Configuração e estudo de uma rede

Mestrado Integrado em Engenharia Informática e da Computação

Redes de Computadores

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Sumário

No âmbito da Unidade Curricular de Redes de Computadores (RCOM) do 3º ano do MIEIC, desenvolveu-se um trabalho, onde se pretendia implementar um cliente TCP e realizar um conjunto de experiências laboratoriais.

Com este trabalho podemos verificar alguns dos conceitos teóricos abordados nas aulas teóricas da UC e aprender a configurar e estudar uma rede de computadores. Destaque para tipos de pacotes, rotas, configurações de um *switch* e de um *router* comercial e para a análise estatísticas das conexões.

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1. Introdução

No âmbito da Unidade Curricular de Redes de Computadores foi-nos proposto implementar uma aplicação cliente de um servidor FTP e realizar um conjunto de experiências laboratoriais de forma a perceber como se configura e funciona uma rede de computadores.

A aplicação a desenvolver consiste em descarregar um ficheiro, a especificar pelo utilizador, de um servidor FTP.

As experiências laboratoriais têm como objectivo dar a conhecer os comandos necessários para configurar uma rede assim como aprofundar os conhecimentos teóricos abordados na UC.

O presente relatório contém um capítulo para cada uma das partes do trabalho sendo que a primeira parte é abordada com detalhe no ponto 2. Por sua vez, a segunda parte do trabalho é abordado no ponto 3. Cada subsecção deste capítulo corresponde a uma experiência laboratorial onde são respondidas as questões propostas assim como uma breve análise da mesma.

2. Cliente FTP

Foi desenvolvido uma aplicação em C para descarregar um ficheiro de um servidor FTP. Depois de compilado o ficheiro no Anexo I, deve-se correr o seguinte comando:

./download ftp://[<user>:<password>@]<host>/<url-path>

O parâmetro passado à aplicação desenvolvida segue sintaxe referida no RFC1738.

O aplicação começa por interpretar o URL extraindo o *host*, o utilizador, a *password* e o caminho do ficheiro a descarregar.

Depois de ter estas informações a aplicação tenta converter o *host* num IP através da função **getaddrinfo**(). Esta função devolve todos os IP's possíveis para se conectar ao servidor FTP. De seguida, tenta-se estabelecer conexão com um dos IP's devolvidos pela função acima descrita. Se a conexão for estabelecida com sucesso um *socket* é criado para comunicar com o servidor.

Caso a aplicação consiga estabelecer conexão com o servidor, a mensagem de boas vindas é apresentada ao utilizador.

Para informação do utilizador e para saber se o ficheiro a descarregar realmente existe é escrito no *socket* a seguinte mensagem "SIZE <url-path>". O servidor, por sua vez, responde a este comando com o tamanho em bytes do ficheiro.

O próximo passo é entrar em modo passivo escrevendo o comando "PASV" no *socket*. O servidor responde com uma *string* contendo o IP e a porta por onde vai ser descarregado o ficheiro.

O ultimo passo da comunicação com este socket é informar qual o ficheiro que vai ser descarregado através do comando "RETR <url-path>".

Finalmente a aplicação estabelece ligação com o IP e porta retornados pelo modo passivo e começa a transferência e a escrita dos pacotes de dados.

Por fim ambas as ligações são terminadas e os *sockets* são fechados.

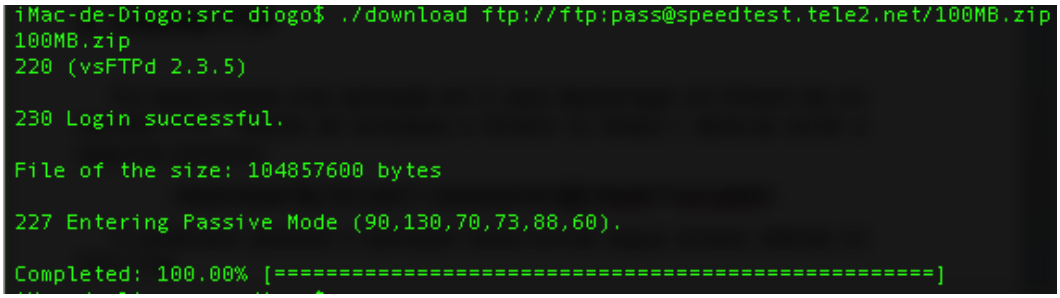

Figura 1 - Exemplo de execução da aplicação

3. Experiências Laboratoriais

3.1. Configurar uma rede de IP's

Esta primeira experiência permite-nos saber distinguir os diferentes pacotes de dados assim como a sua finalidade.

Um dos pacotes de dados que surge da analise dos *logs* são os pacotes ARP. Este pacotes servem para encontrar um endereço da camada de ligação (MAC) através de um IP. No primeiro pacote ARP o primeiro IP representa o IP de destino e o segundo o IP de quem quer comunicar. No segundo pacote o Observamos o MAC associado ao IP do destino (destino do *ping*).

Outro pacote de dados são os pacotes ICMP. Estes são gerados através do comando *ping.* Estes pacotes têm 2 IP's associados um da fonte e outro do destino.

Para distinguir o tipo de pacote (ARP, TCP, ICMP, etc..) temos de olhar para o cabeçalho do mesmo e interpretá-lo. Através do cabeçalho também podemos descobri o tamanho do pacote de dados.

O mecanismo de *loopback* permite detectar erros na transmissão de dados, visto que o emissor volta a receber o pacote que enviou. Este mecanismo permite também saber que o cabos se encontram em boas condições.

3.2. Implementar duas LANs virtuais num switch

Na segunda experiência podemos aprender a configurar o *switch* assim como criar duas LAN's virtuais.

Para configurar uma VLAN temos de executar o comando "vlan x" (x é o número da *vlan*) na consola do *switch*. O próximo passo é adicionar as portas em que os *tuxs* estão ligados ao *switch*. Para isso basta selecionar a porta na mesma consola com o comando "**interface fastethernet 0/y**" (y é o numero da porta a adicionar), de seguida mudar o modo "**switchport mode access**" e finalmente adicionar a porta a uma VLAN com o comando "**switchport access vlan x**" (x é o número da *vlan*).

Através da observação dos *logs* podemos concluir que há um *broadcast domain* para cada VLAN. Chegou-se a esta conclusão visto que fazendo *broadcast* no tux1 apenas os *tuxs* da mesma VLAN recebiam os pacotes. O mesmo se verificou no tux2.

3.3. Configurar um router em Linux

A experiência laboratorial 3 dá maior destaque às rotas e em como fazer o tux4 um *router*.

No tux1 temos a rota da interface eth0 ou seja, a rota automaticamente criada quando é atribuído o IP a essa interface e uma rota para a rede 172.16.Y1.0 (Y = número da bancada) através da *gateway* 172.16.Y0.254. No tux2 temos a rota da interface eth0 ou seja, a rota automaticamente criada quando é atribuído o IP a essa interface e uma rota para a rede 172.16.Y0.0 (Y = número da bancada) através da *gateway* 172.16.Y1.253. O tux4 tem as rotas das interfaces eth0 e eth1 sendo que as redes 172.16.Y0.0 e 172.16.Y1.0 são alcançáveis por este tux.

A tabela de *forwarding* contém a informação a informação da rede de destino, a *gateway* por onde o acesso é feito, a máscara dessa rede e a interface associada.

No passo 11 desta experiência podemos observar que os ARP *packets* servem para informar o tux4 quais são os endereços MAC que estão associados ao IP de destino. No inicio o tux1 “pergunta” quem tem o IP 172.16.Y0.254. Depois o tux4 pergunta quem tem o IP 172.16.Y1.1. No “caminho contrário” o tux2 “pergunta” quem tem o IP 172.16.Y1.253 e o tux4 pergunta quem tem o IP 172.16.Y0.1.

Já os ICMP *packtes* têm sempre o mesmo IP de fonte e destino para ao passar pelos vários *tuxs* saberem sempre para onde têm de reencaminhar o pacotes.

3.4. Configurar um router comercial e implementar NAT

Esta experiência consiste em configurar um *router* comercial e implementar e perceber melhor esta funcionalidade.

Para adicionar uma rota estática num *router* comercial basta escrever o seguinte comando **“ip route [rede de destino] [máscara de rede] [gateway IP]”** na consola do *router*.

