

Lesson 9

Review

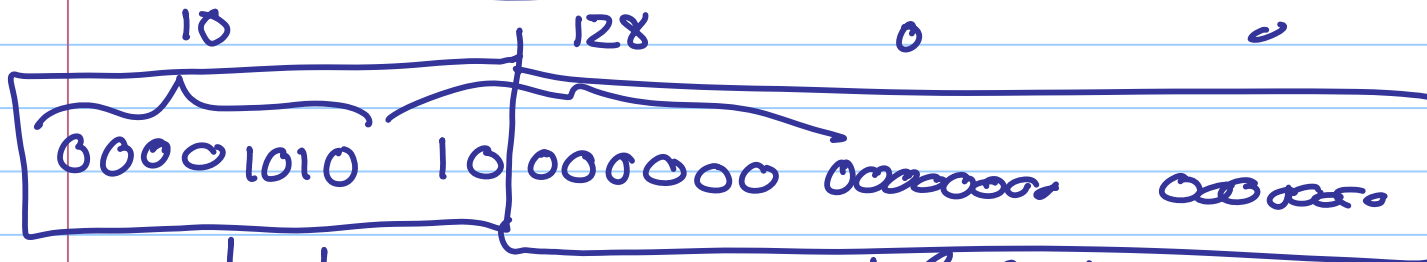
Note Title

4/29/2008

10.128.0.0/10

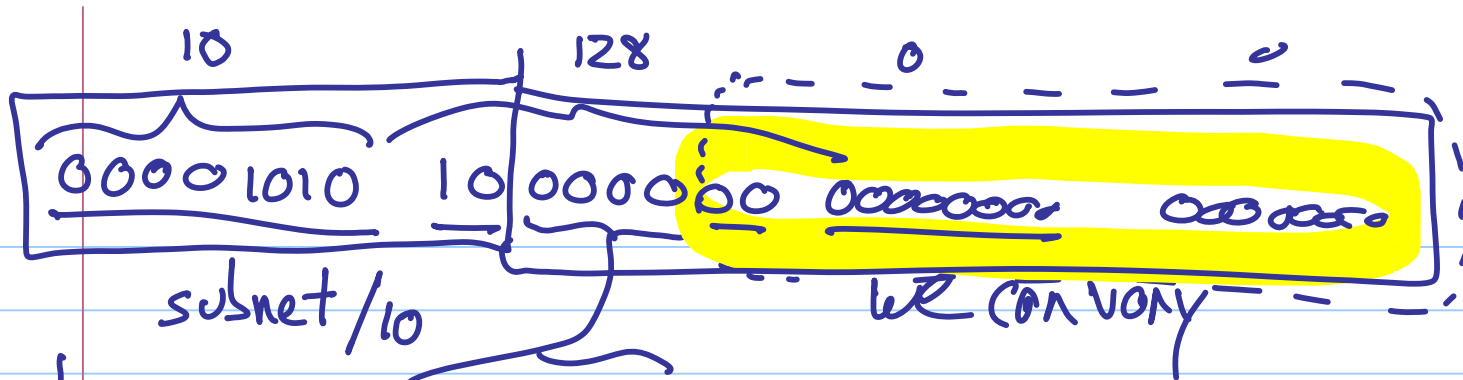
11 buildings

$2^4 = 16$ subnets



subnet

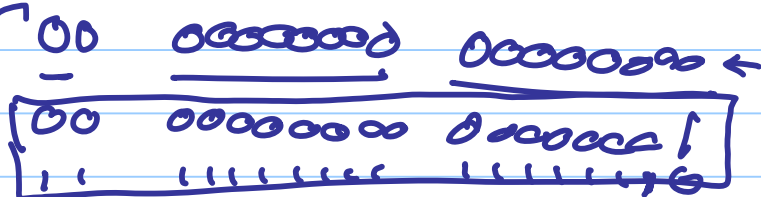
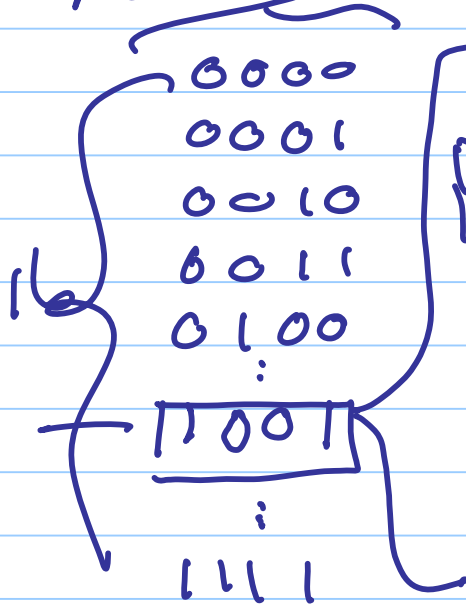
we can vary these



