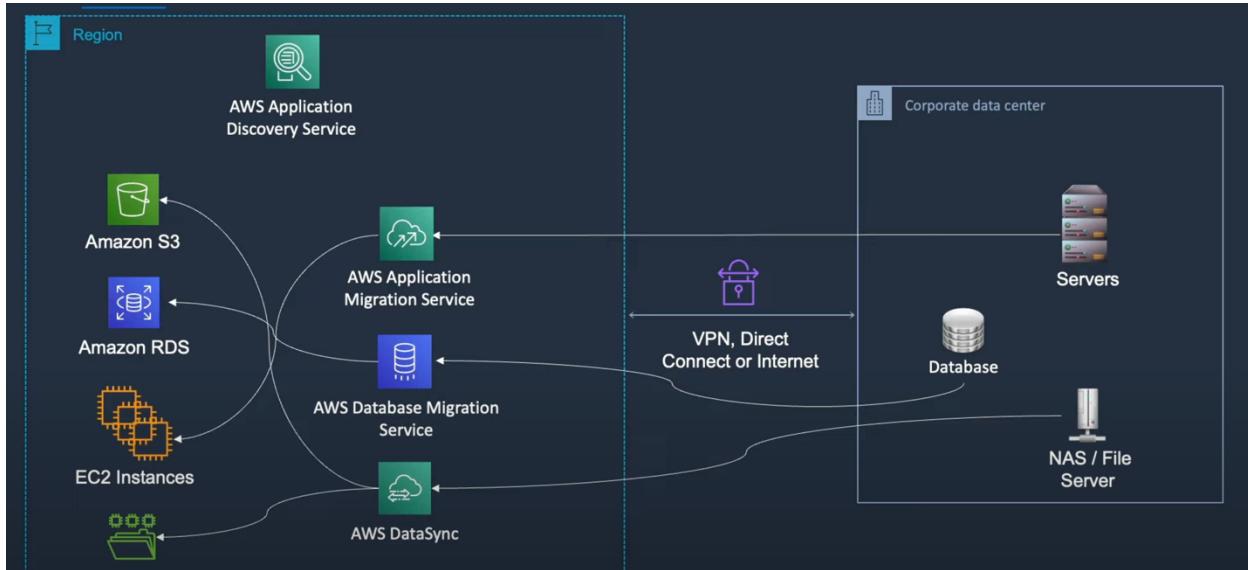


Assignment-9: Platform Migration

To migrate a computing platform, the following steps are recommended:

- Defining the scope of migration plan and planning a strategy (3-1-2023 -> 3-3-2023)
- Assessing the present environment for finding the components to be migrated (3-4-2023 -> 3-5-2023)
- Identifying the target environment (AWS, Azure etc.,) to migrate the computing platform. (3-5-2023 -> 3-6-2023)
- Get the estimation size of storage and find the storage destination. (3-6-2023 -> 3-8-2023)
- Assessment of the network by benchmarking the performance and by using iperf
- Take the snapshot of metadata. (3-8-2023 -> 3-11-2023)
- Identify compatibility issue between present and future platform (3-11-2023 -> 3-13-2023)
- Develop a plan that includes resource requirements and procedures (3-13-2023 -> 3-15-2023)
- Be sure to build in enough time for unexpected issues that may arise during the migration process. (3-15-2023 -> 3-16-2023)
- Identify any dependencies that exist between different parts of the platform or between the platform and other systems. (3-16-2023 -> 3-18-2023)
- Develop contingencies in case something goes wrong during the migration. For example, you might have a plan in place for how to handle a data migration failure, or you might have **backup resources** available in case a critical system goes down during the migration. (3-18-2023 -> 3-22-2023)
- Identify who will be responsible for each aspect of the migration process. (3-22-2023 -> 3-23-2023)
- Develop a communication plan to ensure that everyone involved in the migration process is kept up-to-date on progress, issues, and other important information. (3-23-2023 -> 3-24-2023)
- Prepare the current environment and the target environment for the migration, including setting up the necessary infrastructure, software, and security measures (3-24-2023 -> 3-25-2023)
- Perform the actual migration, following the procedures outlined in the migration plan. (3-25-2023 -> 3-29-2023)
 - In the implementation part, we need to use split to rsync different sublevels.
 - We need to use the multiple network adaptors for doing the fast transfers.
 - Verify that the migration was successful and that all components are functioning as expected (3-29-2023 -> 3-30-2023)
 - Monitor the new platform to identify any issues and optimize its performance as necessary (3-30-2023 -> 4-3-2023)
 - Document the entire process for the successful completion of the migration process

