Session-1

what is AWS?

==========

>AWS stands for Amazon Web Service

>American multibillion dollar company Headquartes are located in seattle,washigton, USA

>AWS Started in 1995 by Jeff Bezos as on online Bookstore and selling DVDs, CDs, video and Mp3 downloads,software, video games, electronics.

>In 2006, Amazon officially launched the Amazon Web Services(AWS) is become a major provider of cloud computing services.

What is AWS?

==========

AWS is the Cloud Platform

>cloud platform is nothing but collection
of services
>AWS Provides 200 services
>Every service will have specific or unique
functionality offered over the internet
>AWS datacenters are having in 25
countries(regions) one more new datacenter is
coming to hyderabad

open AWS website
==========
aws.amazon.com
if you have account login
>click on services
>some services related to storage
>database
>we can create at aws linux, windows, servers

Why we are using AWS data centers
==========

>when we are using applications they ask our data.
>some industries are to store these data they maintain own datacenters, Hardware,servers, staff to maintain these many things he should spend so much money.

>if data increases he should increase data centers,hardware,servers,staff it is very cost to maintain.
>if data decrease latter again he should decrese data centers he will loss.
>if any application have customers all over the world
>then client should have datacenter in every were it is very high cost maintain hardware, staff,servers.

AWS Datacenters:-

==========

Is the cloud Platform

>AWS datacenters are having in 25 countries(regions)

>In India aws datacenter are located at Mumbai

>Industries using aws cloud Platform it provide services 24/7

>AWS only provides huge datacenters industries not require to maintain there own datacenters,hardwares, servers,staff

> **Ability to grow in size**

>using aws data center when your business data Grows your hardware configuration is increased is called scalability

>using aws data center when your business decrease it can decrease the hardware configuration is called scalability

>AWS datacenters are located 25 regions clients can use 25 regions

Pay-as-you-go

==========

>After using services only you can pay based on that not require to pay more.

>I pay only servers which I used it is like rent

>Because of these benefits now most of the industries switching from own datacenters to AWS cloud Platform

---

Q)what about certification?

==========

>In the aws we have 11 types of certification

>We are learning Associate level

its enough.(AWS Certified Solutions Architect)

>we have in the market professional level

also

We learn most of the clients using servies

1.Ec2
2.s3
3.Iam
4.ELB
5.AS
6.VPC
7.ROUTE 53
8.RDS
9.ELASTIC BEANSTAIK
10.CLOUD TRAIL
11.SES
12.SQS
13.SNS
14.Cloud formation
15.Cloud Front
16.Cloud Watch

>no body learns all the 200 services

---

session 2

==========

Today Agent

-How to create a new AWS Account

-understanding ec2 service concept

-create a new windows machine on AWS Platform

-what is key Pair?

-Connecting to the remote machine

==========

To create AWS account you should have

==========

Email Address

Mobile no-->linked to bank account

Debit card/Credit card

visa and master card works

Enable Debit card for international transactions(it takes 1day)

Rupay card-->will not work

Google-->aws.amazon.com

click on sign into console

click on create a new AWS Account

See aws document to create account

page1: enter email address
password

page2: Mobile number

page3: Debit Card Details

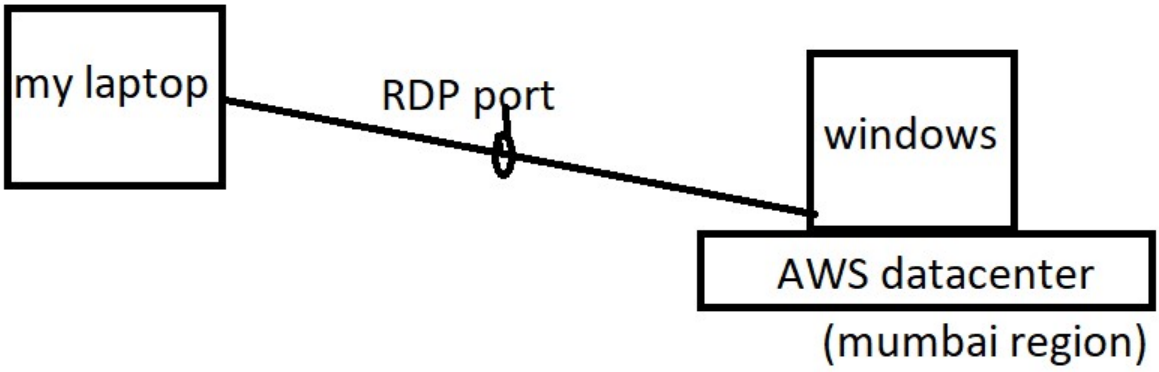
page4: Mobile number verfication

>select Basic Plan for 12months free
its ok to practise

>aws account activated in 24 hours
some time 8hours
>once account activate you will get
email

EC2 stands for Elastic Compute Cloud
using Ec2 service we can create windows, linux,instances,servers,storages at AWS datacenter which is located at Mumbai

Using Amazon EC2 no need to invest any hardware, so you can develop and deploy applications faster .
>instance is nothing but we can create virtual machine (means created without hardware machines)



>I have windows operating system
we are creating windows at mumbai region AWS data center

>From my system connecting to windows os using RDP port which is located at mumbai AWS Data center

>By using aws data center we don't want buy higher configuration hardwares by using aws and create

---

After creating sign into aws account

==========

Note: Computer, machine, box, PC, Server = As per AWS terminalogy - Instance

Google→aws.amazon.com

==========

Ex 1: create Windows on AWS cloud Platform

Step 1: Login to AWS

Step 2: Choose region which is near ? (Asia pacific - Mumbai)

Step 3: Services→ compute→ EC2→launch Instance

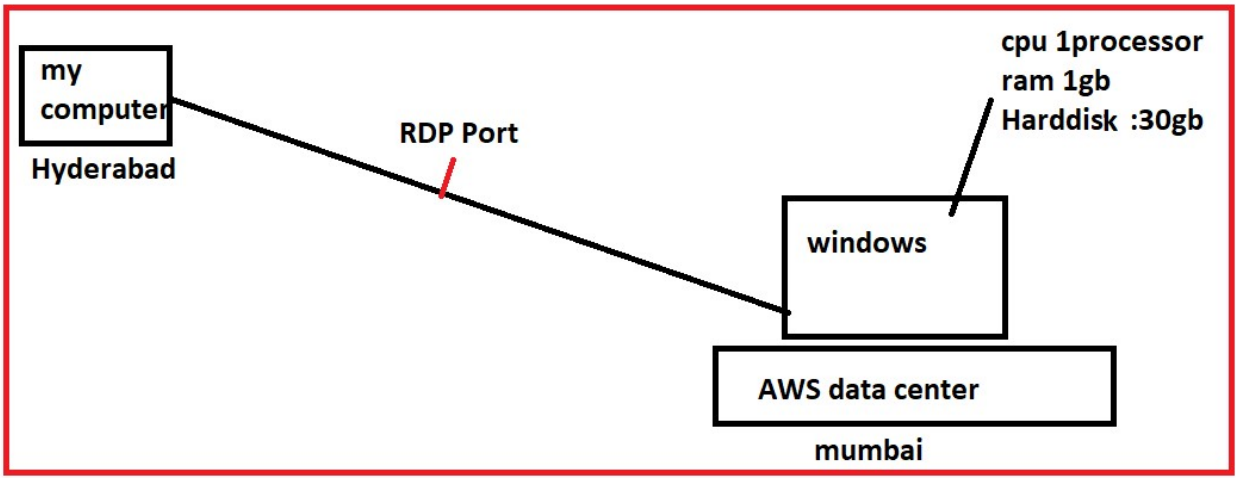
When ever you want to create any machine or instance you have 7stages to fill

Stage1: search and select
Microsoft windows server 2019 (free tier)

Stage2: select t2.micro(free tier)
It provides 1 processor(cpu), 1gb ram(memory)→next

Stage3: Number of instance: 1→Next
Stage4: storage---30gb size(Harddisk)→Next

Stage5: remain default
Stage6: (security group is used to create port)select RDP
RDP is a port to connect from my system to windows which is created at AWS data center which is located at Mumbai



Stage7: Review

Read what you entered

Click on launch

Stage8: it asks to download key pair

Click on new key pair

Select:RSA

And give key pair name ur wish :wind123

Click on download key pair

>after downloading click on launch machine

Instances are launching→click on view instance

>name the instance (Windows)

