

Semester	T.E. Semester VI – Computer Engineering
Subject	Cloud Computing
Subject Professor In-charge	Prof. Divya Nimbalkar
Assisting Teachers	Prof. Divya Nimbalkar

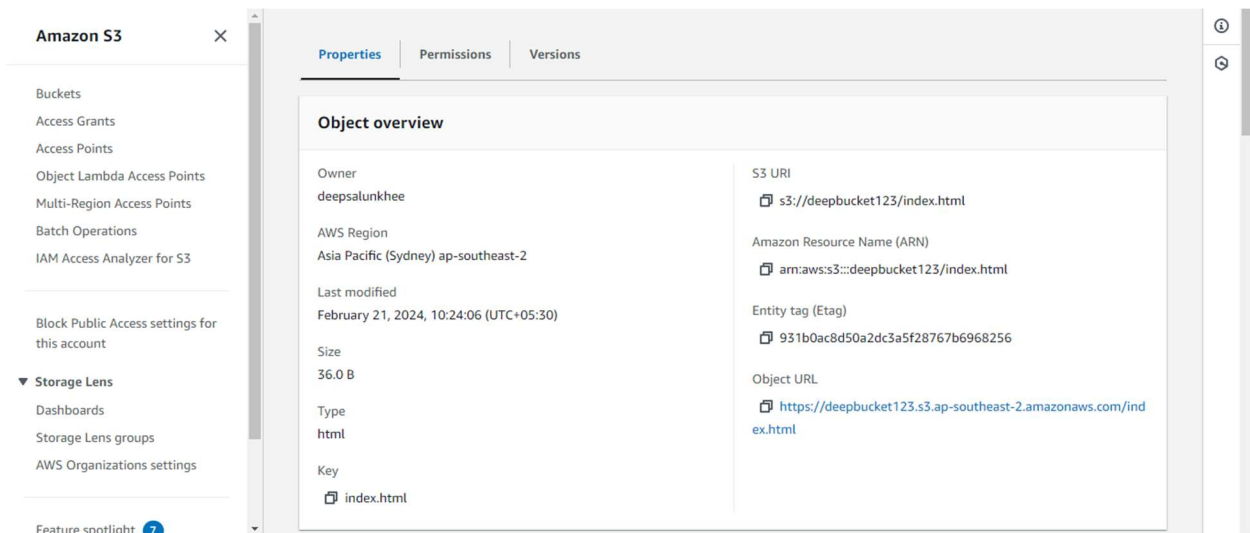
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Roll Number	21102A0014
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Title: To study and Implement Storage as a Service using Own Cloud/ AWS S3, Glaciers/ Azure Storage.

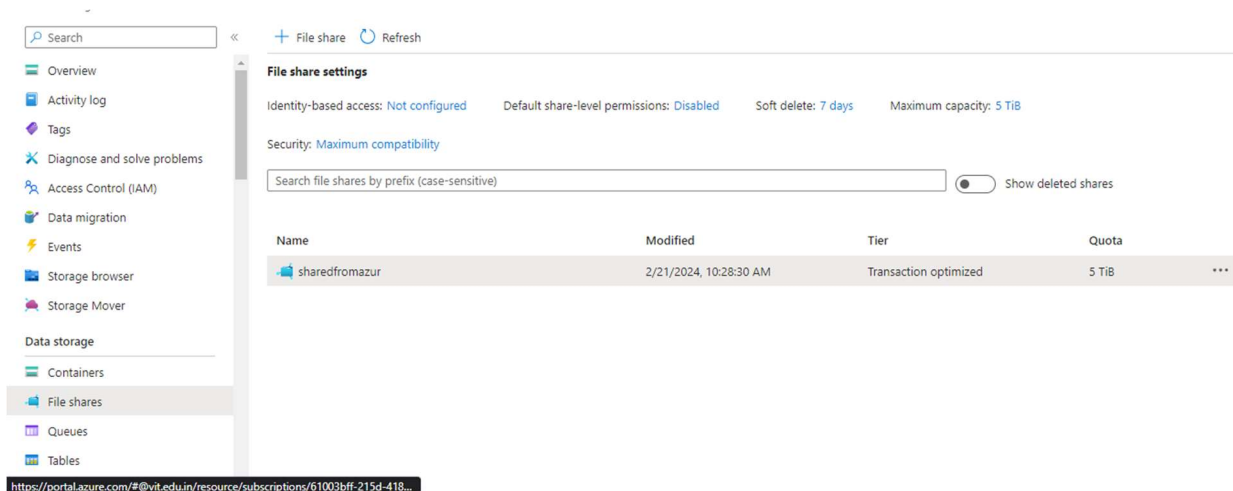
Implementation:

