Module 2: FSx Assignment

Problem Statement:

You work for XYZ Corporation and the current requirement in the organization is for faster file sharing, which can also help in data replication from on-premises infrastructure.

Tasks To Be Performed:

1. Create an FSx file system for a Windows file server:
    a. Make sure you have AWS Managed Active Directory with a valid domain name
    b. Connect it to your Windows EC2 server

2. Create an FSx file system for Lustre and attach it to an Amazon Linux 2 instance.

Solution

Amazon FSx is easy and cost-effective to launch, run, and scale features with a high-performance file system in the cloud. It makes use of SSD storage to provide fast performance with low latency. FSx for Windows file server provides a fully managed Microsoft Windows file system so that we can move our Windows-based application that required shared file storage to AWS. For this, we have created an Active Directory, we also need to have a particular instance of Windows AMI and then Amazon FSx which will be attached to our instance later.

Steps for creation of Active Directory

Go to management console→ Search for directory service→ Select AWS-managed Microsoft Active Directory→ Set up directory→ Next→ Choose the edition(Standard/Enterprise) as per requirement→ Directory DNS Name(bikiron.com)→Provide Admin Password→ Networking(select the VPC as per requirement, subnet(if we choose no preference then it will automatically select the AZ where our EC2 instance is available or select the AZ where our EC2 instance is available on the same AZ))→ Create Directory(it will take 20-30 minutes to Active/Available).

Steps for creation of Amazon FSx for Windows

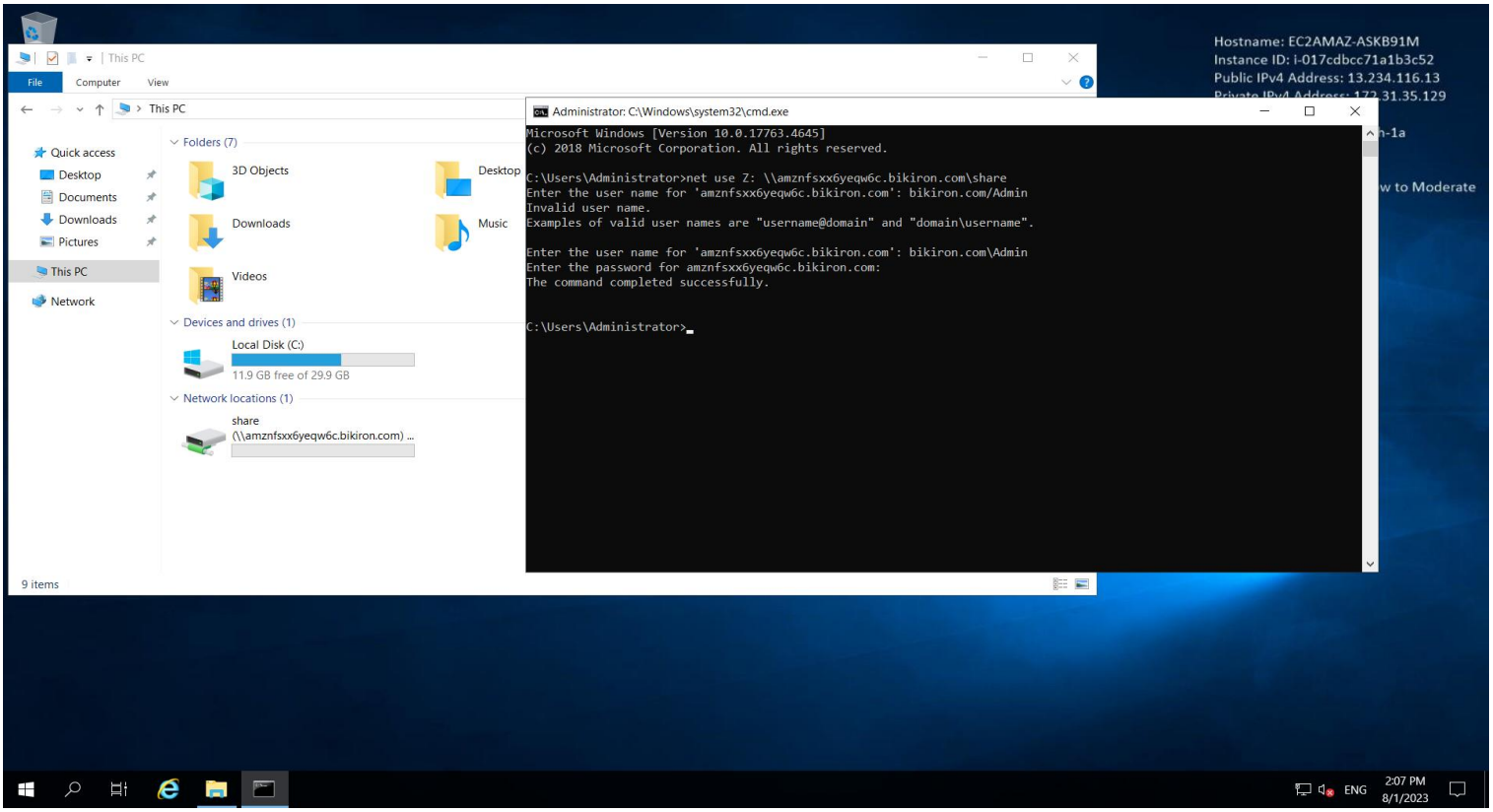
Go to Management Console→ Search FSx→Select Create File system→Select Amazon FSx for Windows file server→Next→ Provide file system name→ Select the deployment type as per your requirement(multi-AZ)→Choose the storage type(SSD)→ SSD storage(32GiB minimum)→Networking(Select the VPC as per requirement, choose VPC security group and select the subnet where our EC2 is available or put the default subnet)→windows authentication(select the AWS manage Microsoft Active Directory then choose the Directory accordingly)→ Next→ Review the things then click on Create file system.