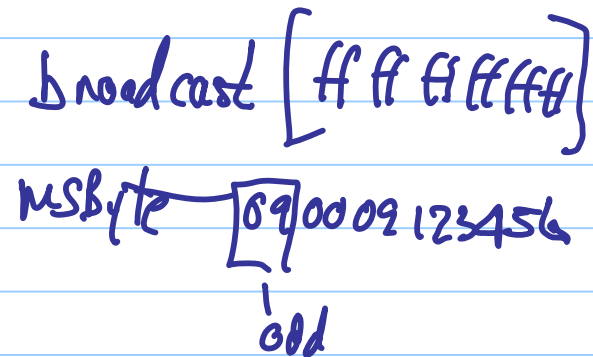
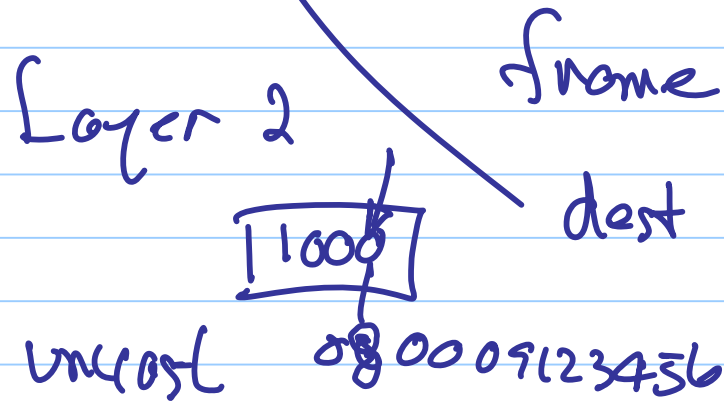
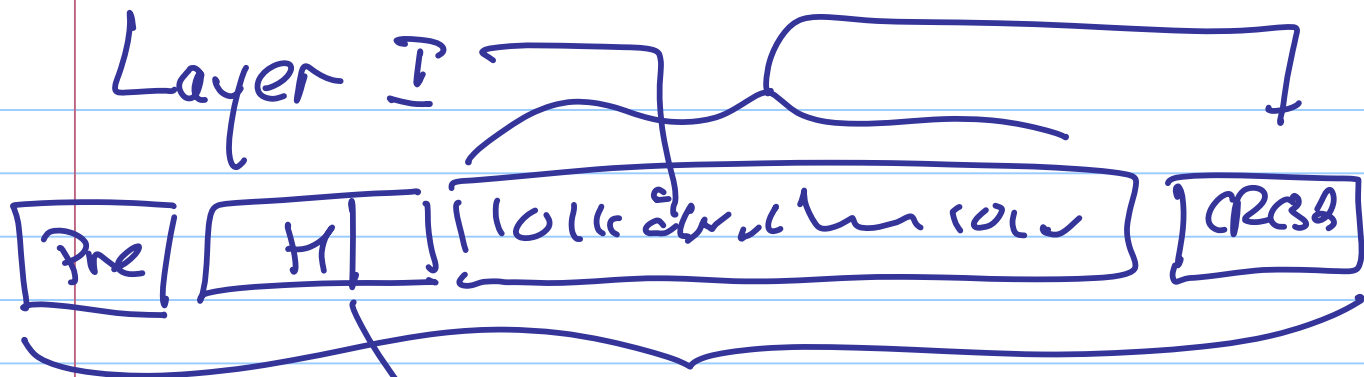
1
 128
 32
 4

