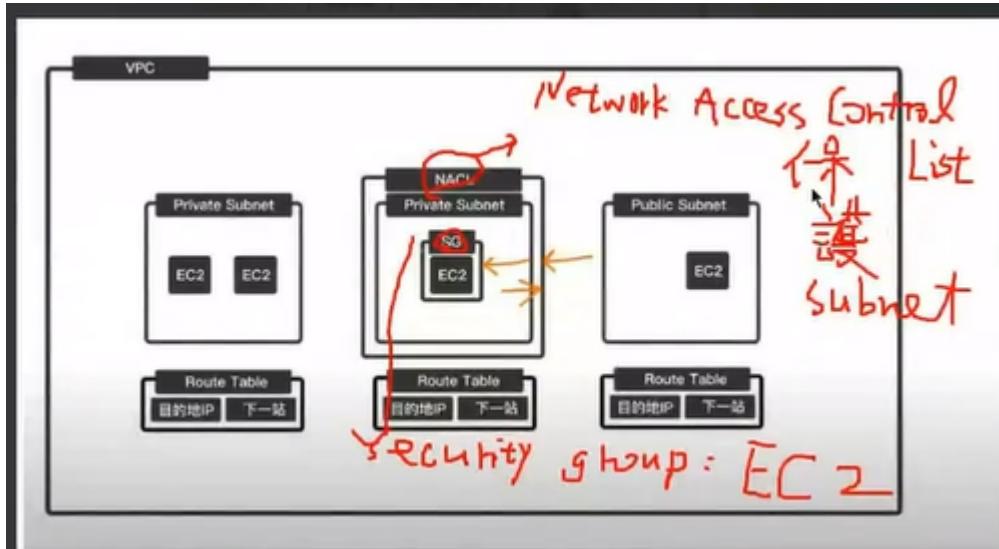


虛擬的雲端中心會有私有的網路，裡面有IGW可以連接到外面的internet，外面也可以根據IGW連接到內部

為什麼要有這樣的架構？這個是直接面對到網路伺服器的客戶，資料庫的內容是不需要對外的，可以透過外部網路連接到資料庫，外部網路沒有辦法獲取內容，這張圖主要要講NAC



最主要要控管subnet的流量，可以允許什麼樣的資料近來什麼樣的資料出去，另一個重要的事情就是它是一個無狀態的保護，也就是近來跟出去都要檢查一次，不會記錄之前的檢查紀錄，

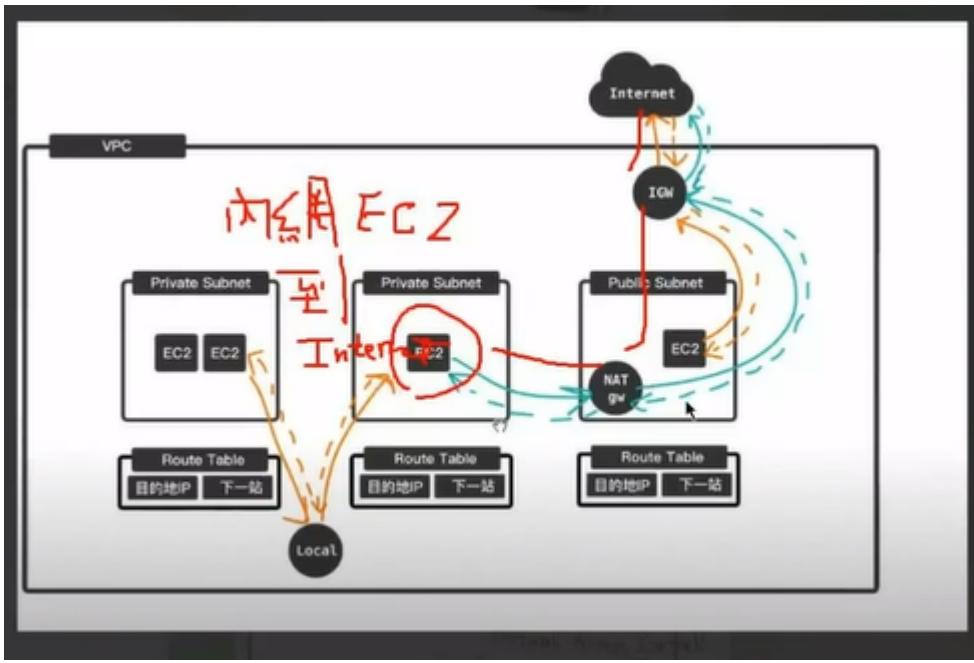
SG跟NACL的不同是

近來是SSH的流量，並且從某一台機器來的，SG只要知道這個流量已經檢查過了就會直接放行不會再繼續檢查，這就是有狀態的檢查

一個是針對虛擬機，一個針對網路(無狀態)

如果操作的介面是中文的話就切換成英文的，比較好做教學

這張圖主要講的是NAT GateWay



NAT

剛開始虛擬機沒有裝東西，需要安裝，就可以透過Nat gate way 連接到網路上

只允許內網連接到外網去下載東西，但是不允許外部網路連接到內部網路

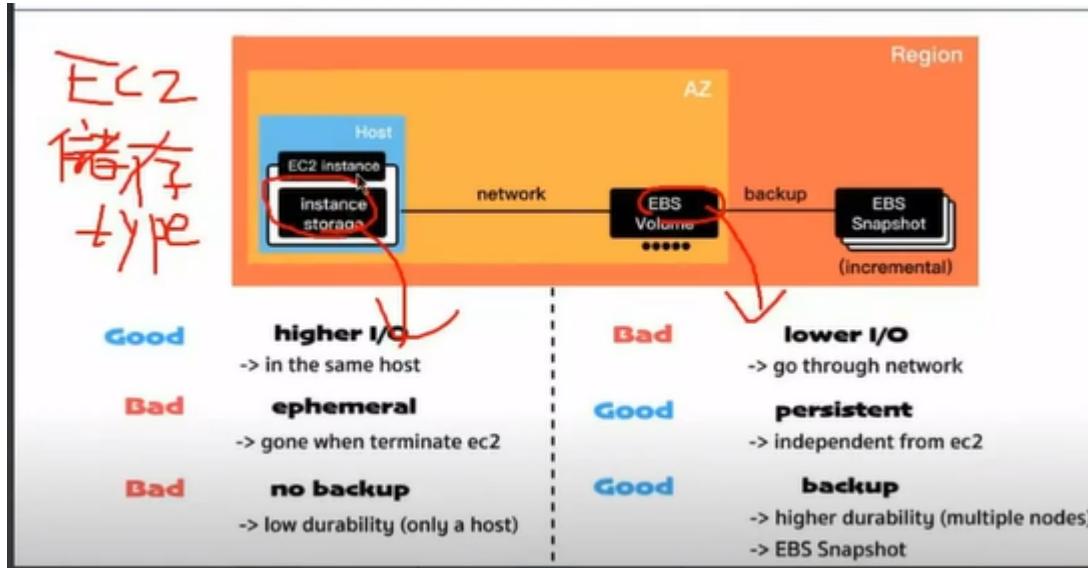
ENI -> Elastic network interface

在aws，你可以在創造ec2的時候他幫你生成，或是你手動的創見出來，當你手動創建出來的時候，他可以綁定一個public IP連接到外部的網絡，

假如虛擬機壞了可以把ENI放到另一個虛擬機上面。

假如這個虛擬機提供的是mysql的功能，但我要升級他，所以我必須要暫停虛擬機，現在我就使用備份的虛擬機，並且將網路卡連接到這台備份的虛擬機上面，接下來我就可以輕鬆的來維修這台虛擬機了。

