

以太网网络传输层

——TCP/UDP、IP(IPv4, IPv6)

钱 峰

Eric Qianfeng

2019.12.1

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ISO/OSI 模型

Application Layer

HTTP, FTP, SSH, OICQ

Presentation Layer

Session Layer

Transport Layer

TCP / UDP

Network Layer

IP address, Routing

Data Link Layer

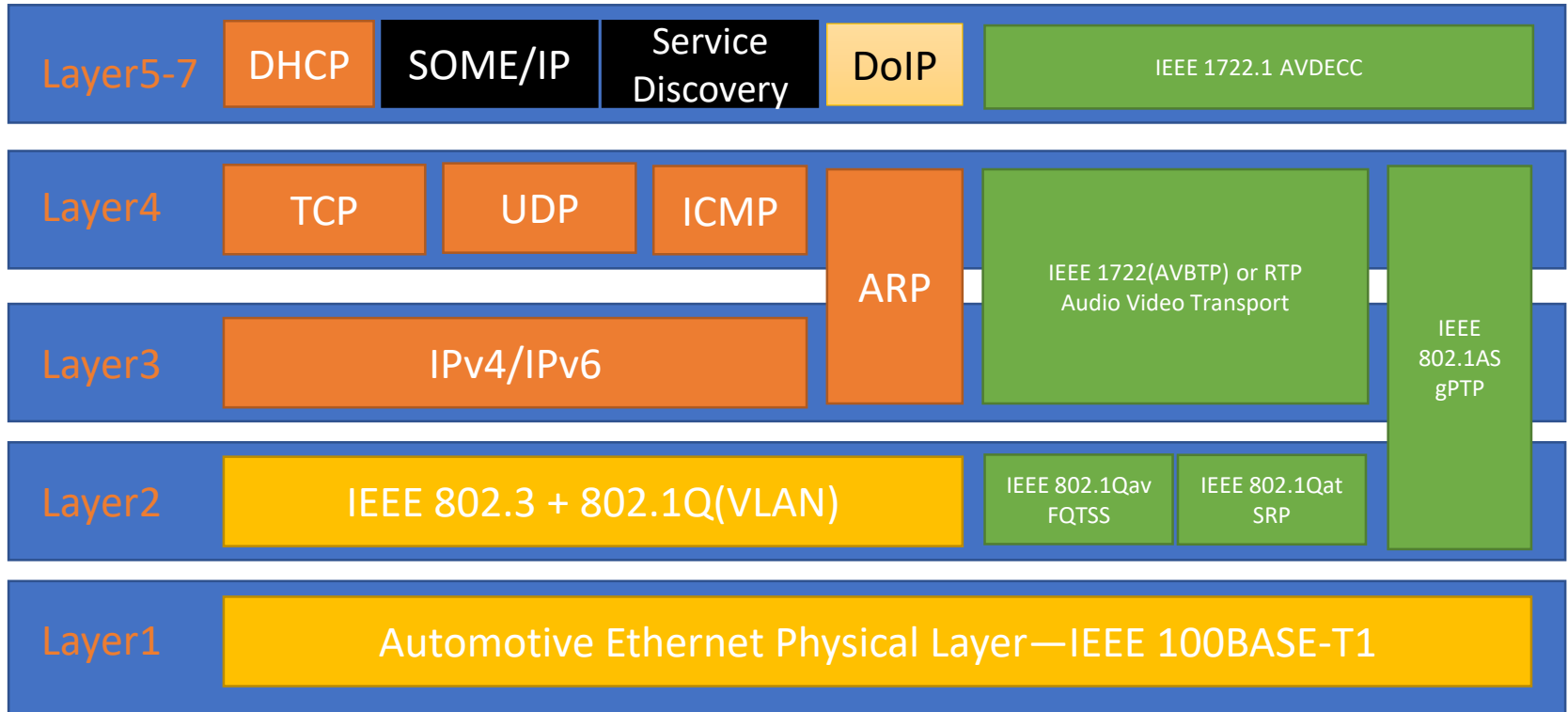
Ethernet Frame, MAC address

Physical Layer

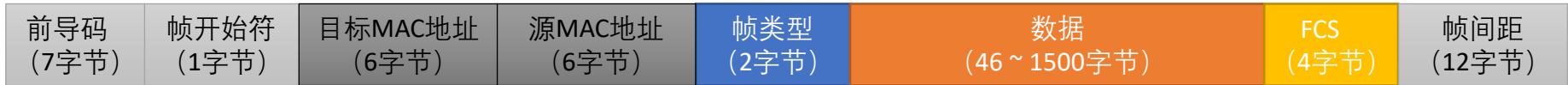
Bit stream, Physical Medium

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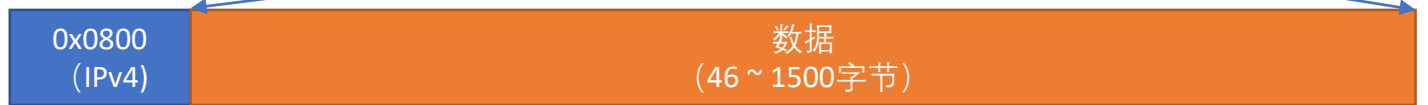
车载以太网协议架构



