M. Jishnu Roll No: 17309

Tutorial

① Original datagram = 5000B
data = 4980B
20B - IP header
MTU = 1420B
data = 1400B; 20B - IP header
len = 1420 | ID = 105 | FragFlag = 1 | offset = 0
len = 1420 | ID = 105 | FragFlag = 1 | offset = 125
len = 1420 | ID = 105 | FragFlag = 1 | offset = 250
len = 1420 | ID = 105 | FragFlag = 0 | offset = 525

②

X - 148.76.38.19
Y - 153.52.17.80

Total 5 PC's
3C - X
2C - Y

Home NW: 128.119.40.54

Address and assignment of address in home n/w

192.163.1.1 - 192.163.1.32
192.163.1.33 - 192.163.1.64
192.163.1.65 - 192.163.1.96
192.163.1.97 - 192.163.1.128

NAT

A+X
148.76.38.19/5001
-> 192.163.1.32/3201
148.76.38.19/5002
-> 192.163.1.64/3202

A+Y
153.52.17.80/2000
-> 192.163.1.128/3200
153.52.17.80/2001
-> 192.163.1.129/3201

M. Sai Jithin

(3) 90 B every 30 sec

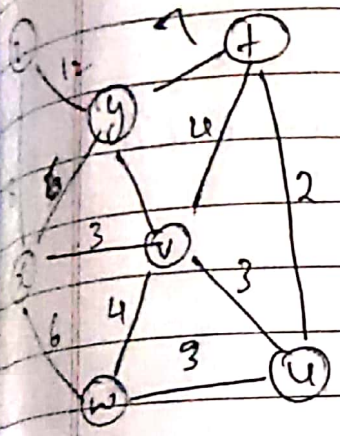
→ gets encapsulated in TCP segment and then in IP datagram

20 B header (TCP) + 20 B header (Datagram) + 50 B data = 90 B

$$\text{Overhead} = \frac{40}{90} \times 100 = 44.44\%$$

$$\text{App data} = \frac{50}{90} = 55.55\%$$

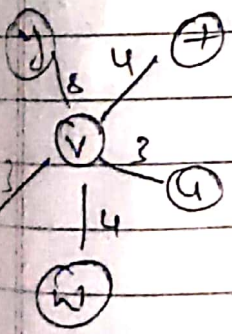
(4)



S.No	N'	D(y) p(y)	D(t) p(t)	D(x) p(x)	D(w) p(w)	D(z) p(z)
0	v	8,v	4,v	(3,v)	4,v	∞
1	vx	8,v	4,v		4,v	∞
2	vxt	8,v	(4,v)		4,v	11,x
3	vxw	8,v	(4,v)			11,x
4	vxwt	(8,v)				(11,x)
5	vxwty					
6	vxwtyz					

vxtwyz (or) vxwtyz (or) vxtwyz (or) vxwtyz possible.

Fowd table



dest	link
x	(v,x)
t	(v,t)
w	(v,w)
y	(v,y)
z	(v,x)

Page 5

1/7/22

Ifut - 1

Step	N'	D(y) P(y)	D(t) P(t)	D(u) P(u)	D(w) P(w)	D(x) P(x)	D(z) P(z)
0	v	8,v	7,v	3,v	4,v	3,v	∞
1	vu	8,v	5,u		4,v	3,v	∞
2	vux	8,v	5,u		4,v		11,x
3	vuxw	8,v	5,u				11,x
4	vuxwt	8,v					11,x
5	vuxwty						11,x
6	vuxwtyz						

→ vuxwtyz (or) vxuwty = possible

→ u1 detects v→t is 7 and v→u→t is 5

⑤ Datagram len - 3830B

IP header - 20B

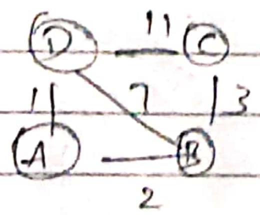
Data - 3800B

MTU - 1400B

1380B - data within

20B - header

len = 1396	id = x	Fragflag = 1	offset = 0
len = 1396	id = x	Fragflag = 1	offset = 172
len = 1028	id = x	Fragflag = 0	offset = 244

