

Surname : Pendyala
Firstname : Praveen Kumar
Matrikel # : 2919474

Group Members :
Shrikanth Diwakar (2492658)
Ankush Chikhale (2973449)

Problem 6.2

a. Interrupts vs. Poll-Mode Drivers :

1. **Advantages of Polling:** The load induced by interrupts is reduced even though the kernel has to poll. Packets are less likely to be re-ordered.

Advantages of Interrupts: For low packet flow situations, interrupts offer the best performance with least latency. Polling interval in such situations has to be long and thus resulting in high latency.

2. **Poll-mode drivers:** Situations in which incoming packets exceeds a certain threshold, known as the "weight" of the network interface.

Interrupts: Situations in which incoming packets does not exceeds the "weight" of the network interface and also when low latency is a priority.

b. Mempools / MBuf Structures

The Buffer Manager uses the Mempool Library to allocate buffers. Therefore, it ensures that the packet header is interleaved optimally across the channels and ranks for L3 processing. We could pass the additional headers by appending them to TCP/UDP at the time of passing the packets to the Mempool constructor calls.

c. DPDK and Endianness

IP packet headers are encoded into Big-endian before sent out into the network. x86-based systems follow Little-endian so, the functions of `rte_byteorder.h` can be used to convert the Endianness of the encoding.

Problem 6.3

1. The code is supposed to analyse the ARP packets from the subnet of the device, and check if the requested IP address is the address of self - the machine where the code is running, and respond with an ARP response containing the L2 address - MAC address, of the current machine. The destination of this response will be the source of the ARP request that is being processed.

2. **Possible issue in code**

The endianness of the packet data is not taken into account. It could lead to unexpected results on x86 machines.