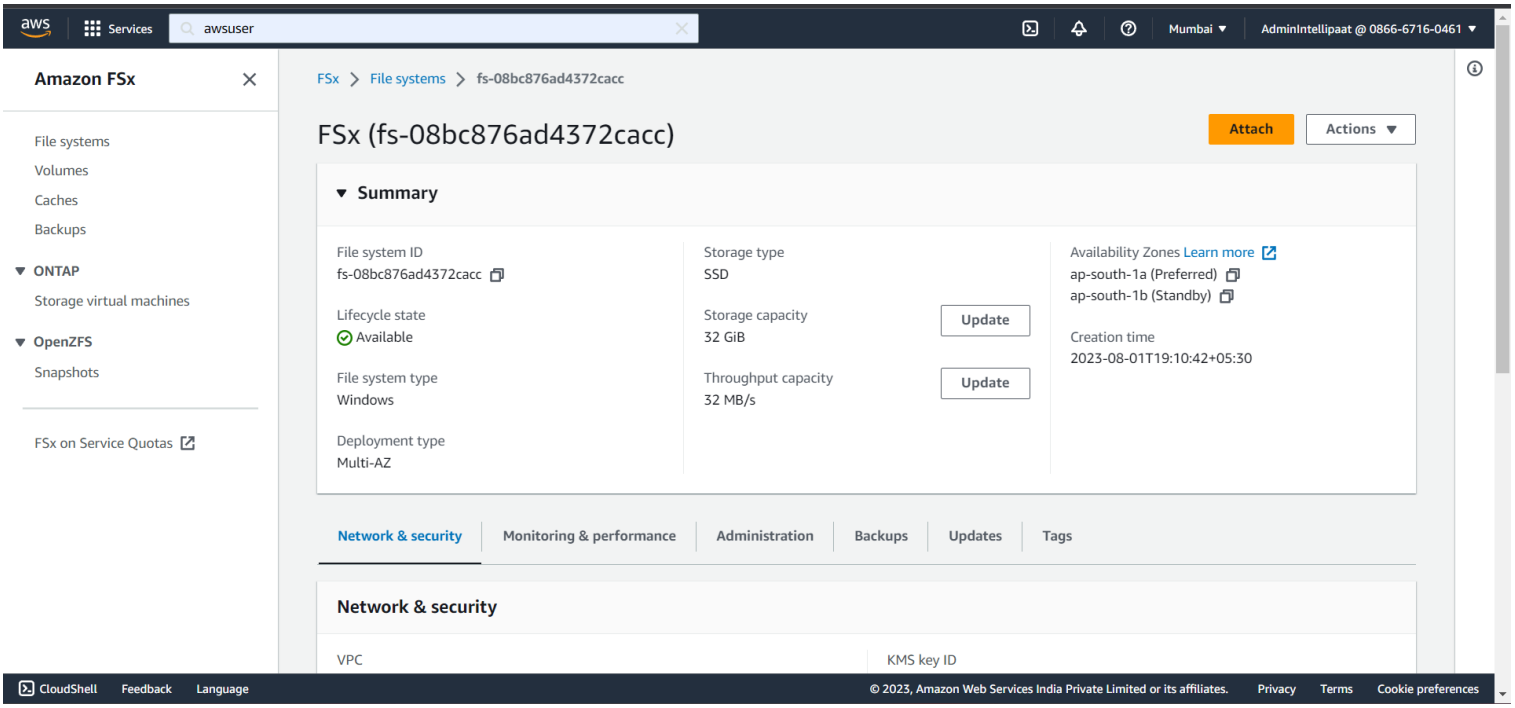
Now launch the Windows-based EC2 instance and then connect. Now go to the network settings and put two DNS IP addresses on the machine. We will get those two IP addresses into the AWS Managed Microsoft AD.

