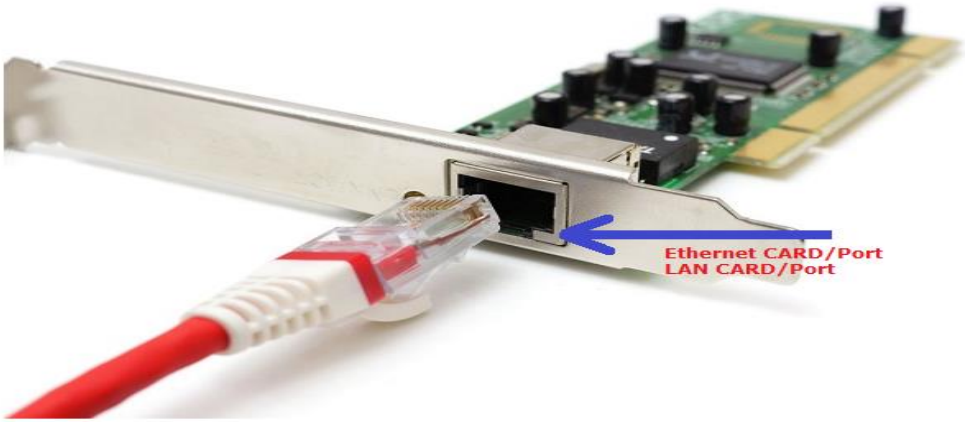
How packet flow works with ARP protocol and ICMP Message between two PC

In a local area to make a communication that technology are used, called LAN technology.

There are many technologies for LAN technology like – Ethernet technology, FDDI, Token ring, token bus

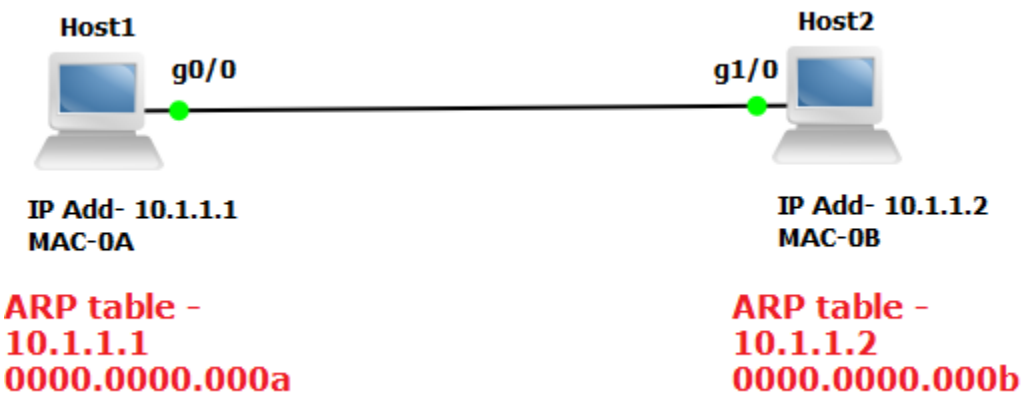
But now a days we are using Ethernet technology to make a communication in LAN .



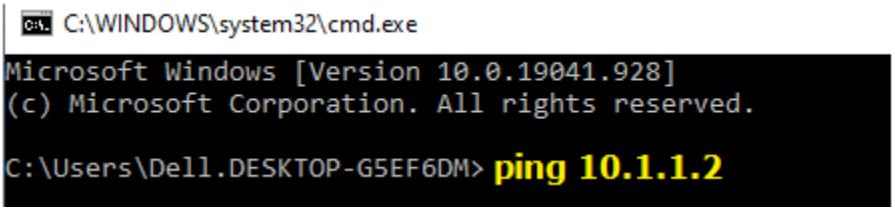
Note- If any machine where Ethernet card/port are available there will be ARP table. In Windows OS self ip address and Mac's information does not available but if CISCO OS is available there will be ARP table. As demonstrated below –

```
Host1#show arp
Protocol  Address          Age (min)  Hardware Addr   Type   Interface
Internet  10.1.1.1               -   0000.0000.000a  ARPA   GigabitEthernet0/0
Host1#
```

