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CS 132 Homework 4

1.

Chapter 4, Problem 13

Subnet 1: 223.1.17.0/26

Subnet 2: 223.1.17.128/25

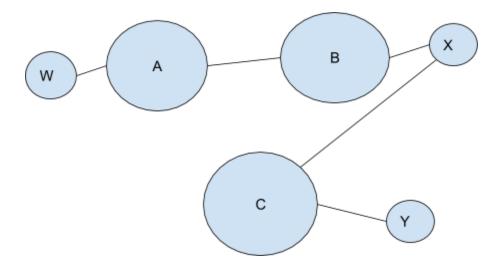
Subnet 3: 223.1.17.192/28

Chapter 4, Problem 21

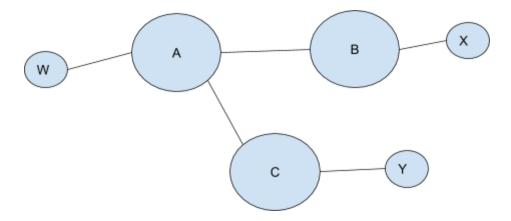
NAT Trans	lation Table
WAN side	LAN side
24.34.112.235, 0	192.168.1.1, 1
24.34.112.235, 1	192.168.1.1, 2
24.34.112.235, 2	192.168.1.2, 1
24.34.112.235, 3	192.168.1.2, 2
24.34.112.235, 4	192.168.1.3, 1
24.34.112.235, 5	192.168.1.3, 2

2.

Chapter 4, Problem 40

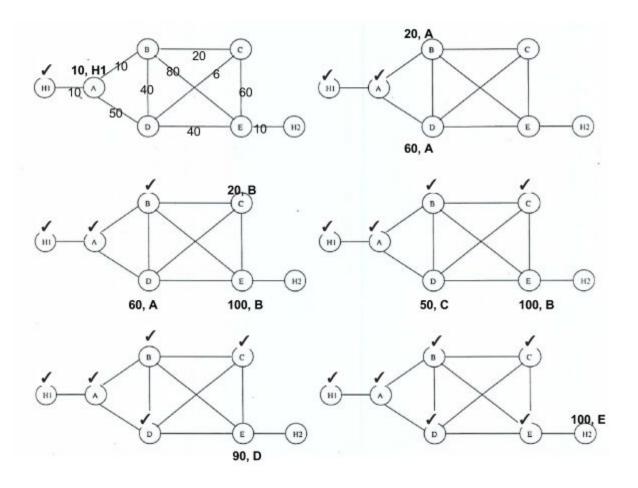


Above is X's view of the network topology



Above is W's view of the network topology.

3.



b. No this route is not the same as the route with the minimum number of hops.

a.

N	Node A (B, D)		
Dest.	Via	Delay	
۸	٨	0	
В	-	56	
C		00	
D		90	
E	-		

Node B (A, C, D, E)		
Dest.	Via Delay	
۸		00
В	В	0
C		00
D		90
E	.	- 00

		Initial tables		
	N	Node C (B, D, E)		
	Dest.	Via	Delay	
7	Α.		90	
	В	,	00	
	C	c	0	
	D		90	
	E		-	

Node D (A, B, C, E)		
Dest. Via Delay		
Α		00
В		•
С	.	00
D	D	0
E	-	00

Node E (B. C. D)			
Dost. Via Delay			
Α		on	
В	.	06	
C		00	
D		oc	
Ε	E	0	

Node A (B, D)		
Dest.	Via	Delay
Α	Α	0
В	В	10
C	Ы	
D		50
E		

Node B (A. C. D. E)		
Dest.	Via	Delay
٨	Α	10
В	ВI	0,
C	c	20
D	D	40
E	E	80

Node C (B, D, E)			
Dest.	est. Via Delay		
٨			
В	в	20	
C	c l	0	
D	D	10	
E	E	60	

Tables after first exchange

Nod	D(A.	B. C. E)	l N
Dest.	Via	Delay	Dest
٨	_	E0.	A
В	A B	50 40	В
С	c	10	C
D	Ď	0	D
E	E	40	E

Node E (B, C, D)		
Dest	Via	Delay
٨		
В	A	80
C	C I	60
D	D	40
E	E	0

Node A (B, D)			
Dest. Via Dela			
A	A	0	
В	В	10	
C	В	30	
D	D	50	
E	В	90	

Node B (A. C. D. E)			
Dest.	Via	Delay	
Α	Α	10	
В	B.	0	
С	C	20	
D	C	40	
E	E	80	

N	ode C (B	, D, E)
Dest.	Via	Delay
Α	В	30
В	В	20
C	C	0
D	D	10
E	D	50

Nod	e D (A, I	B, C, E)	No	de E (B.	C. D)
Dest.	Via	Delay	Dest.	Via	Delay
A	Α	50	A	D	90
В	C	30	В	A	80
С	C	10	C	D	50
D	D	0	D	D	40
E	E	40	E	E	0

