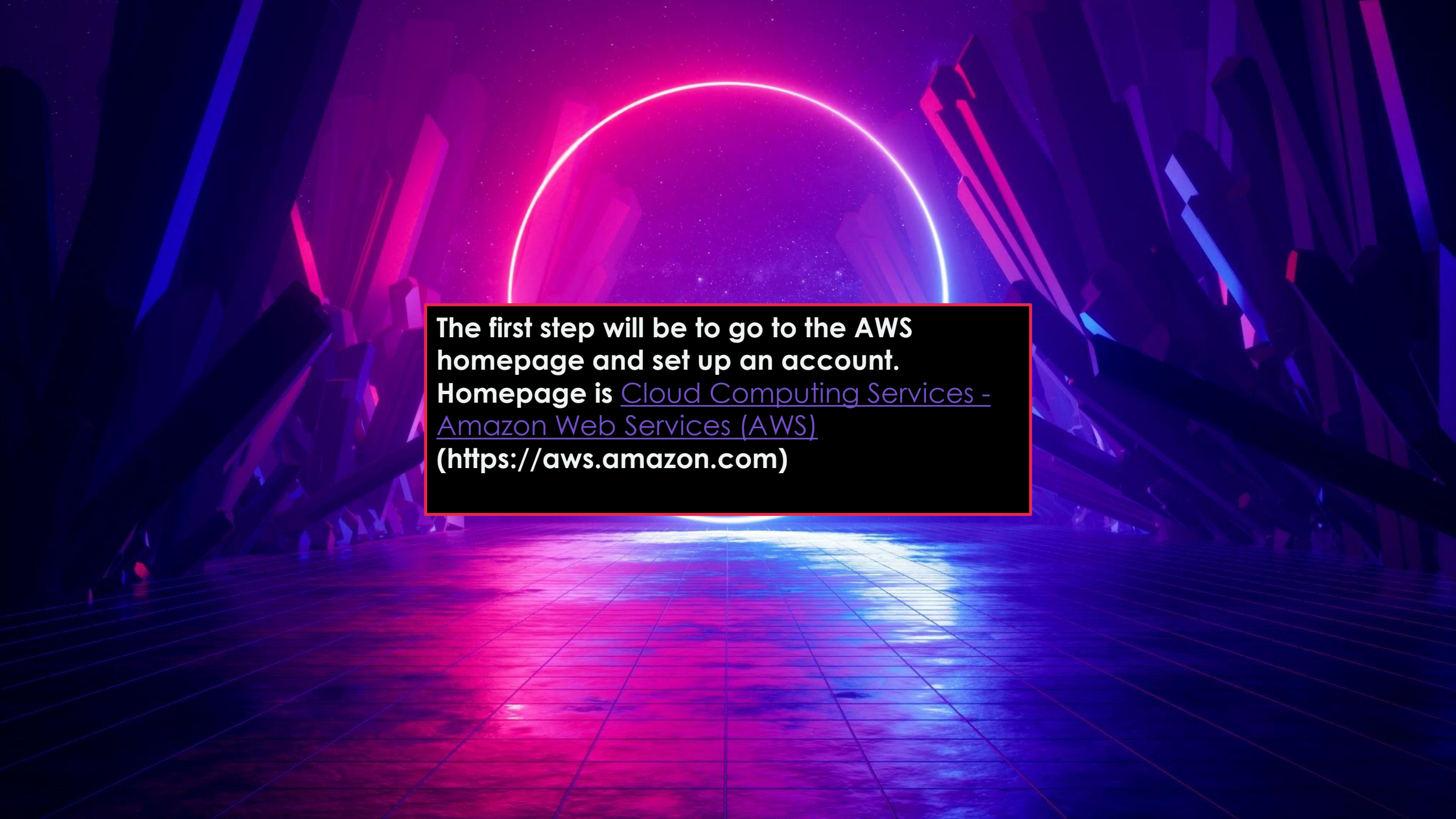
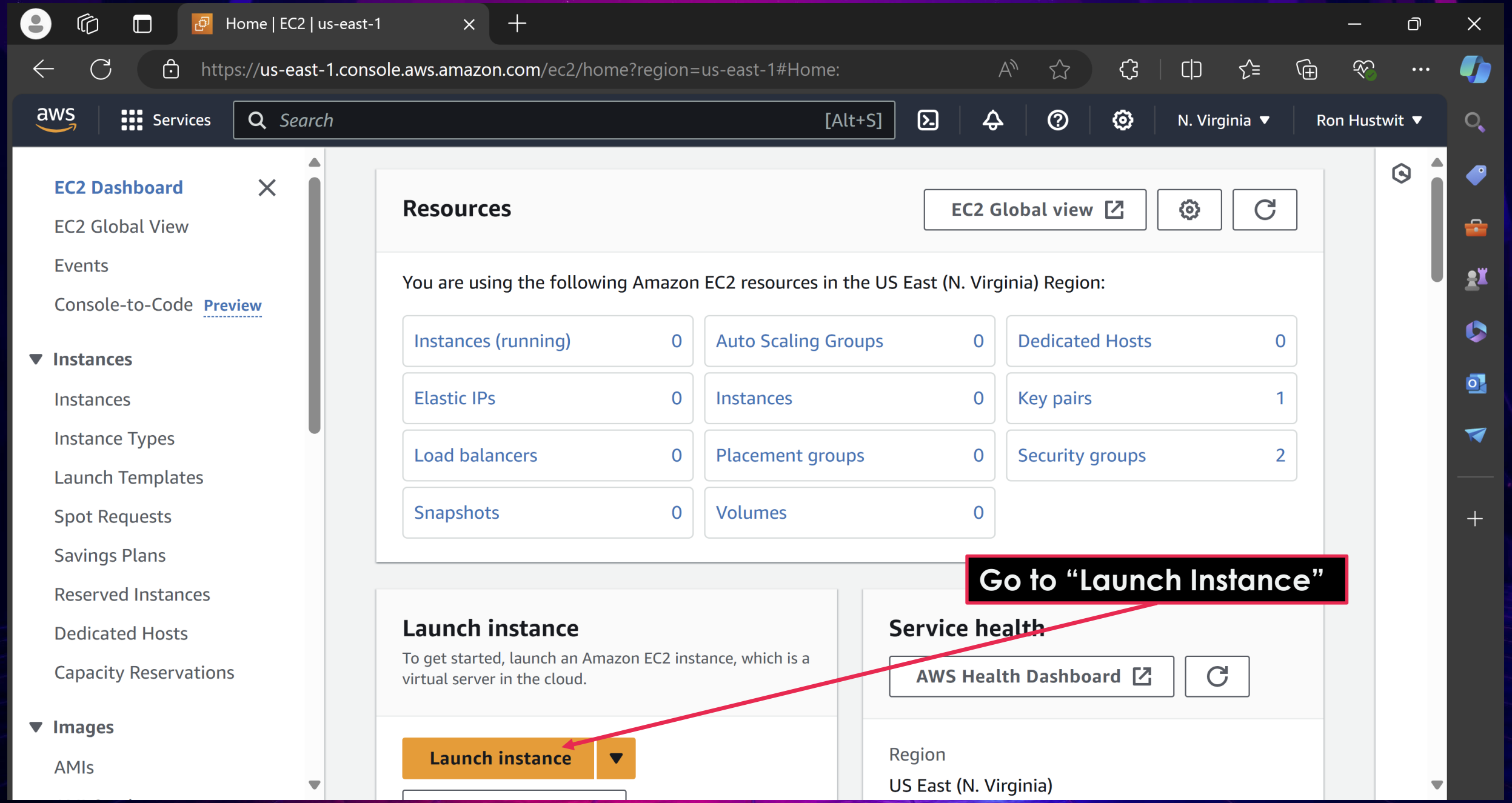

AWS
Cloud
Demo


The first step will be to go to the AWS homepage and set up an account.
Homepage is Cloud Computing Services - Amazon Web Services (AWS)
(https://aws.amazon.com)


Home | EC2 | us-east-1
https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Home:
aws
Services
Search
[Alt+S]
N. Virginia
Ron Hustwit
EC2 Dashboard
EC2 Global View
Events
Console-to-Code Preview
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
Resources
EC2 Global view
You are using the following Amazon EC2 resources in the US East (N. Virginia) Region:
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Auto Scaling Groups 0
Dedicated Hosts 0
Elastic IPs 0
Instances 0
Key pairs 1
Load balancers 0
Placement groups 0
Security groups 2
Snapshots 0
Volumes 0
Go to “Launch Instance”
Launch instance
To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.
Launch instance
Service health
AWS Health Dashboard
Region
US East (N. Virginia)

Name

e.g. My Web Server

Add additional tags

Application and OS Images (Amazon Machine Image) Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search our full catalog including 1000s of application and OS images

Quick Start

Amazon Linux

macOS

Mac

Ubuntu

Windows

Red Hat

SUSE Linux

SUSE

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Should bring up this page.