以太网帧结构



1010...1010 1010...1011

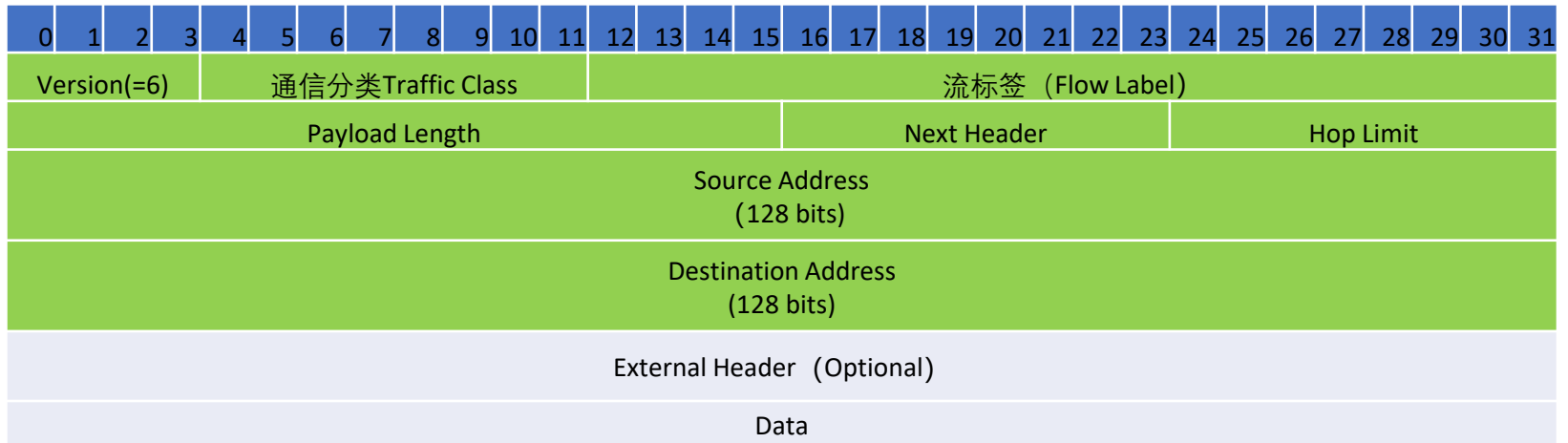
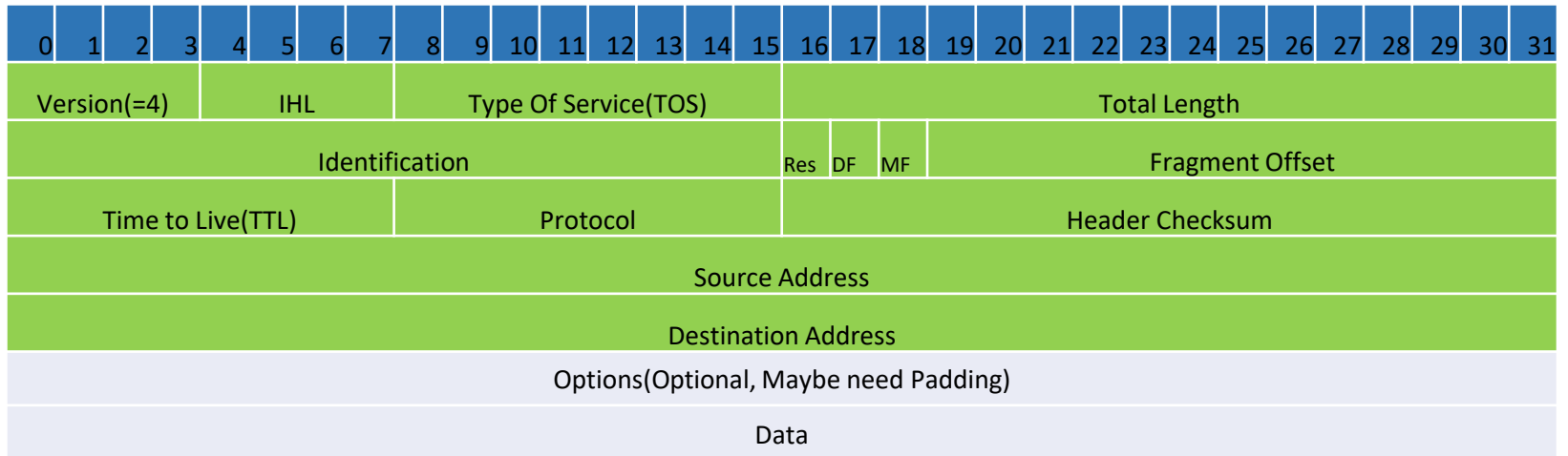