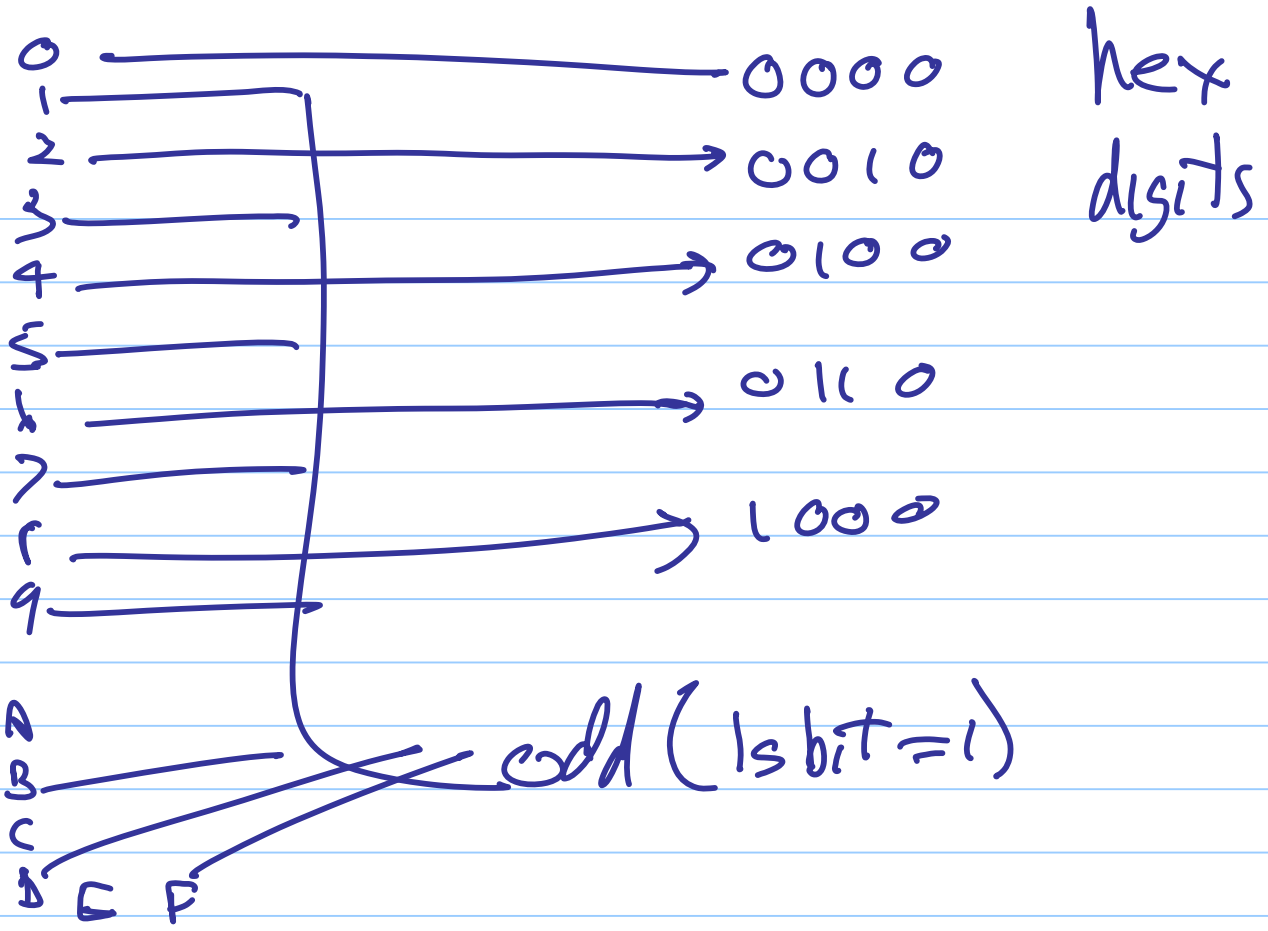
 164

Subnet 9



00001010	10	10
10100100	164	167
00000000	0	255
00000001	1	254
	1st	lasts

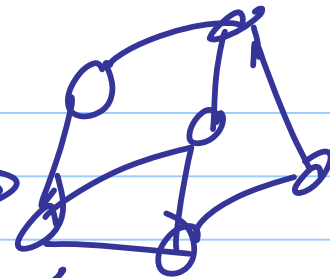




hubs 4 (preamble)
bridges 7
switches 7 } STP
routers ∞ (255)

(due to TTL)