Name

Ubuntu Demo Cloud

Add additional tags

Application and OS Images (Amazon Machine Image) Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

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Quick Start

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Browse more AMIs

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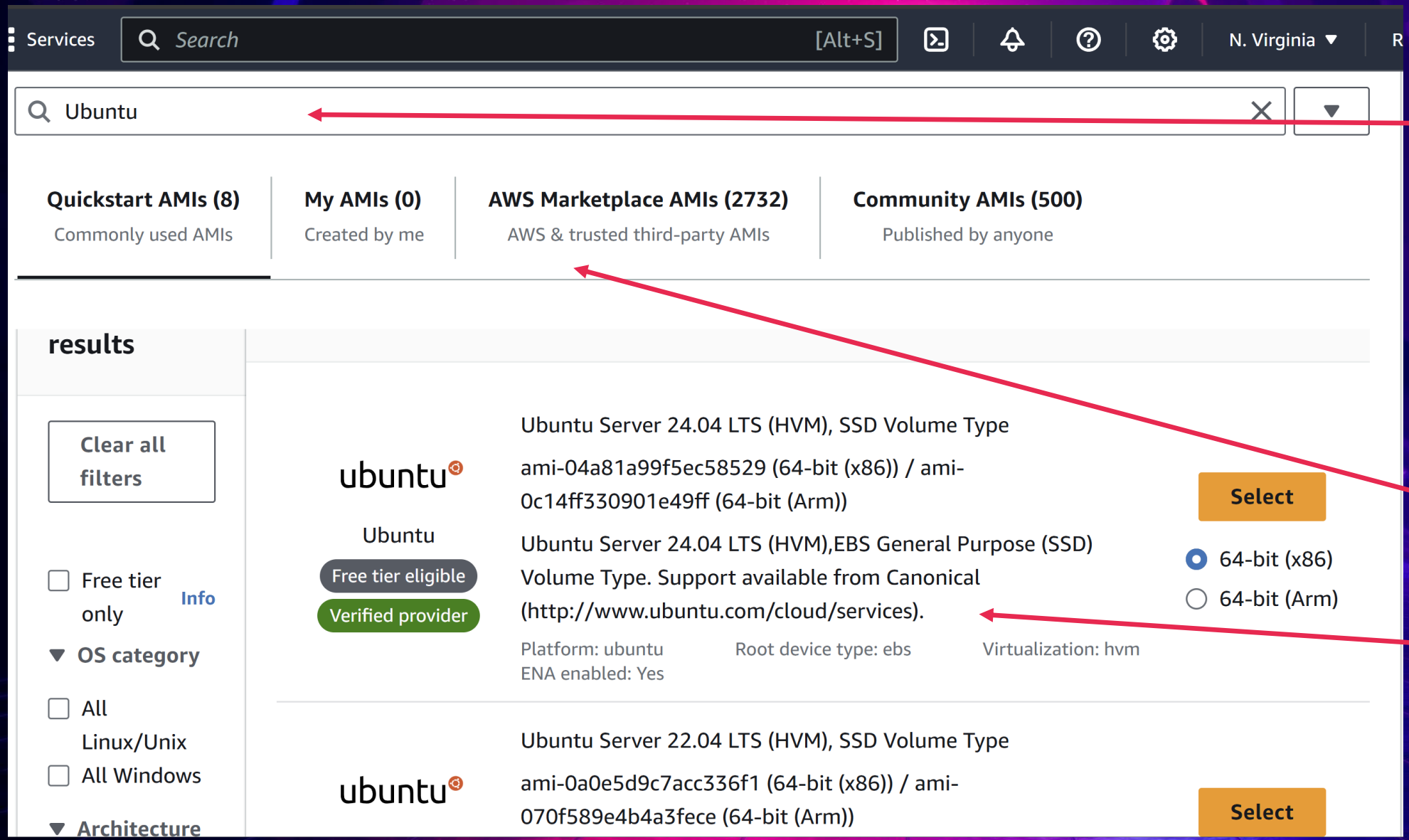
I named my instance, "Ubuntu Demo Cloud."

Then I selected the type of cloud I want to create, in this case Ubuntu.



We can also type in Ubuntu in the search bar and it gets you to the same place.

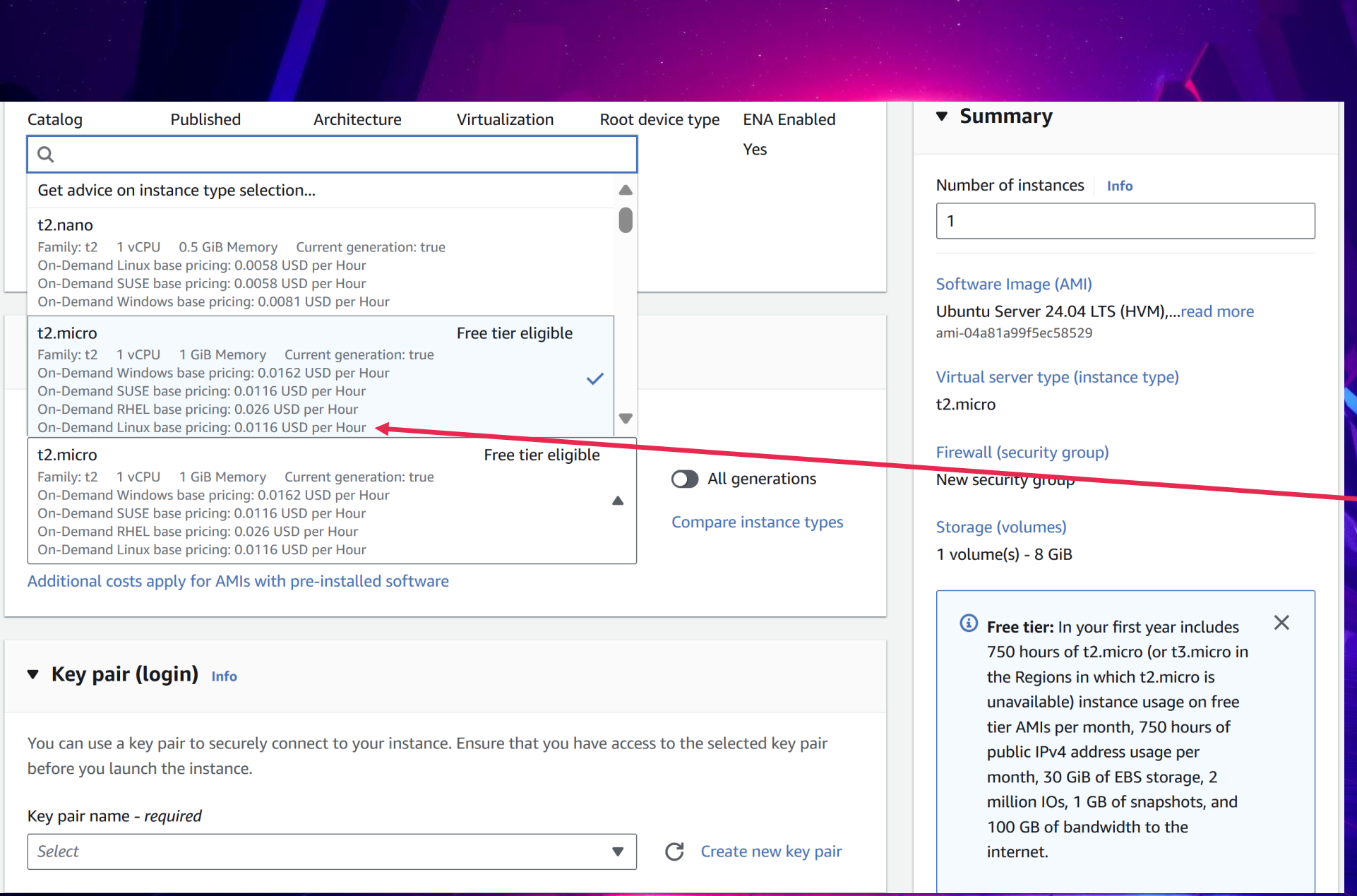
This method, however, has the added benefit of showing all of the AMI (Amazon Machine Image) options available to you.