Now we need to change the domain name to our instance, for that go to the control panel→system & security→ System→ Advanced system settings→ change→ Domain (put the Domain name which you used during Active Directory creation). After this, they will ask for credentials.

Now we need to run a command into the command prompt. Go to Amazon FSx→ Attach→ Copy the command using the default DNS name and then paste it on the prompt, now they will ask for credentials, Username- bikiron.com/Admin, Password- created during the creation of the directory service.

Results




Services
awsuser
Mumbai
AdminIntellipaat @ 0866-6716-0461
Amazon FSx
File systems
Volumes
Caches
Backups
ONTAP
Storage virtual machines
OpenZFS
Snapshots
FSx on Service Quotas
FSx > File systems > fs-08bc876ad4372cacc
FSx (fs-08bc876ad4372cacc)
Attach
Actions
Summary
File system ID
fs-08bc876ad4372cacc
Lifecycle state
Available
File system type
Windows
Deployment type
Multi-AZ
Storage type
SSD
Storage capacity
32 GiB
Update
Throughput capacity
32 MB/s
Update
Availability Zones Learn more
ap-south-1a (Preferred)
ap-south-1b (Standby)
Creation time
2023-08-01T19:10:42+05:30
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Monitoring & performance
Administration
Backups
Updates
Tags
Network & security
VPC
KMS key ID
CloudShell
Feedback
Language
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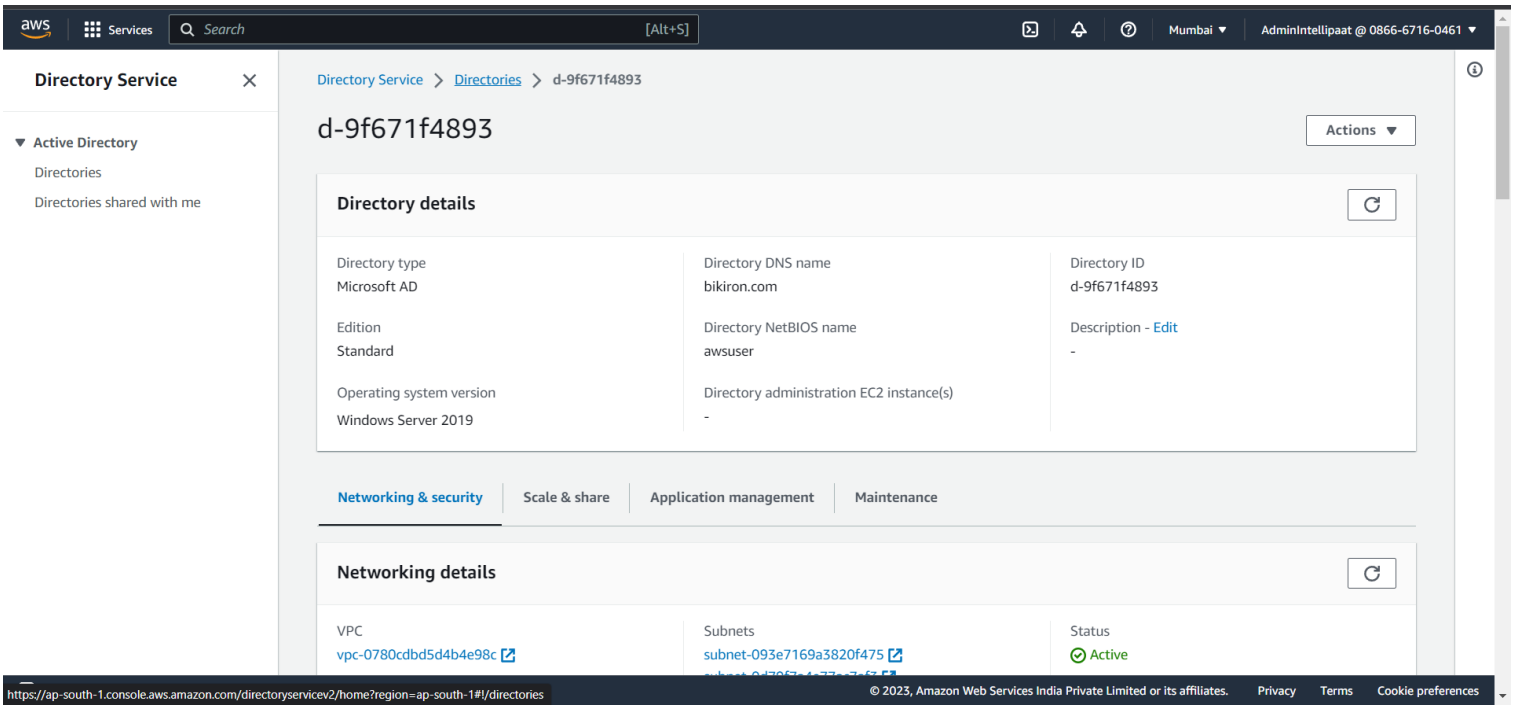
Services
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Directory Service
Active Directory
Directories
Directories shared with me
Directory Service > Directories > d-9f671f4893
d-9f671f4893
Actions
Directory details
Directory type
Microsoft AD
Edition
Standard
Operating system version
Windows Server 2019
Directory DNS name
bikiron.com
Directory NetBIOS name
awsuser
Directory administration EC2 instance(s)
-
Directory ID
d-9f671f4893
Description - Edit
-
Networking & security
Scale & share
Application management
Maintenance
Networking details
VPC
vpc-0780cdbd5d4b4e98c
Subnets
subnet-093e7169a3820f475
Status
Active
https://ap-south-1.console.aws.amazon.com/directoryservicev2/home?region=ap-south-1#!/directories
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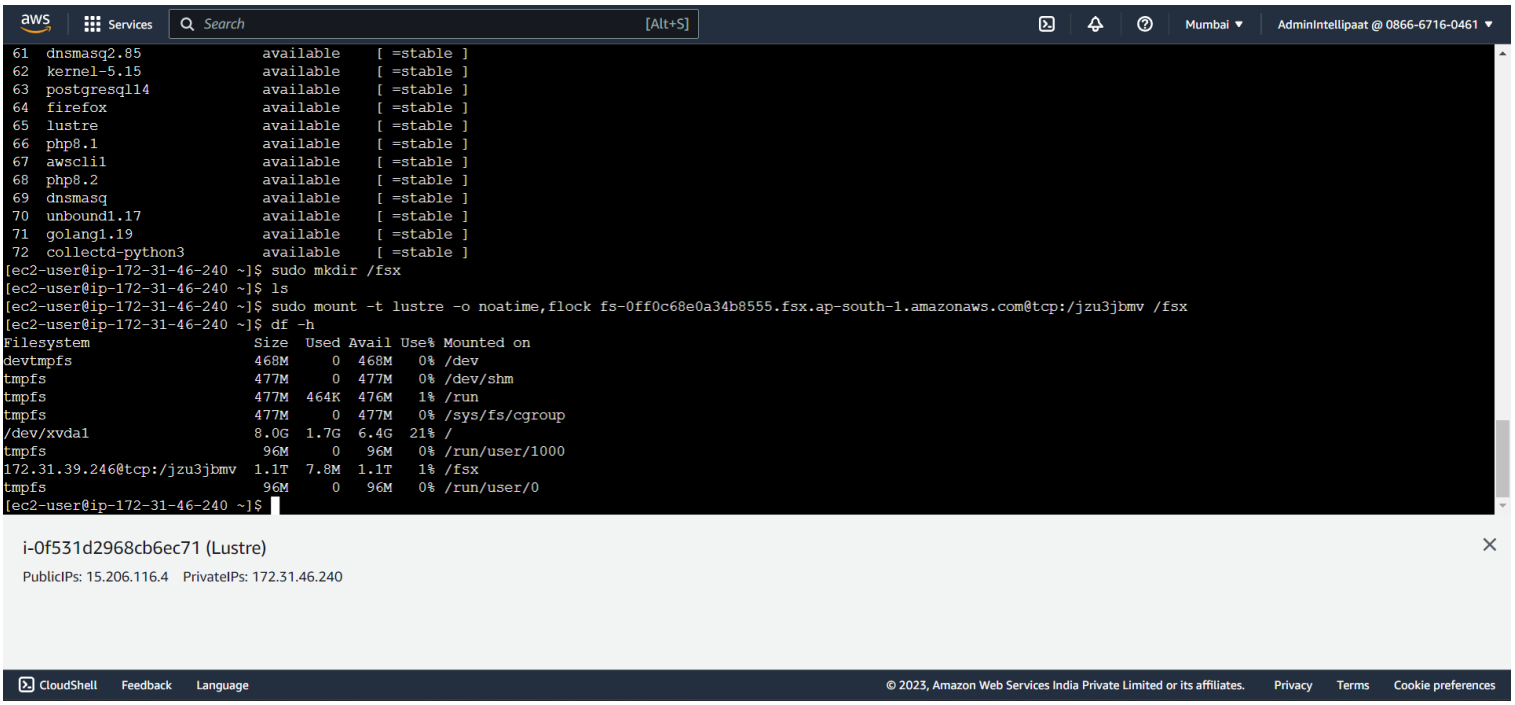
Steps for creation of Amazon FSx for Lustre