To connect from my system RDP app need

DNS name:

Username:

Password:

Select windows instance →click on connect →Click on RDP client

It showing dns name, username and get password

Copy dns name ,

ec2-13-126-172-141.ap-south-1.compute.amazonaws.com

copy username: Administrator

>click on get password→it ask key pair(pem) file Location and generates password-→click on Decrypt password

Copy password:

KtJesLh$F7z@MMrHfUzT6?4Cf3M8Tqca

Open Remote Desktop connection

==========

>it is default installed in your system when your installing windows

→copy DNS Name paste at computer

And connect .It asks username and password paste it

→click on ok and yes

>successfully connected from my system to windows which is installed on AWS datacenter Which is located at Mumbai

Search with --this pc

→right click and see properties 1 processor,1gbram

→go back and see storage cdrive 30gb

Close the connection

Windows installation on AWS platform completed

==========x==========

session 3

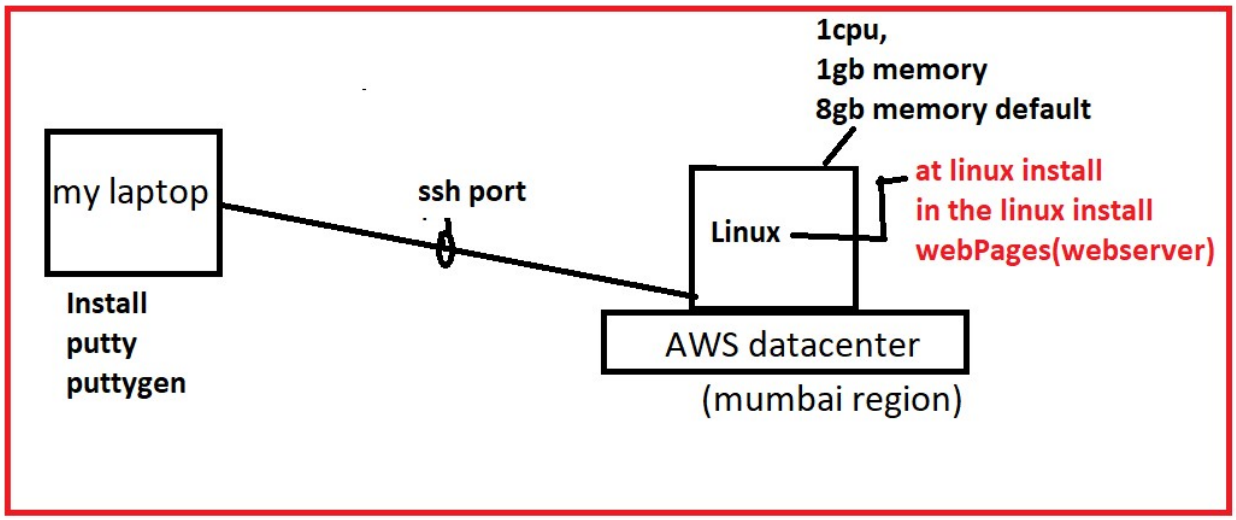
==========

-Creating a Linux Machine at AWS data center
-Understanding puttygen and putty
-what is WebServer?
-Installing Web Package
-Understand Security Groups

Ec2 is used to create virtual machines
at AWS Cloud Platform

open aws website
aws.amazon.com

Creating linux on AWS cloud platform
which is located at mumbai
>And accessing from my system(hyd)
using port number



webPages are accessed from my system using http or httpd

Creating Linux machine on AWS Platfrom

==========

click on services-->compute-->ec2

1.click on lauch Instance

2.search and select operating system
Amazon Linux(free tier)

3.choose an instance type
select t2 micro(free tier)-->next

it comes 1cpu(1processor) and 1gb
memory(ram)

4.Number of instance:1-->next

5.add storage
default 8gb memory storage
if you want you can improve storage
but linux charge if we using more
than default

6.security group
using ssh port we connect to linux
security group name: sg123(any name)
type:select ssh
>click on launch
(ssh for linux, RDP for windows,)

it ask to download keypair(pem file)
choose a new key pair:
select rsa :give any name

7.name the instance:anyname machine
>see machine is running state
>now you can connect

putty terminal using in my system
and connect to linux on AWS which is
located mumbai

>Download Putty
select putty.exefile

>putty need ppk(putty private key) file
>convert pem file to ppk file
using puttygen
>puttygen takes input as pem file and
generates ppk file
>pem file given by AWS

>Download that puttygen
google-->puttygen download for windows10

click on Putty download(chiark)
click on Puttygen.exe file
at pem file located place in your sytem
place it.

Open puttygen -->click on load -->select pem file
--> Save private key
see it generates ppk file

go to Aws-->click on instance
-->click on ssh client ssh command upto here
 ec2-user@ec2-3-110-108-184.ap-south-1.compute.amazonaws.com

open putty.exe to connect with linux
==========
paste copyed ssh command as ip address
-->Double clik on ssh-->double click on auth (authendication)-->browse ppk file-->ok

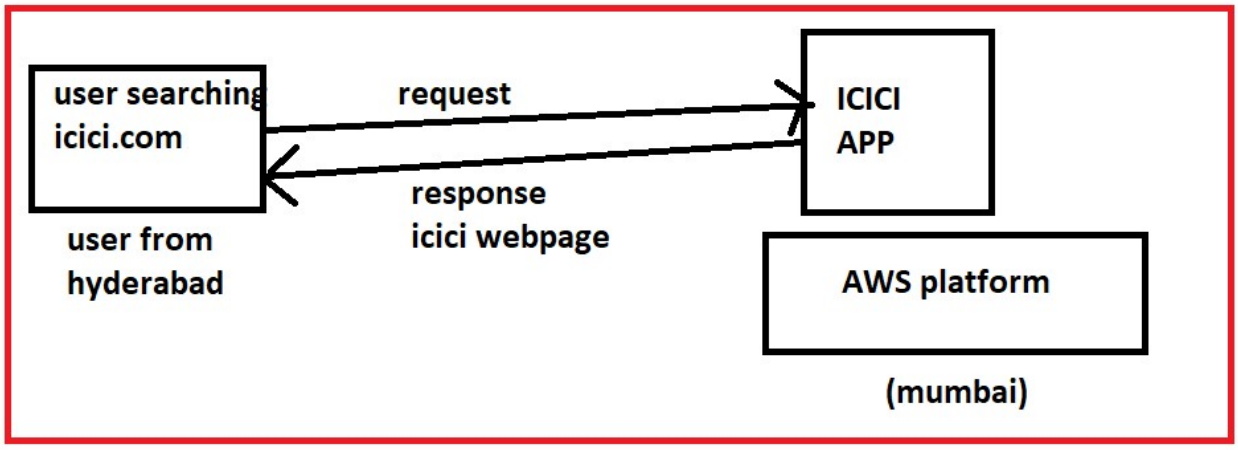
successfully putty terminal is opened and

connected to aws data center which is located at mumbai

---

session -4

==========



When user searching at google icici.com as request .suppose icici app deployed into AWS platform then this app when receive request from user it sends icci webpage

Q)what is webserver?

a)A Web server is a program that uses HTTP (Hypertext Transfer Protocol) when server receives http request from user then it used to send webpages(html,bootstap,php)

user can access webpages from browser using http request or httpd

if i create on AWS
oracle is called-->oracle server
tomcat-->tomcat server
webpages-->webserver

Ex:
1) Apache HTTP Server
2) Internet Information Services (IIS)
3) nginx
4) httpd by Apache

What is httpd

HTTP Daemon is a software program that runs in the background as a web server.It waits for the incoming request from user.Then the daemon sends the reaspons as hypertext and multimedia documents over the Internet using HTTP.

create http port

==========

click on 3lines--> security group--> edit inbound

role-->select http and select anywhere(means anyone can access)

-->inbound rule you can see ports

http using which client or user can access the webpage application from aws datacenter (server)

create Webserver(webpages) at linux on AWS Platform

==========

Yum Repository it contains collection of packages.packages are nothing but software programs.Linux community provided collection of repositories.

we need to update Repository

We need to install web package(httpd),

it is called web server.