For instance, this first one (Ubuntu Server 24.04 LTS) is a Quickstart AMI that is a free option.

"Free Tier Eligible" means we're not going to pay a lot for this Ubuntu server. It's 750 hours free and then a few cents if we leave it up and running after that. It also says "Verfied provider" which means this is an authenticate Ubuntu product.

This is an Ubuntu Server being created in the cloud—not a desktop. Also notice it says "LTS" which stands for Long Term Support. It also notes that it is an SSD (Solid State Drive)

You will then see the radial buttons: 64-bit (x86) and 64-bit (ARM). 64-bit (x86) CPUs are optimized for performance, while 64-bit (ARM) CPUs are optimized for power and space efficiency. We will select the 64-bit (x86).



Now we are going to set up the hardware types for our cloud server. When I construct an Ubuntu VM, I can modify how much memory to dedicate to the server and also vary how many drives I want my VM to have.

This is the same kind of thing for my AMI. You can also see the cost per hour with these various options. Linux base pricing is 0.0116 USD per hour. Pretty cheap if you want to learn how to run AWS Cloud servers. I strongly recommend this if you're learning AWS!

Instance type Info | Get advice

Instance type

t2.micro — Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand RHEL base pricing: 0.026 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour

Additional costs apply for AMIs with pre-installed software

Key pair (login) Info

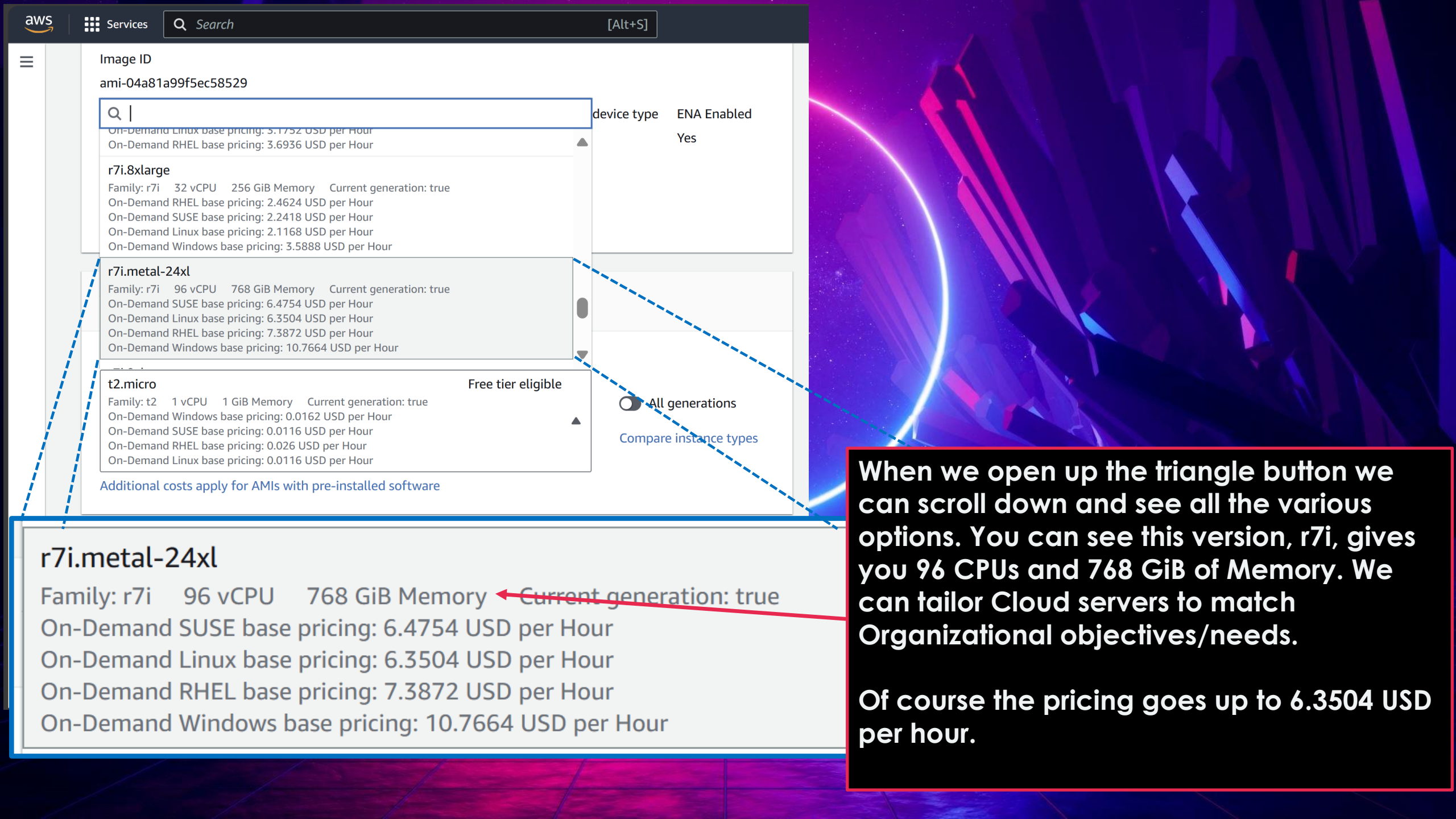
You can use a key pair to securely connect to your instance. Ensure that you have acces
before you launch the instance.

Key pair name - *required*

Select

This provides the "Hardware Type" that t2.micro is going to provide us: We get 1 CPU and 1 GiB of Memory.

Again, this is great option if you want to play around with AWS cloud and really learn it. Remember that you DO NOT have to be actively on the AWS website for it to charge you after your 750 free hours. The instance just has to be created and "Running." But again, you have a lot of free time to play on AWS before it starts charging you for a free tier instance.



When we open up the triangle button we can scroll down and see all the various options. You can see this version, r7i, gives you 96 CPUs and 768 GiB of Memory. We can tailor Cloud servers to match Organizational objectives/needs.

Of course the pricing goes up to 6.3504 USD per hour.