1) AWS S3

The screenshot displays the Amazon S3 console interface. On the left, a navigation pane shows options like Buckets, Access Grants, and Storage Lens. The main area shows the 'deepbucket123' bucket details. Under the 'Objects' tab, there is a table with one object: 'index.html' (html type, 36.0 B size, Standard storage class, last modified on February 21, 2024, 10:24:06 UTC+05:30). The interface includes buttons for 'Create folder', 'Upload', 'Copy S3 URI', 'Copy URL', 'Download', 'Open', 'Delete', and 'Actions'.



2) Azure Storage



The screenshot shows the Azure Storage Explorer interface. On the left, a sidebar lists various storage services: Overview, Activity log, Tags, Diagnose and solve problems, Access Control (IAM), Data migration, Events, Storage browser (selected), Storage Mover, Data storage, Containers, File shares, Queues, and Tables. The main pane displays the 'aayushsrivastava' storage account. Under the 'Tables' section, 'temptable' is selected. The right pane shows the details for 'temptable', including the authentication method (Access key) and a table with one item. The table has columns: PartitionKey, RowKey, Timestamp, and name. The single row has values: 1, 1, 2024-02-21T05:22:06.51..., and a.

PartitionKey	RowKey	Timestamp	name
1	1	2024-02-21T05:22:06.51...	a

The screenshot shows the Azure Storage Explorer interface. On the left, a sidebar lists various storage services: Overview, Activity log, Tags, Diagnose and solve problems, Access Control (IAM), Data migration, Events, Storage browser (selected), Storage Mover, Data storage, Containers, File shares, Queues, and Tables. The main pane displays the 'aayushsrivastava' storage account. Under the 'Queues' section, 'tempqueue' is selected. The right pane shows the details for 'tempqueue', including the authentication method (Access key) and a table with one item. The table has columns: Message text, Id, Insertion time, Expiration time, and Dequeue count. The single row has values: No items found, 1, 2024-02-21T05:22:06.51..., and 0.

Message text	Id	Insertion time	Expiration time	Dequeue count
No items found	1	2024-02-21T05:22:06.51...		0

