

Panel 1

Last me:

Congestion control (vs. flow control)

Open / closed loop solutions

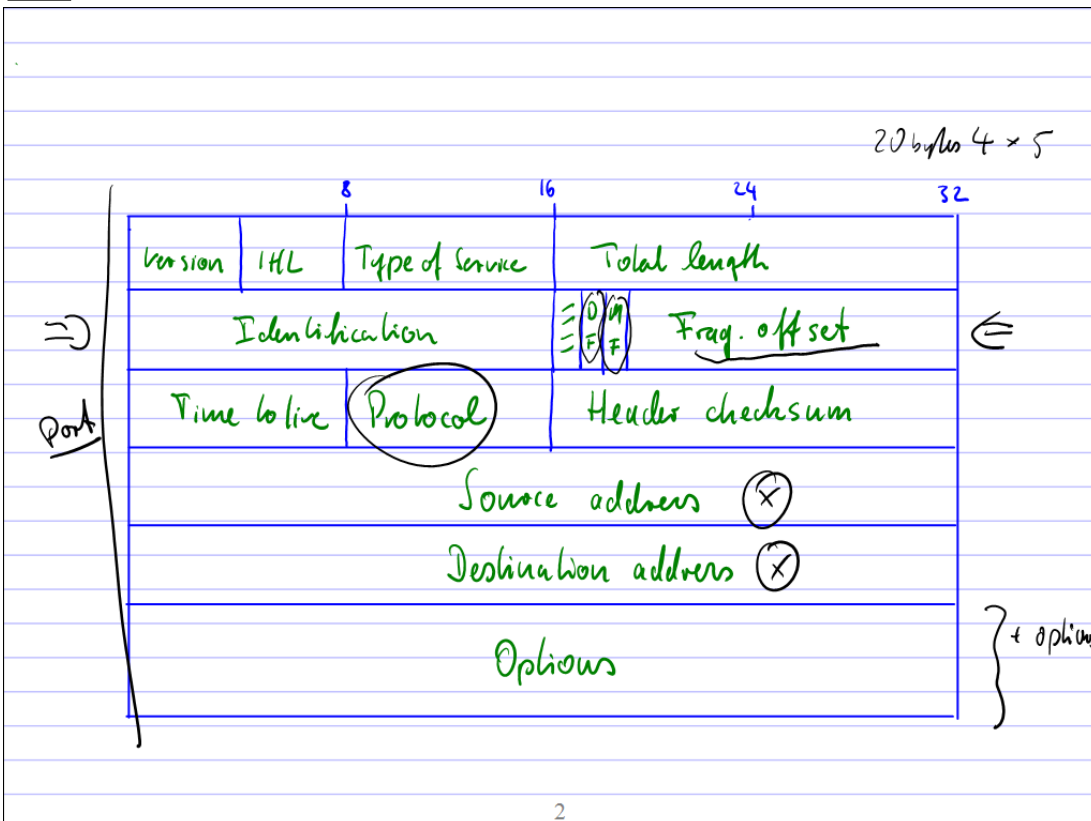
Traffic shaping

- Leaky Bucket
- Token Bucket

IP header format

1

Panel 2



Panel 3

IP Addresses

Every host has unique IP address, encodes network + host (machine) ID

$\Rightarrow 4 \text{ bytes} = 32 \text{ bits} \Rightarrow 2^{32} - 1 \approx 4 \text{ Billion}$

	0	8	16	24	32 bit
class A:	0   Network		host   ←		
class B:	10   network		host		
class C:	110   network		host		
class D:	1111   Multicast				
class E:	11110   future use ↙				

3

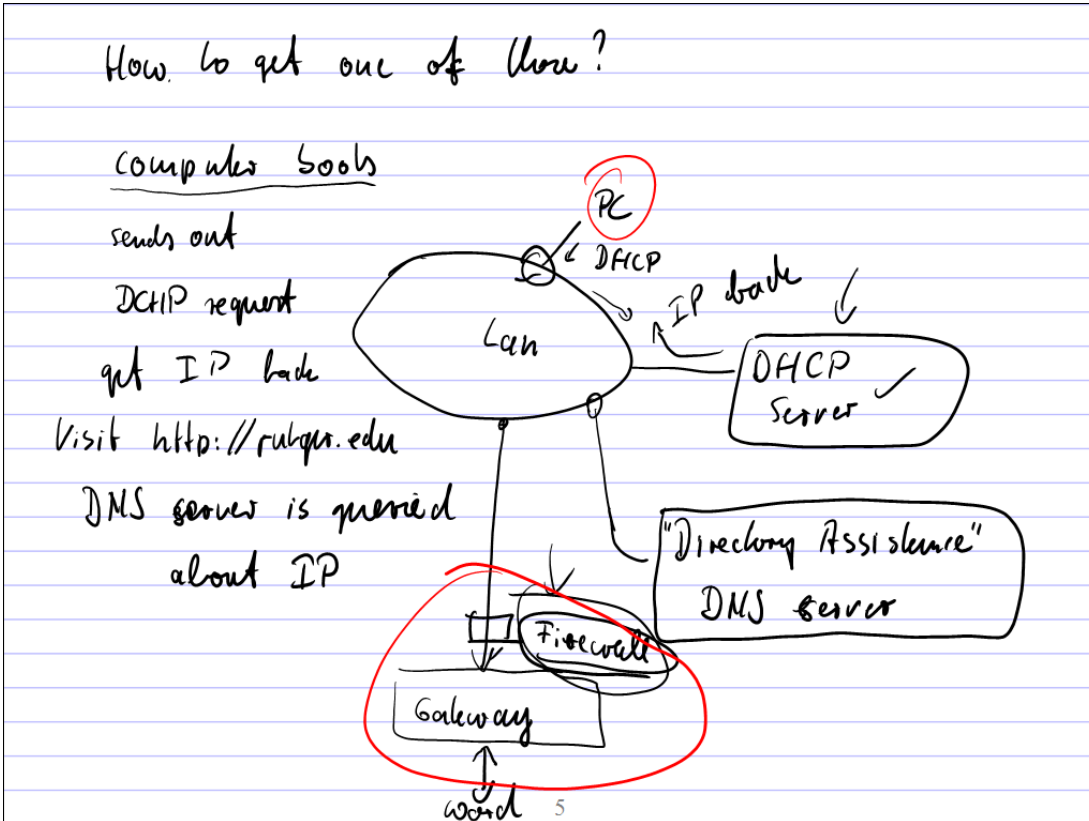
Panel 4

		byte <sub>1</sub>	byte <sub>2</sub>	byte <sub>3</sub>	byte <sub>4</sub>
class A:	1.0.0.0	→	727.	255.	255.255
class B:	128.0.0.0	→	191.	255.	255.255
class C:	192.0.0.0	→	223.	255.	255.255
<u>SHU:</u>	149.150.	x.x			

Assigned centrally!

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Panel 5



Panel 6

- ✓ ① Firewall
  - ✓ ② DNS
  - ✓ ③ DHCP
  - ✓ ④ ICMP: Internet Control Message Protocol
  - ⑤ ( ARP: Address Resolution Pr.  
RARP: Reverse ARP  
BOOTP: Bootstrap protocol )
- Saw IP header in detail  
Other "Control packets"  
are used at the  
Network level of the  
Internet
- 5-10 minute  
report on  
Monday!
- 6