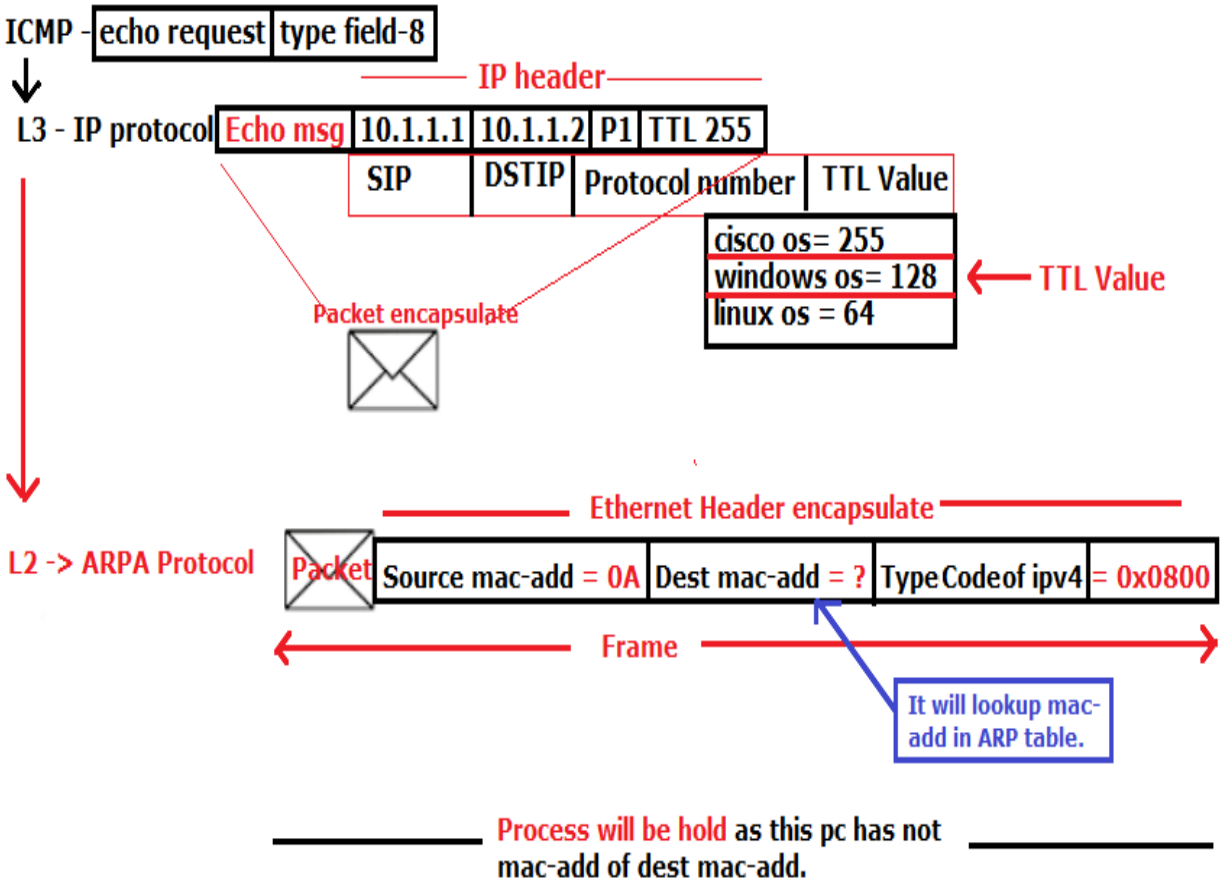
Let's see practical –



Go to the host 1 – type CMD



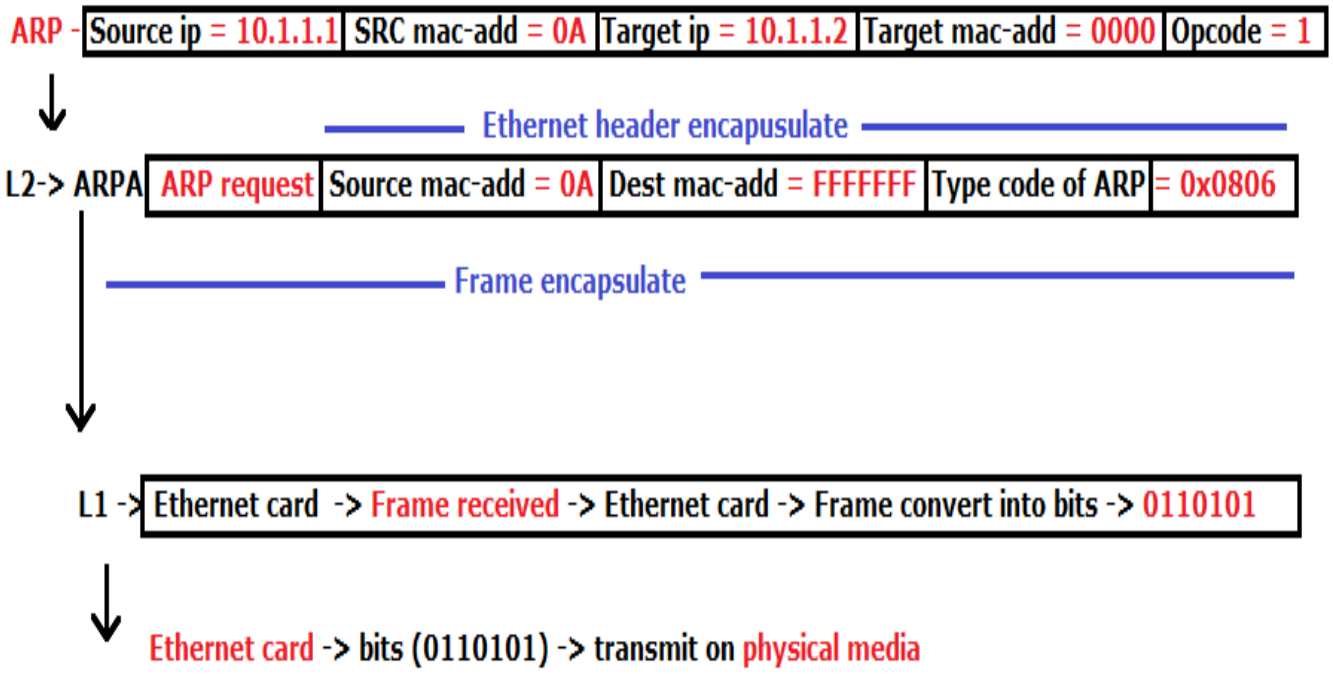
C:\> ping 10.1.1.2



Then ARPA will give responsibility to ARP protocol to resolve the mac -add of the destination device.

ARP process –

It is used to resolve the Mac-add of the destination machine on the basis of ip address.