Nesta experiência se o tux2 tiver uma rota para a rede 172.16.Y0.0 então os pacotes percorrem o seguinte caminho tux2 -> tux4 -> tux1. Removendo essa rota os pacotes percorrem o caminho tux2 -> router comercial -> tux4 -> tux1. No entanto se ativarmos os “*redirects*” no tux2 na primeira vez o caminho é o seguinte tux2 -> *router* comercial -> tux4 -> tux1 no entanto nas vezes restantes o caminho passa a ser tux2 -> tux4 -> tux1.

Nesta fase do guião é pedido para adicionar a funcionalidade NAT ao *router*. Para isso basta selecionarmos, na consola do *router,* a interface pretendida através do comando “**interface gigabitethernet 0/X**” (X é o número da interface) e executar o comando “**ip nat inside**” para a interface que está ligada à rede dos tuxs e “**ip nat outside**” para a interface que está ligada ao *router* da sala. Com *nat inside* as rotas são primeiro encaminhadas e depois interpretadas sendo que no *nat outside* verifica-se o oposto.

O NAT é uma funcionalidade que permite reescrever os IPs de origem e destino dos pacotes recebidos num *router* de forma a conectar uma rede local a uma rede externa. Assim quando chegam ao *router* os pacotes da rede externas ele sabe qual é o tux de destino. Para isso o *router* mantém uma *hash table* com essa informação.

3.5. DNS

Nesta experiência aprendemos a configurar o servidor DNS assim como qual é o seu papel nas redes de computadores.

Para configurar o servidor DNS basta editar o ficheiro /etc/resolv.conf especificando o *search* (lixa.netlab.fe.up.pt) e o *nameserver* (172.16.1.1).

O servidor DNS é responsável por converter um endereço *web* (ex: www.google.com) num IP (ex.: 216.58.208.4). Um primeiro pacote é enviado ao servidor DNS com o domínio do website e este responde com o respectivo IP. Um segundo pacote faz o contrário utilizando a técnica *reverse DNS lookup.*

3.6. Conexões TCP

Esta última experiência foca-se em testar a aplicação FTP desenvolvida no capítulo 2.

A aplicação abre duas conexões TCP uma para a comunicação com o servidor e outra para a transferência do ficheiro.

Address A	Port A	Address B	Port B	Packets	Bytes	Packets A → B	Bytes A → B	Packets B → A	Bytes B → A	Rel Start	Duration	Bits/s A → B	Bits/s B → A
172.16.30.1	44194	90.130.70.73	21	21	1675	10	724	11	951	1.944278000	13.761225	420	55
172.16.30.1	485...	90.130.70.73	25954	68 121	109 M	30714	2064 k	37407	107 M	2.390842000	13.366382	1235 k	64

Figura 2 - Conexões TCP

Uma ligação TCP apresenta quatro fases: estabelecimento da conexão, transferência de dados, adequação de parâmetros e termino de ligação. A adequação de parâmetros consiste em fazer esperar o servidor por **ACK**

do cliente de forma a que o cliente tenha tempo para processar toda a informação que lhe chega.

O mecanismo ARQ do TCP é bastante similar ao Go-Back-N ARQ, sendo que não garante que os pacotes são entregues ao destino. Sendo que os campos relevantes são o número do ACK que indicam o número de bytes recebidos com sucesso até ao momento e o número de sequência sendo que este corresponde ao número de sequência inicial (visto que SYN não está presente).

Para evitar congestionamento de informação o TCP socorre-se de um mecanismo que permite controlar a janela de informação. Assim sendo o campo *window* do TCP permite ao servidor saber quantos bytes o cliente está disposto a receber naquele momento.

No seguinte gráfico podemos verificar a evolução da janela ao longo do tempo:

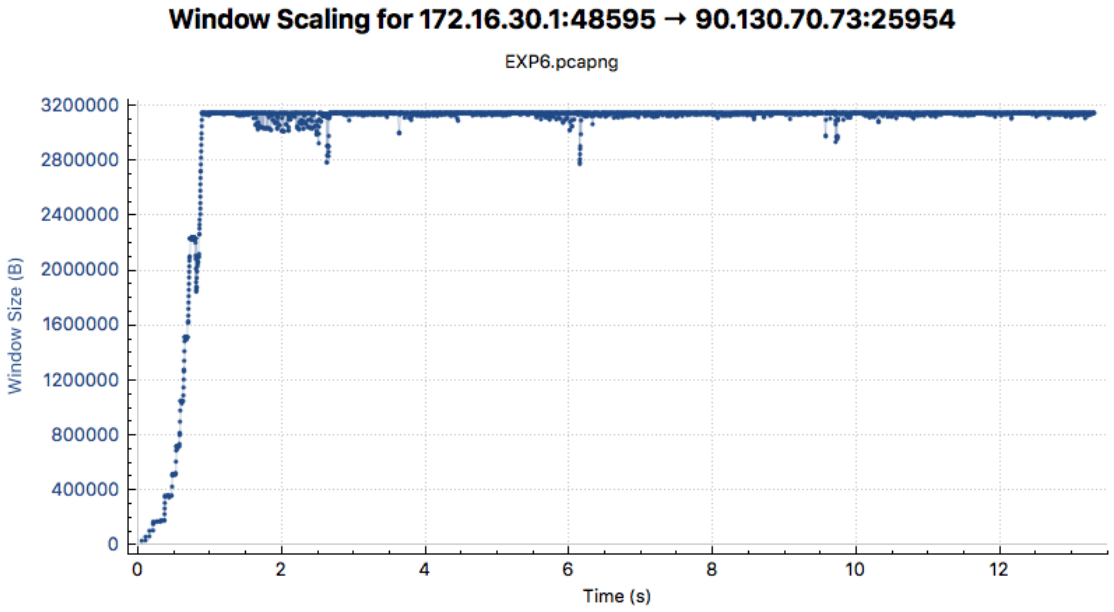

Figura 3 - Tamanho de Janela

Podemos verificar o efeito *slow-start* próprio do TCP assim como a consistência do tamanho da janela.

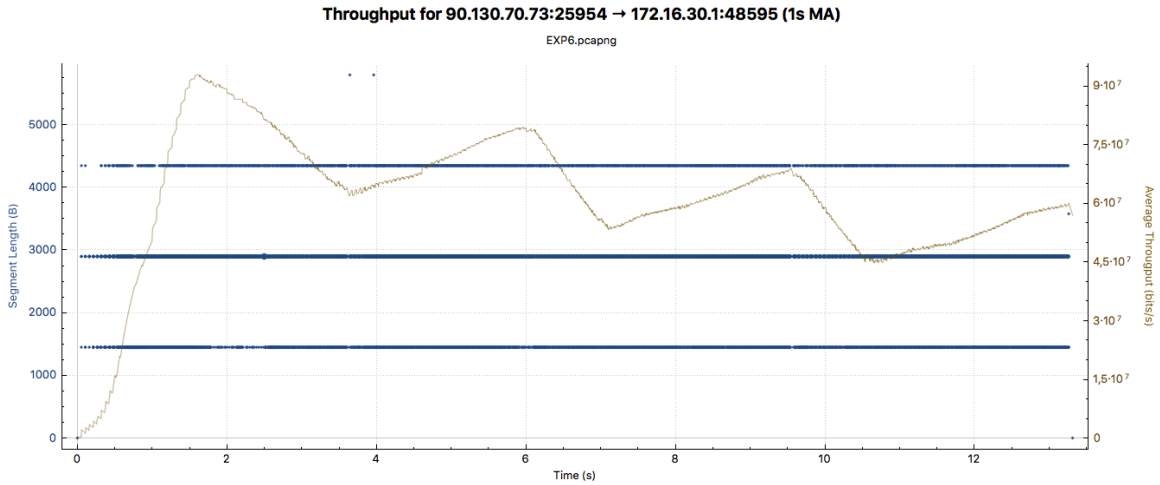

Figura 4 - Taxa de transferência

Na figura 3 podemos verificar que os pacotes têm essencialmente 3 tipos de tamanhos e que a taxa de transferência vai variando ao logo do tempo.

Múltiplas descargas de um mesmo ficheiro em tuxs diferentes não influenciam a taxa de transferência visto que no modo passivo cada transferência acontece num porto diferente.