我們在做EC2的時候要了解兩種儲存的媒介



一種是快速版，可以很快速的讀取資料，但關機之後資料就不見，另一種就是EBS
Elastic block 網路儲存裝置，但是缺點就是比較慢一點，可是他的儲存時效是永久的。爾且他有備援(差異式備份)

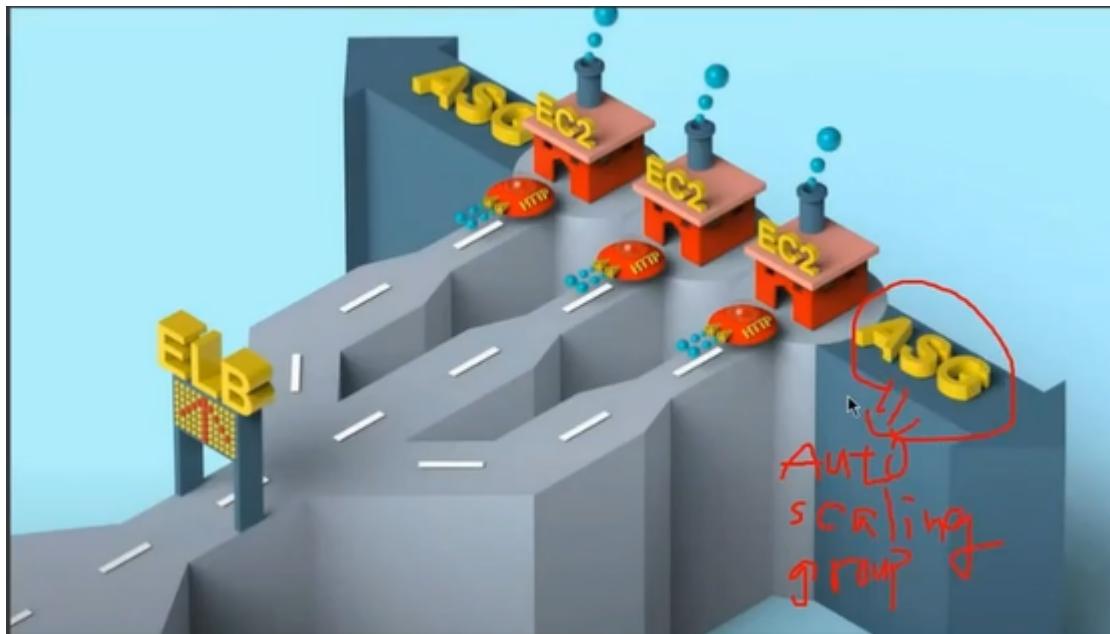
ELB

Elastic load balancer

來達到負載均衡

讓更多的人得到更快的服務，多台機器都可以提供服務當然能夠提升

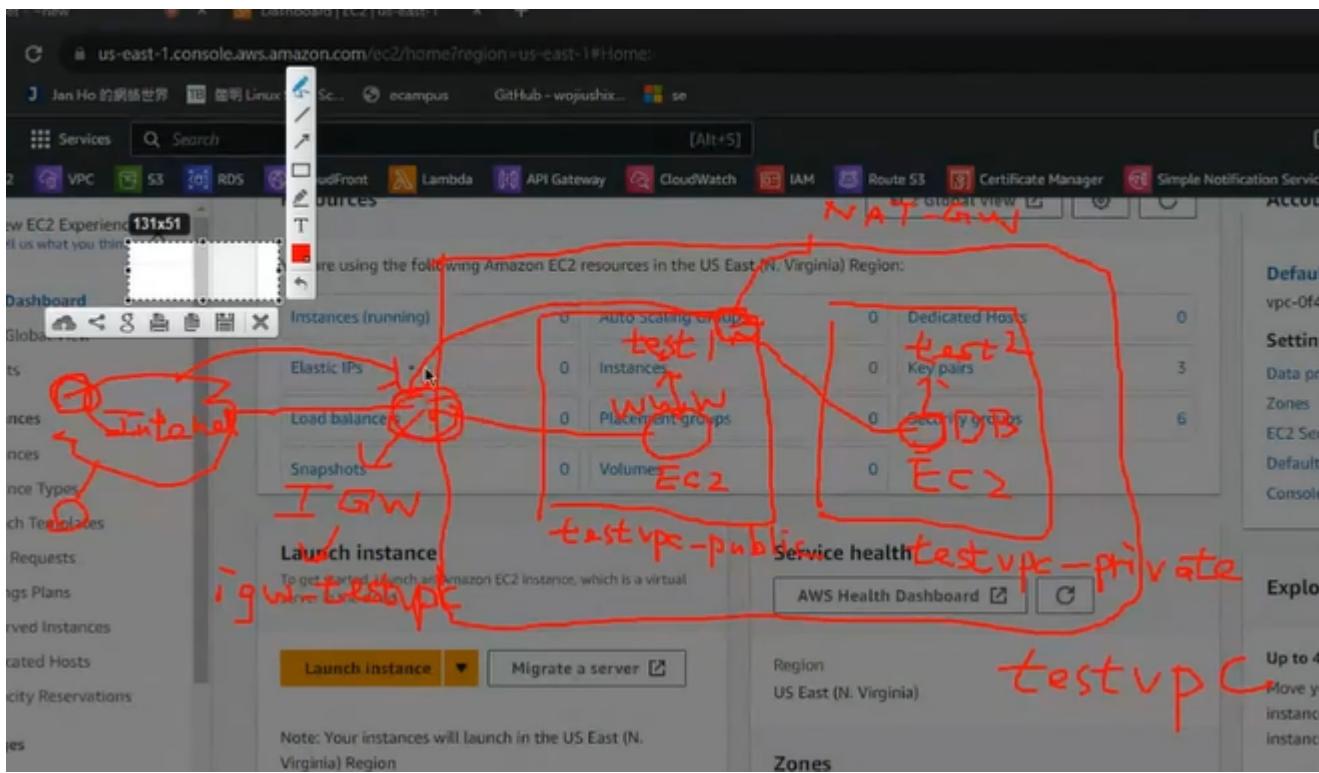
ASG會根據你的流量來自動的增加instance



當然沒有這麼多請求的時候他也可以自動的縮減instance

如果沒有圖的話就很難能夠知道為甚麼這麼做，會使用雲端技術的基本上都是比較中大型的公司，使用的介面也基本上是英文的如果使用中文就很難去知道這個名詞的用途是甚麼(或許熟練了也可以，但基本上需要加強英文與趕)

testvpc 我們會在裡面建置網路，接下來遇到我們的工友網路testvpc-public跟私有網路testvpc-private還有一個igw可以連接到外部網路，我們會建立兩台EC2，一個在私有網路一個在公有網路，到時候就來模擬網頁伺服器，igw會存取我們的public www我們會在 public這面放一個natgateway，讓資料庫可以連接，以下就是我們的基本架構圖



最一剛開始的時候選擇VPC

The screenshot shows the AWS VPC Dashboard. Key elements include:
 - A sidebar for 'Virtual private cloud' with options like 'Your VPCs New', 'Subnets', 'Route tables', etc.
 - A main area with 'Create VPC' and 'Launch EC2 Instances' buttons.
 - A note: 'Note: Your instances will launch in the US East region.'
 - A section titled 'Resources by Region' showing the following counts:
 - VPCs: 2 (US East 2)
 - Subnets: 4 (US East 4)
 - Route Tables: 3 (US East 3)
 - NAT Gateways: 0 (US East 0)
 - VPC Peering Connections: 0 (US East 0)
 - Network ACLs: 2 (US East 2)

選擇Your VPCs New 選擇Create VPC

The screenshot shows the AWS VPC dashboard. On the left, there's a sidebar with options like 'Virtual private cloud', 'Your VPCs' (which is highlighted with a red circle), and 'Subnets'. The main area displays two VPC entries in a table:

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP option set
myvpc	vpc-0cf1c9c09856c9d4e	Available	10.0.0.0/16	-	dopt-07c4cccc8f
default	vpc-0f4da99a235d4df9d	Available	172.31.0.0/16	-	dopt-07c4cccc8f

A red circle also highlights the 'Create VPC' button in the top right corner of the main content area.

