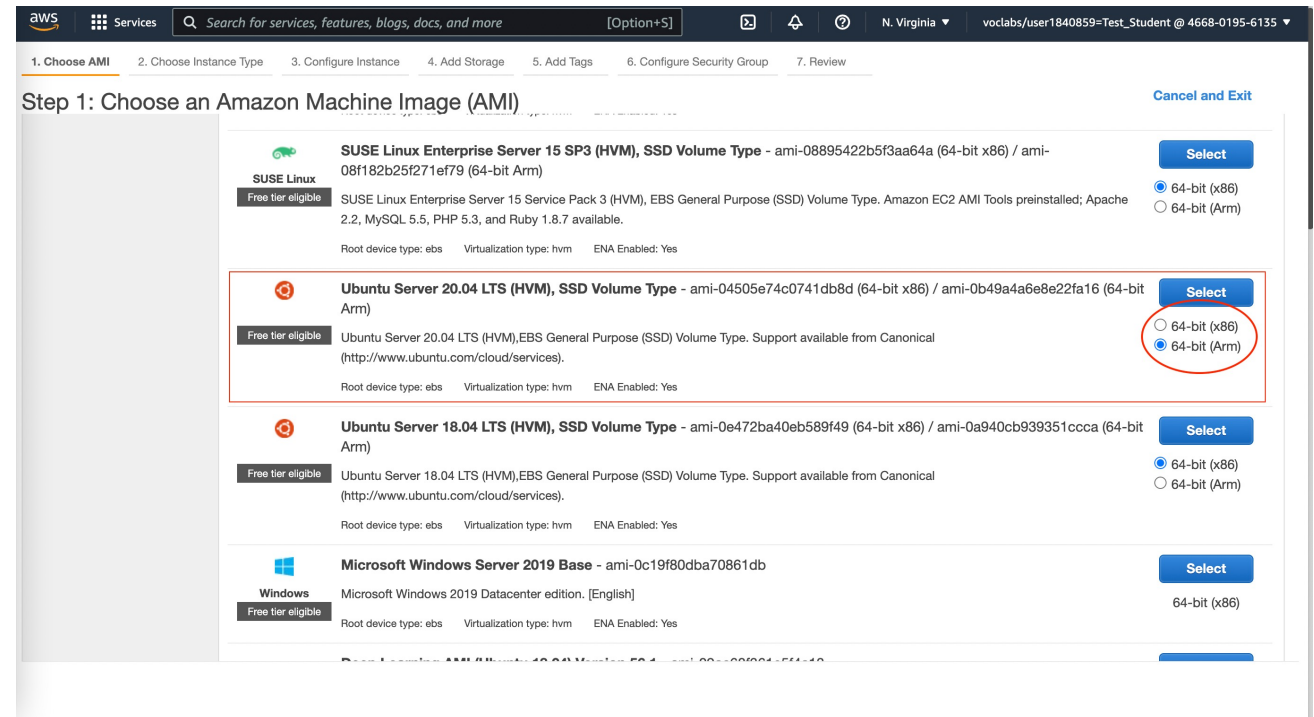Ne logam pe site-ul AWS si cream o instanta EC2:

Hardware: t4g.small

Software: Ubuntu 20.04 / **ARM**

Avem nevoie de minim 2G RAM asadar alegem modelul **t4g.small**

Modificam spatiul pe disk din 10G in **25G**.

Dupa ce cream instanta, avem nevoie de o cheie privata pentru a accesa serverul via SSH.

Se poate folosi o cheie existenta daca ati mai creat alte instante anterior. In acest exemplu, se foloseste cheia privata **seria23.pem**

Select an existing key pair or create a new key pair ✕

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance. Amazon EC2 supports ED25519 and RSA key pair types.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about removing existing key pairs from a public AMI.

Choose an existing key pair ⌄

Select a key pair

seria23 | RSA ⌄

☑ I acknowledge that I have access to the corresponding private key file, and that without this file, I won't be able to log into my instance.

