厦門大學

信息学院软件工程系

《计算机网络》实验报告

题　　目 实验三 用 PCAP 库侦听并分析网络流量

班　　级 软件工程 2018 级 1 班

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实验时间 2020 年 3 月 11 日

2020 年 3 月 11 日

1 实验目的

利用 winpacp 库监听并分析以太网的帧，记录目标与源 MAC 和 IP 地址，通过实验加深对以太网帧格式的认识。

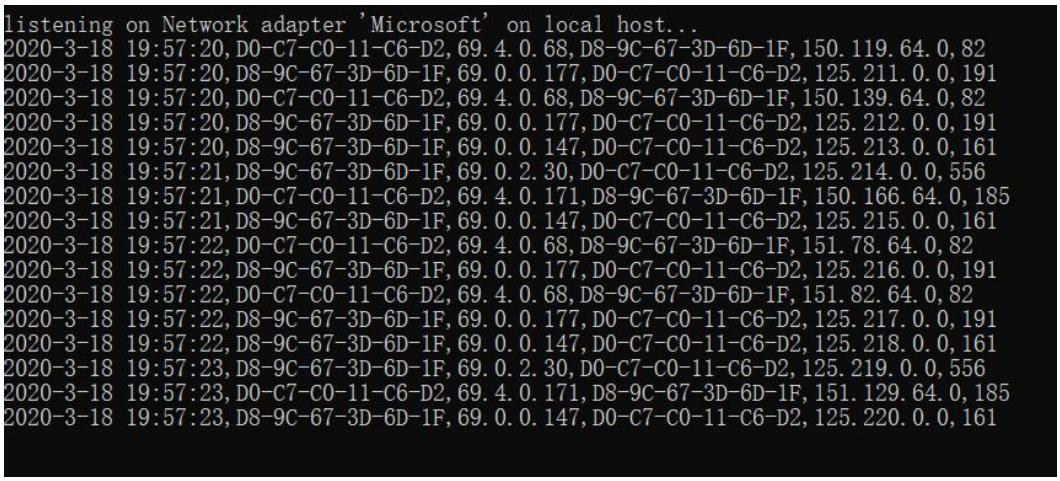
2 实验环境

Windows10 操作系统，Visual studio 2019, C 语言，winpcap

3 实验结果

1 选择适配器

2 对接受到的帧进行分析并输出
输出格式为：
时间，源 MAC，源 IP 源，目标 MAC，目标 IP，帧长度



3
将结果输出到指定文件夹

record.txt - 记事本

文件(F) 编辑(E) 格式(O) 查看(V) 帮助(H)

```
2020-3-19 15:49:56,D8-9C-67-3D-6D-1F,69.0.0.78,FF-FF-FF-FF-FF-FF,254.54.0.0,92
2020-3-19 15:49:57,D8-9C-67-3D-6D-1F,69.0.0.78,FF-FF-FF-FF-FF-FF,254.55.0.0,92
2020-3-19 15:49:58,D8-9C-67-3D-6D-1F,69.0.0.137,D0-C7-C0-11-C6-D2,167.223.0.0,151
2020-3-19 15:49:59,D8-9C-67-3D-6D-1F,69.0.1.22,D0-C7-C0-11-C6-D2,157.229.0.0,292
2020-3-19 15:50:00,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,83.225.64.0,129
2020-3-19 15:50:07,D0-C7-C0-11-C6-D2,69.4.0.123,D8-9C-67-3D-6D-1F,87.220.64.0,137
2020-3-19 15:50:07,D8-9C-67-3D-6D-1F,69.0.0.83,D0-C7-C0-11-C6-D2,242.67.0.0,97
2020-3-19 15:50:08,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,88.76.64.0,129
2020-3-19 15:50:11,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,89.227.64.0,129
2020-3-19 15:50:11,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,90.76.64.0,129
2020-3-19 15:50:13,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,90.222.64.0,129
2020-3-19 15:50:16,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,92.231.64.0,129
2020-3-19 15:50:17,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,93.78.64.0,129
2020-3-19 15:50:23,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,96.175.64.0,129
2020-3-19 15:50:30,D8-9C-67-3D-6D-1F,69.0.0.202,01-00-5E-7F-FF-FA,255.35.0.0,216
2020-3-19 15:50:31,D8-9C-67-3D-6D-1F,69.0.0.202,01-00-5E-7F-FF-FA,255.36.0.0,216
2020-3-19 15:50:31,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,101.25.64.0,129
2020-3-19 15:50:32,D8-9C-67-3D-6D-1F,69.0.0.202,01-00-5E-7F-FF-FA,255.37.0.0,216
2020-3-19 15:50:33,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,101.183.64.0,129
2020-3-19 15:50:33,D8-9C-67-3D-6D-1F,69.0.0.202,01-00-5E-7F-FF-FA,255.38.0.0,216
2020-3-19 15:50:33,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,102.23.64.0,129