接着給她一個名稱叫做testvpc

規劃:這個vpc我們使用192.168.0.0/16來代表vpc的網路 我們有兩個subnet

一個是public 跟 private

public -> 192.168.0.0/24

private -> 192.168.0.0/16

The screenshot shows the 'Create VPC' wizard. On the left, there's a sidebar with 'VPC and more' selected. The main area contains a hand-drawn diagram of a VPC network:

- Subnets:** Two subnets are shown, labeled "public" and "private".
- Internet Connection:** The "public" subnet is connected to the internet via a connection point, indicated by a red arrow pointing to the text "IPV4".
- CIDR Range:** The VPC is assigned the CIDR range "192.168.0.0/16".
- Red Annotations:** Handwritten text includes "IPV4" next to the connection point and "192.168.0.0/16" below the CIDR range.

今天我們先做ipv4的教學

A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances.

VPC settings

Resources to create [Info](#)
Create only the VPC resource or the VPC and other networking resources.

VPC only VPC and more

Name tag - optional
Create a tag with a key of 'Name' and a value that you specify.

IPv4 CIDR block [Info](#)
 IPv4 CIDR manual input IPAM-allocated IPv4 CIDR block

IPv4 CIDR

IPv6 CIDR block [Info](#)
 No IPv6 CIDR block IPAM-allocated IPv6 CIDR block Amazon-provided IPv6 CIDR block IPv6 CIDR owned by me

You successfully created [vpc-09ab4e6346aaa1a7b / testvpc](#)

Your VPCs (3) [Info](#)

<input type="checkbox"/>	Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP option set
<input type="checkbox"/>	myvpc	vpc-0cf1c9c09856c9d4e	Available	10.0.0.0/16	-	dopt-07c4cccc8f
<input type="checkbox"/>	default	vpc-0f4da99a235d4df9d	Available	172.31.0.0/16	-	dopt-07c4cccc8f
<input type="checkbox"/>	testvpc	vpc-09ab4e6346aaa1a7b	Available	192.168.0.0/16	-	dopt-07c4cccc8f

接下來要建立子網路

Subnets | VPC Management

Subnets (4) Info

Find resources by attribute or tag

Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR
public1-default	subnet-03d8fc1dad9d47048	Available	vpc-0f4da99a235d4df9d default	172.31.0.0/24	-
myvpc-private	subnet-0d63cd6283bf2e336	Available	vpc-0cf1c9c09856c9d4e myvpc	10.0.1.0/24	-
myvpc-public	subnet-0be6e9118651729d6	Available	vpc-0cf1c9c09856c9d4e myvpc	10.0.0.0/24	-
public2-default	subnet-04b3e32272deaf6b3	Available	vpc-0f4da99a235d4df9d default	172.31.1.0/24	-

Select a subnet

EC2 RDS CloudFront Lambda API Gateway CloudWatch IAM Route 53 EFS AWS DeepRacer

VPC

VPC ID

Create subnets in this VPC.

vpc-09ab4e6346aaa1a7b (testvpc)

Associated VPC CIDRs

IPv4 CIDRs

192.168.0.0/16

Subnet settings

Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

Subnet name

Create a tag with a key of 'Name' and a value that you specify.

testvpc-public

The name can be up to 256 characters long.

Availability Zone [Info](#)

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

US East (N. Virginia) / us-east-1a

IPv4 CIDR block [Info](#)

192.168.0.0/24

Remove

Subnet 2 of 2

Subnet name
Create a tag with a key of 'Name' and a value that you specify.

The name can be up to 256 characters long.

Availability Zone [Info](#)
Choose the zone in which your subnet will reside, or let Amazon choose one for you.

IPv4 CIDR block [Info](#)

▼ Tags - optional

Key	Value - optional
<input type="text" value="Name"/>	<input type="text" value="testvpc-private"/> Remove

Add new tag
You can add 49 more tags.
Remove

Add new subnet

Cancel Create subnet

Search [Alt+5]

S S3 RDS CloudFront Lambda API Gateway CloudWatch IAM Route 53 Certificate Manager Simple Notification Service EFS AWS DeepRacer N. Virginia kechiheng

Subnets (6) [Info](#)

Find resources by attribute or tag

Name Subnet ID State VPC IPv4 CIDR IPv6 CIDR Avi

Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR	Avi
myvpc-private	subnet-0d63cd6283bf2e336	Available	vpc-0cf1c9c09856c9d4e myvpc	10.0.1.0/24	-	25
myvpc-public	subnet-0be6e9118651729d6	Available	vpc-0cf1c9c09856c9d4e myvpc	10.0.0.0/24	-	25
public1-default	subnet-03d8fc1dad9d47048	Available	vpc-0f4da99a235d4df9d default	172.31.0.0/24	-	25
public2-default	subnet-04b3e32272deaf6b3	Available	vpc-0f4da99a235d4df9d default	172.31.1.0/24	-	25
testvpc-private	subnet-0d3ceb5a63ff68be	Available	vpc-09ab4e6346aaa1a7b test...	192.168.1.0/24	-	25
testvpc-public	subnet-02509595621815c5e	Available	vpc-09ab4e6346aaa1a7b test...	192.168.0.0/24	-	25