Cancel **Launch Instances**

Dupa ce am creat serverul, ne conectam via SSH pe adresa lui IP (in acest exemplu **44.201.193.119**) folosind cheia privata definita anterior (in acest caz **seria23.pem**) si userul **ubuntu** (creat automat).

ssh -i serie23.pem ubuntu@44.201.193.119

Dupa ce ne conectam pe server via ssh, instalam docker:

sudo su -

apt-get update

apt install -y docker docker-compose

```
1. ne conectam pe server via ssh
ssh -i .ssh/seria23.pem ubuntu@44.201.193.119
2. ne facem root
sudo su -
3. instalam docker
apt-get update
apt install -y docker docker-compose
```

Tragem imaginea docker cu topologia de laborator:

docker pull pliviu/ubmi:ARM64

docker image ls

docker run -it -d <image ID>

docker ps

docker exec -it <container ID> bash

cd /opt/ubmi/

./start.sh L1

```
1.  tragem imaginea docker
docker pull pliviu/ubmi:ARM64

2. aflam ID-ul imaginii docker
docker image ls
(IMAGE ID: 467e4bb96012)

3. cream un container folosind imaginea
docker run -it -d 467e4bb96012

4. aflam ID-ul containerului
docker ps
(CONTAINER ID: 6dc0feb59731)

5. ne atasam la container (repetam acest pas in mai multe console)

6. tragem automat topologia de laborator
cd /opt/ubmi
./start.sh L1
(asteptam cateva zeci de secunde pentru ca se downloadeaza ~ 150Mb)
```

Pornim pe rand fiecare device si ne conectam la el din alta consola. Conectarea se va face cu comanda *telnet localhost <port>* iar portul este cel de pe ultima coloana.

Consola principala, cea din figura alaturata, va ramane tot timpul deschisa.

⇒ start R1

⇒ start R2

⇒ start TIER1-ISP

⇒ ......

```
=> list
Name        Type     State      Server            Console
R1          7200     stopped    localhost:7200    5101
R2          7200     stopped    localhost:7200    5102
R3          7200     stopped    localhost:7200    5103
R4          3725     stopped    localhost:7200    5104
TIER1-ISP   3725     stopped    localhost:7200    5110
SW1         3725     stopped    localhost:7200    6101
SW2         3725     stopped    localhost:7200    6102
SW          ETHSW    always on  localhost:7200    n/a
=>
```

Pentru conectarea la PC-urile virtuale facem *telnet localhost 7300*

Folosind 1,2,3 … 6 ne mutam de pe un PC pe altul.

Daca vrem sa parasim aceasta consola folosim comanda *disconnect*. Comanda quit o sa opreasca toate cele 6 PC-uri si nu ne dorim asta.

```
root@327ba2aa39f0:/opt/ubmi# telnet localhost 7300
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^]'.

Welcome to Virtual PC Simulator, version 0.5b2
Dedicated to Daling.
Build time: Jun 23 2018 13:14:38
Copyright (c) 2007-2014, Paul Meng (mirnshi@gmail.com)
All rights reserved.

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Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.

Press '?' to get help.

Executing the startup file




Checking for duplicate address...
PC6 : 1.1.1.1 255.255.255.252 gateway 1.1.1.2

PC1[1]> disconnect

PC1[1]>
Good-bye
Connection closed by foreign host.
```

Topologiile noi se vor incarca astfel:

cd /opt/ubmi

./start.sh Lx (unde x = numar)

```
root@327ba2aa39f0:/opt/ubmi#
root@327ba2aa39f0:/opt/ubmi# ./start.sh
Syntax: ./start <lab number>
Example: ./start.sh L1
root@327ba2aa39f0:/opt/ubmi#
```

Diagrama pentru L1 este cea folosita in GNS3 iar interfetele si legaturile dintre PC-uri, switch-uri si routere sunt identice.