常用以太网类型

类型	协议
0x0800	IPv4
0x0806	ARP
0x22F0	AVTP
0x8100	VLAN Tag(TPID)
0x86DD	IPv6
0x8870	Jumbo Frame
0x88F7	PTP / gPTP

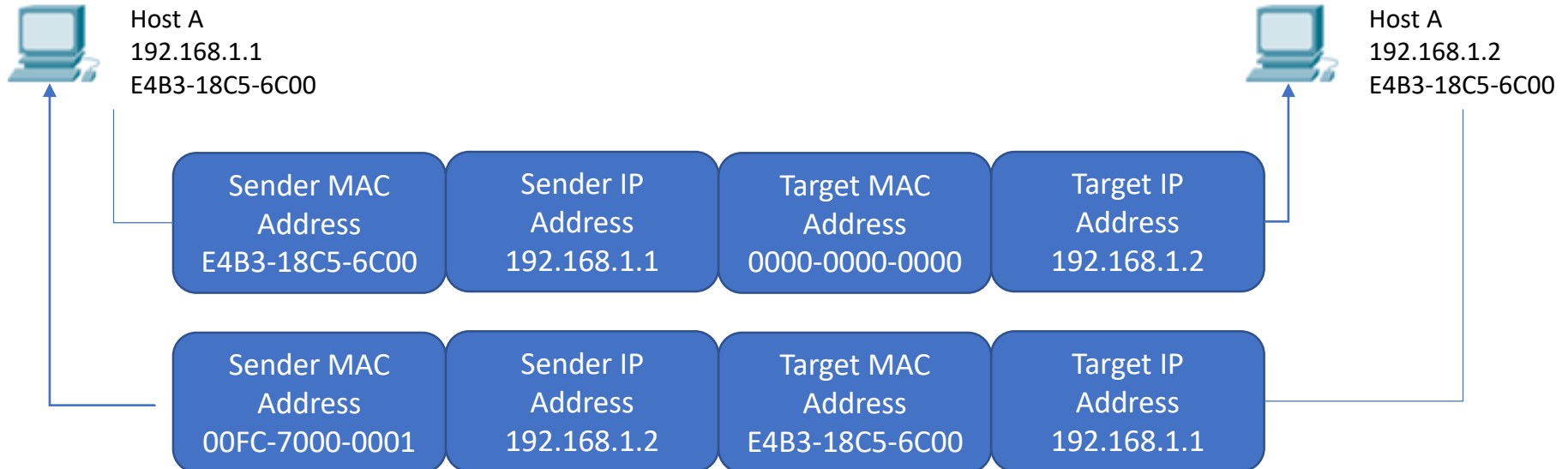


IP报文结构

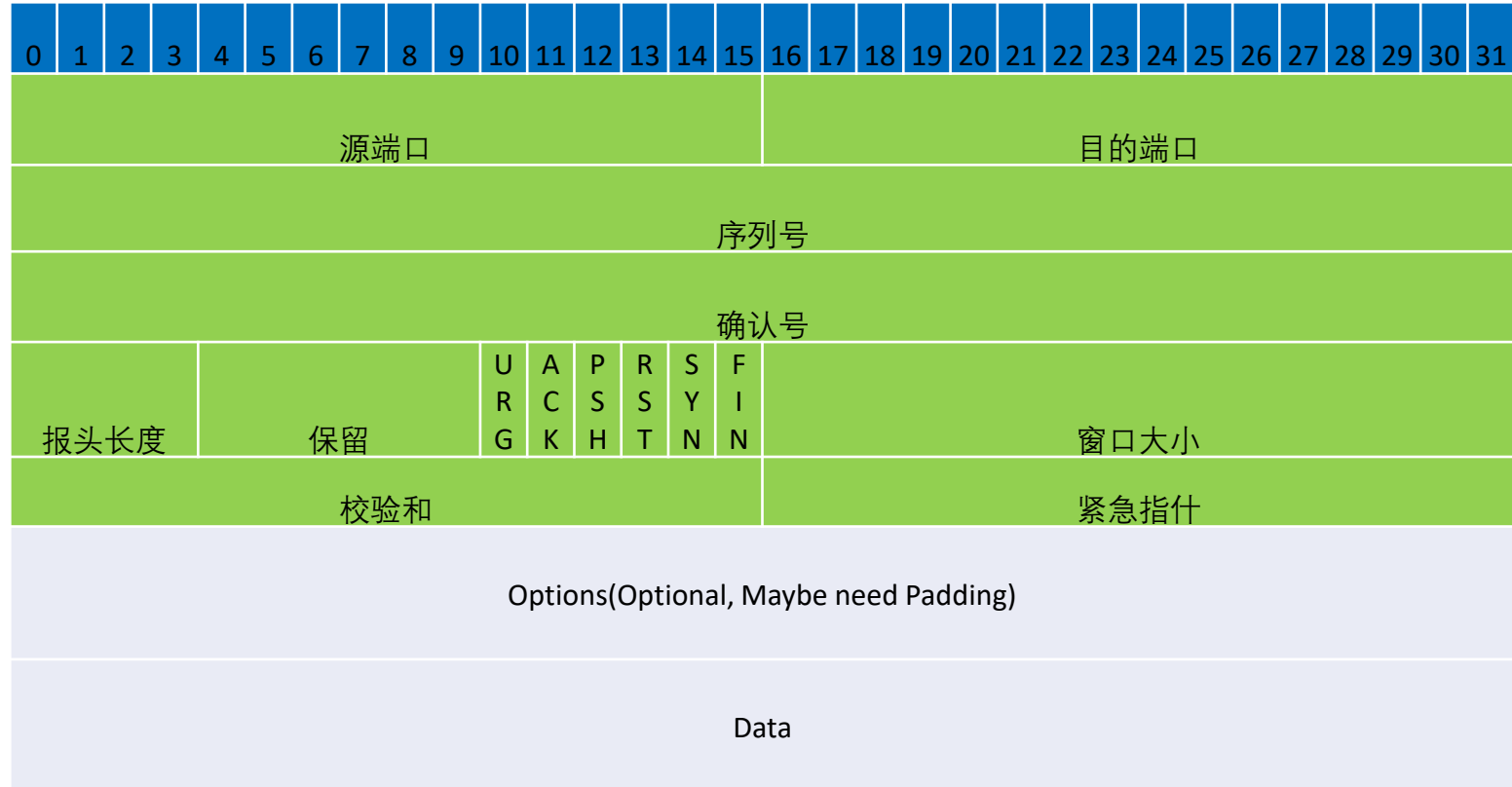


ARP

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Hardware Type(=0x0001)																协议代码 Protocol Type(=0x0800)															
硬件地址长度 Hardware Length								协议长度 Protocol Length								操作码 Operation Code(Req=1, Resp=2)															
源MAC地址 Destination Hardware Address																															
源IP地址 Source Protocol Address																															
目的MAC地址 Destination Hardware Address																															
目的IP地址 Destination Protocol Address																															