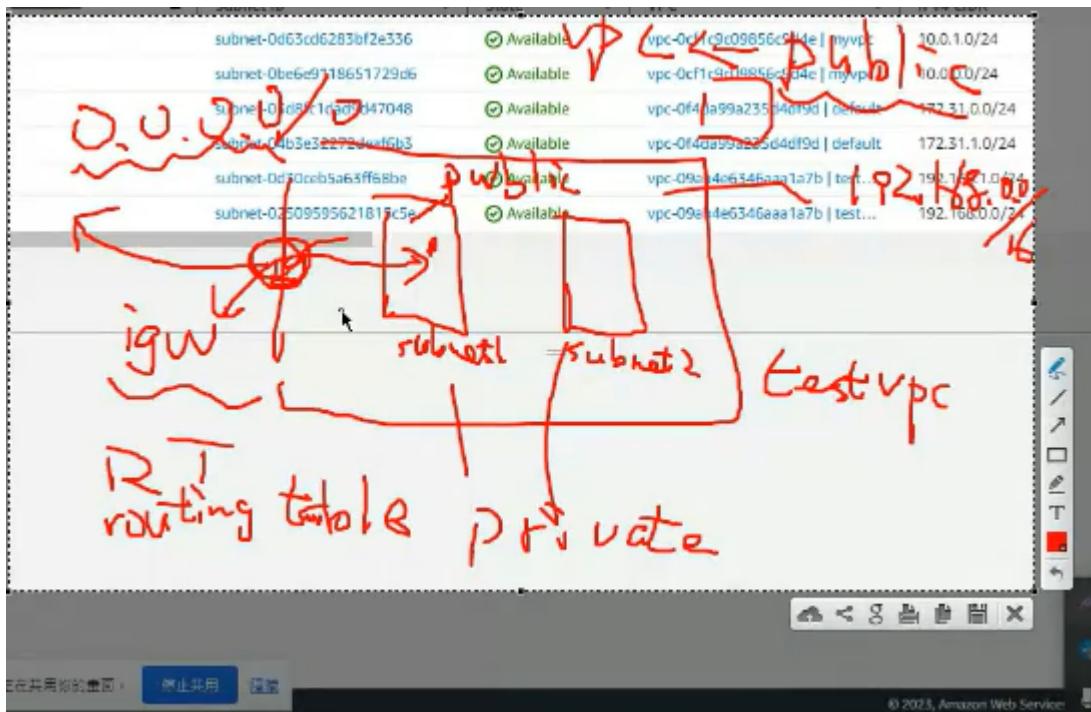
Select a subnet

抓兩張圖，一張是VPC 一張是創建兩個子網路

創造testvpc要先記得一件事情

我們有兩個subnet 他們的預設值都是私有網路，並不會因為取名字就讓它變成對外網路，因此你必須要有三個internet gateway才能夠對外連線

0.0.0.0/0任何位置都可以透過igw來連線



選擇internet gateway

Name	Internet gateway ID	State	VPC ID	Owner
myvpc-igw	igw-04b3495c0e51c38b8	Attached	vpc-0cf1c9c09856c9d4e myvpc	370360527193
default	igw-0eb2012cc845b0613	Attached	vpc-0f4da99a235d4df9d default	370360527193

名字標明testvpc-igw

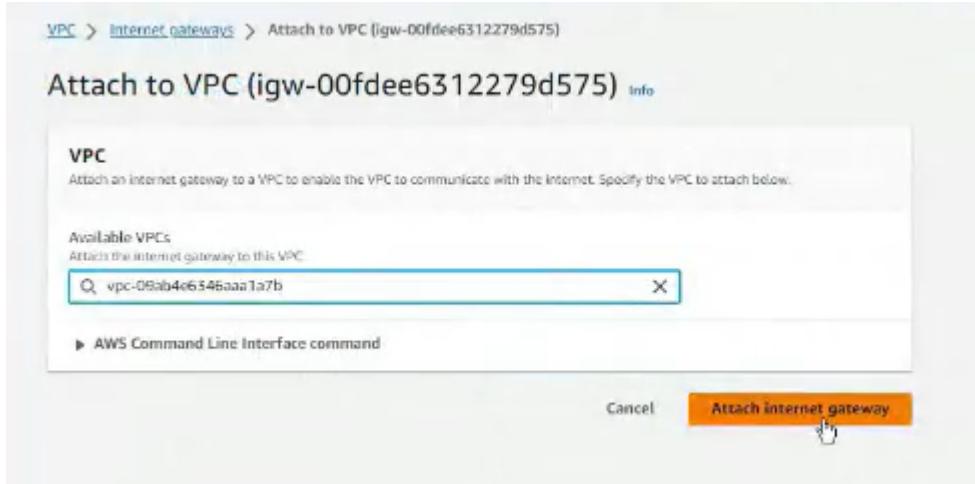
創造好了之後就會像這個樣子

Name	Internet gateway ID	State	VPC ID	Owner
testvpc-igw	igw-00fde6312279d575	Detached	-	370360527193
myvpc-igw	igw-04b3495c0e51c38b8	Attached	vpc-0cf1c9c09856c9d4e myvpc	370360527193
default	igw-0eb2012cc845b0613	Attached	vpc-0f4da99a235d4df9d default	370360527193

那等等要按 Attach to a VPC

要先選testvpc-igw

之後就會顯示此頁面



之後按下黃色的那個按鈕

到internet gateway這個選項就可以看到testvpc-igw 已經配置好vpc

有些人會習慣有一本書，但書需要製作的時間，有可能致做出來的時候介面已經做了更改，此時書的作用就大大的減小了，需要debug

先到Route tables

把-變成testvpc-rt

Name	Route table ID	Explicit subnet associations	Main	VPC	Own...
default-rt	rtb-0da966005b437f9fa	-	-	vpc-0f4da99a235d4df9d default	370360...
myvpc-rt	rtb-02eba4222da4e42e8	subnet-0be6e911865172...	-	vpc-0cf1c9c09856c9d4e myvpc	370360...
myvpc-rt-private	rtb-08db68d604d2e1ac1	-	-	vpc-09ab4e6346aaa1a7b testvpc	370360...
myvpc-rt-private	rtb-0596464304et536ae	-	-	vpc-0cf1c9c09856c9d4e myvpc	370360...

到Route tables 選擇testvpc-rt 屬性欄選擇Routes -> Edit route

Route tables (1/4) [Info](#)

Name	Route table ID	Explicit subnet associations	Edge associations	Main	VPC	Own...
default-rt	rtb-0da9560c5b437f9fa	-	-	Yes	vpc-0f4da99a235d4cf9d default	370360...
myvpc-rt	rtb-0eba4222da4e42e8	subnet-0be8e911865172...	-	No	vpc-0cf1c9c09556c9d4c myvpc	370360...
testvpc-rt	rtb-08db68d604d2e1ac1	-	-	Yes	vpc-09eb4e6346aa1a7b testvpc	370360...

rtb-08db68d604d2e1ac1 / testvpc-rt

- [Details](#)
- Routes** (highlighted)
- [Subnet associations](#)
- [Edge associations](#)
- [Route propagation](#)
- [Tags](#)

Routes (1)

Destination	Target	Status	Propagated
192.168.0.0/16	local	Active	No

[Edit routes](#) (highlighted with a red checkmark)

0.0.0.0/0 任意的位置
丟到internet的gateway上

157/6x461

VPC > Route tables > rtb-08db68d604d2e1ac1 > Edit routes

Edit routes

Destination	Target	Status	Propagated
192.168.0.0/16	local	Active	No
0.0.0.0/0	igw-00fdee6312279d575	-	No

Add route

Cancel [Preview](#) **Save changes** (highlighted with a red checkmark)

之後點選儲存

就可以看到這個介面

Updated routes for rtb-08db68d604d2e1ac1 / testvpc-rt successfully

rtb-08db68d604d2e1ac1 / testvpc-rt

Details

Route table ID	Main	Explicit subnet associations	Edge associations
rtb-08db68d604d2e1ac1	<input checked="" type="checkbox"/> Yes	-	-
VPC	Owner ID		
vpc-09ab4e6346aaa1a7b testvpc	370360527193		

Routes

Destination	Target	Status	Propagated
0.0.0.0/0	igw-00fdee6312279d575	Active	No
192.168.0.0/16	local	Active	No

我們要讓subnet與igw進行連結

所以到Route tables 點選testvpc-rt -> Subnet association

Route tables (1/4)

Name	Route table ID	Explicit subnet associat...	Edge associations	Main	VPC
default-rt	rtb-0da966005b437f9fa	-	-	Yes	vpc-0ff4d895a235d4df9d default
myvpc-rt	rtb-02eb04222d04e42e8	subnet-0be6e911865172...	-	No	vpc-0cff1c9d09856c9d4e myvpc
testvpc-rt	rtb-08db68d604d2e1ac1	-	-	Yes	vpc-09ab4e6346aaa1a7b testvpc

rtb-08db68d604d2e1ac1 / testvpc-rt

Subnet associations

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
------	-----------	-----------	-----------

No subnet associations

You do not have any subnet associations.

Subnets without explicit associations (2)

The following subnets have not been explicitly associated with this route table, and are therefore associated with the main route table.

