

417

IP v 4

RFC 791

internet vs Internet

IP Service Model

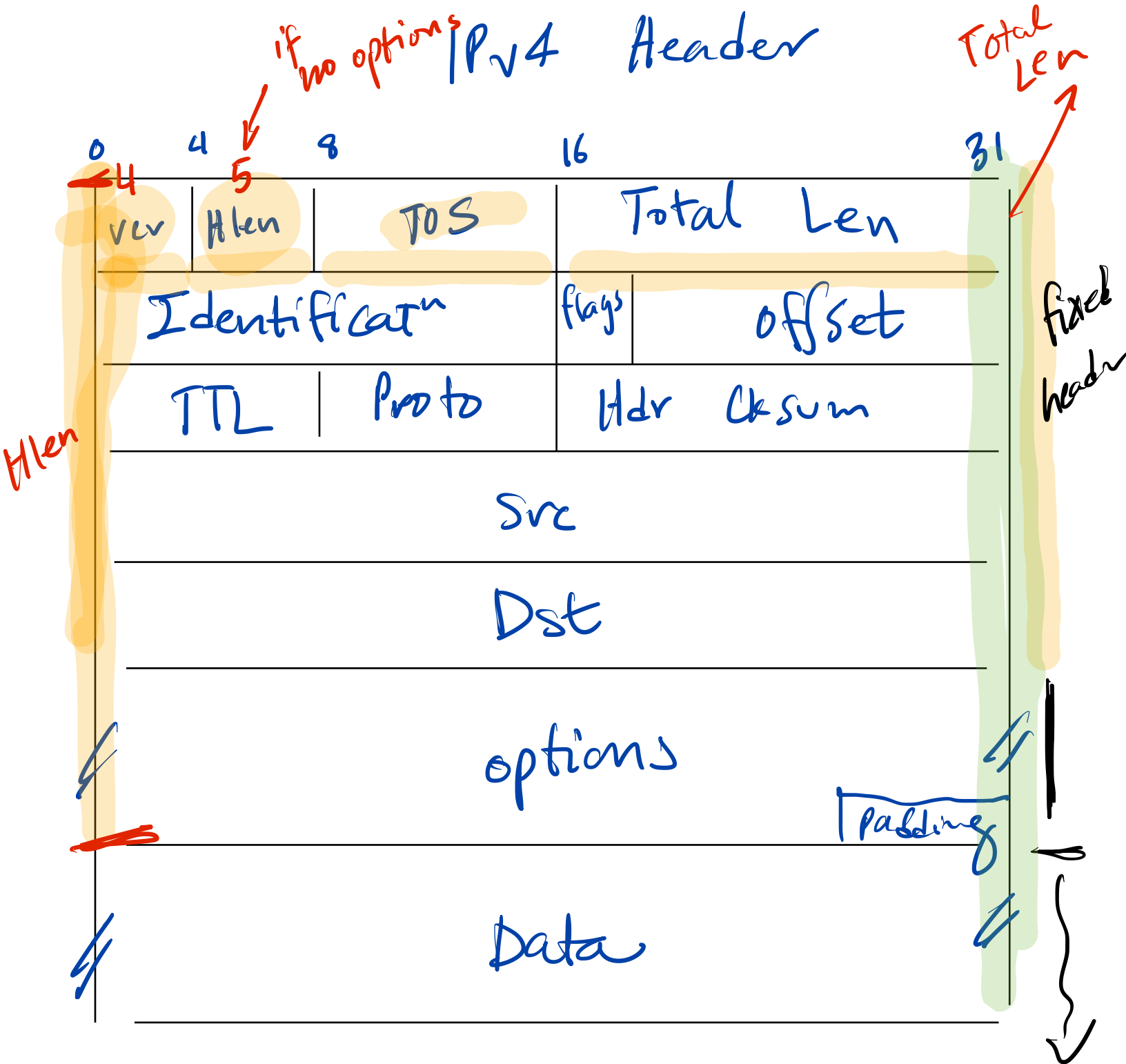
- Best Effort Datagram Service

Dgs can get

- lost - reordered

- duplicated - corrupted

IPv4 Header



Flags

Zero	MF	DF
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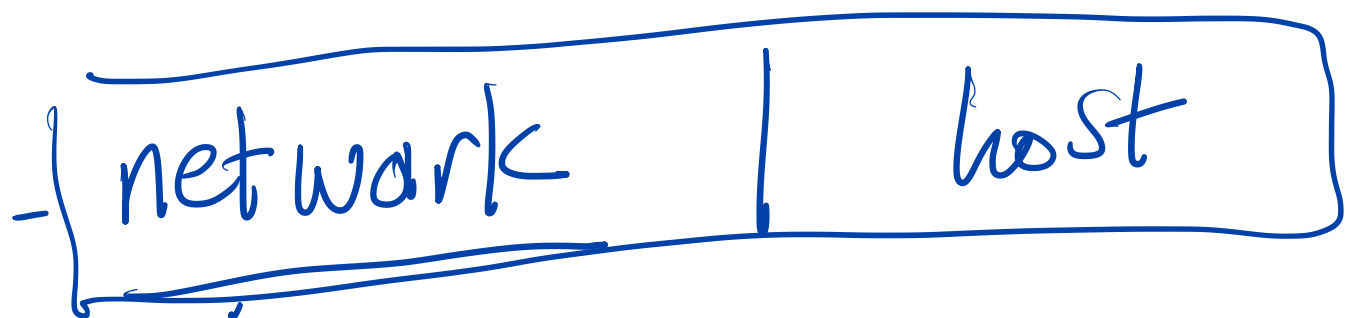