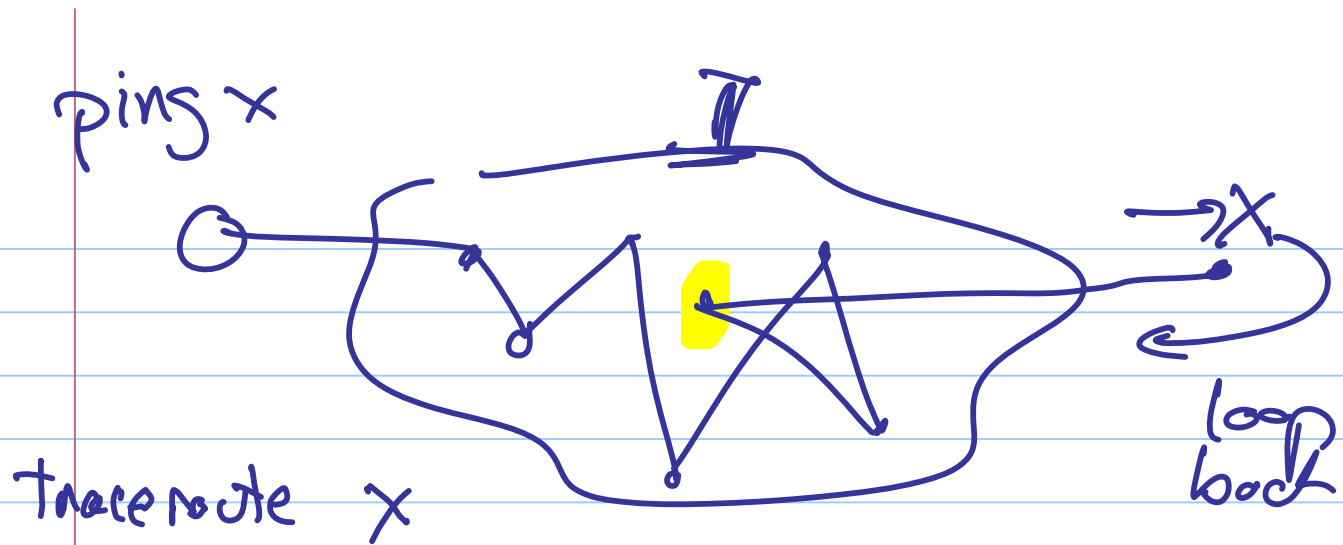
switches



bridges

mesh

tree
(no loops)



increments TTL on successive transmissions to uncover all routers in the path to node x.

(ICMP)
(RFC 792)

$$C = BW \log_2 \left(1 + \frac{S}{N} \right)$$

AM (weak)

(FM best)

