

## Homework #1 Solution

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### Network Administration

#### Part 1

(a) (10%)

Filter: ip.dst == 140.112.172.0/28, and the following must be included in your answer.

1. **ID:** LesMiserable\r
2. **Password:** SECRET\r
3. **Enter main page:** \0300C
4. **Search for board:** sGossiping\r
5. **Enter board:** \0300C
6. **Search for title:** /
7. **發:** \357\277\275o
8. **P:** P
9. **幣:** \357\277\275\357\277\275
10. **Submit search:** \r

(b) (7%)

- Application layer: Telnet protocol.
- Transmission layer: TCP.

(c) (8%)

The transmission path is as followed:

1. LesMiserable's device: application, transport, network, link, physical.
2. Router: network, link, physical.
3. Switch: link, physical.
4. PTT server: application, transport, network, link, physical.

#### Part 2

(a) (9%) Application layer, because DHCP request, ack, and so on are encapsulated in UDP.

(b) (8%) Below are only some of the answers. Answers which aren't listed here may also be correct.

- (i) Your home router. Some entry level routers on the market don't support IPv6.
- (ii) DNS server. Use a DNS server that supports IPv6.
- (iii) OS. Refer to [https://en.wikipedia.org/wiki/Comparison\\_of\\_IPv6\\_support\\_in\\_operating\\_systems](https://en.wikipedia.org/wiki/Comparison_of_IPv6_support_in_operating_systems), though most modern operating systems should be capable of support IPv6.
- (iv) Connectivity. The ISPs in Taiwan don't provide IPv6 by default. Some options are:

1. Complete way: Apply for dual stack from an ISP (Hinet only), or use a tunnel broker.
  2. Alternative way: Find a computer with IPv6 connectivity and use it to forward packets for your computer. Openvpn or SSH tunnel both do the work.(or proxy.)
- (c) (8%) Do as (b) and you'll see the beginning of "A Declaration of the Independence of Cyberspace".

## **System Administration**

Please see the attached shell script files on the course website for sample answers.