open putty terminal

==========

To change root directory command is

sudo su

To update repository command is

yum update -y

Install the Repository

yum install httpd -y

point html location to create html

cd /var/www/html

echo "MyGoogle" > index.html

index.html file creating(it will opened automatically)

start the httpd service

service httpd start

when machine starts this command open automatically open file index.html
chkconfig httpd on

open Google-->paste public address from AWS
it sends response as MyGoogle

---

aws ec2 300hrs 1month free if you exceed
it charge

GitBash--->pem
To connect linux using GitBash terminal
only pem file is enough to connect with
Linux at AWS data center

Bootstrap scripts:-

==========

commands which are going to get executed automatically without using putty terminal(to use linux commands) on the browser as the

response after creating new instance is called Bootstrap scripts.

implementing Bootstrap scripts

==========

When you launching instance add the commands at the 3rd step scroll down you will see user data

-->click on as text -->paste this commands there.

```
#!/bin/bash
sudo su
yum update -y
yum install httpd -y
cd /var/www/html
echo "MyGoogle-2" > index.html
service httpd start
chkconfig httpd on
```

linux installation completed and webpages created at linux completed

==========x==========

session-5

==========

Today Agenda

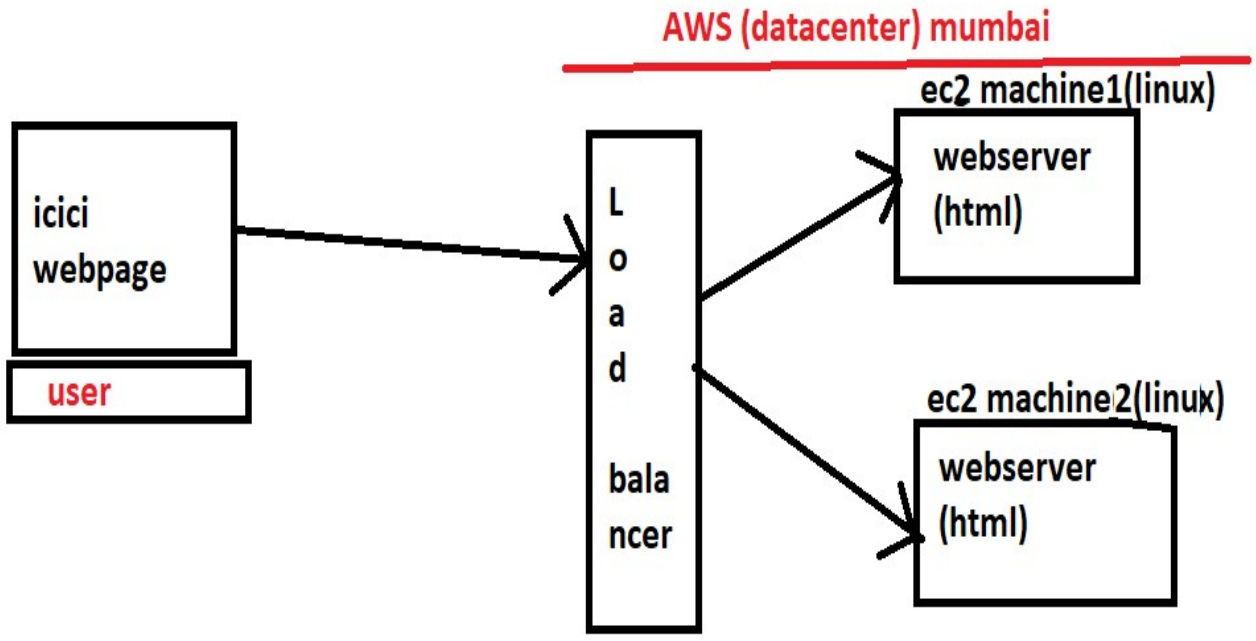
-understanding Load Balancer

-Creating Load Balancer and attaching EC2 machines

-Experience the Load Balancer

-Simulating failure scenario

==========



>user sends the request to icic webserver Load Balancer receive that request and send (ping) to machine1 if in machine1 traffic increases(server down) it send request to machine2

Load Balancer Explanation

==========

>when multiple users(clients) sends the request to webserver to get response of webpages then there will be chance of increasing the traffic.

>To control this traffic we implement LoadBalancer at AWS cloud platform(ec2 machine)

>In this case we have multiple ec2 machine (targets)

>A load balancer accepts traffic(multiple requests)from client and monitor(checks) the health of target(ec2 machine) if it sure then it sends traffic(request) to healthy target (ec2 machine)

>when the load balancer find an unhealthy target(ec2 machine). it stop sending traffic to that target and sends traffic to healthy target(ec2 machine)

health conditions of server

==========

server down if multiple users increase (unhealthy target)

Step 1: Create Linux Machine

==========

Launch instance → Amazon Linux(free tier) → select t2 micro→No of intances - 1 →ADD storage(default) →Add Tags(Default)→

Security Group – Ln22(any name)

Description – Ln22

Add Rule Http →click on Anywhere

Already Rule ssh is there remain same

>click on Launch
Download key pair(pem file)
>Create a new key pair
>select RSA(default)→name the pem file(any name)→click on download(in ur pc)

>click on Launch Instance→verify instance→name the instance

(any dought to create connection my pc to webserver(httpd) view 3rd session)

Step 2: convert pem to ppk file

Step 3: Access the machine

Step 4: Run the commands to install web package
sudo su
 yum update -y

```
 yum install httpd -y
cd    /var/www/html
echo "MyGoogle-1" > index.html
ls
service httpd start
chkconfig httpd on
```

Step 5: Access the webserver by using public_ip
Linux public ip copy and paste at google
o/p MyGoogle-1
++

Step 6: Launch one more Linux Machine and install Web package

Click on Lauch machine→Amazon Linux→select t2 micro→
→ Step 1: Advanced Details - User data

Mention Bootstrap scripts

==========

```
#!/bin/bash
sudo su
yum update -y
yum install httpd -y
cd  /var/www/html
echo "MyGoogle-2" > index.html
service httpd start
chkconfig httpd on
```

Bootstrap scripts

==========

This scripts commands automatically executed when every new machine in launched with out using gitbash or putty

Next -- Add Name Tag -- Step 6: Select existing security group -- Choose existing key pair – Ln22→Launch instance.

Choose a new key pair
Name the key pair: (any name)
>Download Key pair

Click on launch Instance→view instance→name the instance(any name)

Create load balancers

==========

Click on load balancer →create load balancer→
Click on classic Load balancer

Load Balancer Name : MyLB --> Next ----> select existing security group(Ln22) ---> configure Health check

Response Timeout - 2 Seconds
Interval - 5 Seconds (should monter health for 1hour or)

Unhealthy threshold - 2 (In 2 times or request ec2 mach1 should send response or else unhealthy)
Healthy threshold - 2

Step 2:
Attach both the instances
Add Ec2 instance→click on 2 latest created instance
Next -- Next –Create→close
>we are done creating load balancer MyLB

Step 3: Lest verify the 2nd instance manually
Select public ip and paste in browser
o/p: MyGoogle-2

To view number of instance attached to Load Balancer
Click on Load Balancer→click on instance

Step 4: Access the load balance by using DNS and experience the load balancer.

MyLB-1415773552.ap-south-1.elb.amazonaws.com

Google:- paste DNS and check
Load balancer send request to ec2 machine1
Refresh it sends to machine 2
>if any traffic found at machine 1 it send request to machine2

Wantedly iam stopping machine 1
If you refresh at Google see always coming response from machin2 that is MyGoogle2(o/p)

Step 5: **If one server is down, it should redirect the request to another server.**

==========

1) if machine stop/terminate
2) remove the file / rename the file

Lets remove index.html file in server1

Go to putty
ls (To see the list of files)

rm index.html
Now, access the load balance , traffic should be redirected to 2nd server.

How can we know, which instance is down?
Goto load balances ---> instances tab,
We can see the status is OutOfService.

+++++++
Lets re create index.html file
echo "Google-1" > index.html

++++++++++
Now load balance will start sending the traffic to server1

++++++

To avoid billing ----> terminate both the instance ----> terminate(remove) load balancer

----------x----------

Session-6-->Today Agenda

==========

-what is Auto Scalling?

-Understanding Launch Configuration

-Understanding Auto Scaling Group

-Creating Notification(SNS Service)

-Creating Alarm (Cloud Watch Service)

-Add Auto Scaling Policies

(doughts :- in the realtime we access applications not with ip address we access using domain name(icicibank.com,flipkart.com)

Auto Scaling

Auto Scaling helps you ensure that you have the correct number of EC2 instances available to handle the load for your application.