Node A (B, D)		
Dest.	Via	Delay
A	Α	0
В	В	10
C	В	30
D	В	40
E	C	80

Node B (A. C. D. E)		
Dest.	Via	Delay
A	Α	10
В	В	0
C	C	20
D	C	30
Ε	C	70

N	ode C (B	D. E)
Dest.	Via	Delay
٨	В	30
В	В	20
C	C	0
D	D	10
E	D	50

Nod	eD(A.	B, C, E)	N	ode E (B.	C. D)
Dest.	Via	Delay	Dest.	Via	Delay
٨	С	40	A	C	80
В	С	30	В	D	70
C	С	10	C	D	50
D	D	0	D	D	40
E	E	40	E	E	0

Node A (B. D)			
Dest.	Via Delay		
٨	A	0	
В	lĜ l	10	
C	В	30	
D	B	40	
E	В	80	

Node B (A. C. D. E)		
Dest.	Via	Delay
Α	Α	10
В	Iβ I	0
C	c	20
D	c	30
E	С	70

Node C (B, D, E)			
Dest.	Via	Delay	
Α	В	30	
В	В	20	
С	С	0	
D	D	10	
Е	D	50	

Node D (A, B, C, E)		
Dest.	Via	Delay
A	С	40
В	l č l	30
C	C	10
D	D	0
E	E	40

Node E (B, C, D)			
Dest.	Via	Delay	
Α	D	80	
В	D	70	
C	D	50	
D	D	40	
E	E	0	

C.

Node A (B, D)					
Dest.	Via	Delay			
٨	A	0 1 0 1 0 3 0 4 0			
В	В				
C	В				
D	В				
Е	В	80			
,	Node A (I	B. D)			
Dest.	Via	Delay 0			
Α	Α				
В	lαl	80			
C	l o l	60			
D	D	50			
E	D	90			
,	Node A (B, D)			
Dest.	Via	Delay			
A	Α	0			
В	D	80			
C	D	60			
D	D	50			
E	D	90			

Dest.

В

C

D D

Via

A

D

Delay

80

60

50

Node A (B. D)			Ned	e B (
Dest.	Via	Delay	Dest.	V
٨	Α	0	A	С
В	D I	80	В	В
C	D	60	C	С
D	D	50	D	C
E	D	90	E	C

Mari	e B (A. C	0 0
Dest.	Via	Delay
Α	С	70
В	ВI	70 0
C	c	20
D	c	30
E	C	70

Node B (A. C. D. E)

₽ C

č

Node B (A. C. D. E)

Via

С

ВС

c

Node B (A. C. D. E)

Via

С

B,

CC

Node B (A. C. D. E)

Via

В

Delay

0 ,

20

30

Delay

20

30

Delay

20

30

70

Delay

70

0

Dest.

В

С

D

Dest.

В

c

D

C

D

Dest.

В

C

D

000	20 30 70	C D E	CDE	0 10 50		
		Tables a	ifter four	th exchange		
B (A, C, D, E)		Node C (B, D, E)				
Via	Delay	Dest.	Vie	Delay		
Свссс	70 0 20 30 70	A B C D	DBCDE	60 20 0 10 50		

Initial tables

Node C (B, D, E)

Delay

20

0

10

50

Via

В

D

Tables after first exchange

В

Tables after second exchange

Node C (B, D, E)

Via

D

В

С

D

Tables after third exchange

В

Node C (B. D. E)

Via Delay

20

Node C (B, D, E)

Via Delay

30

20

10

Delay

20

0

10

50

Dest.

В В

C C

D D

Dest.

В

C С

D D

Dest.

C

D Е

Dest.

В

Α	-c	40°		A	D	80
В	-C	30*	1 1	В	Ð	70
C	-C	10-		C	Ð	50
D	IID	0		D	Ð	40=
E	-E	40 ₀		E	Œ	0
Nod	le D (A, I	B. C. E)] [No	de E (B.	C. D)
Dest.	Via	Delay] [Dest.	Via	Delay
٨	С	40		٨	D	80
В	č	30		В	Ď	70
C	č	10		C	D	50
D	Ď	0		D	D	40
E	E	40		E	E	0
Not Dest.	le D (A,	B, C, E) Delay	-	No Dest.	de E (B. Via	C. D) Delay
A.	C	40	1 1	A	D	
В	č	30		В	D	80 70
c	c	10		C	D	50
D	Ď	0		D	D	40
E	E	40		E	E	0
No	de D (A.	B, C, E)	1	Ne	xde E (B.	C. D)
Dest.	Via	Delay	1	Dest.	Via	Delay
٨	Α	50	1	Α	D	80
В	C	30		В	D	70
C	C	10		C	D	50
D	D	0		D	D	40
E	E	40		E	E	0
	1. B.		1		1. 8 /5	6.00
	_	B. C. E)	-		ode E (B.	
Dest.	Via	Delay	-	Dest.	Via	Delay

50

30

0

10

B

С C

D

С

Node D (A, B, C, E)

Dest. Via Delay

Node E (B, C, D) Dost. Via Delay

D

D

D

D

В

C

D

90

70

50

40

d.

Yes the algorithm converges.