

ICS HW 10

May 16, 2020

1 Dynamic Linking

Given the PLT table:

```
PLT[1] <free>
400450: jmpq *0x20055a(%rip)
400456: pushq $0x0
40045b: jmpq 0x400440 PLT[2] <printf>
400460: jmpq *0x200552(%rip)
400466: pushq $0x1
40046b: jmpq 0x400440 ...

PLT[5] <malloc>
400490: jmpq *0x20053a(%rip)
400496: pushq $0x4
40049b: jmpq 0x400440
```

1. Please fill in the GOT table before the execution of main

Address	Entry	Contents	Description
0x600998	GOT[0]	--	
0x6009a0	GOT[1]	--	
0x6009a8	GOT[2]	--	
	GOT[3]		
	GOT[4]		
	GOT[7]		

2. We have the following code:

```
1: #include <stdlib.h>
2: void main(){
3:     int a = 1;
4:     printf("%d\n", a);
5:     char *c;
6:     c = (char*)malloc(4);
7:     printf("%d\n", a);
8:     free(c);
9: }
```

The addresses of functions are given:

printf	0x00007ffff7a81cf0
malloc	0x00007ffff7aacfc0
free	0x00007ffff7aad600

Which entry of the GOT table will change and what will it be after the execution of:

line 4:

line 6:

line 7:

line 8:

2 Network

11.3.2 (textbook) shows examples of multiple domain names mapped to the same IP address, and also a domain name mapped to multiple IP addresses.

1. Think about the benefits of mapping a domain names to multiple IP addresses.
2. In shared web hosting case, many websites can reside on one web server (sharing a single IP address) connected to the Internet. How does this server decide which website to show the user?