You create collections of EC2 instances, called Auto Scaling groups.

You can specify the minimum number of instances and the maximum number of instances in Auto Scaling group, and Amazon EC2 Auto Scaling ensures that your group never goes above this size.

++++++++++++++++++++++++++

Step 1: Create load balancer.
Step 2: Create Launch configuration
Step 3: Create Topic in SNS (Simple Notification Service)

>first time we are moving ec2 service to SNS

Step 4: Create Auto scaling group.
Step 5: Create Alarm in CloudWatch
Step 6: Add Policy in Auto Scaling

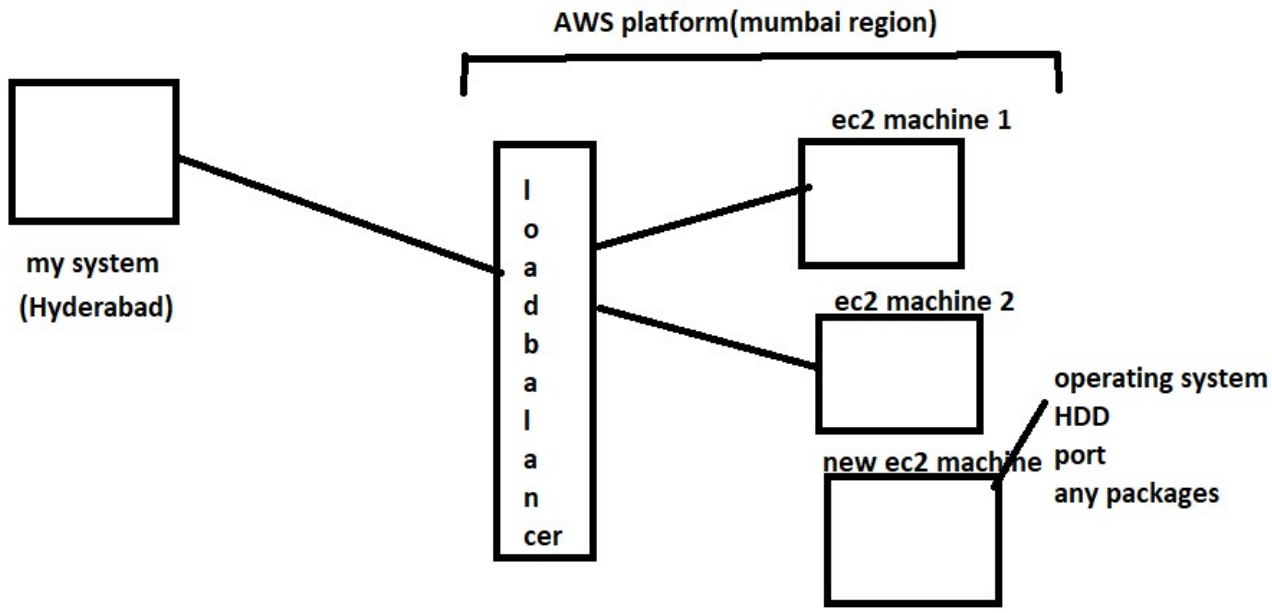
Step 1: Create load balancer
Select Mumbai location
EC 2 dashboard -- load balancer -- create load balancer
Classic Load balancer→create→LoadBalancer
Name - SampleLB1
Next -- Create new Security group
Security group name - Sample-Sg1(any name)
Description - Sample-Sg1

Lets open two ports SSH and HTTP
Next -->Next→ Configure health check
Response timeout -2
Interval -5

Uhealthy threshold - 2
Healthy threshold -2
Next -- Next -- Review and create --> Create---> Close

++++++++++++++++++++++++
Step 2:
Creating launch configuration:-

Explanation:
Assume already 2 ec2 machines attached to Loab Balancer as we know the functionality of load Balancer to distribute traffic to ec2 machines. When the traffic is increasing existing machines enable to handile the code at this situation one new ec2 machine(instance) is Created with some configuration we should provide this configuration at creating launch configuration
What should be operating system, Harddisk, Port, any packages.



Simple explanation

>when every traffic is increased new machine is created and commands going to execute automatically we should do for these some configuration

Creating Launch Configuration

Under Auto Scaling

Select Launch configurations ---> Create launch configuration

Name: SampleLB1

AMI stands Amazon machine image

AMI - ami-08e0ca9924195beba

And select new ami

Step 2: t2 micro→choose

Scroll down

In advanced Details User data

==========

```
#!/bin/bash
sudo su
yum update -y
yum install httpd -y
cd /var/www/html
echo "MyGoogle-2" > index.html
service httpd start
chkconfig httpd on
```

copy and paste at user data

Next --> Select existing security group : Sample-Sg1

Create new key pair -- Key Pair name - SampleKP1 -- download key pair --> create launch configuration.

++

Step 3: Create Topic in SNS

==========

SNS service is used to send notification like email like machine is created automatically

Services -- Application Integration -- Simple Notification Service(SNS)

Create Topic: MyTopic1 (any name)

Select Type - Standard

Name - MyTopic1

Display Name - MyTopic1

Create topic.

Click on Topics-→ click on MyTopic1

Add subscriptions to the topic
(that is adding email ids to get notifications)

Create Subscription
Protocol - Email

Endpoint - rajesh.a464@gmail.com
(you can mention multiple email id separating with comma,)

Create Subscription.

Go to your mail id and you will get confirm mail
Click on Confirm subscription.

Refresh on aws→now you can see subscription confirmed

++

Step 4: Create Auto Scaling Group

==========

Auto Scaling Group using which we have to mention number of instance and we have to mention maximum number of instance

Go to ec2 machine
Click on Lauch Configurations→select configuration→click on Actions

Select →Create Auto Scaling group

Step 1: Auto Scaling group name - SampleASG1 →click on next

We have aws datacenter in Mumbai region , it is divided into subnets
Mumbai have 3 subnets(subnets are buildings each building have 5kms to 10kms distance)

Select availability zones and subnets(see we have 3 subnets)
Step 2: select Subnet -- ap-south-1a
→click on next

Step 3: Attach Existing Load Balancer --->
Choose from Classic Load Balancers -- Select Load Balancer→next

Step 4:Configure Group size (Take Defaults)
Minimum capacity of machines
Desired capacity 4(start with how many machines),
minimum capacity 4,
maximum capacity 10

Step 5: Next
Click on Add Notifications→select SNS Topic

Step 6: Next -- Provide Tag→key : Name ,Value : server→click on next
Step 7: Review and →click on create Auto Scaling group

>successfully created machines
As the desired capacity is 4 , By this time Four EC2 Machine could have been created.

>see ec2 machines are created at AWS platform
++

Step 5: Create Alarm in CloudWatch
==========
Alarm get as notification to mail if cpu utilized(used) more than 70% then 5th ec2 machine is created

Services ---- Management & Governance --- CloudWatch

See in my system right click at bottom and click task manager→performance→here you will find cpu utiliazation.

Services→Mangement &Governance→cloudwatch→alarms→All alarms→create alarm(Alarm1)

Select Metric ---> EC2→By Auto Scaling Group --- Select Auto Scaling Group Name , Metric Name →select CPUUtilization

-- >Select Metric ---Conditions --- Static -- Greater than 70 -- Next ---Select existing SNS topic →send a notification to -MyTopic1-- Next ---

Alarm Name – My_Alarm1
//description:My_Alarm1→ Next -- Create Alarm.

Similarly Create another Alarm for CPU Utilization <30 Name - My_Alarm2

When cpu utilization less than 30% when decreasing ec2 machines also I want to create alarms

Select lower/equal and 30 percent

++++++++++++++++++++++++++

Step 6: Add Policy in Auto Scaling

==========

>when alarm trigger at 80% we should provide some task using Add Policy in Auto Scaling

Services→ec2→
Select AutoScaling groups →click on Auto Scaling group name → Automatic Scaling →click on create dynamic scaling policy

Policy Type - Simple Scaling
Scaling policy name -- Increase_Policy
CloudWatch Alarm - My_alarm1

(this policy linking to My_alarm1)
(if cpu utilization more than 70% 1 unit is added)

Take the Action - Add - 1 Unit (EC2 Machine) →capacity Units→Create

---

Similary, we need to create another Decrease Policy
>click on Create dynamic scaling policy

Scaling policy name -- Decrease_Policy
CloudWatch Alarm - My_alarm2

Take the Action - Remove - 1 Unit (EC2 Machine)

Create
>for 2 alarms 2 policies are created
1policy for increasing number of ec2 machines
1policy for decresing number of ec2 machines
++++++++++++++++++++++++

After Pracising Deleting process or it generated bill
---

1) Delete Autoscaling
(see automatically instances are terminating)
2) Delele launch configuration
3) Delete Load balancer

4) Delete Topic(services→simple Notification service)

→Delete subscriptions also

5) Delete Alarm(services→cloud watch)

----------x----------

Session-7

==========

Topics

---

1) Status checks

2) Protecting instance with accidental termination?