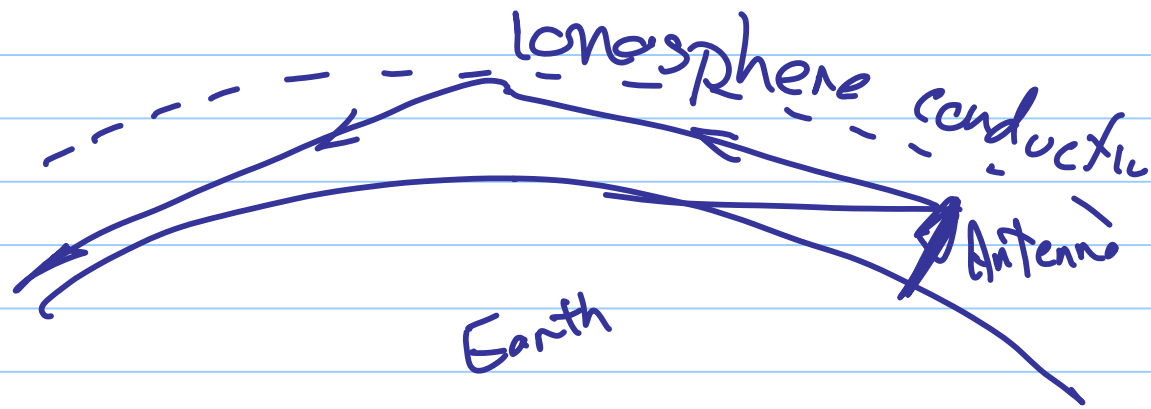
} modulation

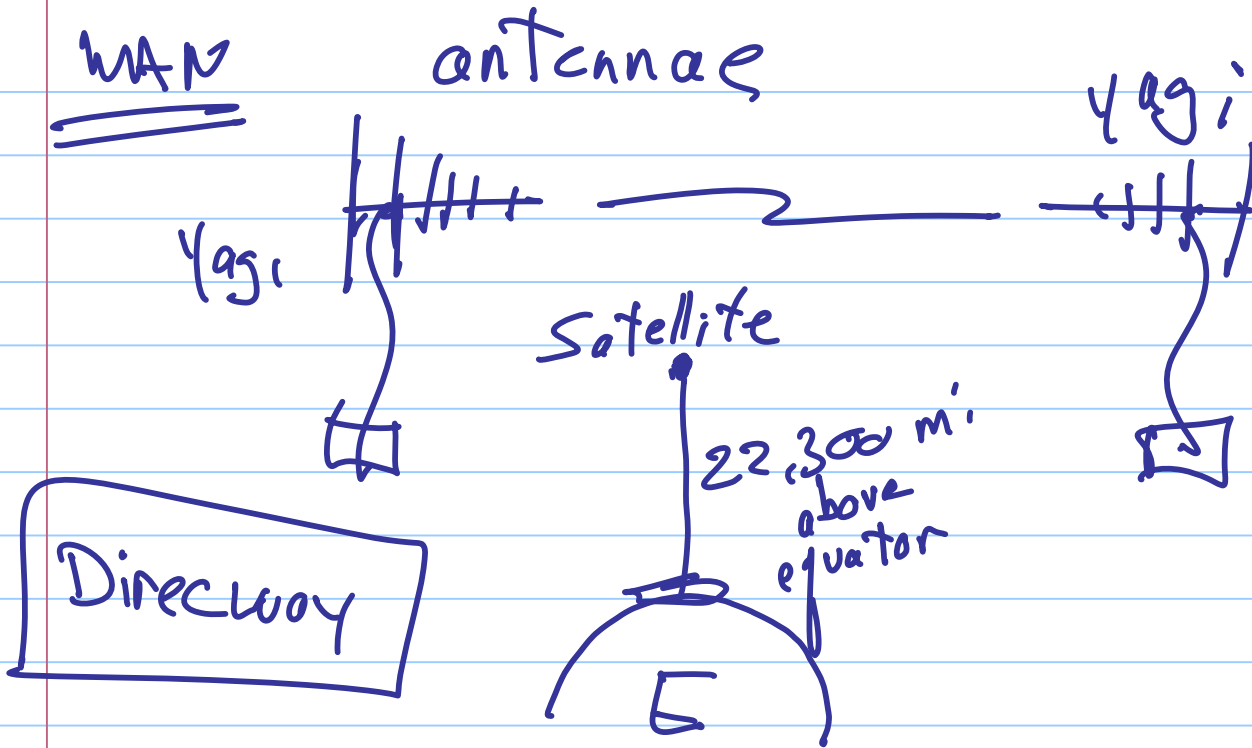
PM good

QAM

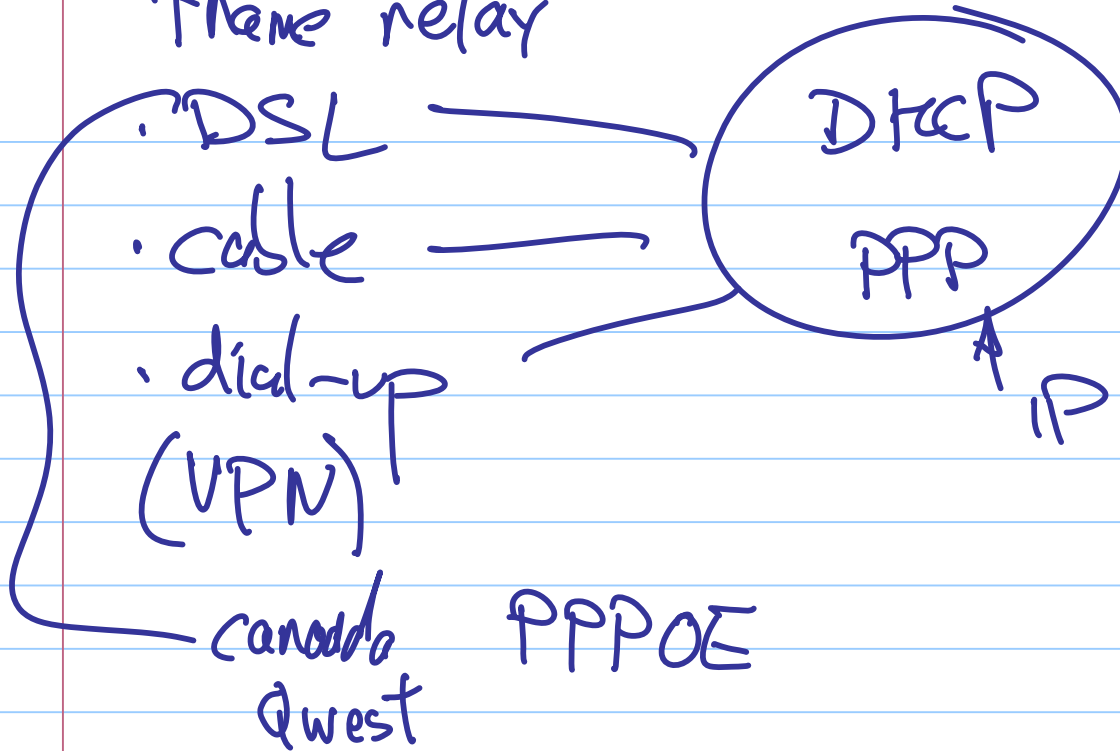
combination

RF Propagation





frame relay



Encryption →

APP	7	(PGP / S/MIME) email
PRES	6	WINZIP (encryption)
SESS	5	
TRANS	4	HTTPS
NET	3	VPN
LINK	2	WEP WPA } wireless
PHYS	1	WPA2 }

Services

DHCP

DNS

Domain

FTP

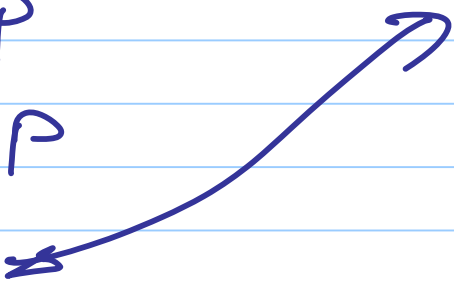
SFTP

HTTP

SMTP

SSH

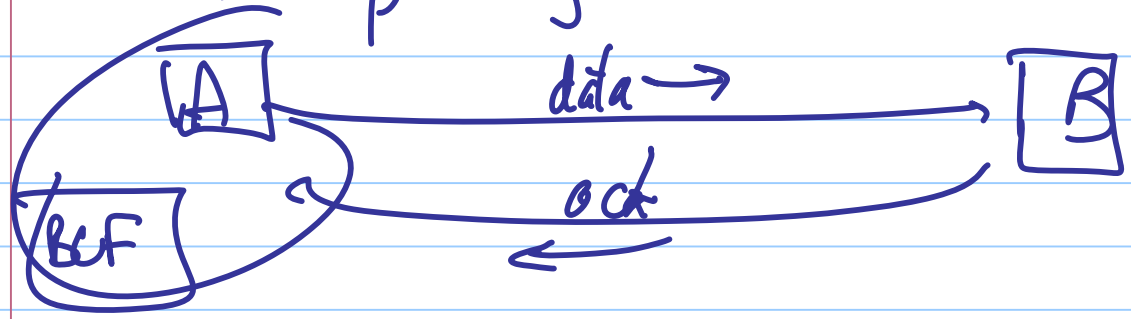
telnet



TCP 4 Transport http 80
23
22

- reliable delivery
- multiplexing — TCP well known ports

https 443



TCP — streaming (byte)

UDP send | pray connectionless

16 msec x 2

$\frac{\approx 3000 \text{ miles}}{186000 \text{ mi/s}}$

Seattle

NYC

$$\text{Throughput} = \frac{\text{MSS}}{\text{RTT}} \rightarrow 32 \text{ msec}$$

ip config /all
/sbin/ifconfig

know these
program
outputs

RIP  small
nets

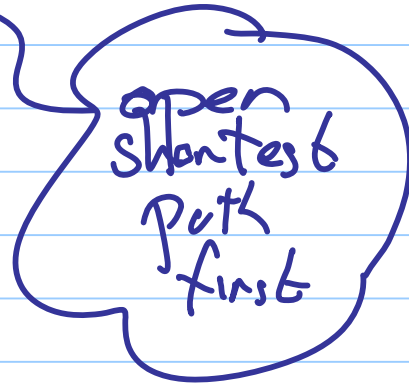
list routes
route

OSPF ~~*~~

netstat -n

static (manual)

(DTCF) default

 open
shanteb
puth
first

BGP connect A.S.

