網路程式設計 HW3

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程式架構

資料結構

乙太網路 、 TCP/IP 封包結構

```
/* Ethernet header */
struct sniff_ethernet
{
    u_char ether_dhost[ETHER_ADDR_LEN]; /* Destination host address */
    u_char ether_shost[ETHER_ADDR_LEN]; /* Source host address */
    u_short ether_type; /* IP? ARP? RARP? etc */
};

 /* IP header */
struct sniff_ip
{
    u_char ip_vhl; /* version << 4 | header length >> 2 */
    u_char ip_tos; /* type of service */
    u_short ip_len; /* total length */
    u_short ip_id; /* identification */
    u_short ip_off; /* fragment offset field */
    #define IP_RF 0x8000 /* reserved fragment flag */
    #define IP_DF 0x4000 /* dont fragment flag */
    #define IP_MF 0x2000 /* more fragments flag */
    #define IP_OFFMASK 0x1fff /* mask for fragmenting bits */
    u_char ip_ttl; /* time to live */
    u_char ip_p; /* protocol */
    u_short ip_sum; /* checksum */
    struct in_addr ip_src,ip_dst; /* source and dest address */
};

#define IP_HL(ip)((ip)->ip_vhl &0x0f)
#define IP_V(ip)(((ip)->ip_vhl)>> 4)

/* TCP header */
typedef u_int tcp_seq;

struct sniff_tcp
{
```

```
    u_short th_sport; /*source port*/
    u_short th_dport; /*destination port */
    tcp_seq th_seq; /*sequence number*/
    tcp_seq th_ack; /*acknowledgement number */
    u_char th_offx2; /*data offset, rsvd */
    #define TH_OFF(th)(((th) -> th_offx2&0xf0)>> 4)
    u_char th_flags;
    #define TH_FIN 0x01
    #define TH_SYN 0x02
    #define TH_RST 0x04
    #define TH_PUSH 0x08
    #define TH_ACK 0x10
    #define TH_URG 0x20
    #define TH_ECE 0x40
    #define TH_CWR 0x80
    #define TH_FLAGS (TH_FIN|TH_SYN|TH_RST|TH_ACK|TH_URG|TH_ECE|TH_CWR)
    u_short th_win; /*window*/
    u_short th_sum; /*checksum*/
    u_short th_urp; /*urgent pointer*/
};
```