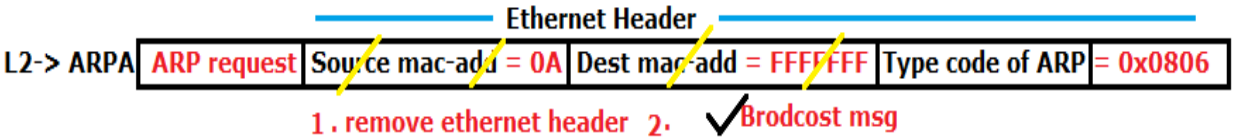


At receiving:-

L1 -> Ethernet card -> bits receive -> Ethernet card -> bits convert -> Frame

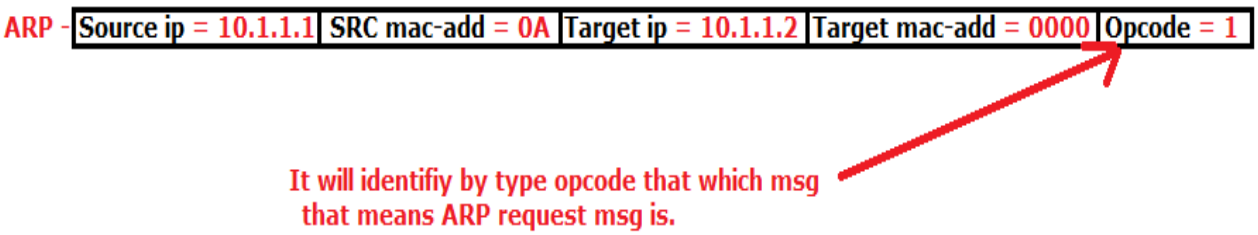
L2 -> ARPA -> Frame receive

Then ARPA Protocol will check destination mac-add. -> FFFFFFF then it will accept.