4. Conclusões

Com este trabalho pode aprofundar-se um vasto conjunto de conceitos teóricos abordados nesta Unidade Curricular nomeadamente ao nível de pacotes de rede e de protocolos de comunicação.

Conclui-se também que a criação de uma rede doméstica de pequena dimensão é um problema de baixa complexidade.

Um dos objectivos do projeto passava analisar uma rede. Podemos então verificar o funcionamento de alguns mecanismos de verificação de erros, assim como mecanismos de controlo de tráfego.

Com este trabalho concluímos que o tamanho desta rede é bastante pequena e que um estudo mais aprofundado seria necessário para configurar uma rede de maior dimensão nomeadamente ao nível de rotas dinâmicas.

Anexo I

```c
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <errno.h>
#include <string.h>
#include <netdb.h>
#include <sys/types.h>
#include <netinet/in.h>
#include <sys/socket.h>
#include <arpa/inet.h>
#include <fcntl.h>

#define DATASIZE 2000
#define PORT "ftp"


void progressBar(float current, float total) {
    float percentage = 100.0 * current / total;

    printf("\rCompleted: %6.2f%% [", percentage);

    int i, len = 51;
    int pos = percentage * len / 100.0;

    for (i = 0; i < len; i++)
      i <= pos ? printf("=") : printf(" ");

    printf("]");

    fflush(stdout);
}

// get sockaddr, IPv4 or IPv6:
void * get_in_addr(struct sockaddr *sa)
{
 if (sa->sa_family == AF_INET) {
   return &(((struct sockaddr_in*)sa)->sin_addr);
 }

 return &(((struct sockaddr_in6*)sa)->sin6_addr);
}

void welcomeMessage(int sockfd){
  char msg[DATASIZE] = "";
    if (read(sockfd, msg, DATASIZE-1) > 0) {
      printf("%s\n", msg);
    }
}
```

```
void ftp_passive(int sockfd, char * serverHost, int *
serverPort){
    char rsp[DATASIZE]= "";
    write(sockfd, "pasv\n", strlen("pasv\n"));
    read(sockfd, rsp, DATASIZE-1);

    printf("%s\n", rsp);

    int ip1, ip2, ip3, ip4, port1, port2;
    sscanf(rsp, "227 Entering Passive Mode (%d,%d,%d,%d,%d,%d)",
&ip1,
           &ip2, &ip3, &ip4, &port1, &port2);

    sprintf(serverHost, "%d.%d.%d.%d", ip1, ip2, ip3, ip4);

    (*serverPort) = port1 * 256 + port2;
}
int ftp_login(int sockfd, char * user, char * password){
  char rsp[DATASIZE] = "";
  char userCmd[50] = "USER ";
  char passCmd[50] = "PASS ";

  strncat(userCmd, user, strlen(user));
  strncat(userCmd, "\n", strlen("\n"));

  strncat(passCmd, password, strlen(password));
  strncat(passCmd, "\n", strlen("\n"));

  write(sockfd, userCmd, strlen(userCmd));
  read(sockfd, rsp, DATASIZE-1);
  memset(&rsp[0], 0, sizeof(rsp));
  write(sockfd, passCmd, strlen(passCmd));
  read(sockfd, rsp, DATASIZE-1);
  printf("%s\n", rsp);
    if(rsp[0] == '5' && rsp[1] == '3' && rsp[2] == '0'){
     return -1;
    }
    return 0;
}

void ftp_specifie_file(int sockfd, char * path){
  char pathCmd[DATASIZE] = "RETR ";

  strncat(pathCmd, path, strlen(path));
  strncat(pathCmd, "\n", strlen("\n"));


  write(sockfd, pathCmd, strlen(pathCmd));

}
```

```
int ftp_file_size(int sockfd, char * path){
  char rsp[DATASIZE] = "";
  char fileCmd[DATASIZE] = "SIZE ";

  strncat(fileCmd, path, strlen(path));
  strncat(fileCmd, "\n", strlen("\n"));
  write(sockfd, fileCmd, strlen(fileCmd));
  read(sockfd, rsp, DATASIZE-1);

  int size;
  sscanf(rsp, "213 %d", &size);
  return size;

}
int ftp_connect(char * serverHost, int serverPort){
  struct   sockaddr_in tranfer_server; //server address handling

    memset(&tranfer_server,0,sizeof(tranfer_server)); // clean
struct

    tranfer_server.sin_family = AF_INET;
    tranfer_server.sin_addr.s_addr = inet_addr(serverHost);
//converts the host address from IPv4 numbers-and-dots notation
into binary data in network byte order
    tranfer_server.sin_port = htons(serverPort); //converts the
integer serverPort from host byte order to network byte order

  int transfer_sockfd;

  //open socket
    if ((transfer_sockfd = socket(AF_INET,SOCK_STREAM,0)) < 0){
    return -1;
  }

    //connect to the the transfer server
  if(connect(transfer_sockfd,(struct sockaddr *)&tranfer_server,
sizeof(tranfer_server)) < 0){
    return -1;
    }
  return transfer_sockfd;
}
```

```
int parseURL(char * url, char * host, char * path, char * user,
char * pass, char * filename){
    if(strchr(url, '@') != NULL){
     int p = sscanf(url, "ftp://%[^:]:%[^@]@%[^/]%s\n", user,
pass, host, path);
     if(p != 4){
          if(sscanf(url, "ftp://%[^:]:@%[^/]%s\n", user, host,
path) != 3){
               return -1;
          }
          strcpy(pass, "pass");
     }
    }
    else{
     sscanf(url, "ftp://%[^/]%s\n", host, path);
     strcpy(user, "ftp");
     strcpy(pass, "pass");
    }
    char * last = strrchr(path,'/');
    strcpy(filename, last+1);
    printf("%s\n", filename);
    return 0;
}

int main(int argc, char **argv){

  char host[200] = "";
  char path[DATASIZE] = "";
  char user[200] = "";
  char pass[200] = "";
  char filename[200] = "";
    //"ftp://ftp:pass@speedtest.tele2.net/100MB.zip"

    if(argc != 2){
     printf("usage: download
ftp://[<user>:<password>@]<host>/<url-path> \n");
     exit(1);
    }
```

```
    if(parseURL(argv[1], host, path, user, pass, filename) == -
1){
      printf("url does not match RFC1738
ftp://[<user>:<password>@]<host>/<url-path> \n");
      exit(1);
    }

  int status, sockfd;
  struct addrinfo hints;
  struct addrinfo *servinfo, *p; // will point to the results
  char s[INET6_ADDRSTRLEN];


  memset(&hints, 0, sizeof hints); // make sure the struct is
empty
  hints.ai_family = AF_UNSPEC; // don't care IPv4 or IPv6
  hints.ai_socktype = SOCK_STREAM; // TCP stream sockets

  if ((status = getaddrinfo(host, PORT, &hints, &servinfo)) !=
0) {
   fprintf(stderr, "getaddrinfo error: %s\n",
gai_strerror(status));
   exit(1);
  }


  p = servinfo;
  while(p != NULL){
    sockfd = socket(p->ai_family, p->ai_socktype, p-
>ai_protocol);
    if(sockfd != -1){
      if(connect(sockfd, p->ai_addr, p->ai_addrlen) != -1){
        break;
      }
      else{
        close(sockfd);
      }
    }
    p = p->ai_next;
  }
  if (p == NULL) {
    fprintf(stderr, "Failed to connect to FTP server\n");
    exit(2);
  }

  inet_ntop(p->ai_family, get_in_addr((struct sockaddr *)p-
>ai_addr), s, sizeof s);
  freeaddrinfo(servinfo); // all done with this structure
```

```
  int serverPort;
  char serverHost[INET6_ADDRSTRLEN];

  welcomeMessage(sockfd);
  if(ftp_login(sockfd, user, pass) == -1){
     exit(3);
    }
  int size = ftp_file_size(sockfd, path);
    if(size <= 0){
     printf("File does not exist\n");
     exit(4);
    }
  printf("File of the size: %d bytes \n\n", size);
  ftp_passive(sockfd, serverHost, &serverPort);
  ftp_specifie_file(sockfd, path);

  int tranferfd;
  if((tranferfd = ftp_connect(serverHost,serverPort)) == -1){
    exit(5);
  }

    int file = open(filename, O_WRONLY | O_CREAT, 0777);

  int total = 0;
  progressBar(total,size);
    //read to the file
    char print[DATASIZE];
    int r=0;
    while ((r=read(tranferfd, print, DATASIZE)) != 0) {
    total+=r;
     write(file, print, r);
    progressBar(total,size);
    }

    close(file);
    close(tranferfd);
    close(sockfd);

  printf("\n");

  return EXIT_SUCCESS;
}
```