Instance type

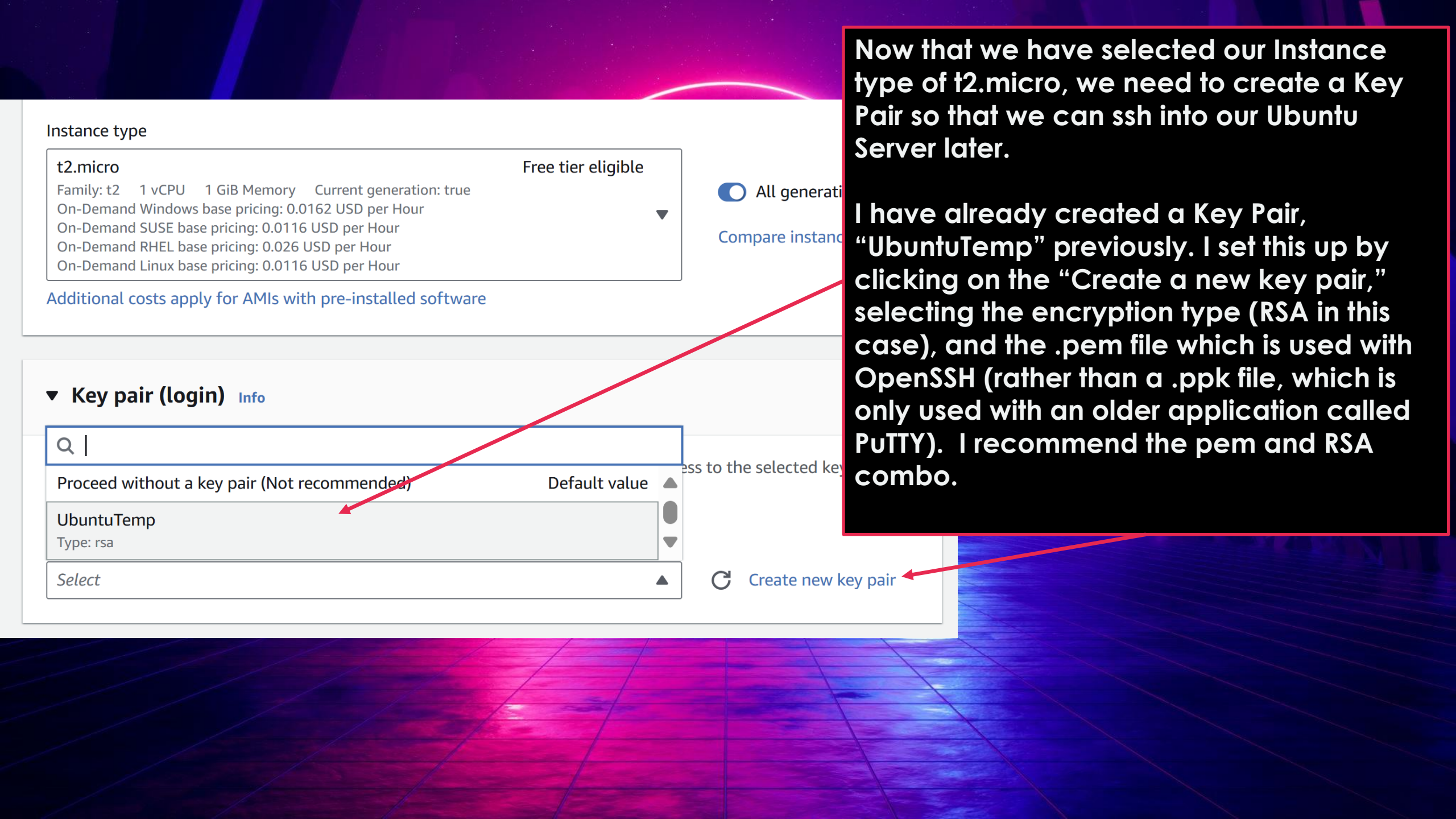
g5.48xlarge

Family: g5 192 vCPU 768 GiB Memory Current generation: true
On-Demand RHEL base pricing: 18.1312 USD per Hour
On-Demand SUSE base pricing: 16.413 USD per Hour
On-Demand Windows base pricing: 25.12 USD per Hour
On-Demand Linux base pricing: 16.288 USD per Hour

Just as an example of how large these bad boys can go, we have the g5.48xlarge:

192 CPUs
768 GiB Memory

The pricing goes up to 16.288 USD per hour. But if your organization has the need and the capital, then this is the way you have to go.


Instance type
t2.micro
Free tier eligible
Family: t2 1 vCPU 1 GiB Memory Current generation: true
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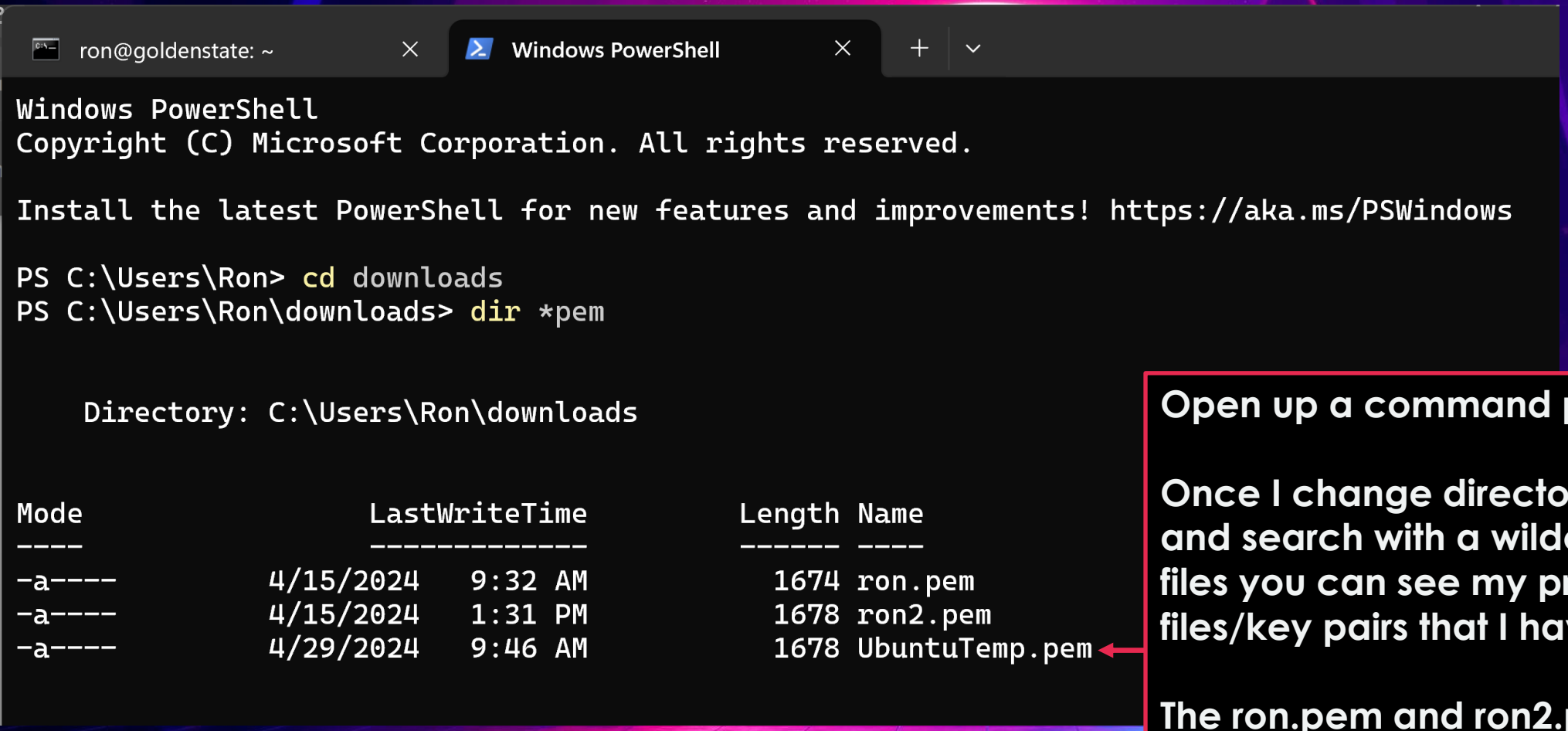
Additional costs apply for AMIs with pre-installed software
All generati
Compare instanc
Key pair (login) Info
Proceed without a key pair (Not recommended)
Default value
UbuntuTemp
Type: rsa
Select
Create new key pair
Now that we have selected our Instance type of t2.micro, we need to create a Key Pair so that we can ssh into our Ubuntu Server later.
I have already created a Key Pair, "UbuntuTemp" previously. I set this up by clicking on the "Create a new key pair," selecting the encryption type (RSA in this case), and the .pem file which is used with OpenSSH (rather than a .ppk file, which is only used with an older application called PuTTY). I recommend the pem and RSA combo.



