🚀 Cloud-PROJECTS

📌 Project 1: Shared Web Hosting on EC2 using EFS (Web Server)

Section	🧠 Description
Concept	Host a website using multiple EC2 servers where all servers share the same website files via Amazon EFS. This ensures that all web servers use a single shared document root (`/var/www/html`) regardless of how many EC2 instances are running.
Real-Time Use Case	Multiple EC2 instances need to read/write from the same shared folder. Ensures consistent content delivery and seamless scaling without manual file synchronization.

Step-By-Step Implementation

1️⃣ Create an EFS File System

AWS Console → EFS → Create File System

- Select **VPC** where EC2 instances live

- Create **Mount Targets** in each Availability Zone

- Use default security group OR create new:

    - Allow **NFS (2049)** from EC2 security group

2 Launch EC2 Instances (Web Servers)

Choose:

- **Amazon Linux 2**
- Assign correct **Security Group**

    - Allow HTTP (80)

    - Allow SSH (22)

    - Allow NFS (2049) from EFS

3 Install , Configure Web Server & NFS on Both EC2

```
yum update -y
yum install httpd -y
systemctl restart httpd
systemctl restart status httpd
```

```
yum install -y amazon-efs-utils
```

4 Mount the EFS File System

First, get your EFS ID:

- Example: `fs-0109f90b0a2dcb2cd`

Mount EFS on Both EC2

```
mount -t efs -o tls fs-0109f90b0a2dcb2cd:/ /var/www/html
```

Verify:

```
df -h
```

```
root@ip-172-31-42-218:~
[root@ip-172-31-42-218 ~]# sudo mount -t efs -o tls fs-0109f90b0a2dcb2cd:/ /var/www/html
[root@ip-172-31-42-218 ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        4.0M     0  4.0M   0% /dev
tmpfs           479M     0  479M   0% /dev/shm
tmpfs           192M  508K  191M   1% /run
/dev/xvda1      8.0G  1.7G  6.4G  21% /
tmpfs           479M     0  479M   0% /tmp
/dev/xvda128     10M  1.3M  8.7M  13% /boot/efi
tmpfs            96M     0   96M   0% /run/user/1000
127.0.0.1:/     8.0E     0  8.0E   0% /var/www/html
[root@ip-172-31-42-218 ~]#
```