Regarding the cloud migration services from AWS we can use:



Updating individual WS EC2 profile to csye7374Student :

```
hemanth@sh01:~$ ec2name="*hemanth*"
hemanth@sh01:~$ profile="csye7374Student"
hemanth@sh01:~$ for InstanceId in $(aws ec2 describe-instances \
> --query "Reservations[*].Instances[*].[InstanceId]" \
> --filters "Name=tag:Name,Values=${ec2name}" "Name=instance-state-name,Values=running" \
> --output text | sort -k 1,1 )
> do
>     echo $InstanceId
>     AssociationId=$(aws ec2 describe-iam-instance-profile-associations --filters Name=instance-id,Values=$InstanceId \
> --query IamInstanceProfileAssociations[*].[AssociationId] --output text)
>     echo $AssociationId
>     aws ec2 replace-iam-instance-profile-association --association-id $AssociationId \
>     --iam-instance-profile Arn=arn:aws:iam::332987686862:instance-profile/${profile}
> done
i-0c6276a8edcfffc5
iip-assoc-0e0471a3fe1ec14ff
{
    "IamInstanceProfileAssociation": {
        "AssociationId": "iip-assoc-02c39aa1bafe3fc31",
        "InstanceId": "i-0c6276a8edcfffc5",
        "IamInstanceProfile": {
            "Arn": "arn:aws:iam::332987686862:instance-profile/csye7374Student",
            "Id": "AIPAU3B4437H177YUPOJK"
        },
        "State": "associating"
    }
}
hemanth@sh01:~$ aws ec2 describe-instances --filters "Name=tag:Name,Values=${ec2name}" "Name=instance-state-name,Values=running" --query "Reservations[*].Inst
ances[*].IamInstanceProfile.Arn" --output text --region us-east-1
arn:aws:iam::332987686862:instance-profile/csye7374Student
```

```
[ubuntu@ip-172-31-80-100:~]$ sudo apt update
Get:1 https://download.docker.com/linux/ubuntu focal InRelease [57.7 kB]
Get:2 https://fsx-lustre-client-repo.s3.amazonaws.com/ubuntu focal InRelease [3823 B]
Get:3 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Get:4 http://us-central1.gce.archive.ubuntu.com/ubuntu focal InRelease [265 kB]
Get:5 https://download.docker.com/linux/ubuntu focal/stable amd64 Packages [24.9 kB]
Get:6 http://us-central1.gce.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:7 https://fsx-lustre-client-repo.s3.amazonaws.com/ubuntu focal/main amd64 Packages [23.4 kB]
Get:8 https://fsx-lustre-client-repo.s3.amazonaws.com/ubuntu focal/main all Packages [1383 B]
Get:9 http://us-central1.gce.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Get:10 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/main amd64 Packages [970 kB]
Get:11 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/main Translation-en [506 kB]
Get:12 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/main amd64 DEP-11 Metadata [494 kB]
Get:13 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/main DEP-11 48x48 Icons [98.4 kB]
Get:14 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/main DEP-11 64x64 Icons [163 kB]
Get:15 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/main DEP-11 64x64@2 Icons [15.8 kB]
Get:16 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/main amd64 c-n-f Metadata [29.5 kB]
Get:17 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/restricted amd64 Packages [22.0 kB]
Get:18 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/restricted Translation-en [6212 B]
Get:19 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/restricted amd64 c-n-f Metadata [392 B]
Get:20 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/universe amd64 Packages [8628 kB]
Get:21 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/universe Translation-en [5124 kB]
Get:22 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/universe amd64 DEP-11 Metadata [3603 kB]
Get:23 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/universe DEP-11 48x48 Icons [3016 kB]