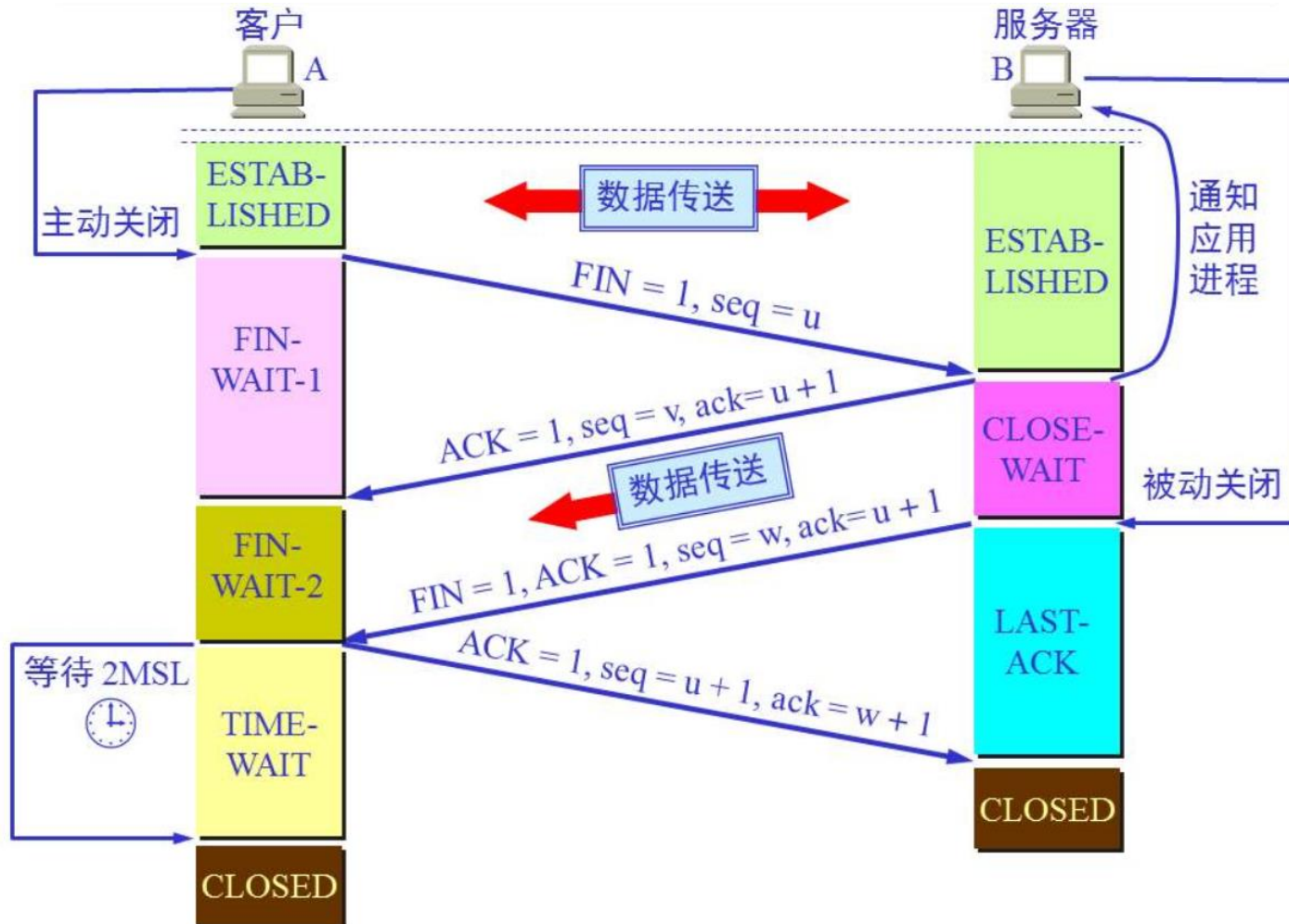
TCP报文结构



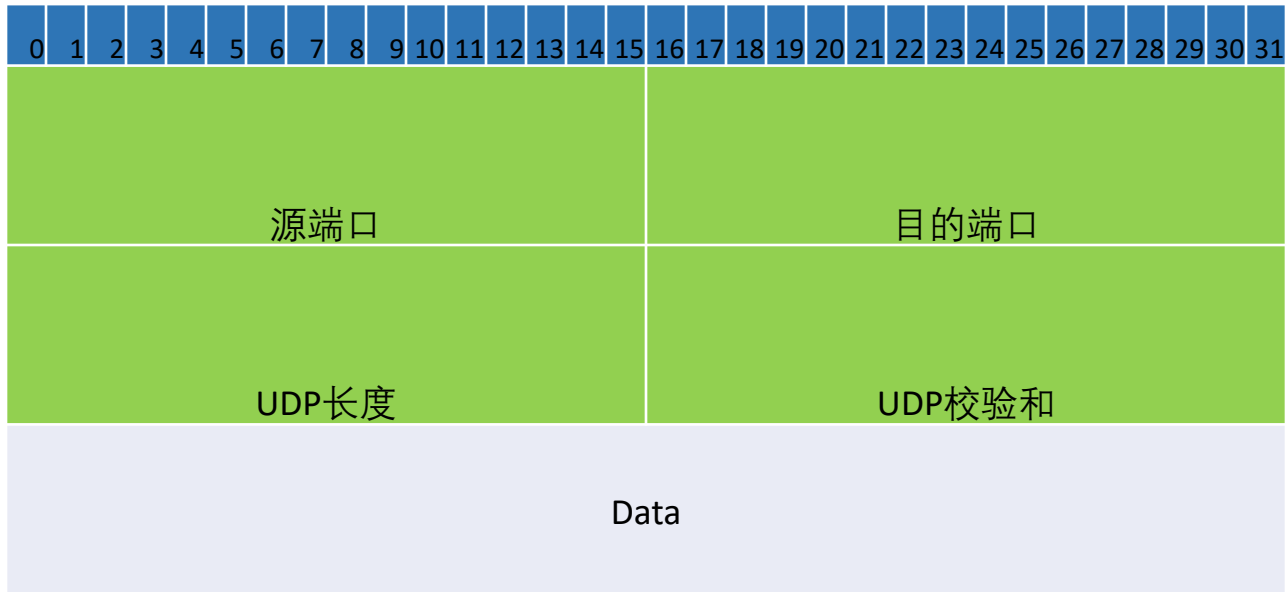
