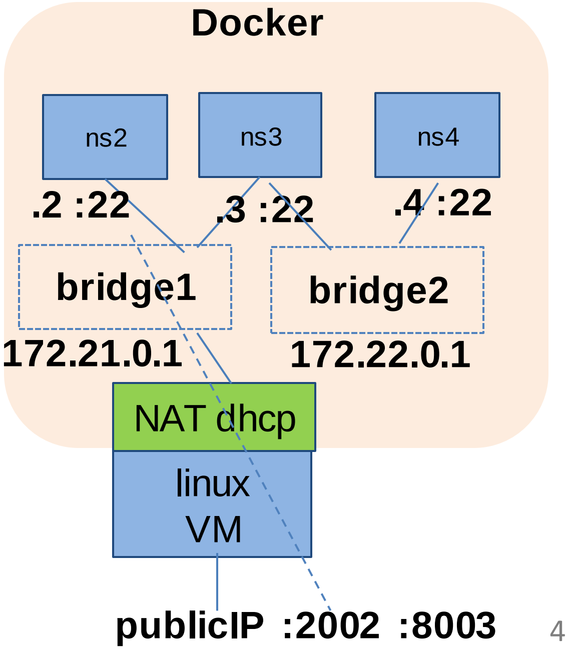
Docker networking : verifiche

# Creiamo la configurazione di figura:

```
docker-compose up -d

docker exec ns2 ip a
docker exec ns2 ip r
docker exec ns3 nmap 172.21.0.0/29
docker exec ns3 nmap 172.22.0.0/29
docker exec ns2 ping   172.21.0.3
docker exec ns2 ping   172.22.0.4

docker-compose down                    # stop & remove
```


Docker
ns2
ns3
ns4
.2 :22
.3 :22
.4 :22
bridge1
bridge2
172.21.0.1
172.22.0.1
NAT dhcp
linux
VM
publicIP :2002 :8003