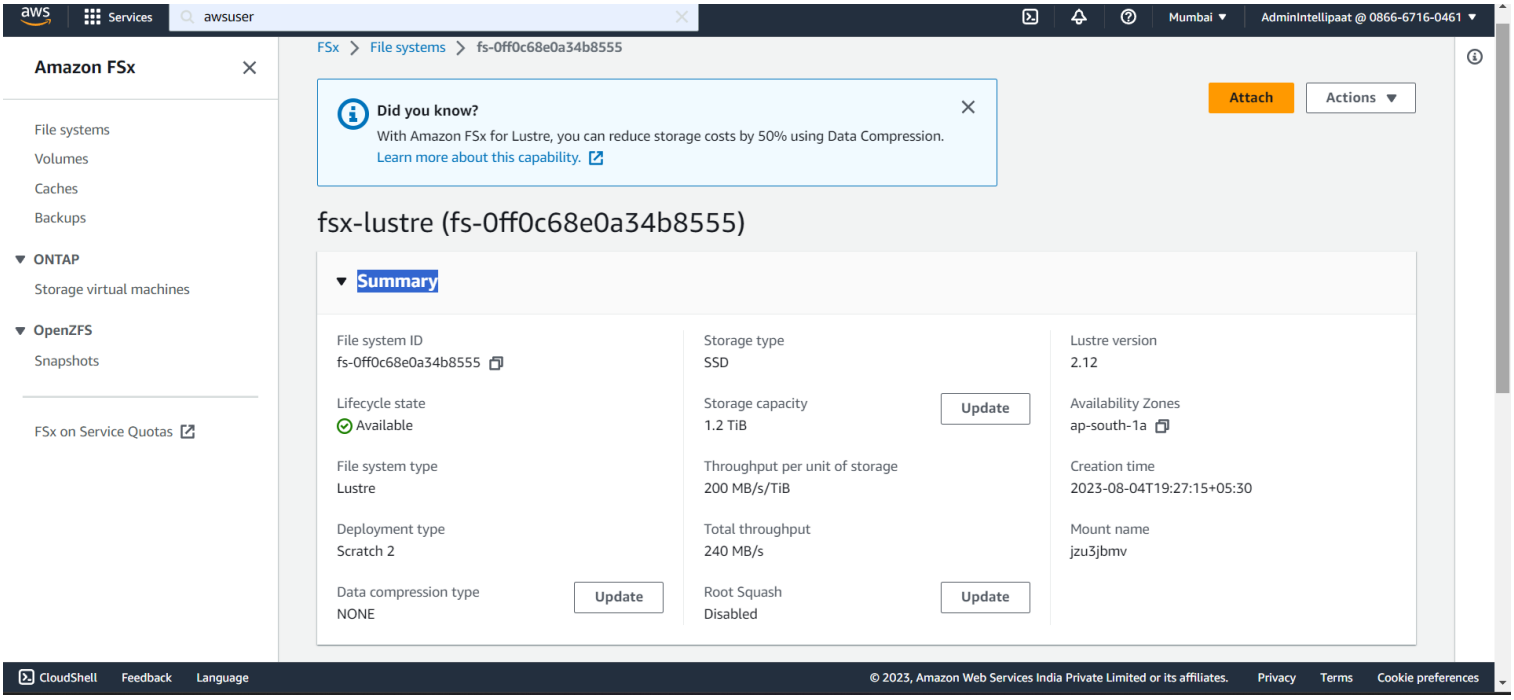
Go to Management console→search FSx→ Select FSx for Lustre→ Next→Put file system name→Deployment & storage type(scratch, SSD)→storage capacity(minimum 1.2 TiB)→ Network & security(Select the VPC, in the security group inbound rules must be custom with port 988, 1021-1023)→ select the subnet where your machine is available. We must put the above inbound rules to the instance security group with SSH enabled. → Next→ Create file system.