Get:24 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/universe DEP-11 64x64 Icons [7794 kB]
Get:25 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/universe DEP-11 64x64@2 Icons [44.3 kB]
Get:26 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/universe amd64 c-n-f Metadata [265 kB]
Get:27 http://us-central1.gce.archive.ubuntu.com/ubuntu focal/multiverse amd64 Packages [144 kB]
```

```
[ubuntu@ip-172-31-80-100:~]$ sudo apt -y install git binutils
Reading package lists... Done
Building dependency tree
Reading state information... Done
binutils is already the newest version (2.34-6ubuntu1.4).
git is already the newest version (1:2.25.1-1ubuntu3.10).
0 upgraded, 0 newly installed, 0 to remove and 147 not upgraded.
ubuntu@ip-172-31-80-100:~$ cd ~
ubuntu@ip-172-31-80-100:~$ git clone https://github.com/aws/efs-utils
fatal: destination path 'efs-utils' already exists and is not an empty directory.
ubuntu@ip-172-31-80-100:~$ cd ~/efs-utils
ubuntu@ip-172-31-80-100:~/efs-utils$ ./build-deb.sh
+ pwd
+ BASE_DIR=/home/ubuntu/efs-utils
+ BUILD_ROOT=/home/ubuntu/efs-utils/build/debbuild
+ VERSION=1.35.0
+ RELEASE=1
+ DEB_SYSTEM_RELEASE_PATH=/etc/os-release
+ echo Cleaning deb build workspace
Cleaning deb build workspace
+ rm -rf /home/ubuntu/efs-utils/build/debbuild
+ mkdir -p /home/ubuntu/efs-utils/build/debbuild
+ echo Creating application directories
Creating application directories
+ mkdir -p /home/ubuntu/efs-utils/build/debbuild/etc/amazon/efs
+ mkdir -p /home/ubuntu/efs-utils/build/debbuild/etc/init/
+ mkdir -p /home/ubuntu/efs-utils/build/debbuild/etc/systemd/system
+ mkdir -p /home/ubuntu/efs-utils/build/debbuild/sbin
+ mkdir -p /home/ubuntu/efs-utils/build/debbuild/usr/bin
+ mkdir -p /home/ubuntu/efs-utils/build/debbuild/var/log/amazon/efs
+ mkdir -p /home/ubuntu/efs-utils/build/debbuild/usr/share/man/man8
+ echo Copying application files
Copying application files
+ install -p -m 644 dist/amazon-efs-mount-watchdog.conf /home/ubuntu/efs-utils/build/debbuild/etc/init
+ install -p -m 644 dist/amazon-efs-mount-watchdog.service /home/ubuntu/efs-utils/build/debbuild/etc/systemd/system
+ install -p -m 444 dist/efs-utils.crt /home/ubuntu/efs-utils/build/debbuild/etc/amazon/efs
+ install -p -m 644 dist/efs-utils.conf /home/ubuntu/efs-utils/build/debbuild/etc/amazon/efs
+ install -p -m 755 src/mount_efs/__init__.py /home/ubuntu/efs-utils/build/debbuild/sbin/mount.efs
```

```
[ubuntu@ip-172-31-80-100:~/efs-utils$ sudo apt -y install ./build/amazon-efs-utils*deb
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'amazon-efs-utils' instead of './build/amazon-efs-utils-1.35.0-1_all.deb'
The following packages will be upgraded:
  amazon-efs-utils
1 upgraded, 0 newly installed, 0 to remove and 147 not upgraded.
Need to get 0 B/69.4 kB of archives.
After this operation, 0 B of additional disk space will be used.
Get:1 /home/ubuntu/efs-utils/build/amazon-efs-utils-1.35.0-1_all.deb amazon-efs-utils all 1.35.0 [60.4 kB]
(Reading database ... 283537 files and directories currently installed.)
Preparing to unpack .../amazon-efs-utils-1.35.0-1_all.deb ...
Unpacking amazon-efs-utils (1.35.0) over (1.34.5) ...
Setting up amazon-efs-utils (1.35.0) ...
Processing triggers for man-db (2.9.1-1) ...
ubuntu@ip-172-31-80-100:~/efs-utils$ sudo mkdir /scratch2
mkdir: cannot create directory '/scratch2': File exists
ubuntu@ip-172-31-80-100:~/efs-utils$ sudo mount -t efs -o tls,iam fs-0ede440f76d352fa2.efs.us-east-1.amazonaws.com:/scratch /scratch2
(/scratch2 is already mounted, please run 'mount' command to verify)
ubuntu@ip-172-31-80-100:~/efs-utils$ df -h /scratch2
Filesystem      Size  Used Avail Use% Mounted on
127.0.0.1:/scratch  8.0E  512G  8.0E   1% /scratch2
```