Name	ID	IPv4 CIDR	IPv6 CIDR
------	----	-----------	-----------

進行編輯

Edit-subnet-association

Available subnets (1/2)

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR	Route table ID
<input type="checkbox"/> testvpc-private	subnet-0d30ceb5a63ff68be	192.168.1.0/24	-	Main (rtb-08db68d604d2e1ac1 / testvpc-rt)
<input checked="" type="checkbox"/> testvpc-public	subnet-02509595621815c5e	192.168.0.0/24	-	Main (rtb-08db68d604d2e1ac1 / testvpc-rt)

Selected subnets

subnet-02509595621815c5e / testvpc-public X
--

Cancel Save associations

把public勾選出來選擇save

做完之後就會像這樣

Route tables (1/4) Info

Name	Route table ID	Explicit subnet associati...	Edge associations	Main	VPC	Own...
<input type="checkbox"/> default-rt	rtb-0da960060b43719fa	-	-	Yes	vpc-0f4da99a235d4df93 default	370360...
<input type="checkbox"/> myvpc-rt	rtb-02eb4222ds4e42e8	subnet-0be6e911865172...	-	No	vpc-0cf1c9c09856c9d4e myvpc	370360...
<input checked="" type="checkbox"/> testvpc-rt	rtb-08db68d604d2e1ac1	subnet-02509595621815c5e	-	Yes	vpc-090ii4e6346aaa1a7b testvpc	370360...

rtb-08db68d604d2e1ac1 / testvpc-rt

- Details
- Routes
- Subnet associations**
- Edge associations
- Route propagation
- Tags

Explicit subnet associations (1)

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
<input checked="" type="checkbox"/> testvpc-public	subnet-02509595621815c5e	192.168.0.0/24	-

Subnets without explicit associations (1)

The following subnets have not been explicitly associated with this route table and are therefore associated via the main route table:

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
<input type="checkbox"/> testvpc-private	subnet-0d30ceb5a63ff68be	192.168.1.0/24	-

