

MECAC WEEKLY REPORT (March 18 – March 24)

This week we have worked as a team to prepare configuration management report and website. We have briefly described to project in MECAC website. We also aim to release the source codes in website. Before that we will release executables.

Mert has worked on test project of Virtual Turkey. A client would consume 600MB of memory and 10% of CPU. As Umit switched off the graphics of the clients, memory footprint of a single client is reduced to 60MB. At this consumption rate, we can accommodate 10 test clients on a single computer with i7 processor. Below we have given some cases that caused this drastic change.

```
protected override void LoadContent()
{
    if (!test)
    {
        loadContentsOfScene(0);
        loadSoundContent();
        graphics.PreferredBackBufferWidth = 800;
        graphics.PreferredBackBufferHeight = 600;
        //graphics.IsFullScreen = true;
        graphics.ApplyChanges();
    }
}
```

Test is a boolean variable that is true when the test project is run. We don't consume memory to load graphics content. Those graphics object are overly used throughout the code. We have thoroughly scrutinized the code to track the graphics content. Following code is an example of this where we don't manipulate graphics objects while on test mode.

```
if (!test)
{

    Vector2 v = new Vector2(fps_camera.CurrentVelocity.X, fps_camera.CurrentVelocity.Z);
    if (fps_camera != null && v.Length() >= 0.1)
    {
```

In order to visualize the clients, we will add a separate component to server side in order to confirm that the test clients are actually moving in the virtual environment. Cinar has used WireShark to monitor network traffic of game. He has analyzed the UDP traffic by tracing destination and source address. Moreover, some kind of network protocols like IGMP, ICMP, STP that are included in our game network, are explained. However any abnormal condition has not detected.

Wireshark interface showing a packet capture analysis. The filter is set to 'udp'. The packet list shows several UDP packets. The selected packet (Frame 62) is expanded, showing the Ethernet II, Internet Protocol, and User Datagram Protocol layers. The data field is expanded, showing the raw data in hexadecimal and ASCII.

No.	Time	Source	Destination	Protocol	Info
53	9.198594	41.143.25.45	144.122.225.143	UDP	Source port: 25110 Destination port: 22704
54	9.198672	144.122.225.143	41.143.25.45	UDP	Source port: 22704 Destination port: 25110
57	10.110169	121.220.35.76	144.122.225.143	UDP	Source port: 50423 Destination port: 22704
58	10.110240	144.122.225.143	121.220.35.76	UDP	Source port: 22704 Destination port: 50423
59	10.147310	109.242.194.65	144.122.225.143	UDP	Source port: 33078 Destination port: 22704
60	10.147359	144.122.225.143	109.242.194.65	UDP	Source port: 22704 Destination port: 33078
61	10.275016	109.184.189.149	144.122.225.143	UDP	Source port: 29966 Destination port: 22704
62	10.275065	144.122.225.143	109.184.189.149	UDP	Source port: 22704 Destination port: 29966
63	10.941479	96.246.150.3	144.122.225.57	UDP	Source port: 43729 Destination port: 56947
66	12.183080	119.247.28.223	144.122.225.143	UDP	Source port: 16362 Destination port: 22704
67	12.183153	144.122.225.143	119.247.28.223	UDP	Source port: 22704 Destination port: 16362
68	12.662228	81.227.11.16	144.122.225.143	UDP	Source port: 14152 Destination port: 22704
69	12.662295	144.122.225.143	81.227.11.16	UDP	Source port: 22704 Destination port: 14152
78	13.802561	fe80::c10:62ba:2efh:7	ff02::1:3	LLMNR	Standard query ANY Gulcan-san

Frame 62 (319 bytes on wire, 319 bytes captured)

- Ethernet II, Src: AsustekC 08:82:6a (00:24:8c:0b:82:6a), Dst: Cisco bc:21:c4 (00:24:f9:bc:21:c4)
- Internet Protocol, Src: 144.122.225.143 (144.122.225.143), Dst: 109.184.189.149 (109.184.189.149)
- User Datagram Protocol, Src Port: 22704 (22704), Dst Port: 29966 (29966)
- Data (277 bytes)

0020 bd 95 50 b0 75 0e 01 1d fe 60 64 31 3a 72 64 32 ..X.u...d1:rd2
0030 3a 69 64 32 30 3a 95 d8 14 55 2c 4c 77 df 5b d8 :id20:...U,Lw[.
0040 45 9b dd f4 cf 00 9c 72 f9 2f 35 3a 6e 6f 64 65 E.....r./5:node
0050 73 32 30 38 3a 95 d8 1d a6 ea 3f 8c a7 bb 2c b3 s208:...?.....
0060 1f 32 3b d2 a3 0b 22 4e 93 5f bd 6e 22 29 07 95 .2;...N...n"...
0070 d8 1e f1 69 38 4a d2 f7 16 e6 17 b0 47 68 06 a0 ...18J...Gh..
0080 8e 1d be 5e f3 de 02 5c 55 95 d8 1f 5b df af f0 ...^...U...[..
0090 05 8a 6e a3 91 b9 7b 82 26 aa ee 5f 2a 5b 94 0d .n...{. &...*(..
00a0 88 54 06 95 d8 1a db b0 2d bb 66 08 56 cf a9 32 .T.....-f.V.2
00b0 b9 e6 5f f3 cd 9d 9d 4d 1e 07 94 34 0d 95 d8 1aM...4...
00c0 a1 20 64 09 91 7c 3f 36 c1 a1 24 7e f9 dc a9 e4 .d..|76..\$~...
00d0

Data (data), 277 bytes Packets: 185 Displayed: 113 Marked: 0 Profile: Default

After that, transferred data has analyzed, and about 300 bytes transferred data, which is shown above, cause coming up a doubt.