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
/dev/root	203220400	98106624	105097392	49%	/
devtmpfs	984360	0	984360	0%	/dev
tmpfs	992124	0	992124	0%	/dev/shm
tmpfs	198428	1316	197112	1%	/run
tmpfs	5120	0	5120	0%	/run/lock
tmpfs	992124	0	992124	0%	/sys/fs/cgroup
/dev/loop0	25728	25728	0	100%	/snap/amazon-ssm-agent/5656
/dev/loop1	25688	25688	0	100%	/snap/amazon-ssm-agent/6312
/dev/loop2	56960	56960	0	100%	/snap/core18/2708
/dev/loop4	64896	64896	0	100%	/snap/core20/1828
/dev/loop3	56960	56960	0	100%	/snap/core18/2714
/dev/loop5	64896	64896	0	100%	/snap/core20/1852
/dev/loop6	94080	94080	0	100%	/snap/1xd/24061
/dev/loop7	51072	51072	0	100%	/snap/snappyd/18357
/dev/loop8	51072	51072	0	100%	/snap/snappyd/18596
/dev/loop9	94080	94080	0	100%	/snap/1xd/23991
fs-0ede440f76d352fa2.efs.us-east-1.amazonaws.com:/home	9007199254739968	536323072	9007198718416896	1%	/home
fs-0ede440f76d352fa2.efs.us-east-1.amazonaws.com:/csye7374	9007199254739968	536323072	9007198718416896	1%	/data/csye7374
fs-0ede440f76d352fa2.efs.us-east-1.amazonaws.com:/	9007199254739968	536323072	9007198718416896	1%	/ue1
fs-0ede440f76d352fa2.efs.us-east-1.amazonaws.com:/scratch	9007199254739968	536323072	9007198718416896	1%	/scratch
fs-0ede440f76d352fa2.efs.us-east-1.amazonaws.com:/a	9007199254739968	536323072	9007198718416896	1%	/a
tmpfs	198424	20	198404	1%	/run/user/133
tmpfs	198424	40	198384	1%	/run/user/1000
127.0.0.1:/scratch	9007199254739968	536323072	9007198718416896	1%	/scratch2

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
/dev/root	203220400	98106624	105097392	49%	/
devtmpfs	984360	0	984360	0%	/dev
tmpfs	992124	0	992124	0%	/dev/shm
tmpfs	198428	1312	197116	1%	/run
tmpfs	5120	0	5120	0%	/run/lock
tmpfs	992124	0	992124	0%	/sys/fs/cgroup
/dev/loop0	25728	25728	0	100%	/snap/amazon-ssm-agent/5656
/dev/loop1	25088	25088	0	100%	/snap/amazon-ssm-agent/6312
/dev/loop2	56960	56960	0	100%	/snap/core18/2708
/dev/loop4	64896	64896	0	100%	/snap/core20/1828
/dev/loop3	56960	56960	0	100%	/snap/core18/2714
/dev/loop5	64896	64896	0	100%	/snap/core20/1852
/dev/loop6	94080	94080	0	100%	/snap/1xd/24061
/dev/loop7	51072	51072	0	100%	/snap/snappyd/18357
/dev/loop8	51072	51072	0	100%	/snap/snappyd/18596
/dev/loop9	94080	94080	0	100%	/snap/1xd/23991
fs-0ede440f76d352fa2.efs.us-east-1.amazonaws.com:/home	9007199254739968	536323072	9007198718416896	1%	/home
fs-0ede440f76d352fa2.efs.us-east-1.amazonaws.com:/csye7374	9007199254739968	536323072	9007198718416896	1%	/data/csye7374
fs-0ede440f76d352fa2.efs.us-east-1.amazonaws.com:/	9007199254739968	536323072	9007198718416896	1%	/ue1
fs-0ede440f76d352fa2.efs.us-east-1.amazonaws.com:/scratch	9007199254739968	536323072	9007198718416896	1%	/scratch
fs-0ede440f76d352fa2.efs.us-east-1.amazonaws.com:/a	9007199254739968	536323072	9007198718416896	1%	/a
tmpfs	198424	20	198404	1%	/run/user/133
tmpfs	198424	40	198384	1%	/run/user/1000
127.0.0.1:/scratch	9007199254739968	536323072	9007198718416896	1%	/scratch2