2020-3-19 15:50:33,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,102.26.64.0,129
2020-3-19 15:50:35,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,102.236.64.0,129
2020-3-19 15:50:35,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,103.55.64.0,129
2020-3-19 15:50:37,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,104.76.64.0,129
2020-3-19 15:50:38,D8-9C-67-3D-6D-1F,69.0.0.137,D0-C7-C0-11-C6-D2,167.224.0.0,151
2020-3-19 15:50:39,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,105.40.64.0,129
2020-3-19 15:50:42,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,106.200.64.0,129
2020-3-19 15:50:45,D8-9C-67-3D-6D-1F,69.0.0.67,D0-C7-C0-11-C6-D2,242.68.0.0,81
2020-3-19 15:50:45,D0-C7-C0-11-C6-D2,69.4.0.75,D8-9C-67-3D-6D-1F,108.123.64.0,89
```

4

统计一分钟内收到的数据量并将结果输出

Microsoft Visual Studio 调试控制台

```
2020-3-19 15:32:43,D8-9C-67-3D-6D-1F,69.0.0.67,D0-C7-C0-11-C6-D2,241.191.0.0,81
2020-3-19 15:32:43,D0-C7-C0-11-C6-D2,69.4.0.75,D8-9C-67-3D-6D-1F,19.131.64.0,89
2020-3-19 15:32:45,D0-C7-C0-11-C6-D2,69.4.1.67,D8-9C-67-3D-6D-1F,20.125.64.0,337
2020-3-19 15:32:45,D8-9C-67-3D-6D-1F,69.0.0.83,D0-C7-C0-11-C6-D2,241.192.0.0,97
2020-3-19 15:32:51,D0-C7-C0-11-C6-D2,69.4.1.83,D8-9C-67-3D-6D-1F,23.195.64.0,353
2020-3-19 15:32:51,D8-9C-67-3D-6D-1F,69.0.0.83,D0-C7-C0-11-C6-D2,241.193.0.0,97
2020-3-19 15:32:52,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,24.123.64.0,129
2020-3-19 15:32:55,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,25.214.64.0,129
2020-3-19 15:32:55,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,25.253.64.0,129
2020-3-19 15:32:58,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,27.91.64.0,129
2020-3-19 15:32:58,D0-C7-C0-11-C6-D2,69.4.1.91,D8-9C-67-3D-6D-1F,27.102.64.0,361
2020-3-19 15:32:58,D8-9C-67-3D-6D-1F,69.0.0.83,D0-C7-C0-11-C6-D2,241.194.0.0,97
2020-3-19 15:33:01,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,28.191.64.0,129
2020-3-19 15:33:16,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,37.51.64.0,129
2020-3-19 15:33:18,D8-9C-67-3D-6D-1F,69.0.0.137,D0-C7-C0-11-C6-D2,167.198.0.0,151
2020-3-19 15:33:22,D0-C7-C0-11-C6-D2,69.4.0.115,D8-9C-67-3D-6D-1F,40.122.64.0,129
一分钟内接收到的数据量为：10783
```

4 实验总结

基本了解 winpcap 的一些库及其使用方法，加深了对以太网帧格式的认识，在实验的过程中通过阅读提供的代码，提高了代码阅读能力，并且在实验的过程中通过不断完善代码更好地掌握了 visual studio 的调试方式，提高自身的代码水平。