Open up a command prompt.

Once I change directory into “Downloads” and search with a wildcard for any .pem files you can see my previous .pem files/key pairs that I have created with AWS.

The ron.pem and ron2.pem I deleted, so I went with my UbuntuTemp.pem key pair when I set up my new t2.micro Ubuntu Server.

Key pair name - *required*

UbuntuTemp

Create new key pair

Network settings Info

Edit

Network Info

vpc-01210bc332270c89b

Subnet Info

No preference (Default subnet in any availability zone)

Auto-assign public IP Info

Enable

Additional charges apply when outside of free tier allowance

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

We'll create a new security group called '**launch-wizard-2**' with the following rules:

Allow SSH traffic from
Helps you connect to your instance

Anywhere
0.0.0.0/0

Allow HTTPS traffic from the internet
To set up an endpoint, for example when creating a web server

Allow HTTP traffic from the internet
To set up an endpoint, for example when creating a web server

Anywhere 0.0.0.0/0
Custom
My IP 172.59.228.9/32
Anywhere 0.0.0.0/0

Now that we have our key pair, UbuntuTemp.pem, the network settings automatically sets up a default vpc for us (ends in c89b).

I selected "Create security group" under the firewall radial options. Under that we can change our security group configurations:

Right now I have it set so that I can allow SSH traffic from anywhere (any cidr can access this server). I can change this to restricting access to this server to ***only*** my public IP address.

Note that we could also allow traffic from HTTPS, HTTP, or both from the internet.

Network | Info

vpc-01210bc332270c89b

Subnet | Info

No preference (Default subnet in any availability zone)

Auto-assign public IP | Info

Enable

Additional charges apply when outside of free tier allowance

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

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- [x] Allow SSH traffic from
  Helps you connect to your instance
  My IP
  172.59.228.9/32
- [x] Allow HTTPS traffic from the internet
  To set up an endpoint, for example when creating a web server
- [ ] Allow HTTP traffic from the internet
  To set up an endpoint, for example when creating a web server

⚠ Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only. ×

▼ **Configure storage** Info Advanced

I wanted to make this server a bit more secure so I selected only traffic from My IP. However, even if I left the server open for anyone, they would still need my security credentials that I set up previously.

I also selected "Allow HTTPS traffic from the internet." HTTPS uses encryption to secure data sent between a browser and a web server. HTTPS uses the Transport Layer Security (TLS) protocol. TLS uses an asymmetric public key infrastructure to encrypt communications, making data undecipherable until the site owner unlocks it.

Configure storage Info

Advanced

1x 8 GiB gp3 Root volume (Not encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

Add new volume

The selected AMI contains more instance store volumes than the instance allows. Only the first 0 instance store volumes from the AMI will be accessible from the instance

Click refresh to view backup information

The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems Edit

Advanced details Info

Scroll down and you can see the Configure storage panel.

Currently, we have it set up for 8 Gigs, which is fine for our demo purposes here.

However, you will notice that we can set this up for 30 GB if we wanted to and that is still under the free tier t2.micro option that we started out with.

Data Lifecycle Manager policies.

0 x File systems Edit

Advanced details Info

Domain join directory Info

Select

Create new directory

IAM instance profile Info

Select

Create new IAM profile

Hostname type Info

IP name

DNS Hostname Info

- [x] Enable IP name IPv4 (A record) DNS requests
- [x] Enable resource-based IPv4 (A record) DNS requests
- [ ] Enable resource-based IPv6 (AAAA record) DNS requests

Instance auto-recovery Info

Select

Shutdown behavior Info

Stop

Advanced details just allows you to throw in some options that might be advantageous for your organization.

For instance, joining a Domain directory, create an Identity and Access Management profile, etc.

For the purposes of this demo I am not going to add anything from Advanced details, but it is good to familiarize yourself with the various options—especially if one is running cloud servers for a large organization.

Number of instances | Info

1

Software Image (AMI)

Ubuntu Server 24.04 LTS (HVM), SSD Volume Type

ami-04a81a99f5ec58529

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel

Launch instance

Along the side of my configuration a Summary is created which tells me everything about the AMI that I have set up.

This instance includes the following:

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

After you read through the instance summary, click “Launch instance.”

Success
Successfully initiated launch of instance (i-01d356480fd668ae8)

We have launched our AWS AMI!

▶ Launch log

Next Steps

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

1 2 3 4 5 6

Create billing and free tier usage alerts

To manage costs and avoid surprise bills, set up email notifications for billing and free tier usage thresholds.

Create billing alerts

Connect to your instance

Once your instance is running, log into it from your local computer.

Connect to instance

Learn more

Connect an RDS database

Configure the connection between an EC2 instance and a database to allow traffic flow between them.

Connect an RDS database

Create a new RDS database

Learn more

Create EBS snapshot policy

Create a policy that automates the creation, retention, and deletion of EBS snapshots