public上private下

這樣我們的網路就配置得差不多了

SUBNET PUBLIC就可以透過IGW連接到外網

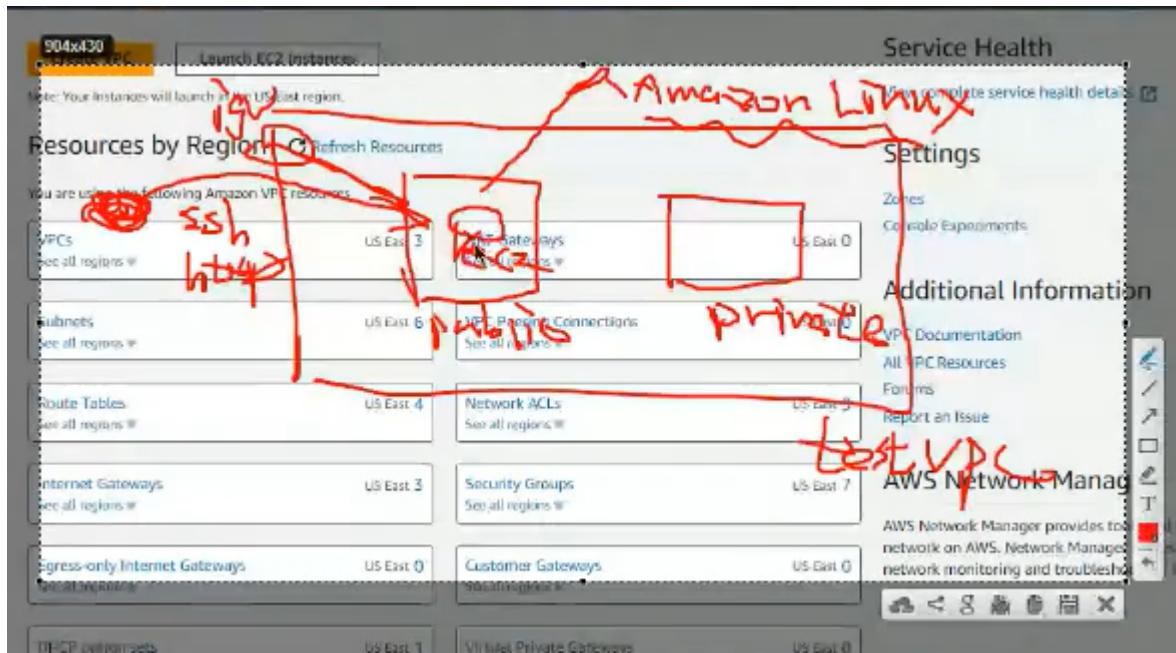
當我們看到ROUTES這邊有0.0.0.0/0的資訊代表我們配置成功

現在要建立兩台虛擬機，一台放在PUBLIC裡面一台放在PRIVATE裡面。

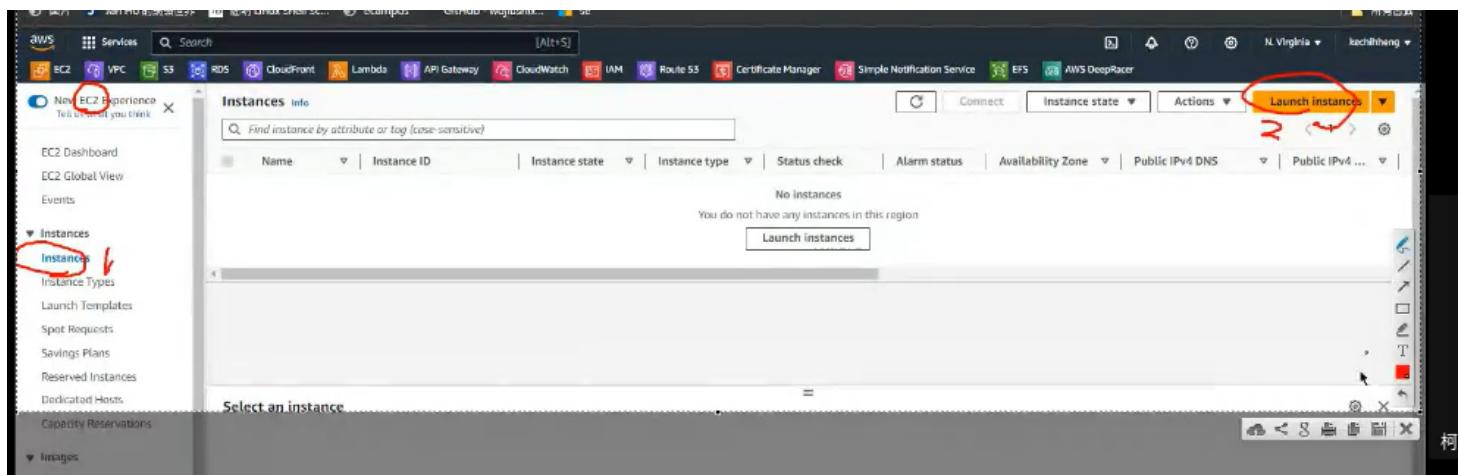
PRIVATE跟PUBLIC可以進行通訊但不能對外

PUBLIC負責對外

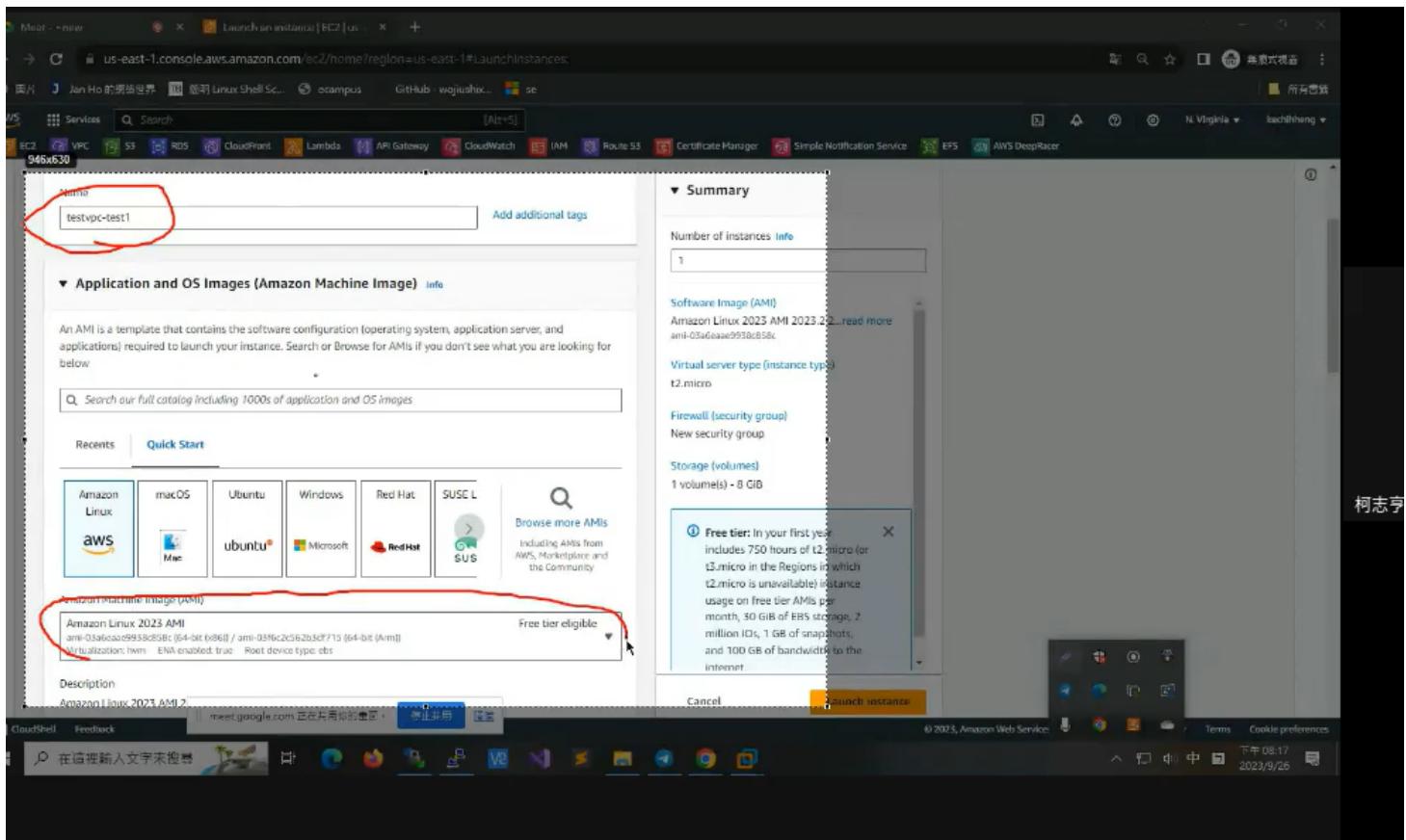
我們透過SSH連接到PUBLIC的主機



EC2 -> INSTANCE



創建INSTANCE



T2.MICRO

KEYPAIR 選擇一個或創建

網路設定

▼ Network settings Info

VPC - required Info

vpc-09ab4e6346aaa1a7b (testvpc)
192.168.0.0/16

Subnet info

subnet-02509595621815c5e
VPC: vpc-09ab4e6346aaa1a7b Owner: 370360527193
Availability Zone: us-east-1a IP addresses available: 251 CIDR: 192.168.0.0/24

testvpc-public



Create new subnet Info

Auto-assign public IP Info

Enable



Firewall (security groups) Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group

Select existing security group

Security group name - required

sg_testvpc_ssh_http

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and _./[!@#\$%^&{}~`\$^]

Description - required Info

launch-wizard-1 created 2023-09-26T12:17:03.584Z

Inbound Security Group Rules

▼ Security group rule 1 (TCP, 22, 0.0.0.0/0)

Remove

Type Info

meet.google.com 正在共用你的畫面。

停止共用

監控

info

▼ Summary

Number of instances Info

1

Software Image (AMI)

Amazon Linux 2023 AMI 2 ami-03a6caec9330c858c

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GB

① Free tier: In your first month, you get 750 hours of compute usage per month, up to 10 million requests, and 10 GB of internet bandwidth. The Reg...
t2.micro is available in the free tier. It includes 750 hours of usage per month, up to 10 million requests, and 10 GB of bandwidth. The instance type is t2.micro.
Launch

Cancel

新增規則

sg_testvpc_ssh_http

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and _-/!@{}+=&?/\$*

Description - required [Info](#)

launch-wizard-1 created 2023-09-26T12:17:03.584Z

Inbound Security Group Rules

▼ Security group rule 1 (TCP, 22, 0.0.0.0/0)

Type [Info](#): ssh

Protocol [Info](#): TCP

Port range [Info](#): 22

Source type [Info](#): Anywhere

Description - optional [Info](#): e.g. SSH for admin desktop

▼ Security group rule 2 (TCP, 80, 0.0.0.0/0)

Type [Info](#): HTTP

Protocol [Info](#): TCP

Port range [Info](#): 80

Source type [Info](#): Anywhere

Description - optional [Info](#): e.g. SSH for admin desktop

Remove Remove

Number of instances: 1

Software Image (AMI): Amazon Linux 2023 (AMI-03a6caae9930c85dc)

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 8 GiB

Free tier: Includes 750 hours of t2.micro usage on free tier, 30 GB of S3 storage, 1 million I/Os, 750 million API calls, and 100 GB of internet.

USER DATA需要程式碼

```
#!/bin/bash
yum update -y
yum install -y httpd.x86_64
systemctl start httpd.service
systemctl enable httpd.service
echo "Hello World from $(hostname -f)" > /var/www/html/index.html
```

虛擬機在開機的時候就會執行以上的腳本

接下來就可以LUNCH

EC2 VPC S3 RDS CloudFront Lambda API Gateway CloudWatch IAM Route 53 Certificate Manager Simple Notification Service EFS AWS DeepRacer

EC2 > Instances > Launch an instance

Success
Successfully initiated launch of instance (i-055a6f598dd0d31bb)

Launch log

Next Steps

Q. What would you like to do next with this instance, for example "create alarm" or "create backup"

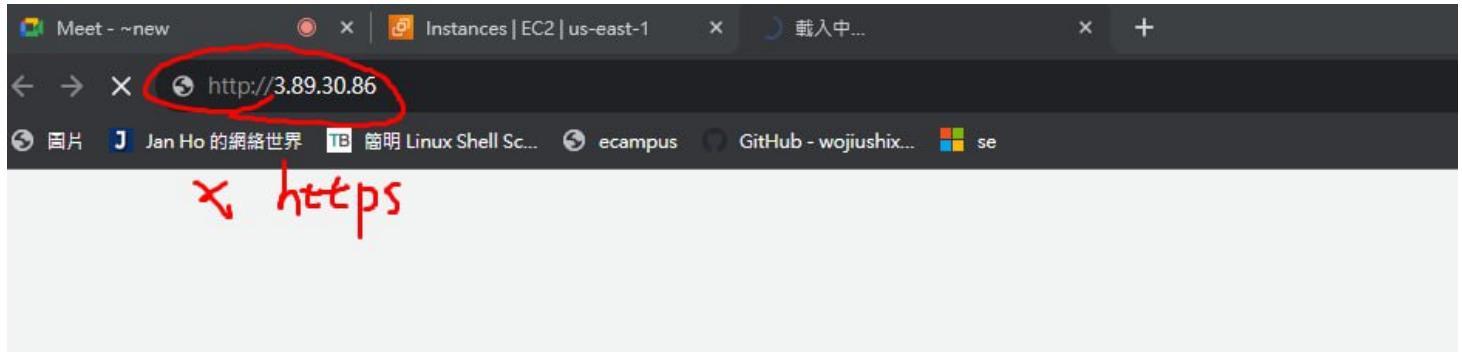
Create billing and free tier usage alerts
To manage costs and avoid surprise bills, set up email