TCP三次握手



TCP四次挥手

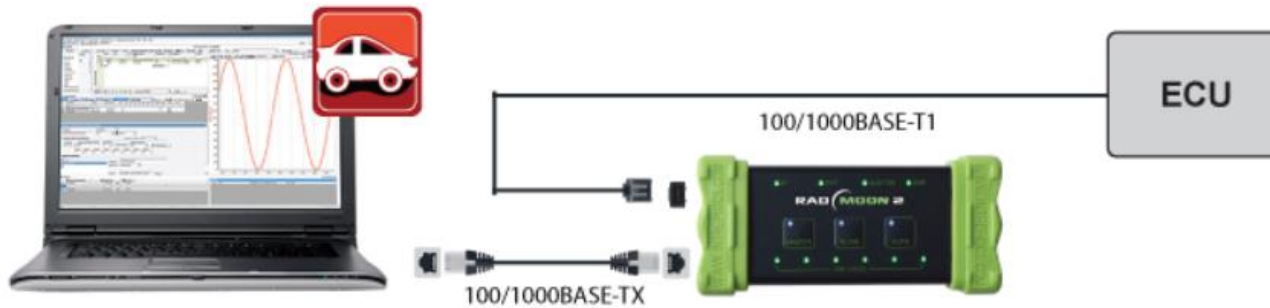
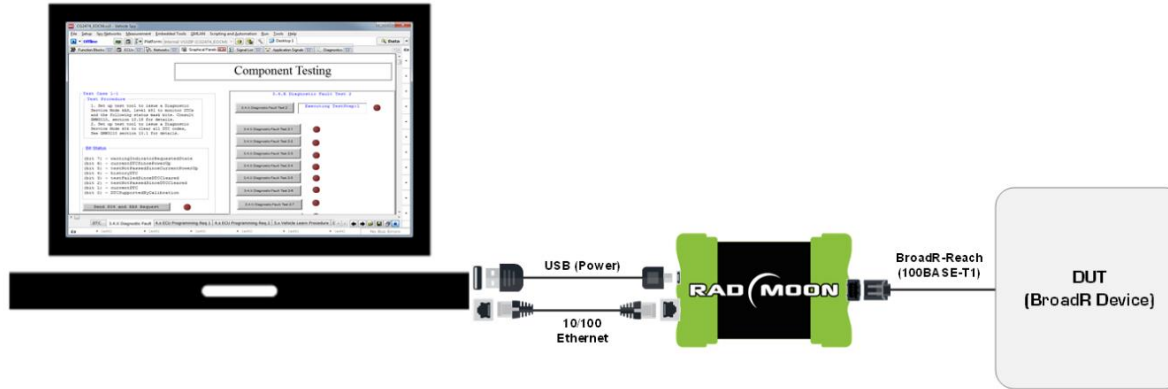