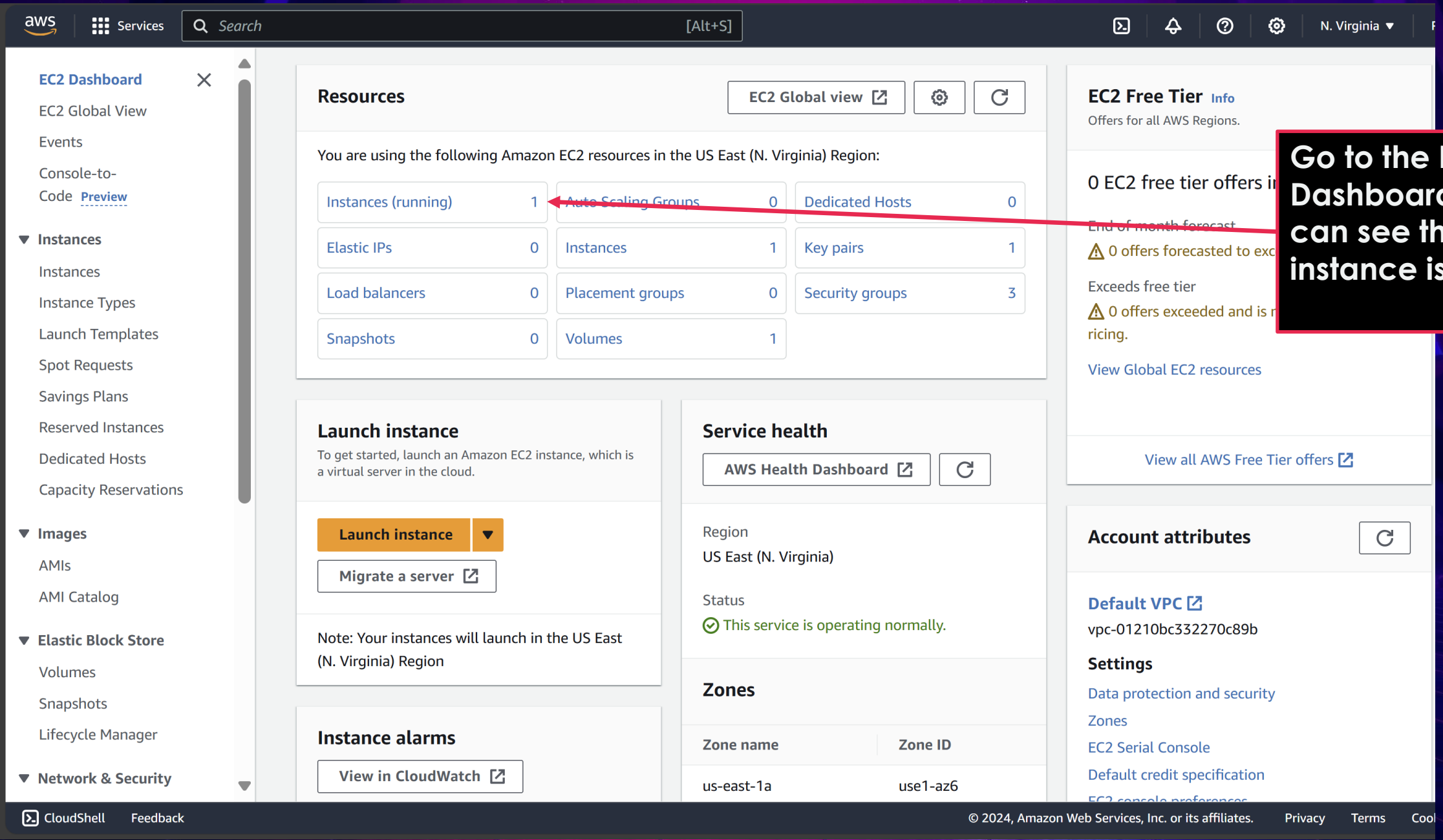
Create EBS snapshot policy

Manage detailed monitoring

Create Load Balancer

Create AWS budget

Manage CloudWatch alarms


aws
Services
Search
[Alt+S]
N. Virginia
EC2 Dashboard
EC2 Global View
Events
Console-to-Code Preview
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
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Capacity Reservations
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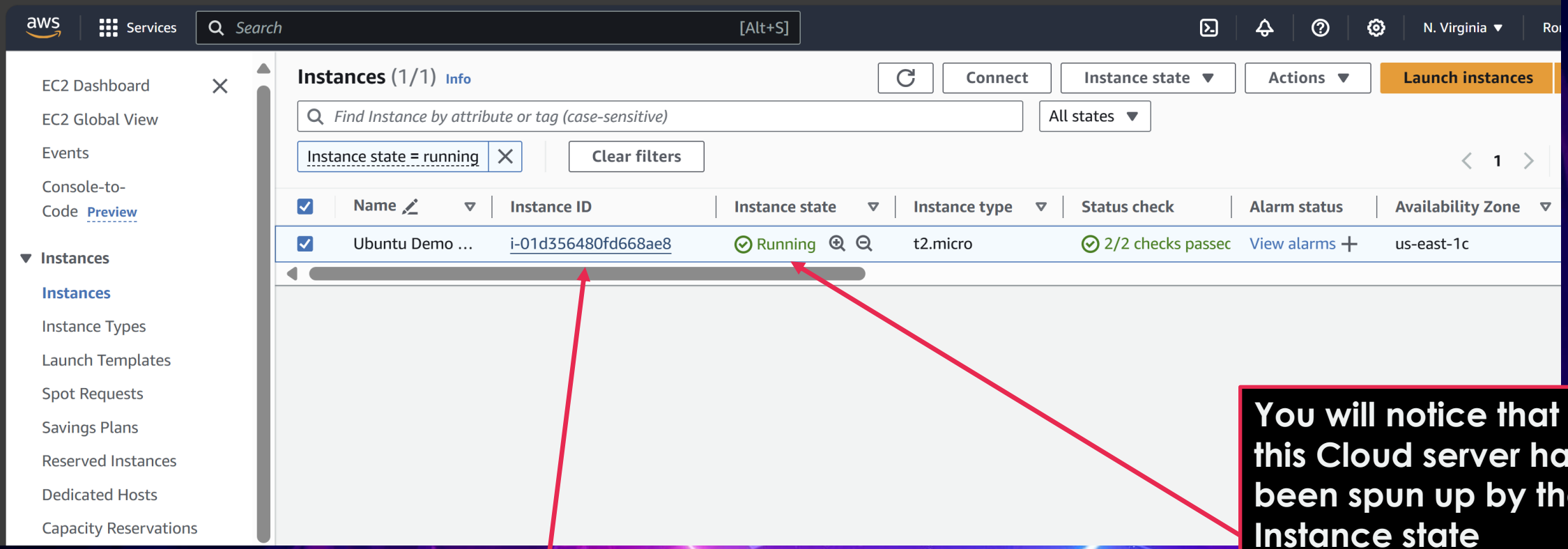
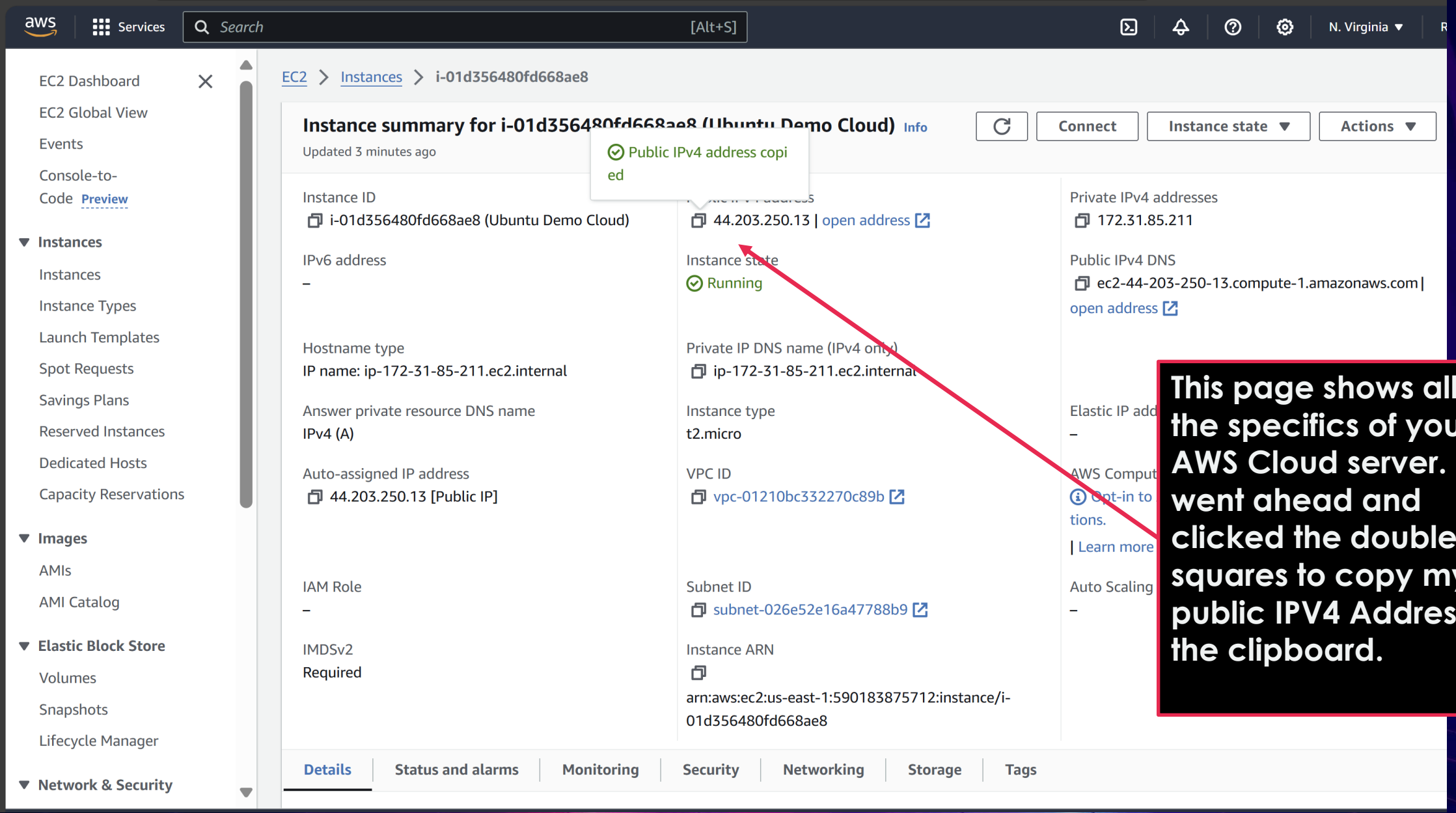
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Resources
EC2 Global view
You are using the following Amazon EC2 resources in the US East (N. Virginia) Region:
Instances (running) 1
Auto Scaling Groups 0
Dedicated Hosts 0
Elastic IPs 0
Instances 1
Key pairs 1
Load balancers 0
Placement groups 0
Security groups 3
Snapshots 0
Volumes 1
Launch instance
To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.
Launch instance
Migrate a server
Note: Your instances will launch in the US East (N. Virginia) Region
Instance alarms
View in CloudWatch
Service health
AWS Health Dashboard
Region
US East (N. Virginia)
Status
This service is operating normally.
Zones
Zone name
Zone ID
us-east-1a
use1-az6
EC2 Free Tier Info
Offers for all AWS Regions.
0 EC2 free tier offers i
End of month forecast
0 offers forecasted to exc
Exceeds free tier
0 offers exceeded and is r
ricing.
View Global EC2 resources
View all AWS Free Tier offers
Account attributes
Default VPC
vpc-01210bc332270c89b
Settings
Data protection and security
Zones
EC2 Serial Console
Default credit specification
Go to the EC2 Dashboard and we can see that our instance is running.
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms



After clicking on the "Instances" link it brings up the Instance ID. Click on this link to bring up your instance (next slide).

You will notice that this Cloud server has been spun up by the Instance state showing that it is "Running."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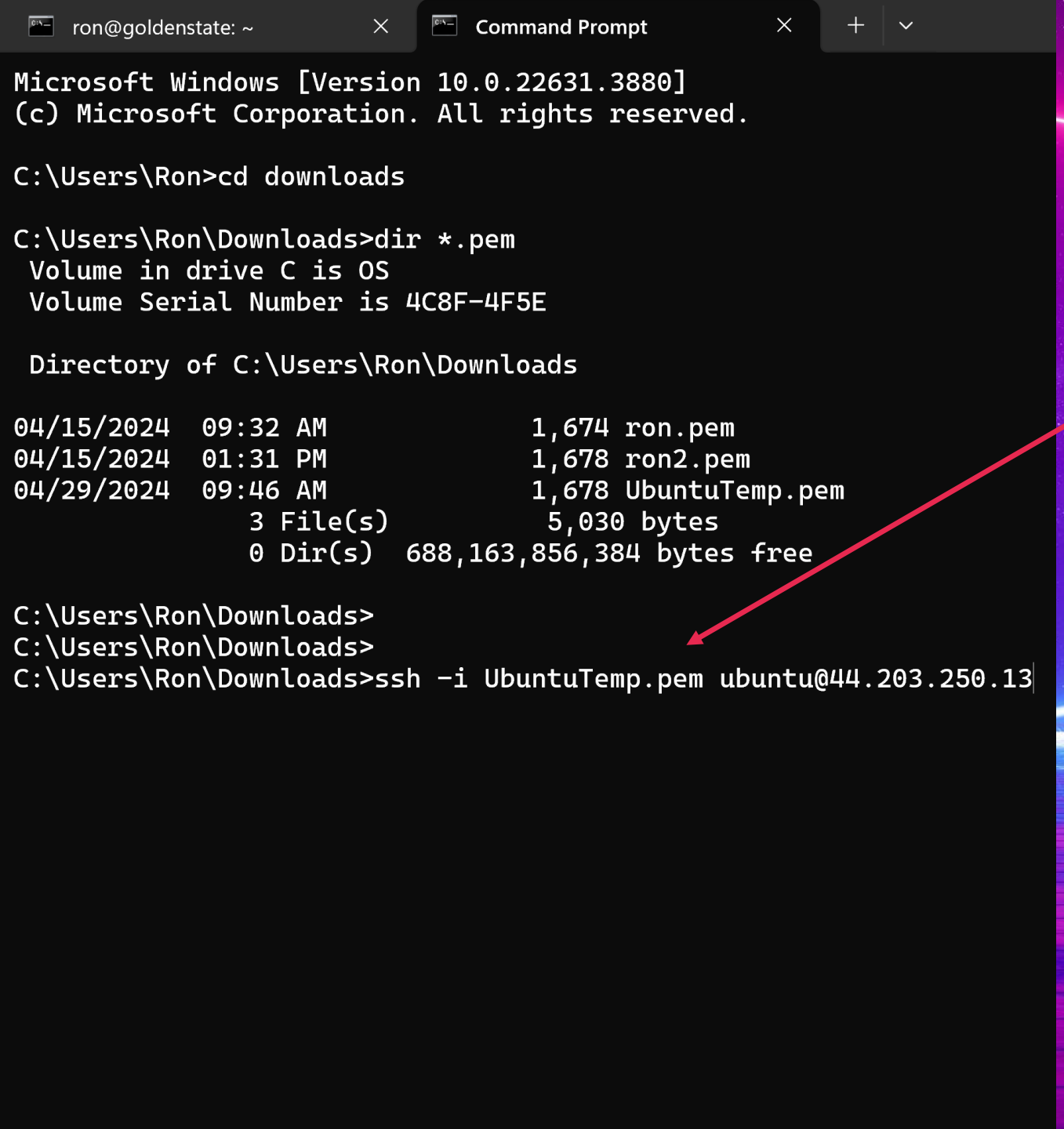
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
EC2 > Instances > i-01d356480fd668ae8
Instance summary for i-01d356480fd668ae8 (Ubuntu Demo Cloud) Info
Updated 3 minutes ago
Public IPv4 address copied
Connect
Instance state
Actions
Instance ID
i-01d356480fd668ae8 (Ubuntu Demo Cloud)
44.203.250.13 | open address
Private IPv4 addresses
172.31.85.211
IPv6 address
–
Instance state
Running
Public IPv4 DNS
ec2-44-203-250-13.compute-1.amazonaws.com | open address
Hostname type
IP name: ip-172-31-85-211.ec2.internal
Private IP DNS name (IPv4 only)
ip-172-31-85-211.ec2.internal
Answer private resource DNS name
IPv4 (A)
Instance type
t2.micro
Elastic IP add
–
Auto-assigned IP address
44.203.250.13 [Public IP]
VPC ID
vpc-01210bc332270c89b
AWS Comput
Opt-in to
tions.
| Learn more
IAM Role
–
Subnet ID
subnet-026e52e16a47788b9
Auto Scaling
–
IMDSv2
Required
Instance ARN
arn:aws:ec2:us-east-1:590183875712:instance/i-01d356480fd668ae8
Details
Status and alarms
Monitoring
Security
Networking
Storage
Tags
This page shows all the specifics of your AWS Cloud server. I went ahead and clicked the double-squares to copy my public IPV4 Address to the clipboard.