⑥ 

Initial routing table

A

Dest	Next hop	Dist
B	B	2
C	-	∞
D	D	1

DAS

B/ Dest Nexthop Dist Dest Nexthop Dist

A	A	2	A	∞	—
C	C	3	B	3	B
D	D	7	D	11	D

A, C, D → B B, D → C

Dest	Next hop	Dist	Dest	Dist	hop	Dest	Dist	hop
			A	2	A			
A	A	1	C	3	C	A	5	B
B	B	7	D	3	A	B	3	B
C	C	11	B	0	B	D	10	B
						C	D	C

A, B, C → D B, D → D

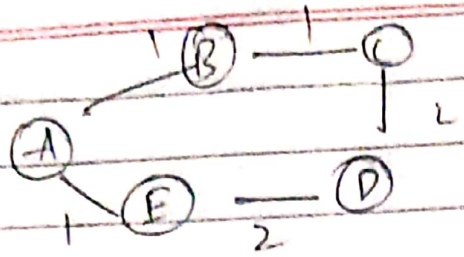
Dest	Dist	hop	Dest	Dist	hop
A	1	A	A	0	A
B	3	A	B	2	B
C	10	B	C	5	B
D	0	D	D	1	D

A, C, D → B A, B, C → D

Dest	Dist	hop	Dest	Dist	hop
A	5	B	A	1	A
B	3	B	B	3	A
C	D	C	C	6	A
D	C	B	D	0	D

MS

7



Initial state:

	A	B	C	D	E
A	0	T	∞	∞	1
B	T	0	1	∞	E
C	∞	1	0	2	∞
D	∞	∞	2	0	2
E	1	8	∞	2	0

D → E

	A	B	C	D	E
A	0	T	∞	∞	1
B	T	0	1	∞	8
C	0	1	0	2	∞
D	∞	∞	2	0	2
E	1	8	4	2	0

E → A

	A	B	C	D	E
A	0	T	5	3	1
B	T	0	1	∞	8
C	∞	1	0	2	∞
D	∞	∞	2	0	2
E	1	8	4	2	0

C → B

	A	B	C	D	E
A	0	T	5	8	1
B	T	0	1	8	8
C	∞	1	0	2	∞
D	∞	∞	2	0	2
E	1	8	4	2	0

E → D

	A	B	C	D	E
A	0	T	5	3	1
B	T	0	1	3	8
C	∞	1	0	2	∞
D	3	1	0	2	2
E	1	8	4	2	0

C → D

	A	B	C	D	E
A	0	T	5	3	1
B	T	0	1	3	8
C	∞	1	0	2	∞
D	3	3	2	0	2
E	1	8	4	2	0

B → C

	A	B	C	D	E
A	0	T	5	3	1
B	T	0	1	3	8
C	3	1	0	2	4
D	3	3	2	0	2
E	1	8	4	2	0

D → C

	A	B	C	D	E
A	0	T	5	3	1
B	T	0	1	3	8
C	8	1	0	2	4
D	8	3	3	2	0
E	1	8	4	2	0

D → C

	A	B	C	D	E
A	0	T	5	3	1
B	T	0	1	3	8
C	8	1	0	2	4
D	8	7	2	0	2
E	1	5	4	2	0

8) B

Dest	A	E	C
A	7	9	6
C	12	12	1
D	10	10	3
E	8	8	5

A

Dest	B	C
B	7	6
C	8	5
D	10	3
E	12	1

D

Dest	C	E
A	8	3
B	3	10
C	2	11
E	9	2

E

Dest	A	B	D
A	1	15	12
B	8	8	5
C	9	9	4
D	11	11	2