UDP报文结构



ICS 车载以太网工具

-- RAD-Moon

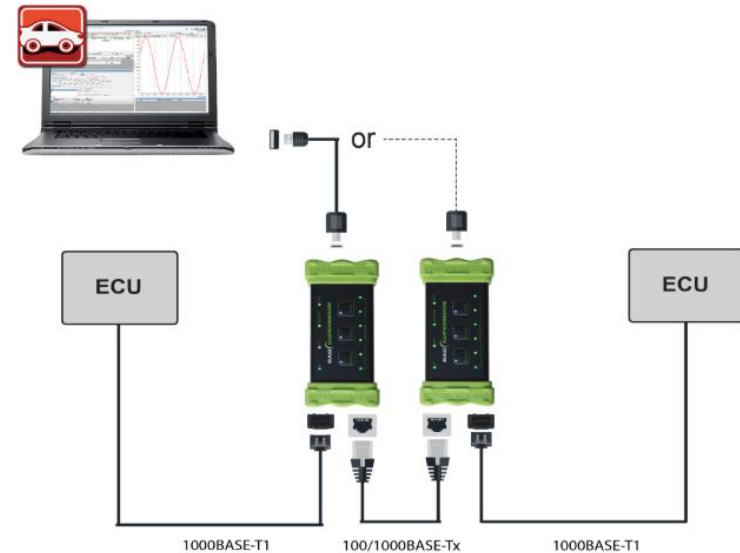


ICS 车载以太网工具

-- RAD-SuperMoon

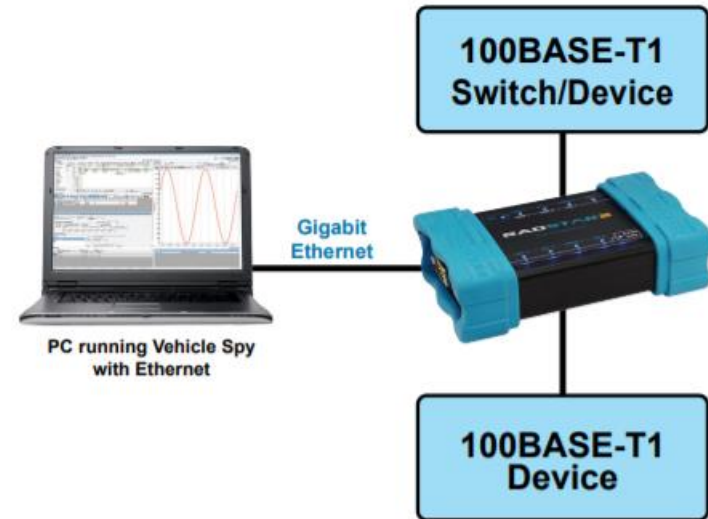
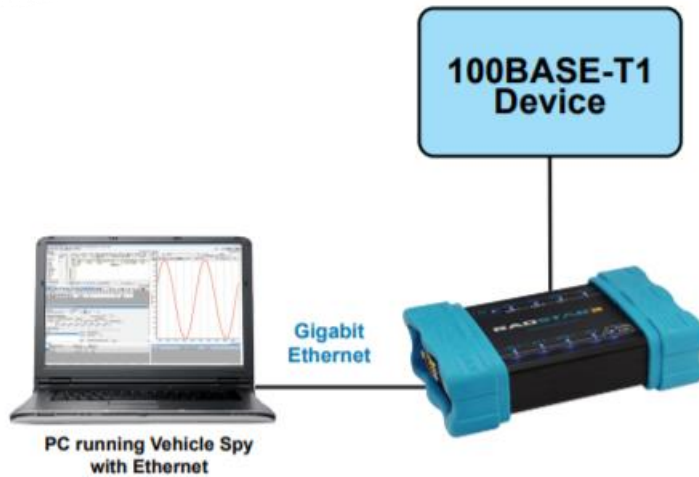