3) understanding Scale up / scale out, Scale In/ Out

4)Attach /Detach Volume

5) Snapshot

Select Mumbai region

Launch instance ---> Amazon linux (free tier)---> Review and launch (Takes the dafult options)
Launch --> Create new keypair(status.pem) →download key pairr--> View instance

Lets name the instance as - test

Observe the status check - Initializing ,
2/2 checks passed

What is the meaning of 2/2 check passed?
1.Instance status check(operating system verification)
2.System status check(Instance Status verification)

Lets say we have status check as 1/2 ?

what does that mean?
It means instance status check is failed.

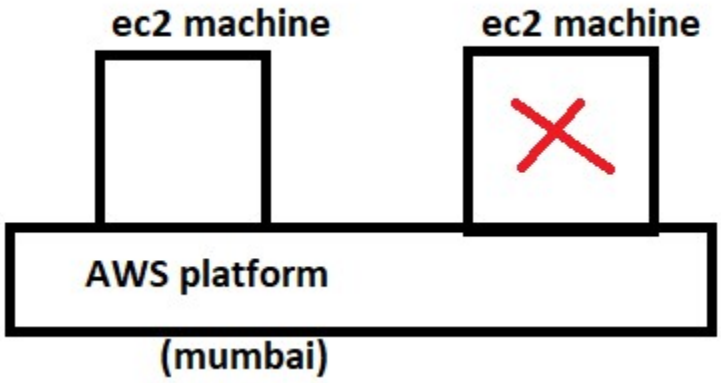
Lets say we have status check as 0/2 ?
what does that mean?
It means system status check is failed.
>When system status (hard ware) is failed , obviously instance check also fails

Troubleshoot

For status check as 1/2 ?
Solution: Reboot the instance(option is there at ec2 machine)
When we reboot, OS will be reloaded.

For status check as 0/2 ?

Solution: Stop and start the instance
Ec2 machine will be migrated(changed) to another physical machine



++++++++++++++++++++++++++

Select the instance---> Status check tab
We can see **2/2 checks passed** that is System status check and instance status check

++++++++++++++++++++++++++

Q)How can we protect the instance with accidental termination when client says it is important instance?

Go to actions ----> instance settings ---> change termination protection --> Enable→save

Now, we cannot terminate the machine.

Incase you want to terminate, just disable change termination protection

++++++++++++++++++++++++++++++++

Understanding terminology

1) scale up and scale down
2) scale out and scale in

1) scale up and scale down --

scale up : This is also called as vertical scaling. Lets say i have one machine of 10gb hard disk.

Adding additional 10gb hard disk in the same machine is called scaleup.

Scale down : This is called Vertical scaling

Lets say i have one machine of 10gb hard disk. Adding additional machine with 10gb hard disk

Does AWS support scaleup?

Yes, Once the instance is created, we can increase and decrease the hardware (CPU, RAM, HDD)

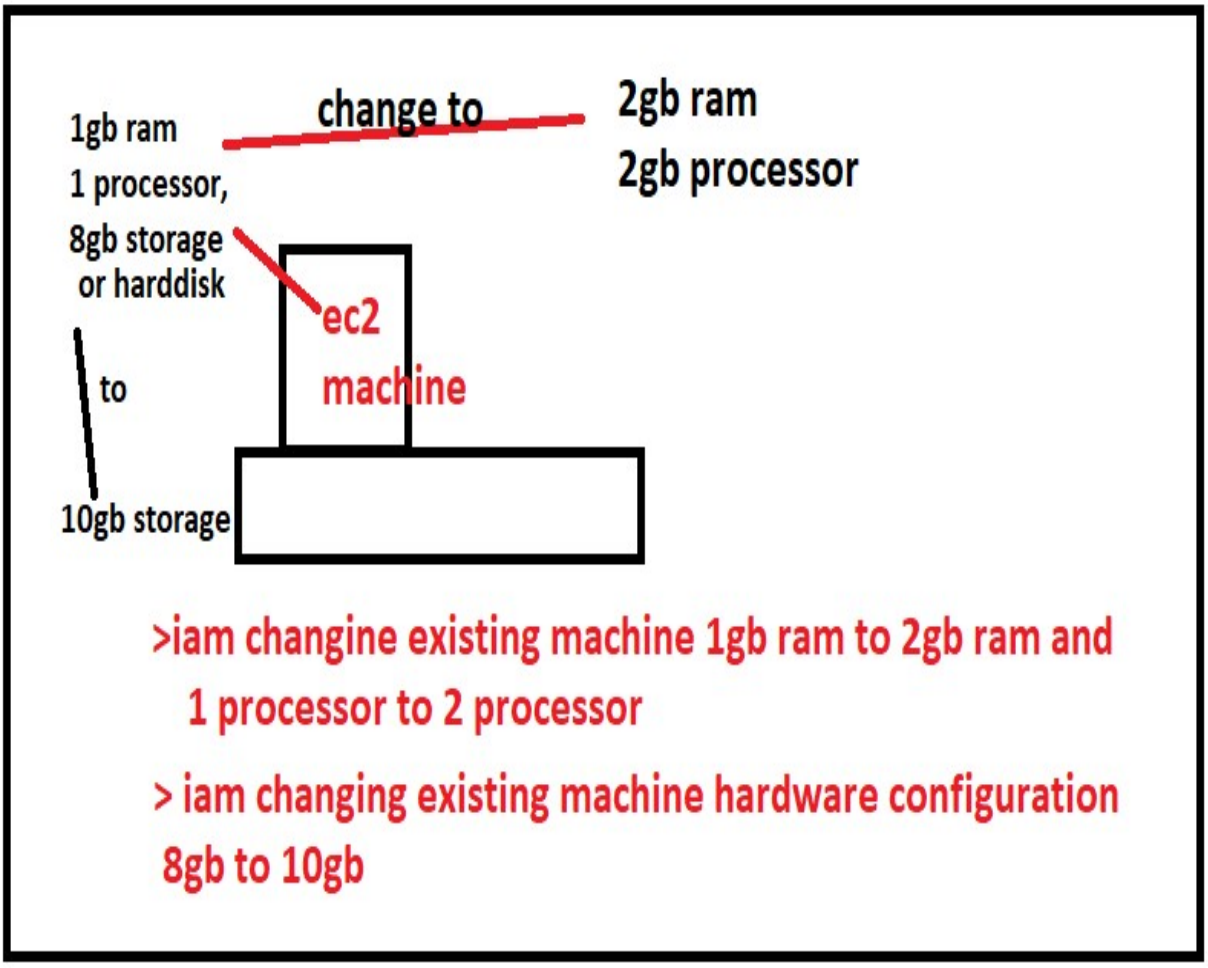
How can we do that?

Observe the machine we have launched,
instance type is t2.micro
comes with 1 CPU core and 1 GB ram.

Can we increase the hardware size?
First we need to stop the machine.
then go to
Actions---> Instance settings ---> Change instance type
Now, we have multiple options, Lets select t2.medium --- Apply

Note: t2.medium comes with 2 CPU cores and 4 GB ram
>it is not free tier you will get bill

Now, Lets change the instance type to t2.micro --- Apply



Can we increase the hard disk

TO increase the hard disk, we do not need to stop the machine.

Machine should be in running state.