remaining payload - it will check by type code -> 0x0806

ARP Protocol ->

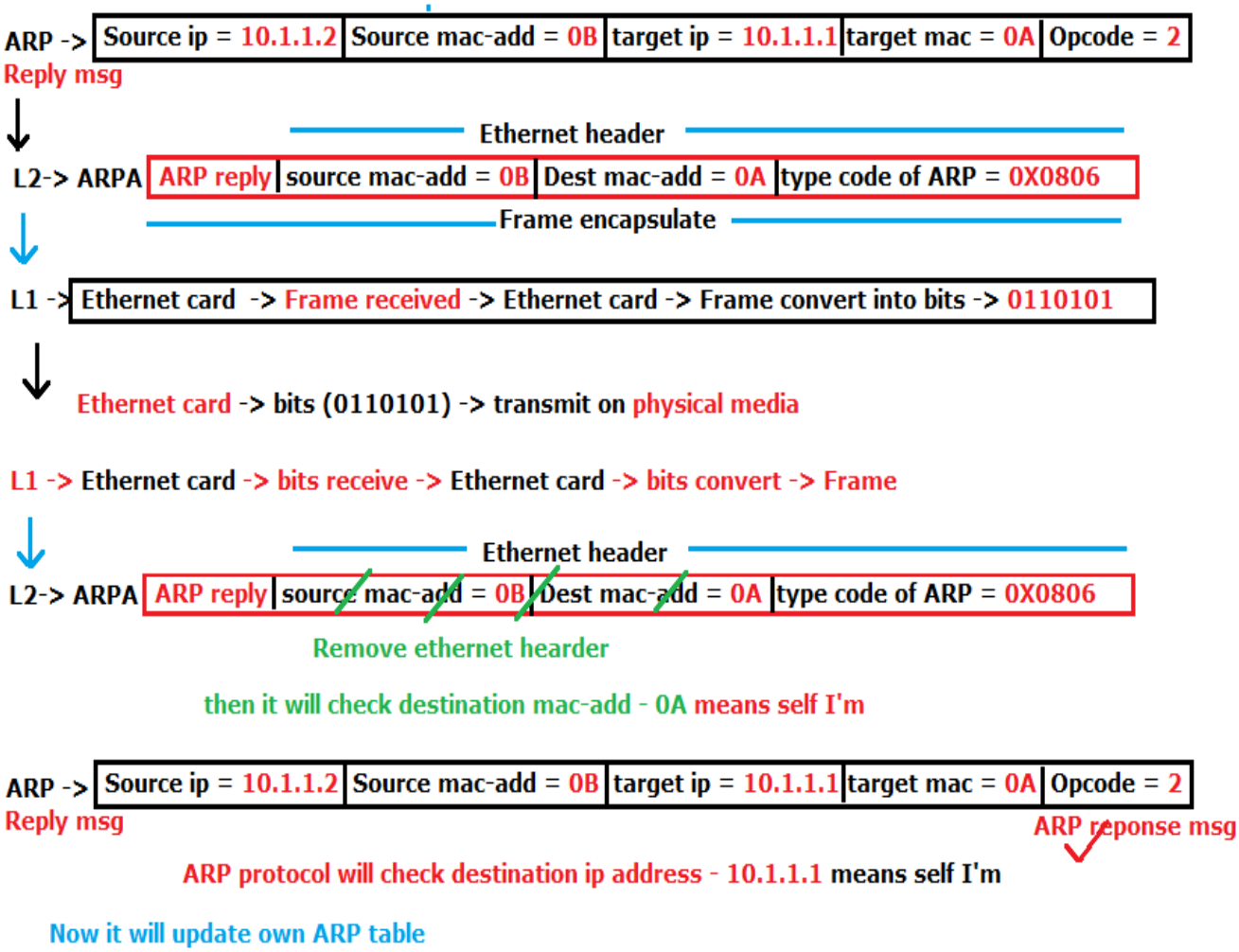


Then it will update own ARP table.