3)Next Cloud

```

Step 3: Install Apache+PHP+MySQL/MariaDB for NextCloud

sudo passwd root
su root

apt-get update && apt-get upgrade

sudo apt install apache2
sudo apt install mysql-server
sudo apt-get install php7.2 apache2 libapache2-mod-php7.2
sudo apt-get install php7.2-gd php7.2-json php7.2-mysql php7.2-curl php7.2-mbstring
sudo apt-get install php7.2-intl php-imagick php7.2-xml php7.2-zip php7.2-dom

Step 4: Download & Install NextCloud server on Windows 10

sudo apt install unzip
wget https://download.nextcloud.com/server/releases/nextcloud-19.0.1.zip

if the download not working then copy the link from here: https://nextcloud.com/install/#instru
ls

...
Unpacking libhtml-template-perl (2.97-1) ...
Selecting previously unselected package libtimedate-perl.
Preparing to unpack .../09-libtimedate-perl_2.3000-2_all.deb ...
Unpacking libtimedate-perl (2.3000-2) ...
Selecting previously unselected package libhttp-date-perl.
Preparing to unpack .../10-libhttp-date-perl_6.02-1_all.deb ...
Unpacking libhttp-date-perl (6.02-1) ...
Selecting previously unselected package libio-html-perl.
Preparing to unpack .../11-libio-html-perl_1.001-1_all.deb ...
Unpacking libio-html-perl (1.001-1) ...
Selecting previously unselected package liblwp-mediatypes-perl.
Preparing to unpack .../12-liblwp-mediatypes-perl_6.02-1_all.deb ...
Unpacking liblwp-mediatypes-perl (6.02-1) ...
Selecting previously unselected package libhttp-message-perl.
Preparing to unpack .../13-libhttp-message-perl_6.14-1_all.deb ...
Unpacking libhttp-message-perl (6.14-1) ...
Selecting previously unselected package mysql-server.
Preparing to unpack .../14-mysql-server_5.7.42-0ubuntu0.18.04.1_
all.deb ...
Unpacking mysql-server (5.7.42-0ubuntu0.18.04.1) ...
Setting up libhtml-tagset-perl (3.20-3) ...
Setting up libevent-core-2.1-6:amd64 (2.1.8-stable-4build1) ...
Setting up libencode-locale-perl (1.05-1) ...
Setting up libtimedate-perl (2.3000-2) ...
Setting up libio-html-perl (1.001-1) ...
Setting up liblwp-mediatypes-perl (6.02-1) ...
Setting up libaio1:amd64 (0.3.110-5ubuntu0.1) ...
Progress: [ 74%] [#####]

```

```

Step 5: Install Apache+PHP+MySQL/MariaDB for NextCloud

sudo passwd root
su root

apt-get update && apt-get upgrade

sudo apt install apache2
sudo apt install mysql-server
sudo apt-get install php7.2 apache2 libapache2-mod-php7.2
sudo apt-get install php7.2-gd php7.2-json php7.2-mysql php7.2-curl php7.2-mbstring
sudo apt-get install php7.2-intl php-imagick php7.2-xml php7.2-zip php7.2-dom

Step 4: Download & Install NextCloud server on Windows 10

sudo apt install unzip
wget https://download.nextcloud.com/server/releases/nextcloud-19.0.1.zip

if the download not working then copy the link from here: https://nextcloud.com/install/
ls

Step 5: Extract NextCloud server files

unzip nextcloud-19.0.1.zip

0 upgraded, 1 newly installed, 0 to remove and 1 not upgraded.
Need to get 168 kB of archives.
After this operation, 567 kB of additional disk space will be us
ed.
Get:1 http://archive.ubuntu.com/ubuntu bionic-updates/main amd64
unzip amd64 6.0-21ubuntu1.2 [168 kB]
Fetched 168 kB in 2s (96.8 kB/s)
Selecting previously unselected package unzip.
(Reading database ... 32727 files and directories currently inst
alled.)
Preparing to unpack .../unzip_6.0-21ubuntu1.2_amd64.deb ...
Unpacking unzip (6.0-21ubuntu1.2) ...
Setting up unzip (6.0-21ubuntu1.2) ...
Processing triggers for mime-support (3.60ubuntu1) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
root@LAPTOP-UGU6DF82:/home/dampo# wget https://download.nextclou
d.com/server/releases/nextcloud-19.0.1.zip
--2024-02-29 09:34:53-- https://download.nextcloud.com/server/r
eleases/nextcloud-19.0.1.zip
Resolving download.nextcloud.com (download.nextcloud.com)... 5.9
.202.145, 2a01:4f8:210:21c8::145
Connecting to download.nextcloud.com (download.nextcloud.com)[5.
9.202.145]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 112199759 (107M) [application/zip]
Saving to: 'nextcloud-19.0.1.zip'

nextcloud-19.0. 31%[=>] 33.26M 2.64MB/s eta 27s

