CZ3006/CSC302 Net centric computing

Solved by Zeng Ye

1.

(a)

(i)Min Frame Size = (2*Distance/propagation speed)*bandwidth

= 2*2000m/(200/microsec)*100Mbps

= 2000bit

(ii)Min Frame Size = (2*Distance/propagation speed)*bandwidth

= 2*2000m/(200/microsec)*1Gbps

= 20000bit

(iii) Yes. According to the formula above, it can be achieved by changing the Distance to be 1/10 of the original one.

(b) Flow control is dealing with specific sender and receiver (2 parties are fixed)

Congestion control is a global issue – involves every router and host within the subnet

Flow control is needed when a fast sender tries to send to a low capacity receiver, while congestion control is needed when both fast sender and receiver tries to communicate through a slow network.

2.

(a) Seq_number: 5,6,7,0

(b) Frame 0,1,2,3,4

(c) Frame 6

(d) Seq_number:0,1,2,3,4

(e) Seq_number:5

3.

From C to	Via B (+9)	Via D (+8)	Via E (+12)
A	15(=6+9)	20	14*
B	9*	22	18
C	-	-	-
D	21	8*	21
E	15	17	12*
F	11*	18	16

*Pick up the shortest(optimal) route among the three, then form up the table as below:

From C:(14,9,0,8,12,11)

4.

RTT=100ms per window ➔ 1/100ms =10 windows/s ➔ means 1 second can send 10*65535 bytes

Hence,

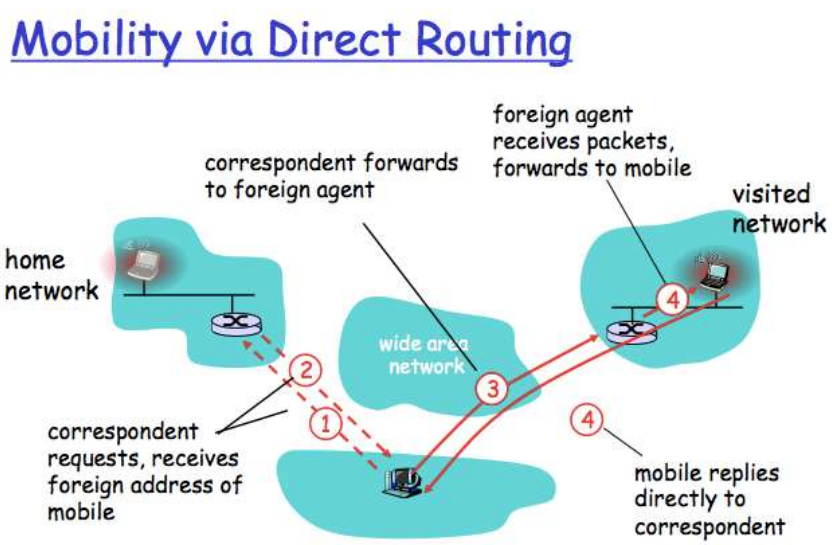
10*65535*8bps/1Gbps=0.52%

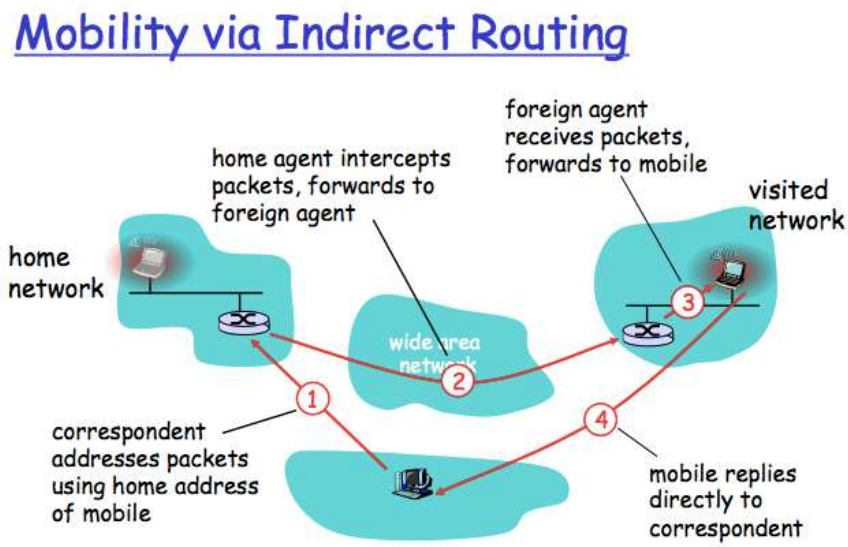
RTT=400ms per window ➔ 1/400ms =2.5 windows/s

Hence,

2.5*65535*8bps/1Gbps=0.13%

5.





Noted that it would be good to mention the transparency differences during illustration.

6.

A	/^[A-Za-z]\d{7}[A-Za-z]$/

B	Switch(score/10){
	Var gpa=document.getElementById("studgpa");
	case 0: case 1: gpa=1;break;
	case 2: case 3: gpa=2;break;
	case 4: case 5: gpa=3;break;
	case 6: case 7: gpa=4;break;
	default: gpa=5;
	
	}

C	isNaN(stud_score)||stud_score<0||stud_score>100
D	SetGPA(stud_score);
E	<form action="transcript_handler.php" method="POST">
F	onchange="checkNo();"
G	onchange="checkScore();" (*can use onblur function as well)
H	onfocus="this.blur();"

7.

A	"studname"
B	"studno"
C	"studscore"
D	!feof($file)
E	fclose($file);
F	break;
G	$last--;

H	$insert=$last;
I	$file=fopen(“transcripts.dat”,”a+”);
J	$count++;
K	“student_name: ”. $ studname[$index]. “student_number: ”. $studno[$index] . “ student_score: ”. $studscore[$index]. “ ”
L	echo $output; (*can use print as well)

All the best!