As shown updated ARP table –

```
Host2#show arp
Protocol  Address          Age (min)  Hardware Addr   Type   Interface
Internet  10.1.1.1               87   0000.0000.000a  ARPA   GigabitEthernet1/0
Internet  10.1.1.2                -   0000.0000.000b  ARPA   GigabitEthernet1/0
Host2#
```

Now ARP will give reply/ response message – to host1



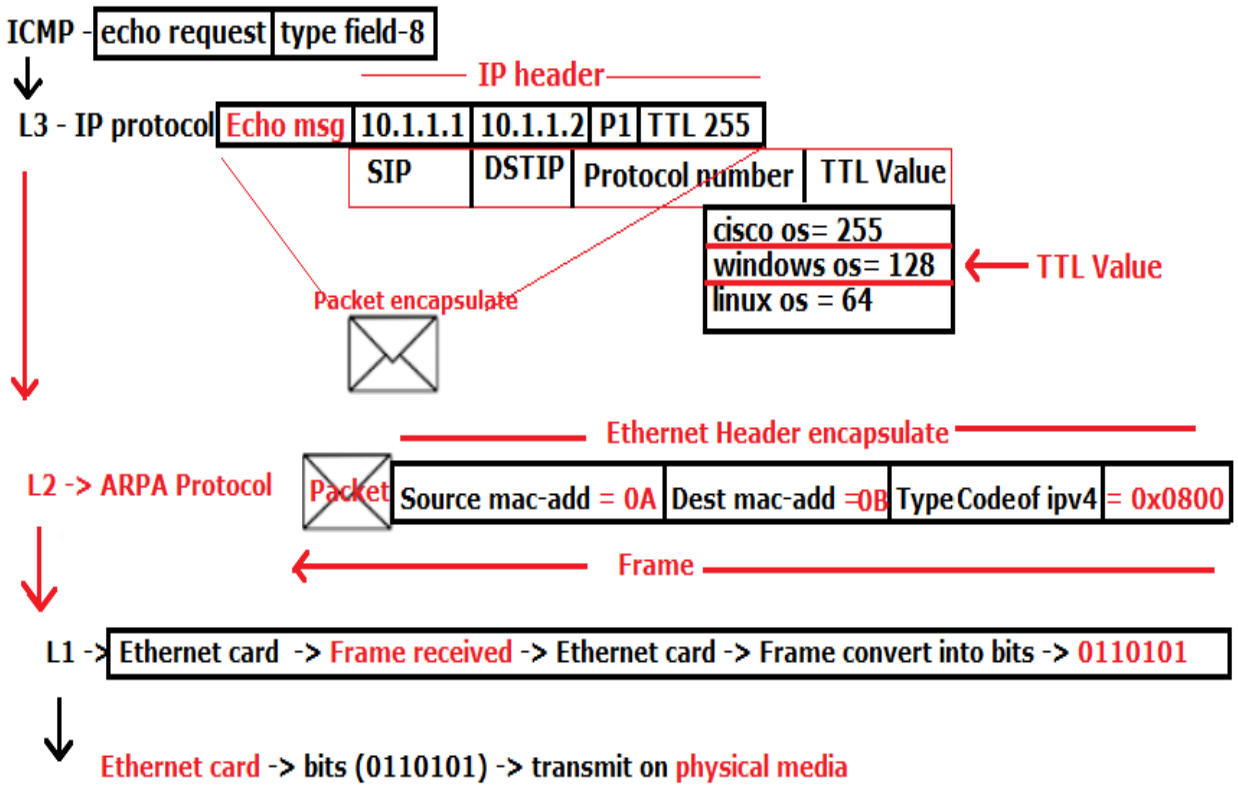
As shown updated ARP table –

```
Host1#show arp
Protocol  Address          Age (min)  Hardware Addr   Type   Interface
Internet  10.1.1.1               -   0000.0000.000a  ARPA   GigabitEthernet0/0
Internet  10.1.1.2             111   0000.0000.000b  ARPA   GigabitEthernet0/0
Host1#
```