```

```

# requested file), because the latter makes it impossible to detect partial
# requests.
#
# Note that the use of %[X-Forwarded-For]i instead of %h is not recommended.
# Use mod_remoteip instead.
#
LogFormat "%v:%p %h %l %u %t \"%r\" %>s %O \"%{Referer}i\" \"%{User-Agent}i\"%" vhost_combined
LogFormat "%h %l %u %t \"%r\" %>s %O \"%{Referer}i\" \"%{User-Agent}i\"%" combined
LogFormat "%h %l %u %t \"%r\" %>s %O" common
LogFormat "%{Referer}i -> %U" referer
LogFormat "%{User-agent}i" agent

# Include of directories ignores editors' and dpkg's backup files,
# see README.Debian for details.

# Include generic snippets of statements
IncludeOptional conf-enabled/*.conf

# Include the virtual host configurations:
IncludeOptional sites-enabled/*.conf

# vim: syntax=apache ts=4 sw=4 sts=4 sr noet

AcceptFilter http none
AcceptFilter https none

</apache2/apache2.conf> 231L, 7273C      230,23      Bot

```


The screenshot shows a web browser window on the left displaying the Nextcloud configuration page. The configuration includes setting the home and HTTP paths, enabling error and custom logs, and configuring virtual hosts. The terminal window on the right shows the execution of these configuration steps, including editing the apache2.conf file, reloading the service, and enabling the site. The terminal output shows the successful execution of the commands and the resulting configuration changes.

```

root@LAPTOP-UGU6DF82:/home/dampo# vi /etc/apache2/apache2.conf
root@LAPTOP-UGU6DF82:/home/dampo# sudo service apache2 reload
root@LAPTOP-UGU6DF82:/home/dampo# sudo service apache2 start
root@LAPTOP-UGU6DF82:/home/dampo# sudo a2ensite nextcloud.conf
Enabling site nextcloud.
To activate the new configuration, you need to run:
    systemctl reload apache2
root@LAPTOP-UGU6DF82:/home/dampo# systemctl reload apache2
root@LAPTOP-UGU6DF82:/home/dampo# sudo a2ensite nextcloud.conf
Site nextcloud already enabled
root@LAPTOP-UGU6DF82:/home/dampo# sudo service apache2 restart
root@LAPTOP-UGU6DF82:/home/dampo# apt-get update && apt-get upgr
ade
Hit:1 http://archive.ubuntu.com/ubuntu bionic InRelease
Hit:2 http://security.ubuntu.com/ubuntu bionic-security InReleas
e
Hit:3 http://archive.ubuntu.com/ubuntu bionic-updates InRelease
Hit:4 http://archive.ubuntu.com/ubuntu bionic-backports InReleas
e
Reading package lists... Done
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
The following packages were automatically installed and are no l
onger required:
  efibootmgr libefiboot1 libefivar1
Use 'sudo apt autoremove' to remove them.
The following packages have been kept back:
  ubuntu-advantage-tools
0 upgraded, 0 newly installed, 0 to remove and 1 not upgraded.
root@LAPTOP-UGU6DF82:/home/dampo#
  
```

The screenshot shows a web browser window on the left displaying the Nextcloud configuration page. The configuration includes setting the home and HTTP paths, enabling error and custom logs, and configuring virtual hosts. The terminal window on the right shows the execution of these configuration steps, including editing the apache2.conf file, reloading the service, and enabling the site. The terminal output shows the successful execution of the commands and the resulting configuration changes.

```

e
Reading package lists... Done
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
The following packages were automatically installed and are no l
onger required:
  efibootmgr libefiboot1 libefivar1
Use 'sudo apt autoremove' to remove them.
The following packages have been kept back:
  ubuntu-advantage-tools
0 upgraded, 0 newly installed, 0 to remove and 1 not upgraded.
root@LAPTOP-UGU6DF82:/home/dampo# sudo a2enmod rewrite
Enabling module rewrite.
To activate the new configuration, you need to run:
    systemctl restart apache2
root@LAPTOP-UGU6DF82:/home/dampo# sudo a2enmod headers
Enabling module headers.
To activate the new configuration, you need to run:
    systemctl restart apache2
root@LAPTOP-UGU6DF82:/home/dampo# sudo a2enmod env
Module env already enabled
root@LAPTOP-UGU6DF82:/home/dampo# sudo a2enmod dir
Module dir already enabled
root@LAPTOP-UGU6DF82:/home/dampo# sudo a2enmod setenvif
Module setenvif already enabled
root@LAPTOP-UGU6DF82:/home/dampo# sudo a2enmod mime
Module mime already enabled
root@LAPTOP-UGU6DF82:/home/dampo# sudo service apache2 stop
root@LAPTOP-UGU6DF82:/home/dampo# sudo service apache2 start
root@LAPTOP-UGU6DF82:/home/dampo#
  