Lets start the machine
Go to volumes option in dashboard, Select the Volume →move scroll side →go to Attached instances and see your machine name and select volume
Actions ----> Modify Volume ---- Size - 10 (change to required size) --> Modify--> Yes --> CLose
It will take time to reflect→refresh
>see successfully scale up we done
>In the same way we decrease the configuration hence it is called horizontal scaling or scale down
++++++++++++++++++++++++++
Yesterday only we discussed Scale up and In

Scale Up:- it is Horizontal scalling we use Auto Scaling and increase the ec2 machine when traffic increases

Scale In:- it is Horizontal scalling we use Auto Scaling concept and decrease the ec2 machine when traffic is decrease

---

Attach / Detach Volume(storage)

==========

Ec2 machine can have 2 volumes(storage)

Launch instance --> Amazon Linux ---> Next -- Next -- Step 4: Default 8gb harddisk(Add one more volume

Default root volume is 8gb

And new volume is 20gb it is EBS volume

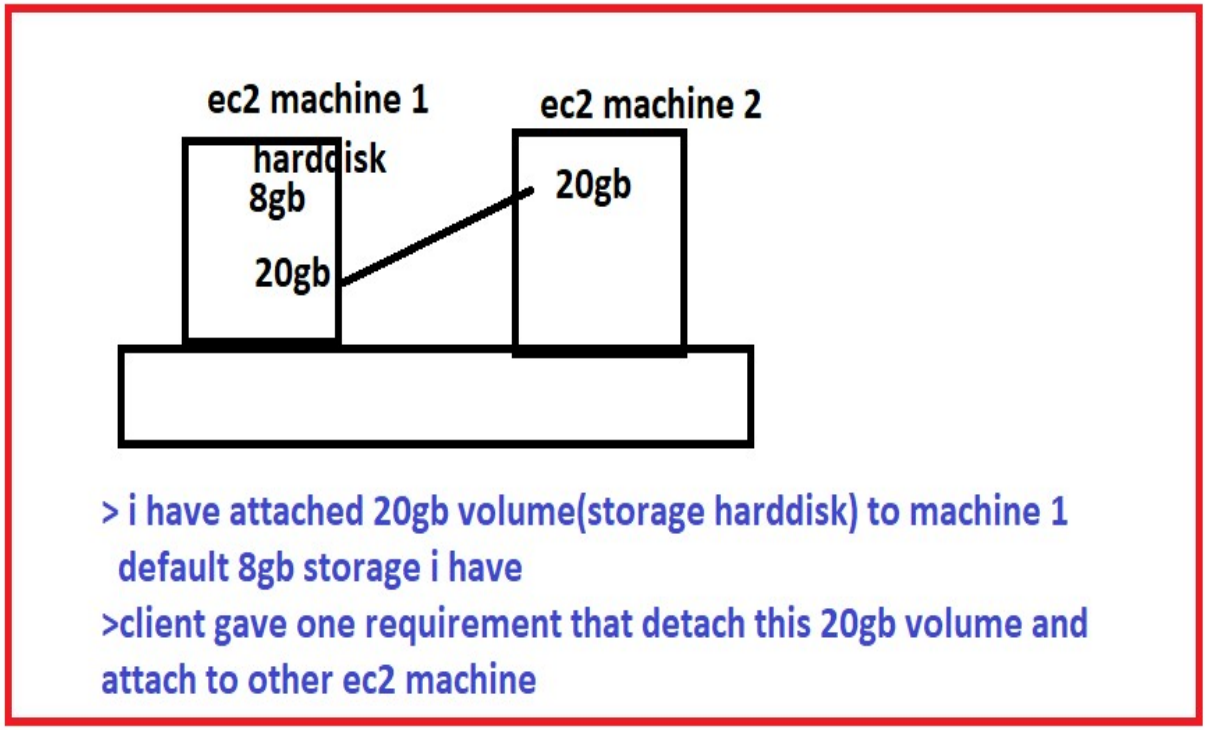
Observe Delete on termination (only 1st volume(root) is selected).
This means if we select volume when instance are removed root volume also terminated
>if we not select that volume when instance are deleted also this volume can attach another instances

Next ---> Add name tag -- sunil --> Next --- Next -- Launch -- Select existing key pair ---> Launch -- View Instance

See 2 volumes(storages) are created
Click on storage tab you can find or click on volumes

Now, I want to detach the new volume client want to delete.

Go to volume
Select the(20gb) volume --> Actions --
Detach volume-- Yes, detach



I want this detach volume attach to other macine client requirement

>see detach volume showing as available
now we can use this detach volume

Start the machine which you want to attach

Go to volumes→Select the same volume --> Action -- Attach Volume -- Select required instance --> Attach volume

Scroll you will find attachments at Attached Instances
Root volume(default 8gb) we cannot detach
But we are detached EBS (created volume1) we can detach to other machine

++++++++++++++++++++++++++++++
>In AWS if limit is increased it generated bill

Session-8

==========

Today Agenda

-EC2 Dashboard-Region Specific
-Snapshots
-Creating Customized AMI
-How to check for bill

---

login into AWS

==========

EC2 Dashboard-Region Specific

==========

create EC2 machine as Demo with root volume and EBS volume(10gb)

Click on launch instance choose create a new key pair-->lauch instance

see we have created one EC2 machine it is located at mumbai region.

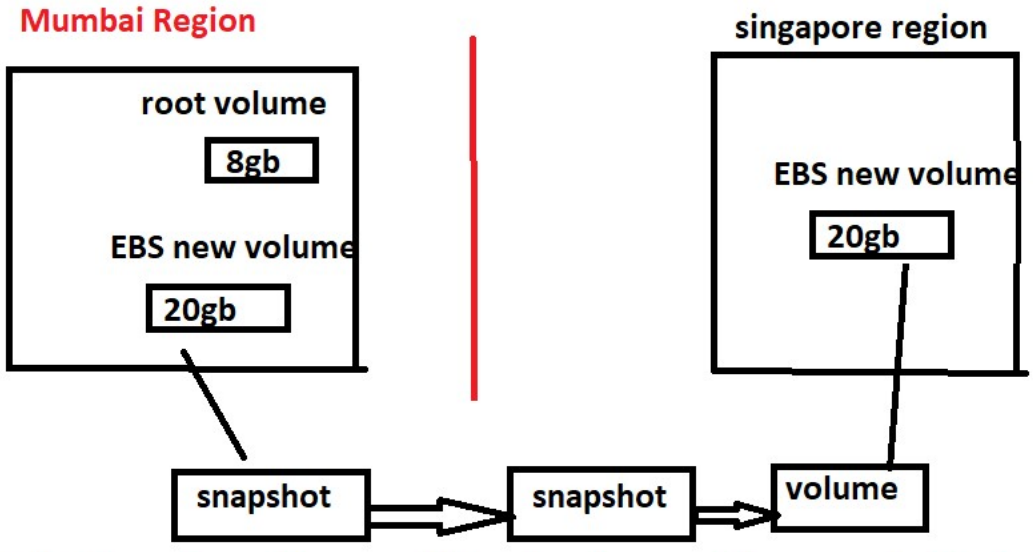
>I want to create one more EC2 machine at singapore region

click on Lauch Instance

>The client requirement is to move the EBS (new) volume from mumbai regaion to Singapore region

>Volumes directly we cannot move from one region

to other region(like attach and detach)



>client requirement to move EBS volume(new vol) from mumbai to singapore region. For this we should convert volume to snapshot mumbai region and move that snapshot to singapore here we convert snapshot to volume

>To this first we should convert EBS volume to snapshot in mumbai region and move to Singapore region

>At singapore region snapshot is received and convert to volumes(harddisk storage) and use it

EBS stands for Elastic Block store

Process to create volume to snapshot

Click on Mumbai region
instance→storages→click on EBS volume→go to Actions→create snapshot
Description: Mysnap(anyname)
Click on Add Tag
Key: Name
Value: Mysnap→create snapshot

To find Snapshots

==========

In the below volumes tab you find

Move Snapshot to Mumbai region

==========

To do this→click on snapshot at Mumbai region→click on copy snapshot

Destination Region: ap-southeast-1 of Singapore→copy snapshot

---

Go to Singapore region

To Find snapshot region

Go to snapshot tab under volumes tab click on see you will find snapshot of mumbai region now you convert snapshot to volume

Click on snapshot at Singapore region

Go to Actions→click on create volume from snapshot
Click on ADD tag
Key: Name, Value: Myval

Click on Volumes tab and check you find two volume root volume(default) and EBS volume.