Anexo II

Exp. 1

7	10.023963	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. TC + Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
8	11.987629	G-ProCom_8b:e4:4d	Broadcast	ARP	42	Who has 172.16.30.254? Tell 172.16.30.1
9	11.987977	HewlettP_5a:7d:74	G-ProCom_8b:e4:4d	ARP	60	172.16.30.254 is at 00:21:5a:5a:7d:74
10	11.987996	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x0780, seq=1/256, ttl=64 (reply in 11)
11	11.988257	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0780, seq=1/256, ttl=64 (request in 10)
12	12.028911	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. TC + Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
13	12.986623	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x0780, seq=2/512, ttl=64 (reply in 14)
14	12.986853	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0780, seq=2/512, ttl=64 (request in 13)
15	13.985650	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x0780, seq=3/768, ttl=64 (reply in 16)
16	13.986015	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0780, seq=3/768, ttl=64 (request in 15)
17	14.033719	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
18	14.985644	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x0780, seq=4/1024, ttl=64 (reply in 19)
19	14.985879	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0780, seq=4/1024, ttl=64 (request in 18)
20	15.985656	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x0780, seq=5/1280, ttl=64 (reply in 21)
21	15.986006	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0780, seq=5/1280, ttl=64 (request in 20)
22	16.038527	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
23	16.985645	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x0780, seq=6/1536, ttl=64 (reply in 24)
24	16.985932	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0780, seq=6/1536, ttl=64 (request in 23)
25	16.988661	HewlettP_5a:7d:74	G-ProCom_8b:e4:4d	ARP	60	Who has 172.16.30.1? Tell 172.16.30.254
26	16.988674	G-ProCom_8b:e4:4d	HewlettP_5a:7d:74	ARP	42	172.16.30.1 is at 00:0f:fe:8b:e4:4d
27	17.985649	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x0780, seq=7/1792, ttl=64 (reply in 28)
28	17.985994	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0780, seq=7/1792, ttl=64 (request in 27)

Exp. 2

Passo 5:

1	0.000000	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
2	1.673556	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x084a, seq=1/256, ttl=64 (reply in 3)
3	1.673830	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x084a, seq=1/256, ttl=64 (request in 2)
4	2.004830	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
5	2.672561	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x084a, seq=2/512, ttl=64 (reply in 6)
6	2.672904	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x084a, seq=2/512, ttl=64 (request in 5)
7	3.129132	CiscoInc_3a:fa:83	CiscoInc_3a:fa:83	LOOP	60	Reply
8	3.671559	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x084a, seq=3/768, ttl=64 (reply in 9)
9	3.671804	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x084a, seq=3/768, ttl=64 (request in 8)
10	4.009799	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
11	4.670638	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x084a, seq=4/1024, ttl=64 (reply in 12)
12	4.670984	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x084a, seq=4/1024, ttl=64 (request in 11)
13	5.670644	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x084a, seq=5/1280, ttl=64 (reply in 14)
14	5.670878	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x084a, seq=5/1280, ttl=64 (request in 13)
15	6.014516	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
16	6.670637	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x084a, seq=6/1536, ttl=64 (reply in 17)
17	6.670993	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x084a, seq=6/1536, ttl=64 (request in 16)
18	6.684402	HewlettP_5a:7d:74	G-ProCom_8b:e4:4d	ARP	60	Who has 172.16.30.1? Tell 172.16.30.254
19	6.684425	G-ProCom_8b:e4:4d	HewlettP_5a:7d:74	ARP	42	172.16.30.1 is at 00:0f:fe:8b:e4:4d
20	7.670638	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x084a, seq=7/1792, ttl=64 (reply in 21)
21	7.670873	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x084a, seq=7/1792, ttl=64 (request in 20)

Passo 8:

Tux 1:

15	22.292171	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=1/256, ttl=64 (no response found!)
16	23.130237	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
17	23.299334	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=2/512, ttl=64 (no response found!)
18	24.307324	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=3/768, ttl=64 (no response found!)
19	25.135112	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
20	25.315331	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=4/1024, ttl=64 (no response found!)
21	26.323328	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=5/1280, ttl=64 (no response found!)
22	27.139907	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
23	27.331348	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=6/1536, ttl=64 (no response found!)
24	28.339328	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=7/1792, ttl=64 (no response found!)
25	29.144861	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
26	29.347365	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=8/2048, ttl=64 (no response found!)
27	30.009379	CiscoInc_3a:fa:83	CiscoInc_3a:fa:83	LOOP	60	Reply
28	30.355328	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=9/2304, ttl=64 (no response found!)
29	31.149453	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
30	31.363343	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=10/2560, ttl=64 (no response found!)
31	32.371323	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=11/2816, ttl=64 (no response found!)

Tux 2:

4	5.559403	CiscoInc_3a:fa:84	CiscoInc_3a:fa:84	LOOP	60	Reply
5	6.019501	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
6	8.019455	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
7	10.024362	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
8	12.034266	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
9	14.034298	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
10	15.570876	CiscoInc_3a:fa:84	CiscoInc_3a:fa:84	LOOP	60	Reply
11	16.039114	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
12	18.049091	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
13	20.049056	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
14	22.053893	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
15	24.058853	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
16	25.582598	CiscoInc_3a:fa:84	CiscoInc_3a:fa:84	LOOP	60	Reply
17	26.063826	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
18	28.068710	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
19	30.073621	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
20	32.078549	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
21	34.083565	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004

Tux 4:

20	29.233378	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=1/256, ttl=64 (no response found!)
21	30.072332	CiscoInc_3a:fa:86	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8006
22	30.240572	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=2/512, ttl=64 (no response found!)
23	31.248594	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=3/768, ttl=64 (no response found!)
24	32.077856	CiscoInc_3a:fa:86	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8006
25	32.256631	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=4/1024, ttl=64 (no response found!)
26	33.264662	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=5/1280, ttl=64 (no response found!)
27	34.081361	CiscoInc_3a:fa:86	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8006
28	34.272714	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=6/1536, ttl=64 (no response found!)
29	35.280728	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=7/1792, ttl=64 (no response found!)
30	36.086670	CiscoInc_3a:fa:86	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8006
31	36.288797	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=8/2048, ttl=64 (no response found!)
32	36.950880	CiscoInc_3a:fa:86	CiscoInc_3a:fa:86	LOOP	60	Reply
33	37.296789	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=9/2304, ttl=64 (no response found!)
34	38.092623	CiscoInc_3a:fa:86	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8006
35	38.304835	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=10/2560, ttl=64 (no response found!)
36	39.312844	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=11/2816, ttl=64 (no response found!)
37	40.096152	CiscoInc_3a:fa:86	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8006
38	40.320889	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=12/3072, ttl=64 (no response found!)
39	41.328911	172.16.30.1	172.16.30.255	ICMP	98	Echo (ping) request id=0x08ac, seq=13/3328, ttl=64 (no response found!)