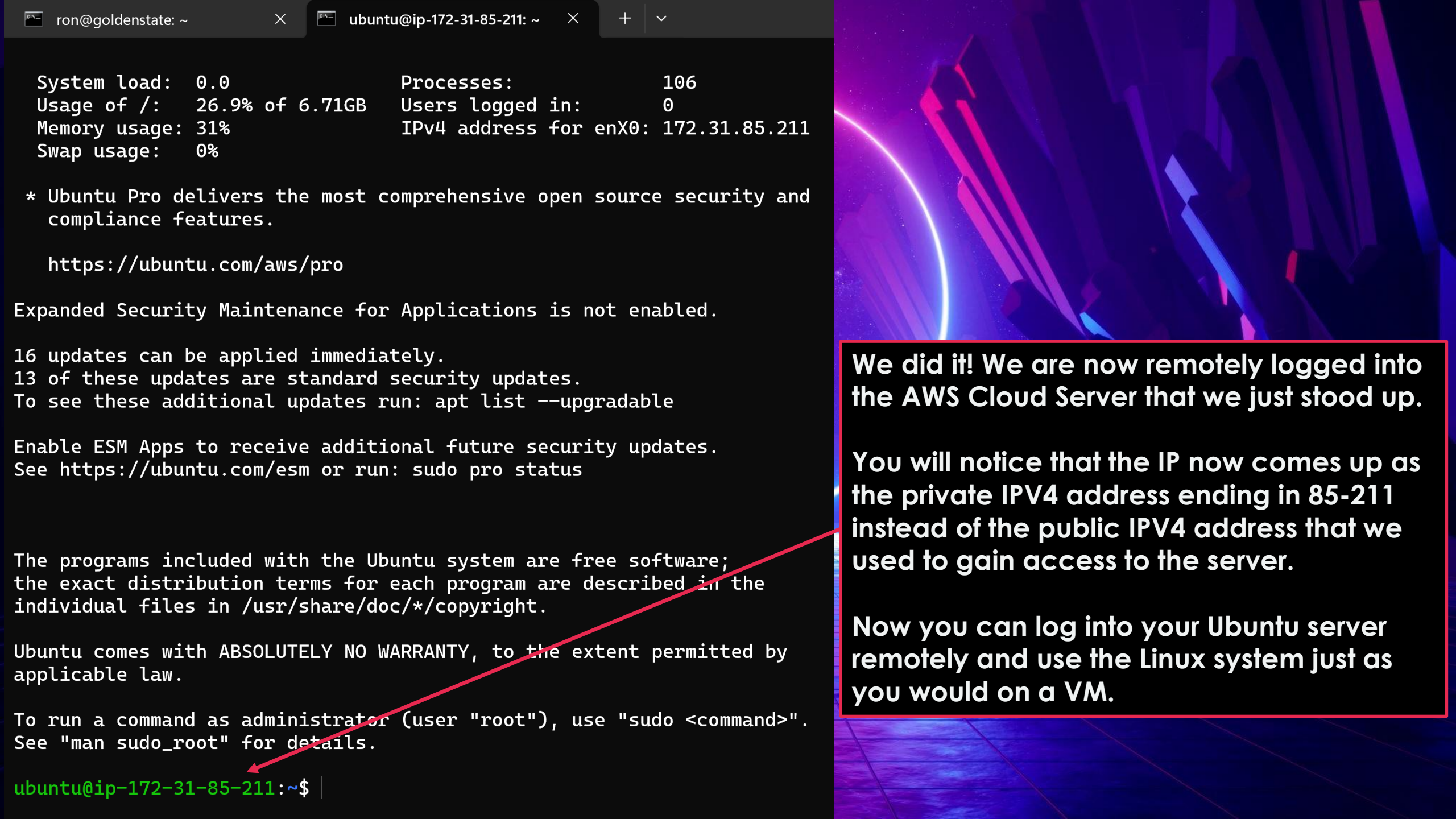
Now we go back to the command prompt to ssh into our brand, shiny, new AWS Cloud Server by typing in the following command:

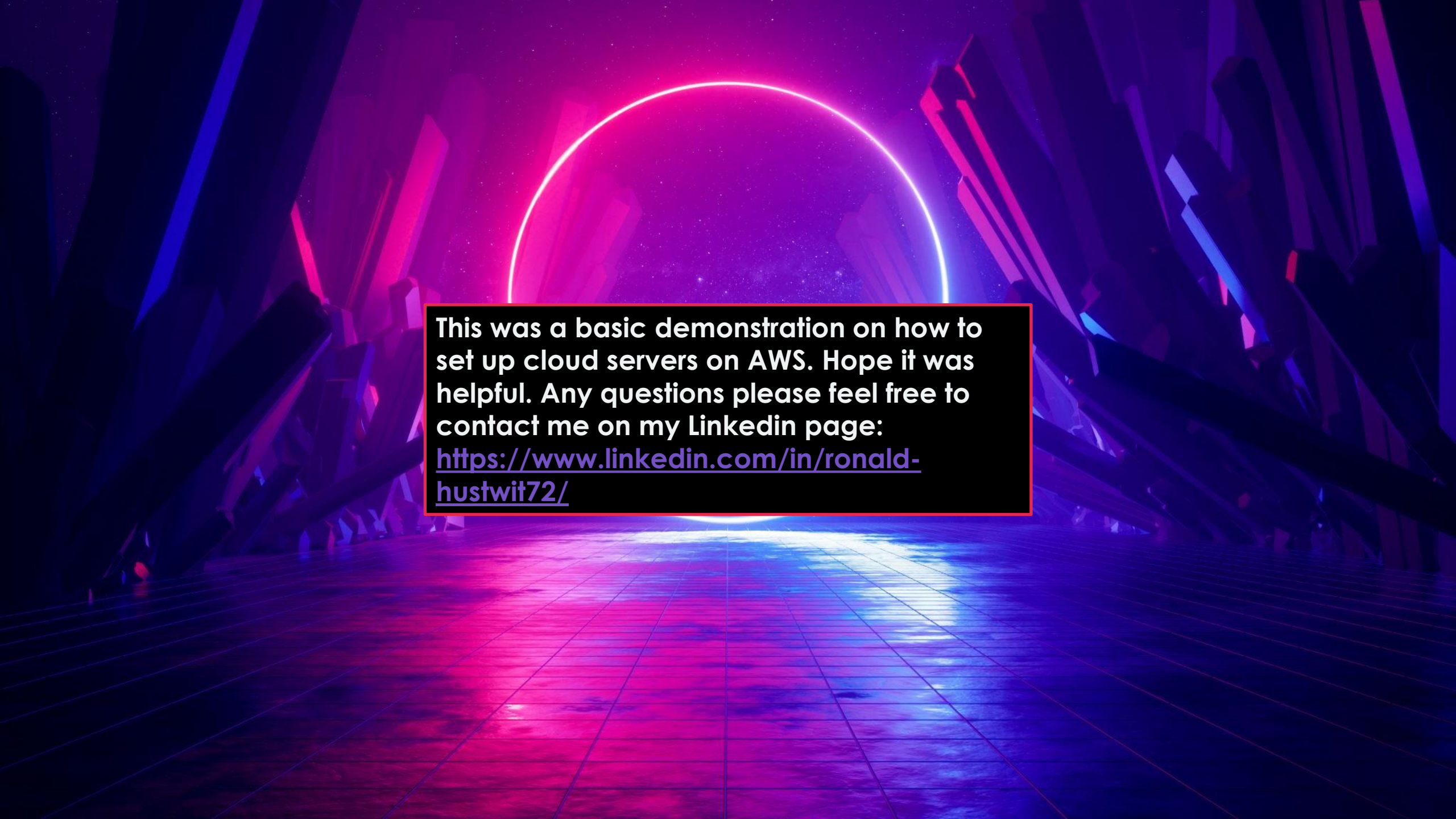
ssh -i UbuntuTemp.pem ubuntu@44.203.250.13

That is why we copied the public IPV4 address prior to going to the command prompt.

Note that the ssh command includes our key pair .pem file so that is what gives us authorization to access the server. Plus, the server is set up only to allow traffic from my IP address.

Hit “Enter” and….


ron@goldenstate: ~
ubuntu@ip-172-31-85-211: ~
System load: 0.0 Processes: 106
Usage of /: 26.9% of 6.71GB Users logged in: 0
Memory usage: 31% IPv4 address for enX0: 172.31.85.211
Swap usage: 0%
* Ubuntu Pro delivers the most comprehensive open source security and compliance features.
https://ubuntu.com/aws/pro
Expanded Security Maintenance for Applications is not enabled.
16 updates can be applied immediately.
13 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
ubuntu@ip-172-31-85-211:~$
We did it! We are now remotely logged into the AWS Cloud Server that we just stood up.
You will notice that the IP now comes up as the private IPV4 address ending in 85-211 instead of the public IPV4 address that we used to gain access to the server.
Now you can log into your Ubuntu server remotely and use the Linux system just as you would on a VM.


This was a basic demonstration on how to set up cloud servers on AWS. Hope it was helpful. Any questions please feel free to contact me on my Linkedin page: https://www.linkedin.com/in/ronald-hustwit72/