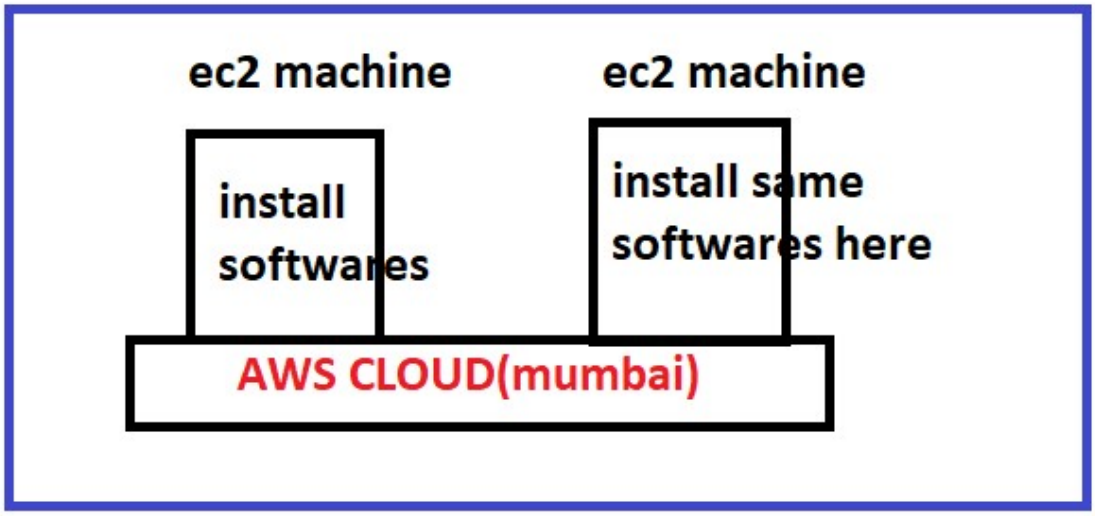
>Now attach EBS volume
Click on volumes tab→go to Actions→Attach volume→select instance →attach

Both are independent volumes and snapshots

Creating Customized AMI

==========

In AWS cloud I have created ec2 machine and installed software1 ,software2 as per client requirement.



Now the client requirement to create one more ec2 machine(instance) and install same softwares which have been created in first ec2 machine(duplicate ec2 machine).

>2 machines are created in Mumbai region only

To do this we will create AMI

==========

When ever we creating an linstance

At step1:

we see choose an Amazon Machine image

(This is nothing but softwares installation)

>This is predefineds AMI(softwares)

>AMI which you created is called Customaized AMI (userdefined AMI)

Process to created cutomaized AMI

select that any existing machine → Actions→Image and Templates→create Image

Mention

Image name: MyImg

Description: MyImg
Click on ADD tag
Key: Name, value: MyImg
Click on Image

>successfully created image
>you can see this AMIs under Images tab

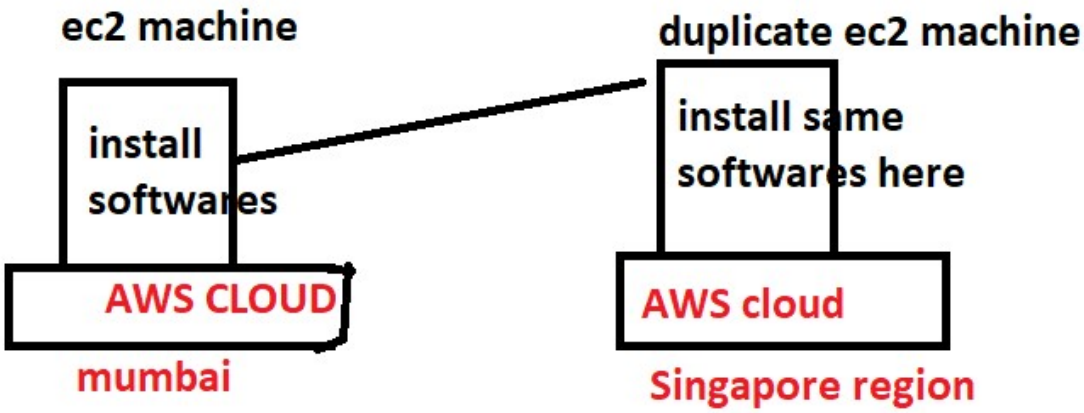
Now I want to move all software from predefined AMIs to customaized AMI
>click on customaized AMI
Wait for 1minute→refresh→see status now it is available

To create Customaized AMIs
==========
Click on Lauch Instance→click on My AMIs and select remaining steps are same

>client want create duplicated copy of mumbai region at Singapore region

Or

>I want to create duplicate same customaized AMI from Mumbai region to Singapore region



Select the customaized AMI→click on Actions tab→ copy AMI

Select destination region that where do you copy→Asia Pacific Singapore

Copy image(im not doing this it takes more time to copy from one region to other region)

After practicing delete

1)Terminate instance

2)click on AMIS→Derigister AMI(Deleting)

3)click on Volumes→Delete volumes

4)snapshot Terminate

Go to Singapore region

1)Terminate instance

2)snapshot terminate

==========

To see Bill

==========

Go to search→Billing

==========x==========

Session-9

==========

Today Topics

-Understanding s3 service
-Features of s3
-Creating Bucket
-Uploading Object into Bucket
-Accessing the Object
-Making Object Private
-Deleting the Object and Deleting the Bucket
-Options in the Bucket

S3 stands for Simple Storage Service

>it is Object(file) storage from web
(or)
>S3 is a secure, durable and highly. Scalable Object(file) storage. S3 is

easy to use with a simple web service interface to store and retrieve any amount of data from anywhere on the web

-S3 is a safe place to store your files.
-It is Object Based Storage
-Files can be from OBytes to 5TB(Graphical Console)
-Files can be from O bytes to 5GB(using command line(terminal))
-There is unlimited storage
-Objects are stored in buckets
-S3 bucket names must be unique globally

Explanation
First create bucket and store objects(files)
features of s3
==========
-Tiered Storage Available
-Lifecycle Management

-Versioning
-Encryption
-Secure your data using Access control lists & Bucket Policy

S3 Storage Classes/Tiers
==========
-S3 Standard
-S3 Intelligent Tieriing
-S3 Standard IA
-S3 One Zone-IA(Infrequently Access)
-S3 Glacier(To get data, need to wait for 2-5 hours)
-S3 Glacier Deep Archieve(To get data, need for wait for 12 hours)

AWS will make charge(Bill) for
==========

>More useStorge

>Requests
>Storage Management Pricing(Tiers)
>The amount of Data Transfer Pricing(Manual)
>Transfer Acceleration
>Cross Region Replication(Automatic)

login to AWS
==========

Create new bucket
Services→Storage-->S3
Bucket Name :mybucket20256 (unique)
AWS region: select Mumbai region
ACL: enable (Access Control enable)
By default bucket will block click on enable
Click on Turn of block all public access

Click on Create bucket

---

create one more Bucket at singapore region

==========

Create new bucket

Services→Storage-->S3

Bucket Name :mybucket20256 (unique like email)

AWS region: Select singapore

ACL: enable (Access Control enable)

By default bucket will block click on enable

Click on Turn of block all public access

Click on Create bucket

AWS s3 service is global

>I can create Buckets any region from one region

EC2 service is specific to region

++++++++++++++++++++++++++++++++++++

Store Object into bucket

==========

choose any file from your system

Click on objects→Upload →Add files --> scroll down→click on permissions→select Grant public-read access→click on I understanding the risk of granting →upload

>successfully object is uploaded

Note: As bucket is public, and object is also public, anyone in the world can access the content.

Click on the Object ---> Get Object URL
Using Object URL, anyone can access.

Google:- object url paste you will see object

After practise completed select object and bucket delete at mumbai and singapore region it is shown in mumbai region only

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Session-10

==========

Today Topics

---

1) Versioning
2) Static website hosting
3) classes/ tiers
4) Cross region replication
5) Transfer Accelaration
6) encryption
7) tags
8) metadata
9) ACL
10) Bucker policies
11) Life cycle management

++
login to AWS
==========
services-->Storages tab-->S3 service

To store a objects first you create Bucket

click on Create Bucket

Create new bucket
Bucket Name : mybucket20256 (unique)
AWS region: select Mumbai region
ACL: enable (Access Control enable)
By default bucket will block click on enable
Click on Create bucket

Click on Turn of block all public access

What is versioning?

Versioning is used to maintain different versions. Using version we can recover the deleted object. If versioning is enable only We can recover the deleted object

Click on the bucket ---> Properties tab

see(observe) every thing is disable

Edit --- Enable
Save Changes.