Passo 10:

Tux 1:

1	0.000000	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
2	2.004858	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
3	4.009689	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
4	6.019030	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
5	8.019322	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
6	8.517874	CiscoInc_3a:fa:83	CiscoInc_3a:fa:83	LOOP	60	Reply
7	10.024138	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
8	12.034006	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
9	14.033764	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
10	16.038613	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
11	18.048732	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
12	18.521002	CiscoInc_3a:fa:83	CiscoInc_3a:fa:83	LOOP	60	Reply
13	20.048274	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
14	22.053084	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
15	24.065931	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
16	26.071079	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
17	28.103019	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
18	28.525686	CiscoInc_3a:fa:83	CiscoInc_3a:fa:83	LOOP	60	Reply
19	30.105822	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
20	32.110268	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
21	34.115391	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
22	36.120248	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
23	38.125111	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
24	38.536475	CiscoInc_3a:fa:83	CiscoInc_3a:fa:83	LOOP	60	Reply

Tux 2:

1	0.000000	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
2	2.009766	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
3	4.009610	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
4	4.513210	CiscoInc_3a:fa:84	CDP/VTP/DTP/PAgP/U…	CDP	453	Device ID: tux-sw3 Port ID: FastEthernet0/2
5	5.039159	CiscoInc_3a:fa:84	CiscoInc_3a:fa:84	LOOP	60	Reply
6	6.014533	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
7	8.024548	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
8	10.024395	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
9	12.029348	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
10	14.039577	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
11	15.050292	CiscoInc_3a:fa:84	CiscoInc_3a:fa:84	LOOP	60	Reply
12	16.039160	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
13	16.107746	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=1/256, ttl=64 (no response found!)
14	17.107471	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=2/512, ttl=64 (no response found!)
15	18.044091	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
16	18.107471	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=3/768, ttl=64 (no response found!)
17	19.107466	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=4/1024, ttl=64 (no response found!)
18	20.054064	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
19	20.107468	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=5/1280, ttl=64 (no response found!)
20	21.107466	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=6/1536, ttl=64 (no response found!)
21	22.053946	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
22	22.107467	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=7/1792, ttl=64 (no response found!)
23	23.107474	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=8/2048, ttl=64 (no response found!)
24	24.058894	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
25	24.107467	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=9/2304, ttl=64 (no response found!)
26	25.057524	CiscoInc_3a:fa:84	CiscoInc_3a:fa:84	LOOP	60	Reply

Tux 4:

1	0.000000	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
2	2.009766	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
3	4.009610	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
4	4.513210	CiscoInc_3a:fa:84	CDP/VTP/DTP/PAgP/U…	CDP	453	Device ID: tux-sw3 Port ID: FastEthernet0/2
5	5.039159	CiscoInc_3a:fa:84	CiscoInc_3a:fa:84	LOOP	60	Reply
6	6.014533	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
7	8.024548	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
8	10.024395	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
9	12.029348	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
10	14.039577	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
11	15.050292	CiscoInc_3a:fa:84	CiscoInc_3a:fa:84	LOOP	60	Reply
12	16.039160	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
13	16.107746	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=1/256, ttl=64 (no response found!)
14	17.107471	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=2/512, ttl=64 (no response found!)
15	18.044091	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
16	18.107471	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=3/768, ttl=64 (no response found!)
17	19.107466	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=4/1024, ttl=64 (no response found!)
18	20.054064	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
19	20.107468	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=5/1280, ttl=64 (no response found!)
20	21.107466	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=6/1536, ttl=64 (no response found!)
21	22.053946	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
22	22.107467	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=7/1792, ttl=64 (no response found!)
23	23.107474	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=8/2048, ttl=64 (no response found!)
24	24.058894	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
25	24.107467	172.16.31.1	172.16.31.255	ICMP	98	Echo (ping) request id=0x0853, seq=9/2304, ttl=64 (no response found!)
26	25.057524	CiscoInc_3a:fa:84	CiscoInc_3a:fa:84	LOOP	60	Reply

Exp. 3

Passo 6:

5	7.039933	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x0ab8, seq=1/256, ttl=64 (reply in 6)
6	7.040170	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0ab8, seq=1/256, ttl=64 (request in 5)
7	8.019308	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
8	8.038937	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x0ab8, seq=2/512, ttl=64 (reply in 9)
9	8.039143	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0ab8, seq=2/512, ttl=64 (request in 8)
10	9.037928	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x0ab8, seq=3/768, ttl=64 (reply in 11)
11	9.038163	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0ab8, seq=3/768, ttl=64 (request in 10)
12	9.252594	CiscoInc_3a:fa:83	CiscoInc_3a:fa:83	LOOP	60	Reply
13	10.023701	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
14	10.037531	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x0ab8, seq=4/1024, ttl=64 (reply in 15)
15	10.037788	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0ab8, seq=4/1024, ttl=64 (request in 14)
16	11.037523	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x0ab8, seq=5/1280, ttl=64 (reply in 17)
17	11.037763	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0ab8, seq=5/1280, ttl=64 (request in 16)
18	12.028980	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
19	12.037521	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x0ab8, seq=6/1536, ttl=64 (reply in 20)
20	12.037780	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0ab8, seq=6/1536, ttl=64 (request in 19)
21	12.046447	HewlettP_5a:7d:74	G-ProCom_8b:e4:4d	ARP	60	Who has 172.16.30.1? Tell 172.16.30.254
22	12.046461	G-ProCom_8b:e4:4d	HewlettP_5a:7d:74	ARP	42	172.16.30.1 is at 00:0f:fe:8b:e4:4d
23	13.037525	172.16.30.1	172.16.30.254	ICMP	98	Echo (ping) request id=0x0ab8, seq=7/1792, ttl=64 (reply in 24)
24	13.037764	172.16.30.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0ab8, seq=7/1792, ttl=64 (request in 23)
25	14.033332	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
26	16.038590	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
27	18.043403	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
28	18.695846	172.16.30.1	172.16.31.253	ICMP	98	Echo (ping) request id=0x0abf, seq=1/256, ttl=64 (reply in 29)
29	18.696041	172.16.31.253	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0abf, seq=1/256, ttl=64 (request in 28)
30	19.264303	CiscoInc_3a:fa:83	CiscoInc_3a:fa:83	LOOP	60	Reply
31	19.694851	172.16.30.1	172.16.31.253	ICMP	98	Echo (ping) request id=0x0abf, seq=2/512, ttl=64 (reply in 32)
32	19.695124	172.16.31.253	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0abf, seq=2/512, ttl=64 (request in 31)
33	20.048073	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
34	20.693852	172.16.30.1	172.16.31.253	ICMP	98	Echo (ping) request id=0x0abf, seq=3/768, ttl=64 (reply in 35)
35	20.694044	172.16.31.253	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0abf, seq=3/768, ttl=64 (request in 34)
36	21.319634	CiscoInc_3a:fa:83	CDP/VTP/DTP/PAgP/U…	CDP	453	Device ID: tux-sw3 Port ID: FastEthernet0/1
37	21.693523	172.16.30.1	172.16.31.253	ICMP	98	Echo (ping) request id=0x0abf, seq=4/1024, ttl=64 (reply in 38)
38	21.693883	172.16.31.253	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0abf, seq=4/1024, ttl=64 (request in 37)
39	22.052952	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
40	22.693525	172.16.30.1	172.16.31.253	ICMP	98	Echo (ping) request id=0x0abf, seq=5/1280, ttl=64 (reply in 41)
41	22.693666	172.16.31.253	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0abf, seq=5/1280, ttl=64 (request in 40)
42	23.693522	172.16.30.1	172.16.31.253	ICMP	98	Echo (ping) request id=0x0abf, seq=6/1536, ttl=64 (reply in 43)
43	23.693755	172.16.31.253	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0abf, seq=6/1536, ttl=64 (request in 42)
44	24.057822	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003

44	24.057822	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
45	24.693525	172.16.30.1	172.16.31.253	ICMP	98	Echo (ping) request id=0x0abf, seq=7/1792, ttl=64 (reply in 46)
46	24.693887	172.16.31.253	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0abf, seq=7/1792, ttl=64 (request in 45)
47	25.693529	172.16.30.1	172.16.31.253	ICMP	98	Echo (ping) request id=0x0abf, seq=8/2048, ttl=64 (reply in 48)
48	25.693763	172.16.31.253	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0abf, seq=8/2048, ttl=64 (request in 47)
49	26.062988	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
50	28.067340	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
51	29.258830	CiscoInc_3a:fa:83	CiscoInc_3a:fa:83	LOOP	60	Reply
52	30.072173	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
53	30.120685	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0ac9, seq=1/256, ttl=64 (reply in 54)
54	30.121307	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0ac9, seq=1/256, ttl=63 (request in 53)
55	31.119681	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0ac9, seq=2/512, ttl=64 (reply in 56)
56	31.120164	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0ac9, seq=2/512, ttl=63 (request in 55)
57	32.076716	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
58	32.118693	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0ac9, seq=3/768, ttl=64 (reply in 59)
59	32.118953	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0ac9, seq=3/768, ttl=63 (request in 58)
60	33.117685	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0ac9, seq=4/1024, ttl=64 (reply in 61)
61	33.118165	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0ac9, seq=4/1024, ttl=63 (request in 60)
62	34.081806	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
63	34.117519	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0ac9, seq=5/1280, ttl=64 (reply in 64)
64	34.117776	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0ac9, seq=5/1280, ttl=63 (request in 63)
65	35.117524	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0ac9, seq=6/1536, ttl=64 (reply in 66)
66	35.117988	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0ac9, seq=6/1536, ttl=63 (request in 65)
67	36.086614	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
68	36.117520	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0ac9, seq=7/1792, ttl=64 (reply in 69)
69	36.117987	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0ac9, seq=7/1792, ttl=63 (request in 68)
70	38.091434	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003

