­­Tyler Burleson

CSCI 3400-001

Conceptual Application Chapter 3

**P1)**

|  |  |  |
| --- | --- | --- |
| Serial | Port Number | Destination Port |
| a) A -> S | 467 | 23 |
| b) B -> S | 513 | 23 |
| c) S -> A | 23 | 467 |
| d) S -> B | 23 | 513 |

e) yes

f) no

**P2)**

Assumptions: IP’s of the hosts A,B,C are their lower case letter (A->a)

To A: Source port = 80, source IP = b, destination port = 26145, destination IP = a

*Left side* To C: Source port = 80, source IP = b, destination port = 7532, destination IP = c

*Right side* To C: Source port = 80, source IP = b, destination port = 26145, destination IP = c

**P4)**

a)

0101 1100

+0110 0101  
\_\_\_\_\_\_\_\_\_\_\_  
 1100 0001 -> 1’s comp 0011 1110

b)

1101 1010

+0110 0101  
\_\_\_\_\_\_\_\_\_\_\_  
 1 0011 1111 -> 1’s comp 0 1100 0000

c)

01***1***1 1100

+ 01***0***0 0101  
\_\_\_\_\_\_\_\_\_\_\_  
1100 0001 -> 1’s comp is the same 0011 1110

**P15)**

RTT = 30ms  
R = 1Gbps -> 10^9bps  
L = 1500 bytes

D­trans = (L/R)= 1500 \* 8 /10^9 = 12ms -> 0.012

Channel Utilization = N\*( (L/R) / (L/R) + RTT)  
.98 = N \* .012 / 30 + .012  
.98 \* 30.012 = N \* .012  
29.41176 / .012 = N

N = 2450.98  
The window size should be 2451 packets to utilize 98% of the channel.

**P31)**

First:  
EstimatedRTT = .125\*106 + (1-.125) \* 100  
= 100.75ms  
DevRTT=.25\*|106-100.75| + (1-.25) \* 5  
=5.0625ms  
TimeoutInterval = 100.75 + 4 \*5.0625 = 121ms

Second:  
EstimatedRTT=.125\*120+(1-.125)\*100.75  
=103.15625ms  
DevRTT=.25\*|120-103.15625|+(1-.25)\*5.0625  
=8ms  
TimeoutInterval=103.15+4\*8=135.15ms

Third:  
EstimatedRTT=.125\*140+(1-.125)\*103.15  
=107.75ms  
DevRTT=.25\*|140-107.75|+(1-.25)\*8  
=14.06ms  
TimeoutInterval=107.75+4\*14.06=164ms

Fourth:  
EstimatedRTT=.125\*90+(1-.125)\*107.75  
=105.53ms  
DevRTT=.25\*|90-105.53|+(1-.125)\*14.06  
=14.42ms  
TimeoutInterval=163.21ms

Fifth:  
EstimatedRTT=.125\*115+(1-.125)\*105.53  
=106.715ms  
DevRTT=.25\*|115-106.715|+(1-.25)\*14.42  
=12.885ms  
TimeoutInterval=158.255ms