→Now connect the machine then update the machine $ sudo yum update -y
→Now we will install the dependency $ sudo amazon-linux-extras install -y lustre2.10
→Go to the file system→ Attach, here we have to create a directory on to the instance e.g /fsx
→Now copy the command from the file system and paste it then enter, for result type the command
$ df -h

Results



RESULTS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File systems
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FSx on Service Quotas
FSx > File systems > fs-0ff0c68e0a34b8555
Did you know?
With Amazon FSx for Lustre, you can reduce storage costs by 50% using Data Compression.
Learn more about this capability.
Attach
Actions
fsx-lustre (fs-0ff0c68e0a34b8555)
Summary
File system ID
fs-0ff0c68e0a34b8555
Storage type
SSD
Lustre version
2.12
Lifecycle state
Available
Storage capacity
1.2 TiB
Update
Availability Zones
ap-south-1a
File system type
Lustre
Throughput per unit of storage
200 MB/s/TiB
Creation time
2023-08-04T19:27:15+05:30
Deployment type
Scratch 2
Total throughput
240 MB/s
Mount name
jzu3jbmv
Data compression type
NONE
Update
Root Squash
Disabled
Update
CloudShell
Feedback
Language
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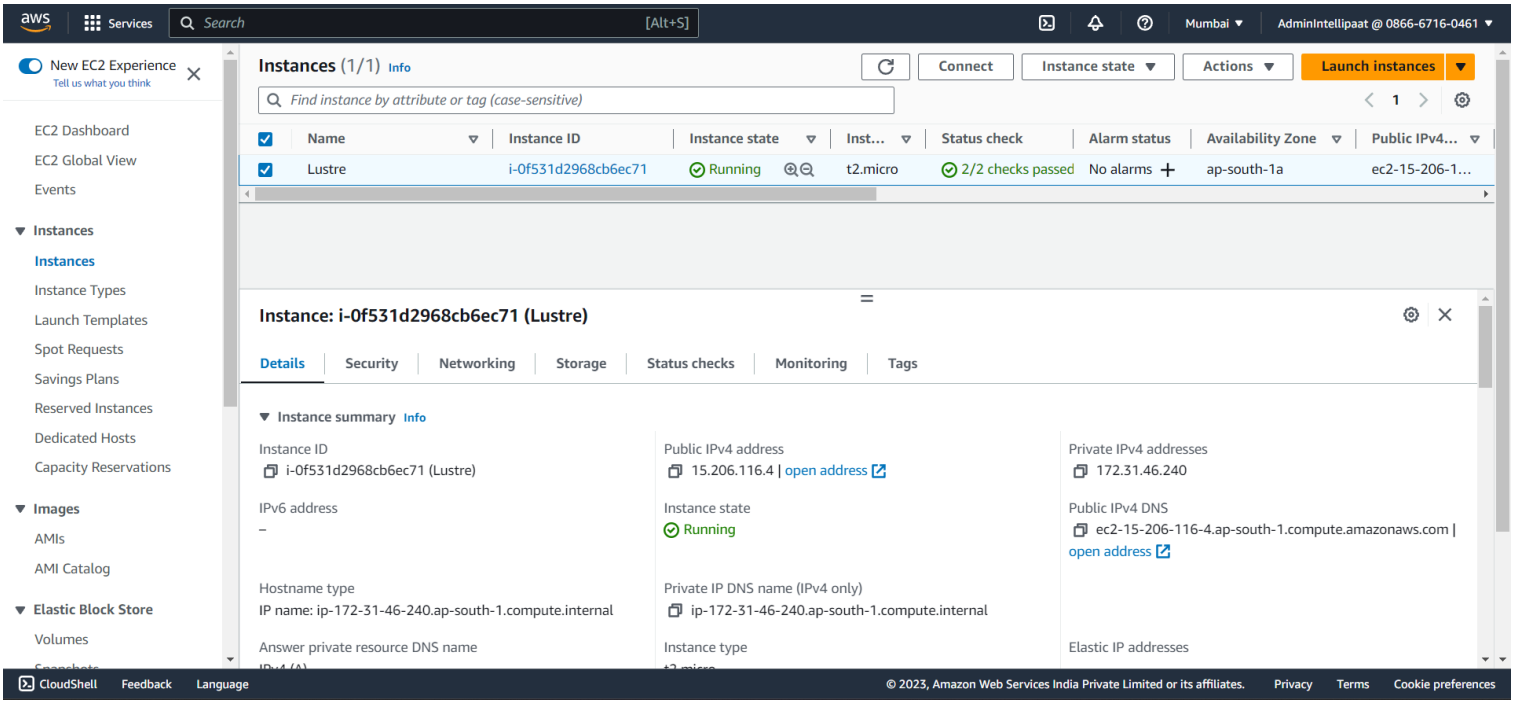
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EC2 Global View
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Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Instances (1/1) Info
Connect
Instance state
Actions
Launch instances
Find instance by attribute or tag (case-sensitive)
Name
Instance ID
Instance state
Inst...
Status check
Alarm status
Availability Zone
Public IPv4...
Lustre
i-0f531d2968cb6ec71
Running
t2.micro
2/2 checks passed
No alarms
ap-south-1a
ec2-15-206-1...
Instance: i-0f531d2968cb6ec71 (Lustre)
Details
Security
Networking
Storage
Status checks
Monitoring
Tags
Instance summary Info
Instance ID
i-0f531d2968cb6ec71 (Lustre)
Public IPv4 address
15.206.116.4 | open address
Private IPv4 addresses
172.31.46.240
IPv6 address
–
Instance state
Running
Public IPv4 DNS
ec2-15-206-116-4.ap-south-1.compute.amazonaws.com | open address
Hostname type
IP name: ip-172-31-46-240.ap-south-1.compute.internal
Private IP DNS name (IPv4 only)
ip-172-31-46-240.ap-south-1.compute.internal
Answer private resource DNS name
Instance type
Elastic IP addresses
CloudShell
Feedback
Language
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