

01-switching

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This lab took me about [3.5] hours to do.

Implementation Explanation:

- **handle_packet函数**: 即先利用 `lookup_port` 函数, 看是否dst mac地址已经在mac_port table 里面了, 如果在则发送到对应的端口, 如果没找到则利用lab00的功能broadcast
- **lookup_port函数**: 计算对应的hash_value, 在对应位置hash table的链表中进行寻找, 比对 mac地址是否一致, 一致则返回该端口, 表示找到了
- **insert_mac_port函数**: 因为每一个mac地址只能插入一项, 所以要先利用 `lookup_port` 函数 看是否已经insert过了, 如果存在, 只需要更改该表项的visited等值, 不存在, 即重新生成一个表项插入
- **sweep_aged_mac_port_entry函数**: 利用 `list_for_each_entry_safe` 函数遍历并删除超时的表项

Screenshots:

```
mininet> h2 ping h3
PING 10.0.0.3 (10.0.0.3) 56(84) bytes of data.
64 bytes from 10.0.0.3: icmp_seq=1 ttl=64 time=0.463 ms
64 bytes from 10.0.0.3: icmp_seq=2 ttl=64 time=0.154 ms
64 bytes from 10.0.0.3: icmp_seq=3 ttl=64 time=0.357 ms
64 bytes from 10.0.0.3: icmp_seq=4 ttl=64 time=0.150 ms
64 bytes from 10.0.0.3: icmp_seq=5 ttl=64 time=0.258 ms
64 bytes from 10.0.0.3: icmp_seq=6 ttl=64 time=0.157 ms
64 bytes from 10.0.0.3: icmp_seq=7 ttl=64 time=0.286 ms
64 bytes from 10.0.0.3: icmp_seq=8 ttl=64 time=0.193 ms
64 bytes from 10.0.0.3: icmp_seq=9 ttl=64 time=0.128 ms
64 bytes from 10.0.0.3: icmp_seq=10 ttl=64 time=0.135 ms
^C
--- 10.0.0.3 ping statistics ---
10 packets transmitted, 10 received, 0% packet loss, time 9225ms
rtt min/avg/max/mdev = 0.128/0.228/0.463/0.106 ms
```

```
01-switching$ sudo nsenter -t 3975 -n ./switch
DEBUG: find the following interfaces: b1-eth0 b1-eth1 b1-eth2.
DEBUG: 2 aged entries in mac_port table are removed.
```

Remaining Bugs:

暂未发现