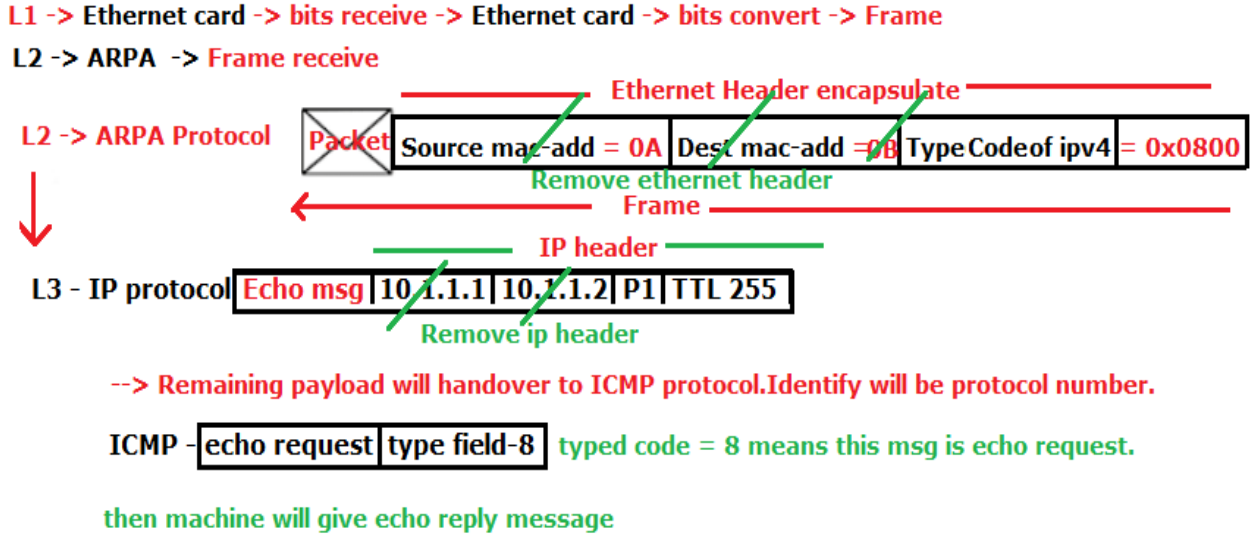
Now it will generate again ICMP echo request message to the requested host