Passo 10:

eth0:

13	18.043758	CiscoInc_3a:fa:86	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8006
14	19.208707	G-ProCom_8b:e4:4d	Broadcast	ARP	60	Who has 172.16.30.254? Tell 172.16.30.1
15	19.208730	HewlettP_5a:7d:74	G-ProCom_8b:e4:4d	ARP	42	172.16.30.254 is at 00:21:5a:5a:7d:74
16	19.208979	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0b9a, seq=1/256, ttl=64 (reply in 17)
17	19.209268	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0b9a, seq=1/256, ttl=63 (request in 16)
18	20.047462	CiscoInc_3a:fa:86	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8006
19	20.209868	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0b9a, seq=2/512, ttl=64 (reply in 20)
20	20.210027	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0b9a, seq=2/512, ttl=63 (request in 19)
21	21.209600	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0b9a, seq=3/768, ttl=64 (reply in 22)
22	21.209739	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0b9a, seq=3/768, ttl=63 (request in 21)
23	22.057003	CiscoInc_3a:fa:86	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8006
24	22.209618	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0b9a, seq=4/1024, ttl=64 (reply in 25)
25	22.209770	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0b9a, seq=4/1024, ttl=63 (request in 24)
26	23.209657	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0b9a, seq=5/1280, ttl=64 (reply in 27)
27	23.209802	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0b9a, seq=5/1280, ttl=63 (request in 26)
28	24.058306	CiscoInc_3a:fa:86	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8006
29	24.209688	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0b9a, seq=6/1536, ttl=64 (reply in 30)
30	24.209849	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0b9a, seq=6/1536, ttl=63 (request in 29)
31	24.212535	HewlettP_5a:7d:74	G-ProCom_8b:e4:4d	ARP	42	Who has 172.16.30.1? Tell 172.16.30.254
32	24.212860	G-ProCom_8b:e4:4d	HewlettP_5a:7d:74	ARP	60	172.16.30.1 is at 00:0f:fe:8b:e4:4d
33	24.669395	CiscoInc_3a:fa:86	CiscoInc_3a:fa:86	LOOP	60	Reply
34	25.209741	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0b9a, seq=7/1792, ttl=64 (reply in 35)
35	25.209892	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0b9a, seq=7/1792, ttl=63 (request in 34)
36	26.061774	CiscoInc_3a:fa:86	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8006
37	26.209750	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0b9a, seq=8/2048, ttl=64 (reply in 38)
38	26.209896	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0b9a, seq=8/2048, ttl=63 (request in 37)

eth1:

10	12.615855	CiscoInc_3a:fa:8a	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x800a
11	14.546033	Kye_25:26:0a	Broadcast	ARP	42	Who has 172.16.31.1? Tell 172.16.31.253
12	14.546153	HewlettP_61:30:63	Kye_25:26:0a	ARP	60	172.16.31.1 is at 00:21:5a:61:30:63
13	14.546164	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0b9a, seq=1/256, ttl=63 (reply in 14)
14	14.546291	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0b9a, seq=1/256, ttl=64 (request in 13)
15	14.621581	CiscoInc_3a:fa:8a	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x800a
16	15.546918	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0b9a, seq=2/512, ttl=63 (reply in 17)
17	15.547042	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0b9a, seq=2/512, ttl=64 (request in 16)
18	16.546642	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0b9a, seq=3/768, ttl=63 (reply in 19)
19	16.546754	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0b9a, seq=3/768, ttl=64 (request in 18)
20	16.625029	CiscoInc_3a:fa:8a	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x800a
21	17.546664	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0b9a, seq=4/1024, ttl=63 (reply in 22)
22	17.546784	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0b9a, seq=4/1024, ttl=64 (request in 21)
23	18.546705	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0b9a, seq=5/1280, ttl=63 (reply in 24)
24	18.546822	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0b9a, seq=5/1280, ttl=64 (request in 23)
25	18.630452	CiscoInc_3a:fa:8a	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x800a
26	19.546737	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0b9a, seq=6/1536, ttl=63 (reply in 27)
27	19.546865	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0b9a, seq=6/1536, ttl=64 (request in 26)
28	19.548407	HewlettP_61:30:63	Kye_25:26:0a	ARP	60	Who has 172.16.31.253? Tell 172.16.31.1
29	19.548417	Kye_25:26:0a	HewlettP_61:30:63	ARP	42	172.16.31.253 is at 00:c0:df:25:26:0a
30	20.006607	CiscoInc_3a:fa:8a	CiscoInc_3a:fa:8a	LOOP	60	Reply
31	20.546789	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0b9a, seq=7/1792, ttl=63 (reply in 32)
32	20.546906	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0b9a, seq=7/1792, ttl=64 (request in 31)
33	20.635907	CiscoInc_3a:fa:8a	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x800a
34	21.546799	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) request id=0x0b9a, seq=8/2048, ttl=63 (reply in 35)
35	21.546911	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0b9a, seq=8/2048, ttl=64 (request in 34)

Exp. 4

Passo 4:

1	0.000000	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
2	0.386084	CiscoInc_3a:fa:84	CiscoInc_3a:fa:84	LOOP	60	Reply
3	2.009833	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
4	2.547539	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) request id=0x0766, seq=1/256, ttl=64 (reply in 6)
5	2.547925	172.16.31.254	172.16.31.1	ICMP	70	Redirect (Redirect for host)
6	2.548240	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) reply id=0x0766, seq=1/256, ttl=63 (request in 4)
7	3.546549	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) request id=0x0766, seq=2/512, ttl=64 (reply in 8)
8	3.547127	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) reply id=0x0766, seq=2/512, ttl=63 (request in 7)
9	4.009774	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
10	4.545727	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) request id=0x0766, seq=3/768, ttl=64 (reply in 12)
11	4.546042	172.16.31.254	172.16.31.1	ICMP	70	Redirect (Redirect for host)
12	4.546309	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) reply id=0x0766, seq=3/768, ttl=63 (request in 10)
13	5.545723	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) request id=0x0766, seq=4/1024, ttl=64 (reply in 15)
14	5.546022	172.16.31.254	172.16.31.1	ICMP	70	Redirect (Redirect for host)
15	5.546412	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) reply id=0x0766, seq=4/1024, ttl=63 (request in 13)
16	6.014707	CiscoInc_3a:fa:84	Spanning-tree-(for…	STP	60	Conf. Root = 32768/31/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8004
17	6.545726	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) request id=0x0766, seq=5/1280, ttl=64 (reply in 19)
18	6.546016	172.16.31.254	172.16.31.1	ICMP	70	Redirect (Redirect for host)
19	6.546278	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) reply id=0x0766, seq=5/1280, ttl=63 (request in 17)
20	7.545715	172.16.31.1	172.16.30.1	ICMP	98	Echo (ping) request id=0x0766, seq=6/1536, ttl=64 (reply in 22)
21	7.546026	172.16.31.254	172.16.31.1	ICMP	70	Redirect (Redirect for host)
22	7.546418	172.16.30.1	172.16.31.1	ICMP	98	Echo (ping) reply id=0x0766, seq=6/1536, ttl=63 (request in 20)

Passo 5:

1	0.000000	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
2	1.834255	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x1748, seq=1/256, ttl=64 (no response found!)
3	1.998959	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
4	2.834261	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x1748, seq=2/512, ttl=64 (no response found!)
5	3.794204	CiscoInc_3a:fa:83	CiscoInc_3a:fa:83	LOOP	60	Reply
6	3.834276	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x1748, seq=3/768, ttl=64 (no response found!)
7	4.003870	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
8	4.834278	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x1748, seq=4/1024, ttl=64 (no response found!)
9	5.834264	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x1748, seq=5/1280, ttl=64 (no response found!)
10	6.008728	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
11	6.834265	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x1748, seq=6/1536, ttl=64 (no response found!)
12	7.834275	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x1748, seq=7/1792, ttl=64 (no response found!)
13	8.013492	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
14	8.834265	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x1748, seq=8/2048, ttl=64 (no response found!)
15	9.834264	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x1748, seq=9/2304, ttl=64 (no response found!)
16	10.018324	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003