Lets upload one object

Click on Objects→upload any object(file) →Add files→click on Permissions→click on Grant public-read access

-->click on I understand the risk of granting public→upload
→click on object→properties→copy object url

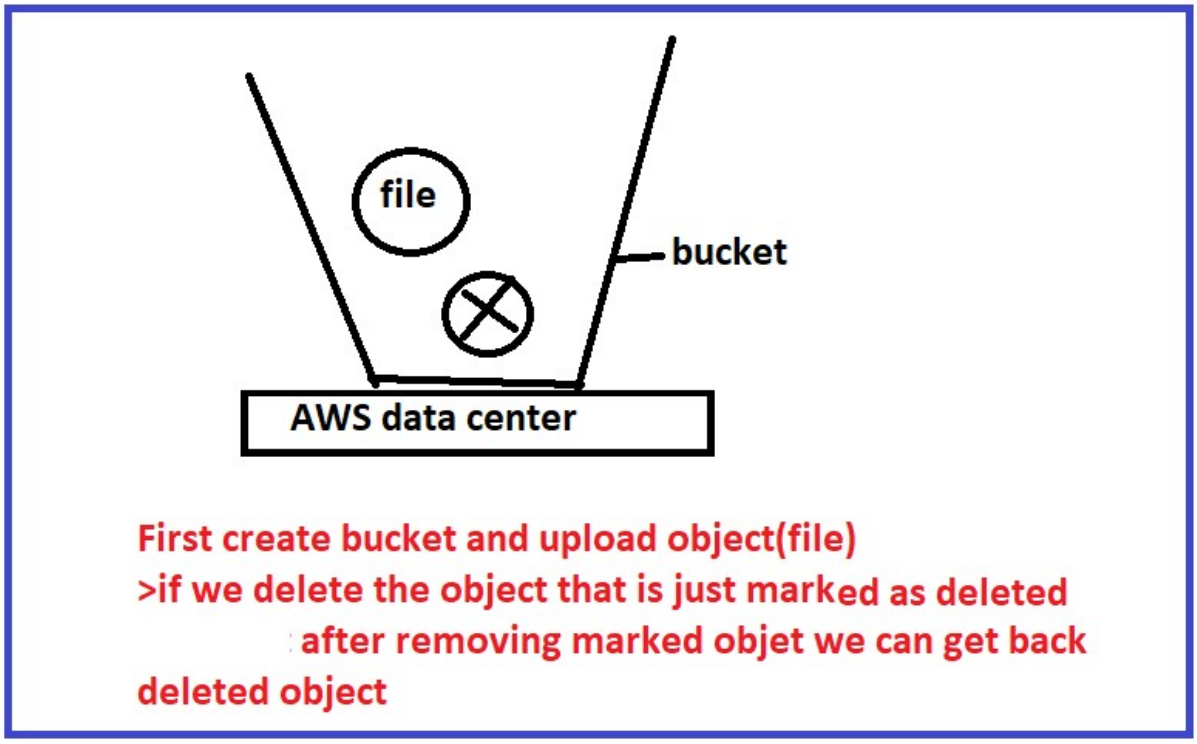
>successfully I have uploaded the object int The bucket
>Now I can access using object url that object across internet

First advantage of versioning

We can recover deleted object.

Lets delete the object.
Select the check box--> Delete

Click on objects→no object



How can we recover?

Enable show versions

We can see the object and its delete marker.

Note: When we delete, object is not deleted. It is marked as deleted.

So, If you remove the delete marker, We will get the object.

select the delete marker check box ---> Delete→permanently delete→Delete Object

Now, Disable show version
Our object is back!!!
++
2nd advantage:
We can maintain different versions of the file

Create file: Hello.txt→ line1, line2

Same like above upload the object(file) in the bucket and access at browser using object url

Open the same file in the desktop

Add another line that is line3

Upload the same file again.
Get the object URL, and check from brower, we get the latest file.

Where can we see the older versions of the file?

Click on show versions

we can see both the versions

Below file is older version
and we can download the older vesions of the file.

Select the file→download
++++++++++++++++++++++++++++++++
First delete the object

Select file and delete
Even if you delete the file, we can recover

Then click on show versions
>if we delete only marker object the object
Can be recover

If we delete marker object and present object then file is deleted permenantly

Select the objects ---> delete ---> delete
++++++++++++++++++++++++++++++++++
select show version
We can see both the versions of the file.

If you delete both the versions, we cannot recover.

Note: If you delete bucket, we cannot recover.Lets delete the bucket.

Now, the dashboard is empty.

++

Static website hosting

We can use bucket for website hosting

If you want to have your own website
First you should have
1)domain name—like www.awslearn.com

2)Hosting
To store videos in the above website we need 10gb storage this storage is known as hosting.then people can access this website

To store data aws bucket we can use is known as hosting

Create new bucket
Services→Storage-->S3
Bucket Name :mybucket20256 (unique)
AWS region: select Mumbai region
ACL: enable (Access Control enable)
By default bucket will block click on enable
Click on Turn of block all public access

Click on Create bucket

Select the bucket ----> Properties ---> Static website hosting ----> Edit --->Enable -- Host a static website ---

This is asking two files

==========

index document - index.html(default page means it opened by default)

error document - error.html

click on Save changes

Now, we need to create index.html and error.html

Index.html→<h1> welcome to my website</h1>

Error.html→<h1> website is under construction</h1>

Click on objects→Upload →Add files→index.html and error.html ---> scroll down→click on permissions→select Grant public-read access→click on I understanding the risk of granting →upload

Now, go to the properties of the bucket ---> Static website hosting --> get URL of the website (endpoint)

http://mybucketrekha.s3-website.ap-south-1.amazonaws.com

endpoint is like domain name

I want website like: www.rajhyd.com
For this you have to buy domain name and link to bucket endpoint

>where to buy domain name and how to domain name and endpoint I will tell at Route s3

What is the use of error.html?

Incase of any reason, if index.html is not accessible(if it is deleted or any reason) then error page will be displayed meaning output.

Lets make the index.html delete.

Now, refresh the URL, we get error.html page

Lest Delete the files ---- and Delete the bucket.

++

S3 Storage Classes/Tiers

==========

-S3 Standard

-S3 Intelligent Tieriing

-S3 Standard IA

-S3 One Zone-IA(Infrequently Access)

-S3 Glacier(To get data, need to wait for 2-5 hours)

-S3 Glacier Deep Archieve(To get data, need for wait for 12 hours)

>slect any of 1 storage classes every class as advantage and disadvantage

>we will upload object in any one of the class
>Default class S3 is standard

Create bucket and upload one image
Select the object→we can see storage class—standard
>Default storage class is standard
>standard is high speed storage class
>Remaining storage classes or low speed you will get very less bill

Change storage class standard to standard-IA
Click on object→scroll down you find storage class→standard→click on Edit→select standard-IA
Click on save changes

Practical:-If you choose high speed no buffering see some of examples films in amazon ,Netflix no buffering
You can check pricing of storage classes like below

Google→aws calculator→click on AWS pricing calculator→click on create estimate→search s3→click on configure

Select region Mumbai

Click on s3 standard→enter s3 standard storage 1000gb per month→see amount 25.00 USD

Change s3 standard to s3 one zone to Infrequent Access →enter 1000gb per month→see amount 11.00 USD
(it is low speed storage class that ways price less)

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(tomorrow)

CRR (Cross region replication)

Lets say, we have two buckets (1st bucket in mumbai

2nd bucket in sydney)

We we upload the object in mumbai, the object should also be available in sydney).

As we are replicating an object in another region, it is called cross region replication.

vice-versa will not happen.
If we delete object in mumbai, it will not be deleted in sydney.
If we edit object in mumbai, it will not de edited in sydney.

Lets create bucket
bucket name - mumbai-sfsdfgds
Region - mumbai
Next ----> Next ---> uncheck block all public access
Next ---> create bucket.

Lets create 2nd bucket in sydney
Lets create bucket
bucket name - sydney-fhgfhfd
Region - sydney
Next ----> Next ---> uncheck block all public access
Next ---> create bucket.

Enable cross region replication in mumbai bucket

Select mumbai bucket --> Management ---> Replication Rules--> Create Replication Rule ---> Enable Bucket versioning --->
Replication Rule Name - CRR1

Destination bucket --> Sydney bucket --> Enable versioning ---> ---> IAM Role -->

(TO establish connection between two regions, we need role)

IAM Role - Create new role
Save.

Now, lets upload object in mumbai bucket, it will be replicated in sydney bucket!!!!

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