User data/payload

IP v4 addresses → maps to if

- 32 bits

- 'Dotted Quad' representation

→ 128.8.127.63



maps to
"wire" / a
broadcast
domain

- IP only delivers to
the network.

Terminology

- host

- Interface

- gateway

- MTU

maximum transmission unit

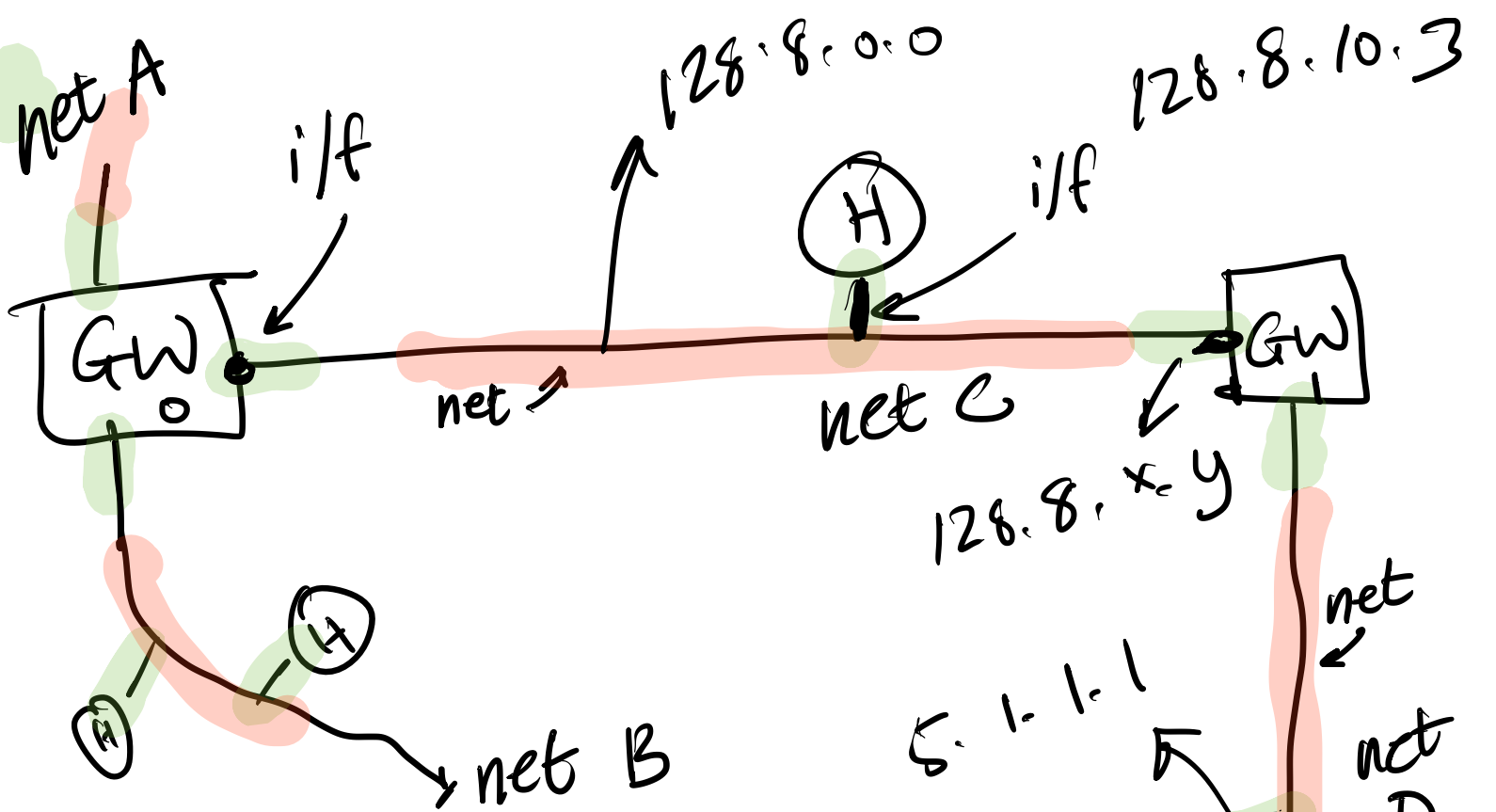
Each dg contains a dst-addr.

