

# 18CSC302J (Computer Networks Lab)

## Lab session - ARP Implementation Using UDP

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Class :-CSE F1

### Code:-

```
#include<sys/socket.h>
#include<net/if_arp.h>
#include<sys/ioctl.h>
#include<stdio.h>
#include<string.h>
#include<unistd.h>
#include<math.h>
#include<complex.h>
#include<arpa/inet.h>
#include<netinet/in.h>
#include<netinet/if_ether.h>
#include<net/ethernet.h>
#include<stdlib.h>
```

```
int main()
{
    struct sockaddr_in sin={0};
    struct arpreq myarp={{0}};
    unsigned char *ptr;
    int sd;
    sin.sin_family=AF_INET;
    printf("Enter IP address: ");
    char ip[20];
    scanf("%s", ip);
    if(inet_pton(AF_INET,ip,&sin.sin_addr)==0)
    {
```

```
        printf("IP address Entered '%s' is not valid \n",ip);
        exit(0);
    }
    memcpy(&myarp.arp_pa,&sin,sizeof(myarp.arp_pa));
    strcpy(myarp.arp_dev,"echo");
    sd=socket(AF_INET,SOCK_DGRAM,0);
    printf("\nSend ARP request\n");
    if(ioctl(sd,SIOCGARP,&myarp)==1)
    {
        printf("No Entry in ARP cache for '%s'\n",ip);
        exit(0);
    }
    ptr=&myarp.arp_pa.sa_data[0];
    printf("Received ARP Reply\n");
    printf("\nMAC Address for '%s' : ",ip);
    printf("%p:%p:%p:%p:%p:%p\n",ptr,(ptr+1),(ptr+2),(ptr+3),(ptr+4),(ptr+5));
    return 0;
}
```

## Output:-

```
ARP_using_UDP.c x +
1  #include<sys/socket.h>
2  #include<net/if_arp.h>
3  #include<sys/ioctl.h>
4  #include<stdio.h>
5  #include<string.h>
6  #include<unistd.h>
7  #include<math.h>
8  #include<complex.h>
9  #include<arpa/inet.h>
10 #include<netinet/in.h>
11 #include<netinet/if_ether.h>
12 #include<net/ethernet.h>
13 #include<stdlib.h>
14
15 int main()
16 {
17     struct sockaddr_in sin={0};
18     struct arpreq myarp={{0}};
19     unsigned char *ptr;
20     int sd;
21     sin.sin_family=AF_INET;
22     printf("Enter IP address: ");
23     char ip[20];
24     scanf("%s", ip);
25     if(inet_pton(AF_INET,ip,&sin.sin_addr)==0)
26     {
27         printf("IP address Entered '%s' is not valid \n",ip);
28         exit(0);
29     }
30     memcpy(&myarp.arp_pa,&sin,sizeof(myarp.arp_pa));
31     strcpy(myarp.arp_dev,"eth0");
32     sd=socket(AF_INET,SOCK_DGRAM,0);
33     printf("\nSend ARP request\n");
34     if(ioctl(sd,SIOCGARP,&myarp)==1)
35     {
36         printf("No Entry in ARP cache for '%s'\n",ip);
37         exit(0);
38     }
39     ptr=&myarp.arp_pa.sa_data[0];
40     printf("Received ARP Reply\n");
41     printf("\nMAC Address for '%s' : ",ip);
```

```
331/ARP_using_UDI x +
Run Run Config Name Command: 331/ARP_using_UDP.c
Running /home/ubuntu/environment/331/ARP_using_UDP.c
Enter IP address: 192.16.10.3

Send ARP request
Received ARP Reply

MAC Address for '192.16.10.3' : 0x7ffc13ebe972:0x7ffc13ebe973:0x7ffc13ebe974:0x7ffc13ebe975:0x7ffc13ebe976:0x7ffc13ebe977

Process exited with code: 0
```