```

The screenshot shows a web browser window on the left and a terminal window on the right. The browser window displays the NextCloud installation guide, specifically Step 9: Create MySQL/MariaDB database for NextCloud. The terminal window shows the execution of various commands to set up the database and services.

Browser Window (Left):

- Enable the following modules for proper Nextcloud working.
- sudo a2enmod rewrite
- sudo a2enmod headers
- sudo a2enmod env
- sudo a2enmod dir
- sudo a2enmod setenvif
- sudo a2enmod mime
- sudo service apache2 stop
- sudo service apache2 start
- Step 9: Create MySQL/MariaDB database for NextCloud**
- sudo service mysql start
- sudo mysql
- CREATE DATABASE nextdb;
- GRANT ALL ON nextdb.* to 'divya'@'localhost' IDENTIFIED BY 'divya';
- FLUSH PRIVILEGES;
- Step 10 – Setup and Configuring NetCloud server on Windows 10**
- Finally, go to your browser and type <http://localhost/nextcloud> or <http://127.0.0.1/nextcloud>
- It will guide you to create an admin account and database setup page of NextCloud.

Terminal Window (Right):

```
Module setenvif already enabled
root@LAPTOP-UGU6DF82:/home/dampo# sudo a2enmod mime
Module mime already enabled
root@LAPTOP-UGU6DF82:/home/dampo# sudo service apache2 stop
root@LAPTOP-UGU6DF82:/home/dampo# sudo service apache2 start
root@LAPTOP-UGU6DF82:/home/dampo# sudo service mysql start
root@LAPTOP-UGU6DF82:/home/dampo# sudo mysql
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 2
Server version: 5.7.42-0ubuntu0.18.04.1 (Ubuntu)

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current in
put statement.

mysql> CREATE DATABASE nextdbdampo;
Query OK, 1 row affected (0.00 sec)

mysql> GRANT ALL ON nextdbdampo.* to 'dampo'@'localhost' IDENTIF
IED BY 'dampo';
Query OK, 0 rows affected, 1 warning (0.00 sec)

mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.00 sec)

mysql> |
```

The screenshot shows the NextCloud installation wizard. The 'Create an admin account' step is completed, and the 'Storage & database' step is active. The data folder is set to /var/www/html/nextcloud/d. The database configuration step is also shown, indicating that MySQL/MariaDB is available.

Create an admin account

dampo

.....

Storage & database

Data folder

/var/www/html/nextcloud/d

Configure the database

Only MySQL/MariaDB is available. Install and activate additional PHP modules to choose other database types. For more details check out the [documentation](#).

dampo

.....

The screenshot shows the Nextcloud settings page for user management. The browser address bar indicates the URL is `localhost/nextcloud/index.php/settings/users`. The interface includes a sidebar with options: '+ New user', '+ Add group', 'Everyone' (1 user), and 'Admins' (1 user). The main table lists users with columns for Username, Display name, Password, Email, Groups, and Quota. A single user 'dampo' is listed with the group 'admin' and a quota of 0.

Username	Display name	Password	Email	Groups	Quota
dampo	dampo			admin	0

This screenshot shows the 'Add new user' form in the Nextcloud settings. The form fields include Username, Display name, Password, Email (pre-filled with 'admin'), and Default quota. A confirmation button with a checkmark is visible. Below the form, a table lists existing users: 'dampo' (group: admin, quota: 0 B (16.3 MB used)) and 'omkar' (group: admin, quota: Unlimited (0 B used)).

Username	Display name	Password	Email	Groups	Quota
dampo	dampo			admin	0 B (16.3 MB used)
omkar	omkar		omkar21.patil@vit.edu.in	admin	Unlimited (0 B used)