- Media Converter
- Active TAP



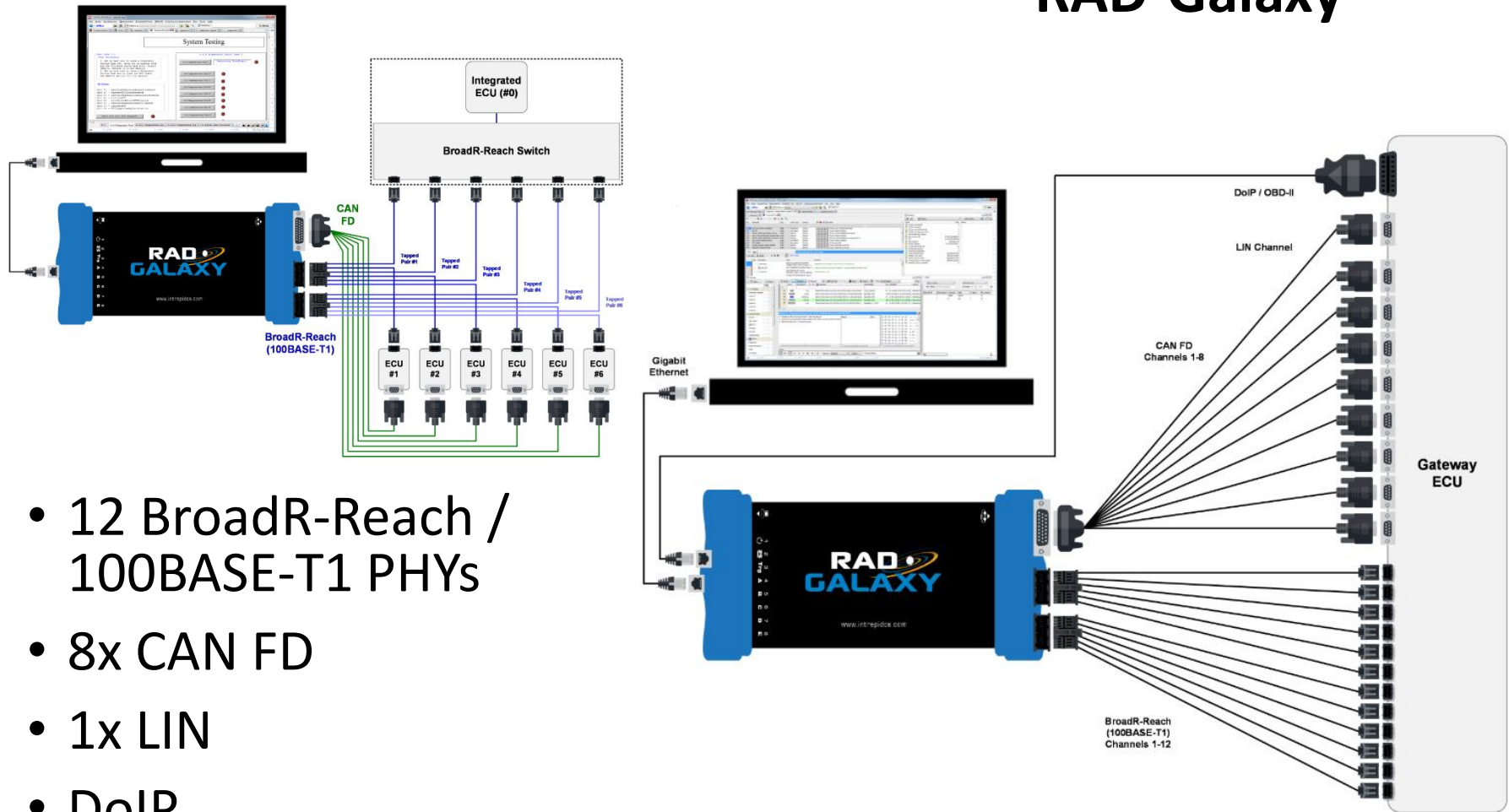
ICS 车载以太网工具

-- RAD-Star 2



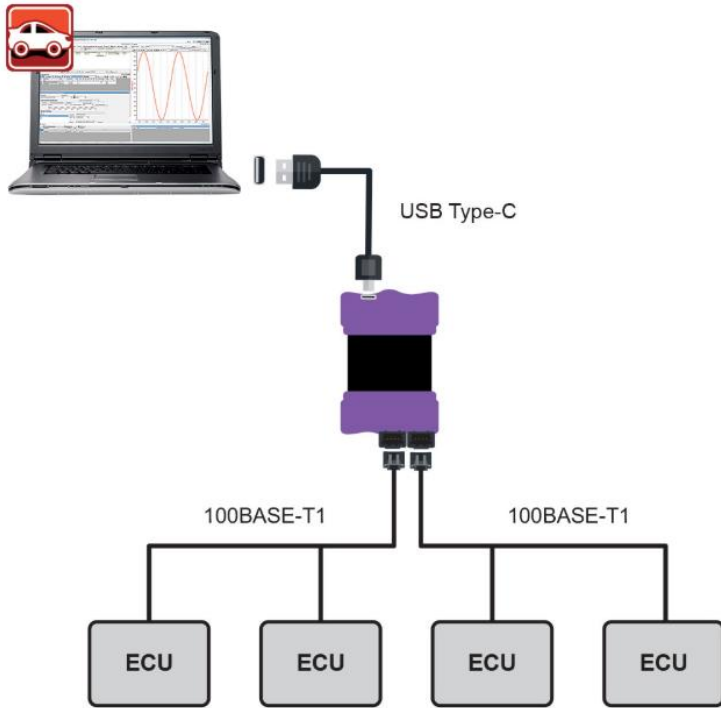
ICS 车载以太网工具

-- RAD-Galaxy



- 12 BroadR-Reach / 100BASE-T1 PHYs
- 8x CAN FD
- 1x LIN
- DoIP

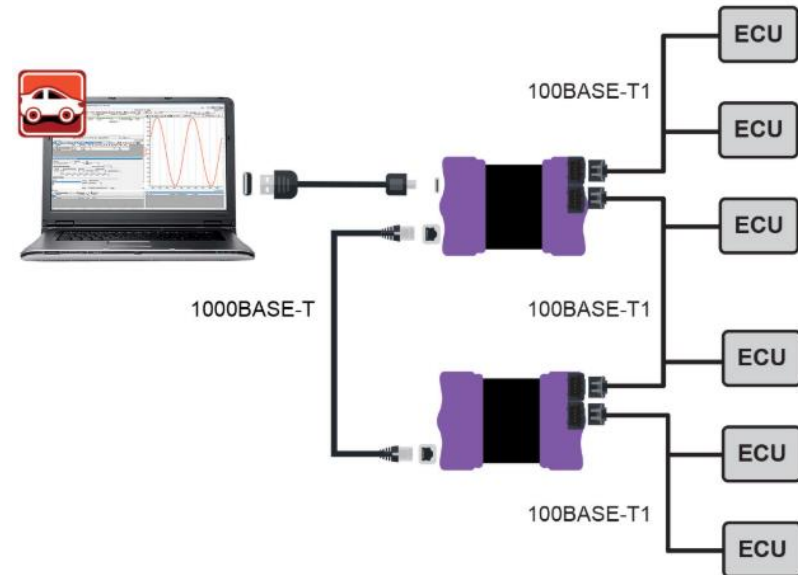
ICS 车载以太网工具



- 4x 100BASE-T1
- 1x 1000BASE-T
- 2x CAN FD
- 1x LIN

-- RAD-Pluto

- Media Convert
- Gateway
- Daisy Chaining



ICS 车载以太网工具



-- RAD-Jupiter

- 7 port switch:
 - 5x 100BASE-T1 ports
 - 1x 1000BASE-T or 1000BASE-T1 port
 - 1x 1000BASE-T or USB/GigE bridge
- 2x CAN FD
- 1x LIN

- Media Converter
- AVB/TSN
- 1x LIN
- IEEE 802.1Q VLAN tag
- Port mirroring
- TCAM

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TCP/IP In VSpy3

Demonstration Now

Thanks for Your Time!

For Help???

icschina@intrepidcs.com