Connect to your instance
Once your instance is running, log into it from your

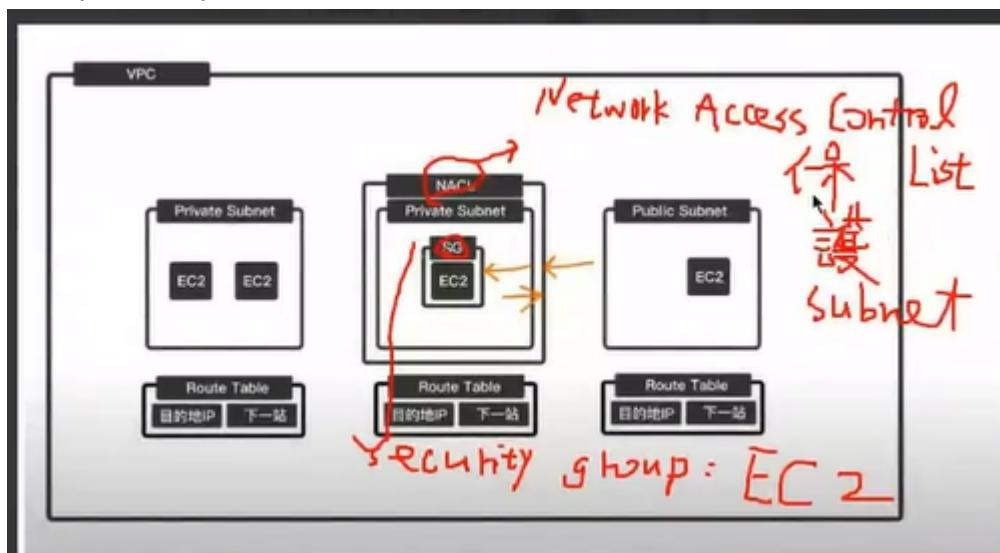
Connect an RDS database
Configure the connection between an EC2 instance

Create EBS snapshot policy
Create a policy that automates the creation, retention,

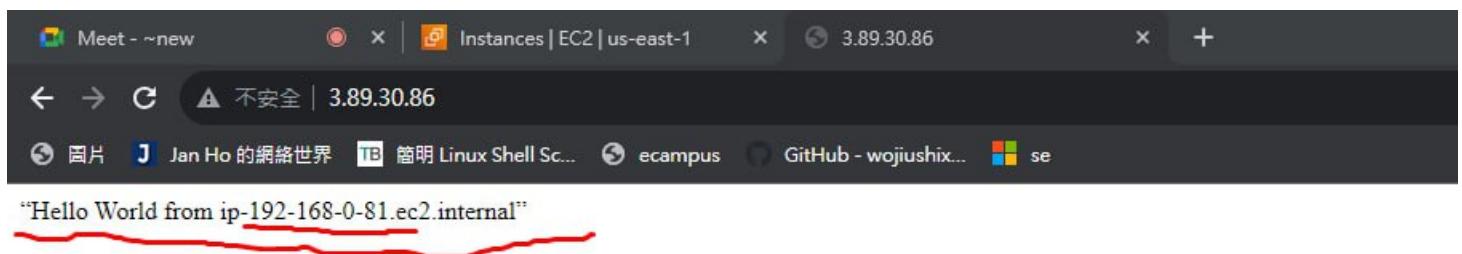
接下來輸入ip 於瀏覽器但由於我們沒有購買HTTPS功能所以只能使用HTTP的方式來進入網站



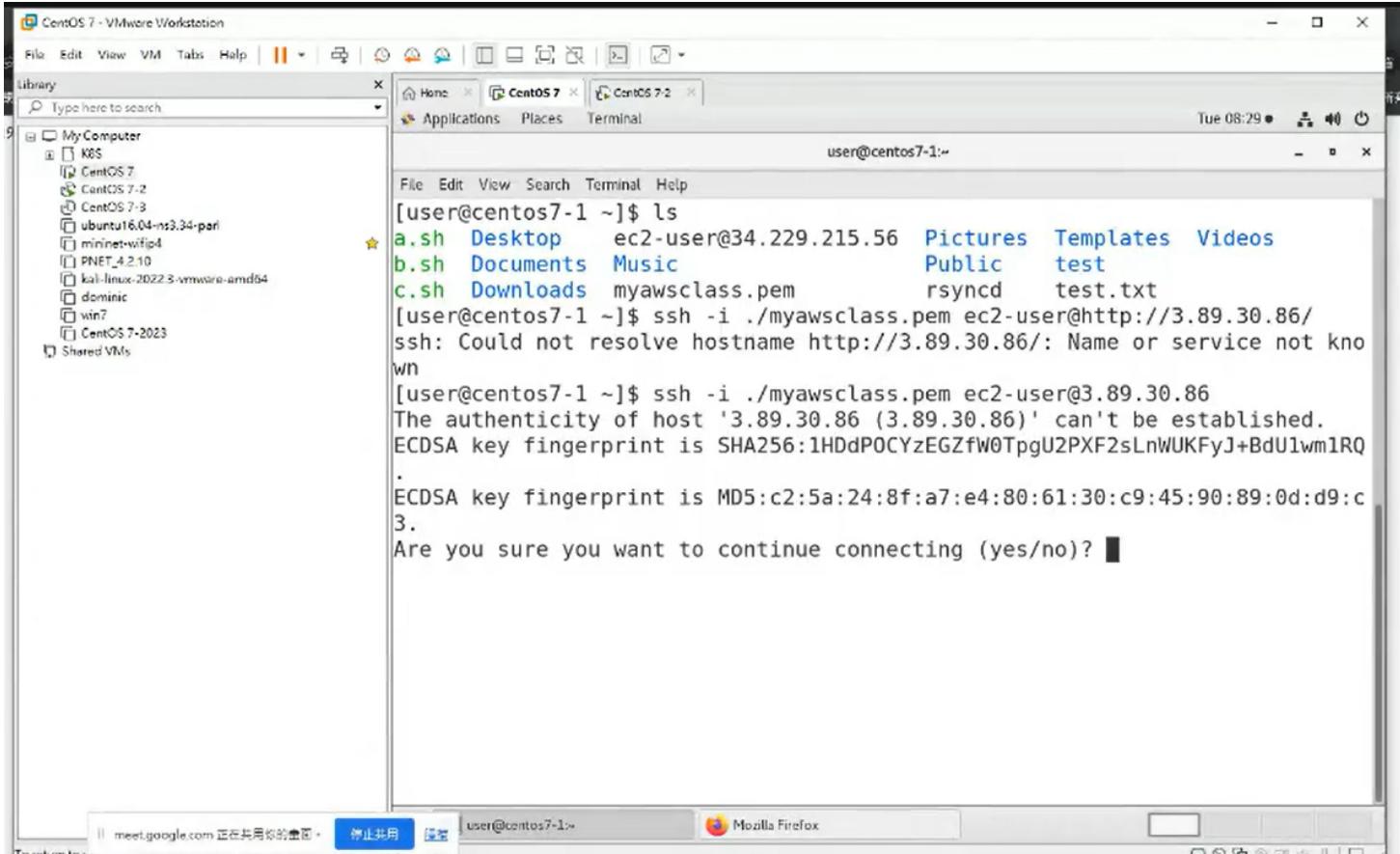
私有ip及公有ip



接著抓一下成功顯示的圖片



使用我們的虛擬機登入到AWS的虛擬機(PUBLIC)



測試SSH可不可以使用

我們剛剛開放HTTP 與 SSH所以現在進行測試

可以抓一張登入成功的圖片

開了一個WINDOWS的終端機

PING我們的AWS虛擬機但是為甚麼不可以PING到??

