Setting up an Unreal Engine Multi-User Server in the cloud

These instructions are a step-by-step guide to installing Unreal Engine Multi-User Server running on a Linux instance operating on Amazon Web Services (AWS) - Cloud Computing Services. With slight modifications, these instructions could be used to install on any other cloud infrastructure, such as Linode, Digital Ocean, and many more.

To connect from clients to server and between clients, in this tutorial we use a third-party VPN service called TailScale. This service offers the benefit of a mesh-based network rather than a traditional hub-based VPN; as latency between server and clients and client-to-client traffic is crucial, this setup can significantly improve performance. However, it is still possible to implement this setup using other VPN solutions such as OPENVPN.

This example uses **Ubuntu Server 18.04 LTS**.

Prerequisites

- An existing Amazon AWS account and knowledge of how to setup/start new instances.
- At a minimum, a free TailScale license, but since this has the limitation of restricting network access to inside your VPN setup, we recommend a full TailScale license.
- Basic Linux knowledge.

Instructions

1. Log in to your AWS portal, and launch a new AWS instance. Choose a region as close as possible to most endpoints. Using **Quick Start**, select **Ubuntu Server 18.04 LTS (HVM), SSD Volume Type**.
2. Instance type:
   m5ad.xlarge (4 cores, 16 GB RAM, 150 GB SSD). Minimum recommended for testing two to three clients.
   or
   m5ad.4xlarge (16 cores, 64 GB RAM, 2 x 300 GB SSD). Recommended for four to eight clients.
3. Select **Create New Key Pair**. For this example, name key **umuserver.pem** and download.
4. Note the public IP of your new instance.
5. Log in to your new instance using **ssh -i umuserver.pem ubuntu@10.0.0.1 (replace 10.0.0.1 with your server's public IP address).**
6. Execute the following commands. Lines starting with # are comments that describe the purpose of the subsequent lines—don't execute them.

```
# Update Ubuntu
sudo apt-get update
sudo apt-get upgrade

# Rename host to umuserver or any other meaningful name
sudo hostnamectl set-hostname umuserver

# Check for data drive
lsblk

# Format SSD, create folder, and set ACLs
sudo mkfs.ext4 /dev/nvme0n1
sudo mkdir /data
sudo chgrp ubuntu /data
sudo chown ubuntu /data

# Mount data drive
sudo mount /dev/nvme0n1 /data

# Install TailScale
sudo curl https://pkgs.tailscale.com/stable/ubuntu/eoan.
gpg | sudo apt-key add -
sudo curl https://pkgs.tailscale.com/stable/ubuntu/eoan.
list | sudo tee /etc/apt/sources.list.d/tailscale.list

# Re-run Ubuntu update
sudo apt-get update
sudo apt-get install tailscale
sudo tailscale up
```

Cut and paste the URL to a browser and authenticate with your TailScale admin account.

```
# Check TailScale status
tailscale status

# Install Linux build-essentials to be able to compile the
Multi-User Server
sudo apt-get install -y build-essential
```

Log in to your free Unreal Engine account and connect it to your free Github account (if not already connected).

Download the source code to the Unreal Engine Multi-User Server (in this case, Version 4.25) on your local workstation.

```
# Upload source from your workstation via scp to your new AWS instance
scp -i umuserver.pem UnrealEngine-4.25.zip ubuntu@10.0.0.1
:/home/ubuntu

# Install unzip & unpack source files
sudo apt-get install unzip
unzip UnrealEngine-4.25.zip

# change to unpacked source directory
cd UnrealEngine-4.25

# Setup project, Generate and build server
./Setup.sh
./GenerateProjectFiles.sh
make UnrealMultiUserServer

# start UM server (replace 10.0.0.1 with your server IP address, use for
example port 8888 or any other valid free port
Engine/Binaries/Linux/UnrealMultiUserServer
-ConcertIgnore -UDPMESSAGING_TRANSPORT_
UNICAST=10.0.0.1:8888
```