Passo 7:

4	3.778758	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x192a, seq=1/256, ttl=64 (reply in 5)
5	3.779727	172.16.1.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x192a, seq=1/256, ttl=62 (request in 4)
6	4.779846	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x192a, seq=2/512, ttl=64 (reply in 7)
7	4.780641	172.16.1.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x192a, seq=2/512, ttl=62 (request in 6)
8	5.552957	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
9	5.779282	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x192a, seq=3/768, ttl=64 (reply in 10)
10	5.780083	172.16.1.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x192a, seq=3/768, ttl=62 (request in 9)
11	6.779265	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x192a, seq=4/1024, ttl=64 (reply in 12)
12	6.780084	172.16.1.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x192a, seq=4/1024, ttl=62 (request in 11)
13	7.562689	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
14	7.779267	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x192a, seq=5/1280, ttl=64 (reply in 15)
15	7.780041	172.16.1.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x192a, seq=5/1280, ttl=62 (request in 14)
16	8.779263	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x192a, seq=6/1536, ttl=64 (reply in 17)
17	8.780060	172.16.1.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x192a, seq=6/1536, ttl=62 (request in 16)
18	9.562451	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
19	9.779262	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x192a, seq=7/1792, ttl=64 (reply in 20)
20	9.780058	172.16.1.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x192a, seq=7/1792, ttl=62 (request in 19)
21	10.007313	CiscoInc_3a:fa:83	CiscoInc_3a:fa:83	LOOP	60	Reply
22	10.779270	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x192a, seq=8/2048, ttl=64 (reply in 23)
23	10.780067	172.16.1.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x192a, seq=8/2048, ttl=62 (request in 22)
24	11.584303	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
25	11.779263	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x192a, seq=9/2304, ttl=64 (reply in 26)
26	11.780073	172.16.1.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x192a, seq=9/2304, ttl=62 (request in 25)
27	12.779275	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x192a, seq=10/2560, ttl=64 (reply in 28)
28	12.780085	172.16.1.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x192a, seq=10/2560, ttl=62 (request in 27)
29	13.588877	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
30	13.779275	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x192a, seq=11/2816, ttl=64 (reply in 31)
31	13.780069	172.16.1.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x192a, seq=11/2816, ttl=62 (request in 30)
32	14.779274	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x192a, seq=12/3072, ttl=64 (reply in 33)
33	14.780060	172.16.1.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x192a, seq=12/3072, ttl=62 (request in 32)
34	15.598834	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
35	15.779268	172.16.30.1	172.16.1.254	ICMP	98	Echo (ping) request id=0x192a, seq=13/3328, ttl=64 (reply in 36)
36	15.780087	172.16.1.254	172.16.30.1	ICMP	98	Echo (ping) reply id=0x192a, seq=13/3328, ttl=62 (request in 35)

Exp. 5

8	12.028956	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
9	12.486050	172.16.30.1	172.16.1.1	DNS	74	Standard query 0x0362 A www.google.com
10	12.487867	172.16.1.1	172.16.30.1	DNS	226	Standard query response 0x0362 A www.google.com A 216.58.208.4 NS ns4.google.com NS ns1.google.com NS ns2.google.com NS n…
11	12.488068	172.16.30.1	216.58.208.4	ICMP	98	Echo (ping) request id=0x0f18, seq=1/256, ttl=64 (reply in 12)
12	12.494275	216.58.208.4	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0f18, seq=1/256, ttl=53 (request in 11)
13	12.494427	172.16.30.1	172.16.1.1	DNS	85	Standard query 0x263f PTR 4.208.58.216.in-addr.arpa
14	12.495750	172.16.1.1	172.16.30.1	DNS	269	Standard query response 0x263f PTR 4.208.58.216.in-addr.arpa PTR lis01s13-in-f4.1e100.net NS ns4.google.com NS ns2.google…
15	13.489881	172.16.30.1	216.58.208.4	ICMP	98	Echo (ping) request id=0x0f18, seq=2/512, ttl=64 (reply in 16)
16	13.495793	216.58.208.4	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0f18, seq=2/512, ttl=53 (request in 15)
17	14.033790	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
18	14.490895	172.16.30.1	216.58.208.4	ICMP	98	Echo (ping) request id=0x0f18, seq=3/768, ttl=64 (reply in 19)
19	14.496757	216.58.208.4	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0f18, seq=3/768, ttl=53 (request in 18)
20	14.638760	CiscoInc_3a:fa:83	CiscoInc_3a:fa:83	LOOP	60	Reply
21	15.492888	172.16.30.1	216.58.208.4	ICMP	98	Echo (ping) request id=0x0f18, seq=4/1024, ttl=64 (reply in 22)
22	15.498751	216.58.208.4	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0f18, seq=4/1024, ttl=53 (request in 21)
23	15.946666	CiscoInc_3a:fa:83	CDP/VTP/DTP/PAgP/U…	CDP	435	Device ID: tux-sw3 Port ID: FastEthernet0/1
24	16.038576	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
25	16.494852	172.16.30.1	216.58.208.4	ICMP	98	Echo (ping) request id=0x0f18, seq=5/1280, ttl=64 (reply in 26)
26	16.500723	216.58.208.4	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0f18, seq=5/1280, ttl=53 (request in 25)
27	17.496330	HewlettP_5a:7d:74	G-ProCom_8b:e4:4d	ARP	60	Who has 172.16.30.1? Tell 172.16.30.254
28	17.496351	G-ProCom_8b:e4:4d	HewlettP_5a:7d:74	ARP	42	172.16.30.1 is at 00:0f:fe:8b:e4:4d
29	17.496822	172.16.30.1	216.58.208.4	ICMP	98	Echo (ping) request id=0x0f18, seq=6/1536, ttl=64 (reply in 30)
30	17.502671	216.58.208.4	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0f18, seq=6/1536, ttl=53 (request in 29)
31	18.043487	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
32	18.498769	172.16.30.1	216.58.208.4	ICMP	98	Echo (ping) request id=0x0f18, seq=7/1792, ttl=64 (reply in 33)
33	18.504633	216.58.208.4	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0f18, seq=7/1792, ttl=53 (request in 32)
34	19.500740	172.16.30.1	216.58.208.4	ICMP	98	Echo (ping) request id=0x0f18, seq=8/2048, ttl=64 (reply in 35)
35	19.506560	216.58.208.4	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0f18, seq=8/2048, ttl=53 (request in 34)
36	20.048352	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
37	20.502671	172.16.30.1	216.58.208.4	ICMP	98	Echo (ping) request id=0x0f18, seq=9/2304, ttl=64 (reply in 38)
38	20.508610	216.58.208.4	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0f18, seq=9/2304, ttl=53 (request in 37)
39	21.503718	172.16.30.1	216.58.208.4	ICMP	98	Echo (ping) request id=0x0f18, seq=10/2560, ttl=64 (reply in 40)
40	21.509637	216.58.208.4	172.16.30.1	ICMP	98	Echo (ping) reply id=0x0f18, seq=10/2560, ttl=53 (request in 39)