2nd ICMP echo request message –

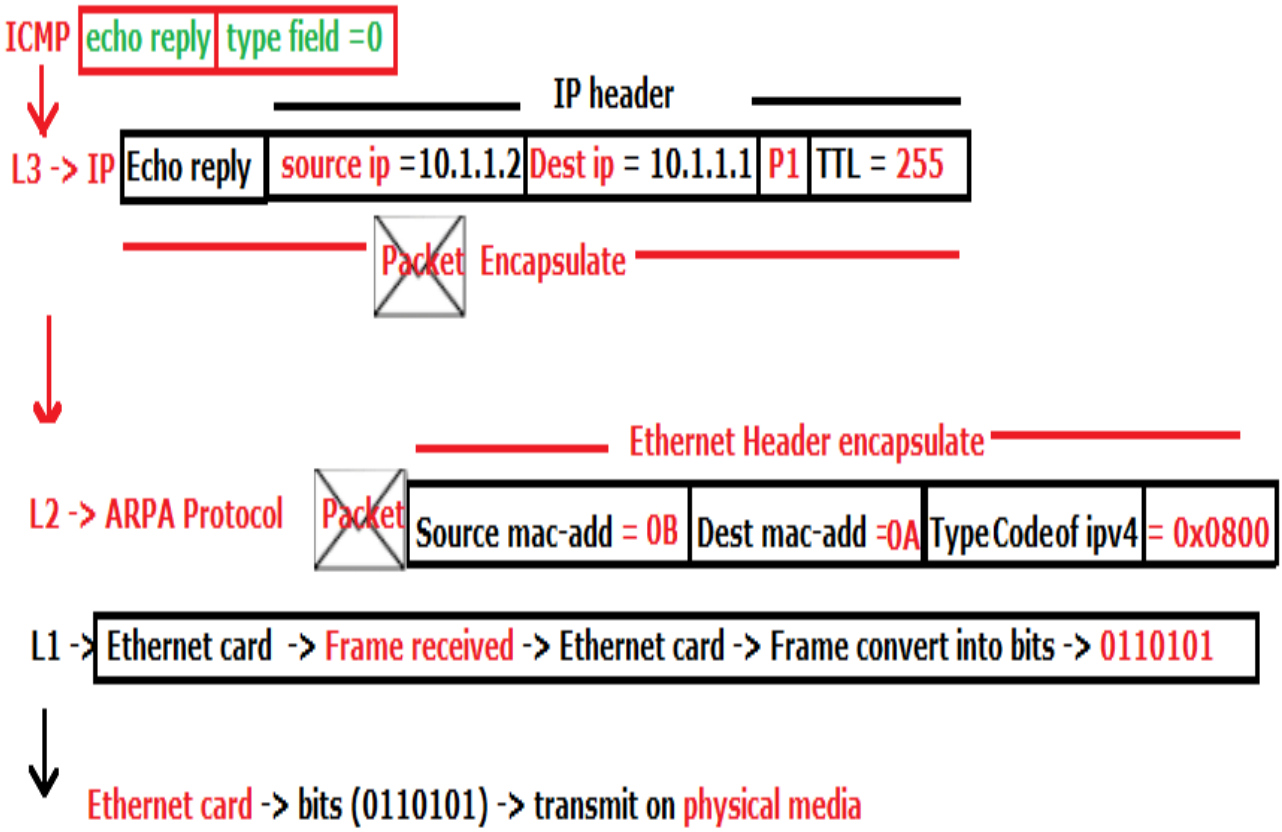
C:\> ping 10.1.1.2



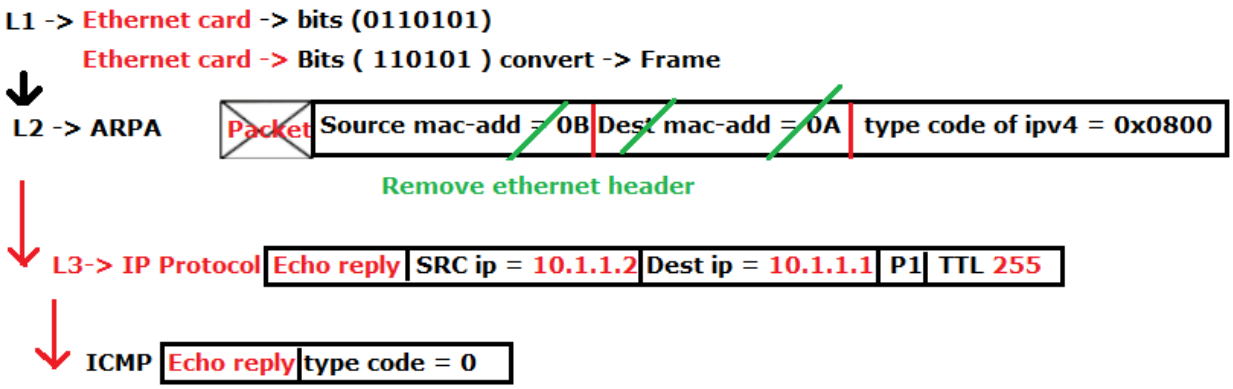
Receiving end (Host2):-



In echo reply message ICMP protocol will mention typed code =0 (From HOST 2)



Receiving End – On Host1



Now you will get three reply messages from host – one packet will get dropped. (Request time out).

Request time out.

- ✓ Reply from 10.1.1.2
- ✓ Reply from 10.1.1.2
- ✓ Reply from 10.1.1.2

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