The net. part of addr.

uniquely identifies a single

physical network (that IP

will deliver the dg to).



unique
IP
addresses

Class A
 $5.0.0.0$

$5.100.200.3$

Classic IPv4 (Deprecated)

First Byte	Class	Bit Layout
0 - 127	A	0 <u>net</u> <u>host</u> 7 24
128 - 191	B	10 <u>net</u> <u>host</u> 14 16
192 - 223	C	110 <u>net</u> <u>host</u> 21 9
224 - 239	D	1110 <u>m'cast</u>
240 - 255	E	1110 <u>x</u> reserved

Special Prefixes

non-routable {
 net 10 10.0.0.0 -
 10.255.255.255

 192.168.0.0 -
 192.168.255.255

 172.16.0.0 - 172.31.
 255.255

127.0.0.1 ← loopback

v4 Classic Forwarding

$Dg.dst = [net | host]$

[if $Dg.dst.net \in net^{(local)}$
i/f)
deliver locally

[else if
 $Dg.dst.net \in RT$
send to N#

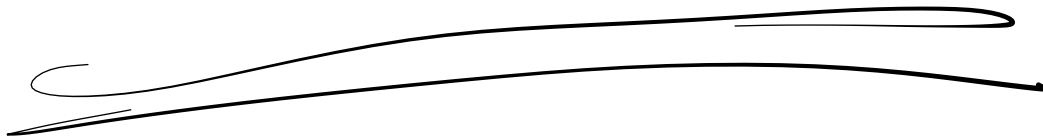
[else
send to Default
Route

ARP : Address Resolution
Protocol

maps IP addresses



local link address

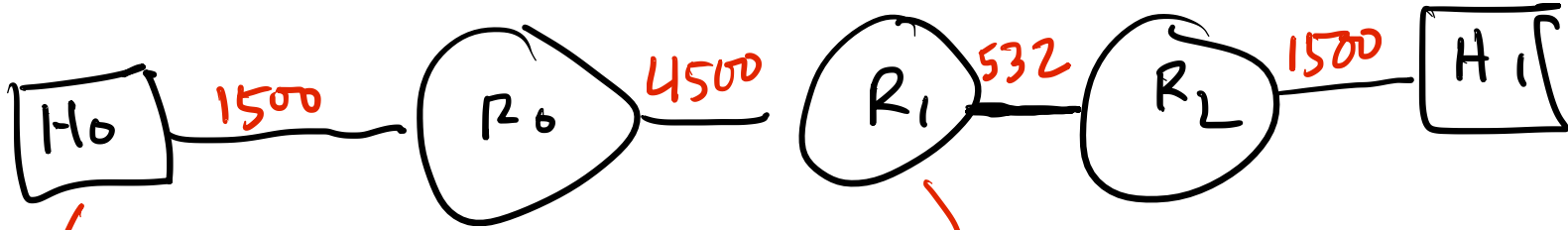


Fragmentation

&

Reassembly

IP MTU



ident : x

MF, DF : 0

offset : 0

Tlen :



ident	f0	f1	f2	f3
MF				
DF				
offset				
Tlen				
payload size				