選擇TESTVPC-TEST1

找到SECURITY GROUP

點進去

The screenshot shows the AWS Lambda console for an instance named "testvpc-test1". The "Security groups" section displays a single group, "sg-00cb394ea9fd0c50 (sg_restvpc_ssh_http)". The "Inbound rules" table lists two rules: one for port 80 (HTTP) and one for port 22 (SSH). Both rules are associated with the security group "sg_restvpc_ssh_http".

Name	Security group rule ID	Port range	Protocol	Source	Security groups	Description
-	sgr-09a7f4d5a9cb24fa	80	TCP	0.0.0.0/0	sg_restvpc_ssh_http	-
-	sgr-00cf6651fe6fb80	22	TCP	0.0.0.0/0	sg_restvpc_ssh_http	-

EC2 > Security Groups > sg-00cb394ea9fdb0c50 - sg_testvpc_ssh_http

sg-00cb394ea9fdb0c50 - sg_testvpc_ssh_http

Actions ▾

Details	
Security group name sg_testvpc_ssh_http	Security group ID sg-00cb394ea9fdb0c50
Description launch-wizard-1 created 2023-09-26T12:17:03.584Z	VPC ID vpc-09ab4e6346aa1a7b
Owner 370360527193	Inbound rules count 2 Permission entries
	Outbound rules count 1 Permission entry

Inbound rules | **Outbound rules** | **Tags**

Inbound rules (2)

<input type="checkbox"/>	Name	Security group rule...	IP version	Type	Protocol	Port range	Source
<input type="checkbox"/>	-	sgr-09a7f1d54a9eb24fa	IPv4	HTTP	TCP	80	0.0.0.0/0
<input type="checkbox"/>	-	sgr-00e0f6651fea64b90	IPv4	SSH	TCP	22	0.0.0.0/0

meet.google.com 正在共用你的畫面。 停止共用 **選項**

EDIT INBOUND RULE

ADD RULE -> ALL ICMP IPV4 -> ANY WHERE -> SAVE RELES

如果想要增加其他的網頁

```
cd /var/www/html
```

```
sudo bash -c 'echo "hi" > hi.html'
```

```
909x262  /m/
[ec2-user@ip-192-168-0-81 ~]$ Last login: Tue Sep 26 12:25:18 2023 from 18.206.107.28
[ec2-user@ip-192-168-0-81 ~]$ cd /var/www/html
[ec2-user@ip-192-168-0-81 html]$ ls
index.html
[ec2-user@ip-192-168-0-81 html]$ sudo echo "hi" > hi.htm
-bash: hi.htm: Permission denied
[ec2-user@ip-192-168-0-81 html]$ sudo bash -c 'echo "hi" > hi.htm'
[ec2-user@ip-192-168-0-81 html]$ cat hi.htm
hi
[ec2-user@ip-192-168-0-81 html]$
```

google.com 正在共用你的畫面。 停止共用 Mozilla Firefox

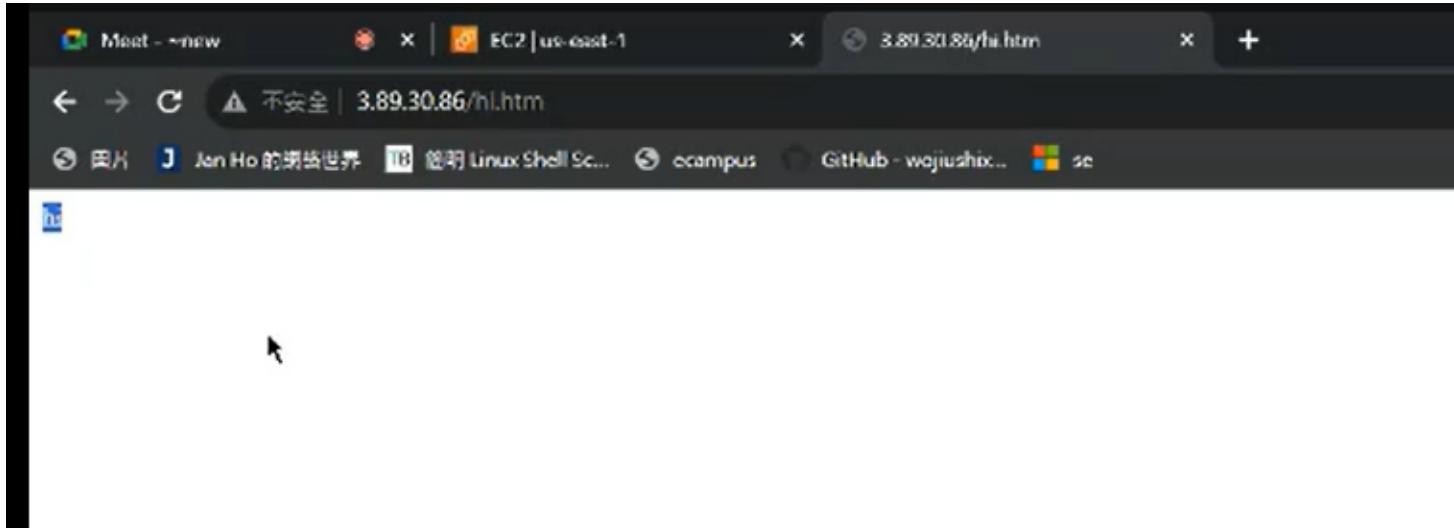
有時候我們沒有辦法直接更改 /var/www/html的檔案
就算使用sudo也不能

所以就有

```
sudo bash -c 'echo "hi" > hi.html'
```

這種用法

成功的新增了hi.html這個網頁



網站現在建好了，就可以把東西丟上去

假如在Window開一個word檔，

找一個蘋果的照片貼上去

儲存成html檔案，現在要把他上傳到linux機器上面

接者查看本地linux 的ip位置

使用winscp連接到虛擬機的位置

輸入帳號與密碼把apple與另一個產生的applefiles上傳到linux上面

接者就是想要讓他在aws的網站上面可以顯示

使用scp把它copy到 aws的機器上面

使用scp的方式將檔案上傳到aws上面

更改在aws虛擬機上html與其檔案的位置：

```
systemd-private-b65c27890a9a46c6bf3a5dd0be13bd01-systemd-resolved.service-EBvJgv
[ec2-user@ip-192-168-0-81 tmp]$ mv apple.htm /var/www/html
mv: cannot create regular file '/var/www/html/apple.htm': Permission denied
[ec2-user@ip-192-168-0-81 tmp]$ sudo mv apple.htm /var/www/html
[ec2-user@ip-192-168-0-81 tmp]$ sudo mv apple.files/ /var/www/html
[ec2-user@ip-192-168-0-81 tmp]$
```

就可以看到我們網站

aws雖然很方便，但其實對架網站來說還是有點貴的...

現在Stop instance，就可以不用消耗流量，避免損失金錢，

| tips: Stop再重開IP位置會改變!!

雖然stop再開啟ip的會改變但，裡面的檔案不會不見，如果選擇terminate就會銷毀資料

抓一張網站的圖