5 Make the Mount Persistent (After Reboot)

Edit fstab:

```
vim /etc/fstab
```

Add line:

```
fs-0109f90b0a2dcb2cd:/ /var/www/html efs defaults,_netdev 0 0
```
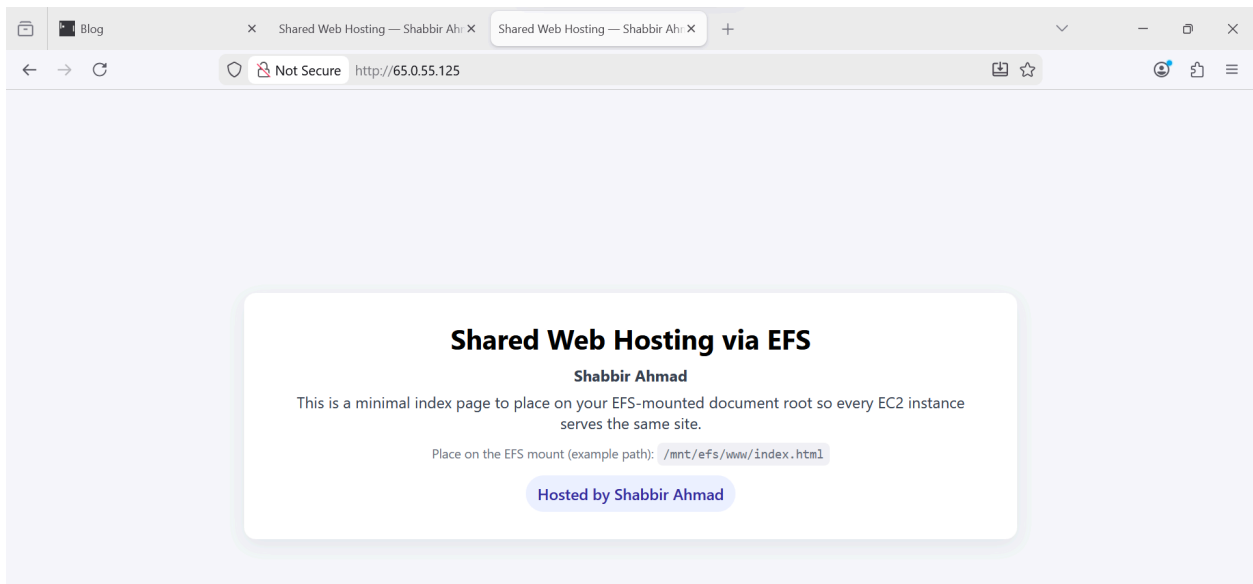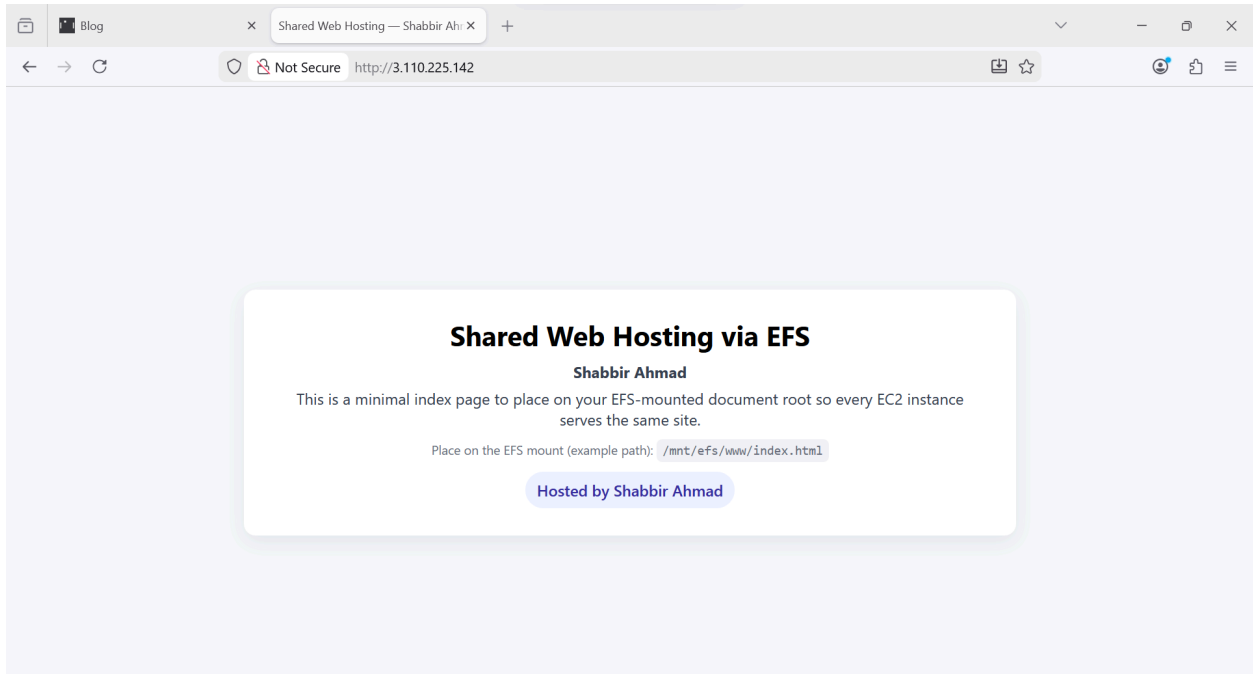
Save & test:

```
mount -a
```

6. Upload Website to EFS

Whatever upload on Web1 will appear on Web2.

Example:

```
echo "<h1>Shared Web Hosting via EFS hosted by Shabbir Ahmad</h1>" |
sudo tee /var/www/html/index.html
```

7 Test Multi-Server Sharing

On **EC1 & EC2**, run:

```
ls -l /var/www/html
```

 see identical files.

If we edit `index.html` from server 1, changes appear on server 2.