Exp. 6

1	0.000000	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
2	1.788884	172.16.30.1	172.16.1.1	DNS	79	Standard query 0xcb00 A speedtest.tele2.net
3	1.788923	172.16.30.1	172.16.1.1	DNS	79	Standard query 0xa91f AAAA speedtest.tele2.net
4	1.938813	172.16.1.1	172.16.30.1	DNS	201	Standard query response 0xa91f AAAA speedtest.tele2.net AAAA 2a00:800:1010::1 NS kista.dns.swip.net NS kalmar.dns
5	1.943988	172.16.1.1	172.16.30.1	DNS	189	Standard query response 0xcb00 A speedtest.tele2.net A 90.130.70.73 NS kista.dns.swip.net NS kalmar.dns.swip.net
6	1.944278	172.16.30.1	90.130.70.73	TCP	74	44194 → 21 [SYN] Seq=0 Win=29200 Len=0 MSS=1460 SACK_PERM=1 TSval=900646 TSecr=0 WS=128
7	1.995145	90.130.70.73	172.16.30.1	TCP	74	21 → 44194 [SYN, ACK] Seq=0 Ack=1 Win=14480 Len=0 MSS=1460 SACK_PERM=1 TSval=2099789302 TSecr=900646 WS=512
8	1.995179	172.16.30.1	90.130.70.73	TCP	66	44194 → 21 [ACK] Seq=1 Ack=1 Win=29312 Len=0 TSval=900658 TSecr=2099789302
9	2.009911	CiscoInc_3a:fa:83	Spanning-tree-(for…	STP	60	Conf. Root = 32768/30/fc:fb:fb:3a:fa:80 Cost = 0 Port = 0x8003
10	2.048123	90.130.70.73	172.16.30.1	FTP	86	Response: 220 (vsFTPd 2.3.5)
11	2.048152	172.16.30.1	90.130.70.73	TCP	66	44194 → 21 [ACK] Seq=1 Ack=21 Win=29312 Len=0 TSval=900672 TSecr=2099789315
12	2.048391	172.16.30.1	90.130.70.73	FTP	75	Request: USER ftp
13	2.098569	90.130.70.73	172.16.30.1	TCP	66	21 → 44194 [ACK] Seq=21 Ack=10 Win=14848 Len=0 TSval=2099789328 TSecr=900672
14	2.098581	90.130.70.73	172.16.30.1	FTP	100	Response: 331 Please specify the password.
15	2.098625	172.16.30.1	90.130.70.73	FTP	76	Request: PASS pass
16	2.188651	90.130.70.73	172.16.30.1	TCP	66	21 → 44194 [ACK] Seq=55 Ack=20 Win=14848 Len=0 TSval=2099789351 TSecr=900684
17	2.289703	90.130.70.73	172.16.30.1	FTP	89	Response: 230 Login successful.
18	2.289792	172.16.30.1	90.130.70.73	FTP	82	Request: SIZE /100MB.zip
19	2.340054	90.130.70.73	172.16.30.1	TCP	66	21 → 44194 [ACK] Seq=78 Ack=36 Win=14848 Len=0 TSval=2099789388 TSecr=900732
20	2.340078	90.130.70.73	172.16.30.1	FTP	81	Response: 213 104857600
21	2.340150	172.16.30.1	90.130.70.73	FTP	71	Request: pasv
22	2.390712	90.130.70.73	172.16.30.1	FTP	116	Response: 227 Entering Passive Mode (90,130,70,73,101,98).
23	2.390794	172.16.30.1	90.130.70.73	FTP	82	Request: RETR /100MB.zip
24	2.390842	172.16.30.1	90.130.70.73	TCP	74	48595 → 25954 [SYN] Seq=0 Win=29200 Len=0 MSS=1460 SACK_PERM=1 TSval=900757 TSecr=0 WS=128
25	2.443052	90.130.70.73	172.16.30.1	TCP	74	25954 → 48595 [SYN, ACK] Seq=0 Ack=1 Win=14480 Len=0 MSS=1460 SACK_PERM=1 TSval=2099789414 TSecr=900757 WS=512
26	2.443084	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [ACK] Seq=1 Ack=1 Win=29312 Len=0 TSval=900770 TSecr=2099789414
27	2.480702	90.130.70.73	172.16.30.1	TCP	66	21 → 44194 [ACK] Seq=143 Ack=57 Win=14848 Len=0 TSval=2099789424 TSecr=900757
28	2.495301	90.130.70.73	172.16.30.1	FTP	141	Response: 150 Opening BINARY mode data connection for /100MB.zip (104857600 bytes).
29	2.495760	90.130.70.73	172.16.30.1	FTP-…	1514	FTP Data: 1448 bytes
30	2.495795	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [ACK] Seq=1 Ack=1449 Win=32128 Len=0 TSval=900783 TSecr=2099789427
31	2.496017	90.130.70.73	172.16.30.1	FTP-…	2962	FTP Data: 2896 bytes
32	2.496041	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [ACK] Seq=1 Ack=4345 Win=37888 Len=0 TSval=900784 TSecr=2099789427
33	2.496264	90.130.70.73	172.16.30.1	FTP-…	2962	FTP Data: 2896 bytes
34	2.496286	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [ACK] Seq=1 Ack=7241 Win=43776 Len=0 TSval=900784 TSecr=2099789427
35	2.496516	90.130.70.73	172.16.30.1	FTP-…	4410	FTP Data: 4344 bytes
36	2.496544	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [ACK] Seq=1 Ack=11585 Win=52480 Len=0 TSval=900784 TSecr=2099789427
37	2.496763	90.130.70.73	172.16.30.1	FTP-…	2962	FTP Data: 2896 bytes
38	2.496786	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [ACK] Seq=1 Ack=14481 Win=58240 Len=0 TSval=900784 TSecr=2099789427
39	2.531991	172.16.30.1	90.130.70.73	TCP	66	44194 → 21 [ACK] Seq=57 Ack=218 Win=29312 Len=0 TSval=900793 TSecr=2099789427
40	2.548392	90.130.70.73	172.16.30.1	FTP-…	1514	FTP Data: 1448 bytes
41	2.548415	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [ACK] Seq=1 Ack=15929 Win=61056 Len=0 TSval=900797 TSecr=2099789440
42	2.548645	90.130.70.73	172.16.30.1	FTP-…	2962	FTP Data: 2896 bytes
43	2.548669	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [ACK] Seq=1 Ack=18825 Win=66944 Len=0 TSval=900797 TSecr=2099789440

8149	15.703613	90.130.70.73	172.16.30.1	FTP-…	2962	FTP Data: 2896 bytes
8150	15.703632	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [ACK] Seq=1 Ack=104836649 Win=3143936 Len=0 TSval=904085 TSecr=2099792728
8151	15.703863	90.130.70.73	172.16.30.1	FTP-…	2962	FTP Data: 2896 bytes
8152	15.703880	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [ACK] Seq=1 Ack=104839545 Win=3143936 Len=0 TSval=904085 TSecr=2099792728
8153	15.704110	90.130.70.73	172.16.30.1	FTP-…	1514	FTP Data: 1448 bytes
8154	15.704120	90.130.70.73	172.16.30.1	FTP-…	1514	FTP Data: 1448 bytes
8155	15.704132	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [ACK] Seq=1 Ack=104842441 Win=3144832 Len=0 TSval=904086 TSecr=2099792728
8156	15.704362	90.130.70.73	172.16.30.1	FTP-…	2962	FTP Data: 2896 bytes
8157	15.704383	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [ACK] Seq=1 Ack=104845337 Win=3143936 Len=0 TSval=904086 TSecr=2099792728
8158	15.704610	90.130.70.73	172.16.30.1	FTP-…	1514	FTP Data: 1448 bytes
8159	15.704620	90.130.70.73	172.16.30.1	FTP-…	1514	FTP Data: 1448 bytes
8160	15.704630	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [ACK] Seq=1 Ack=104848233 Win=3144832 Len=0 TSval=904086 TSecr=2099792728
8161	15.704861	90.130.70.73	172.16.30.1	FTP-…	2962	FTP Data: 2896 bytes
8162	15.704881	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [ACK] Seq=1 Ack=104851129 Win=3143936 Len=0 TSval=904086 TSecr=2099792729
8163	15.705111	90.130.70.73	172.16.30.1	FTP-…	2962	FTP Data: 2896 bytes
8164	15.705129	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [ACK] Seq=1 Ack=104854025 Win=3143936 Len=0 TSval=904086 TSecr=2099792729
8165	15.705360	90.130.70.73	172.16.30.1	FTP-…	3642	FTP Data: 3576 bytes
8166	15.705386	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [ACK] Seq=1 Ack=104857602 Win=3143040 Len=0 TSval=904086 TSecr=2099792729
8167	15.705480	172.16.30.1	90.130.70.73	TCP	66	48595 → 25954 [FIN, ACK] Seq=1 Ack=104857602 Win=3145728 Len=0 TSval=904086 TSecr=2099792729
8168	15.705503	172.16.30.1	90.130.70.73	TCP	66	44194 → 21 [RST, ACK] Seq=57 Ack=218 Win=29312 Len=0 TSval=904086 TSecr=2099789427
8169	15.757224	90.130.70.73	172.16.30.1	TCP	66	25954 → 48595 [ACK] Seq=104857602 Ack=2 Win=14848 Len=0 TSval=2099792743 TSecr=904086