IWP networking exercises

trma21

April 2022

1 exercises

1.1 R1

There is no difference between hosts and end systems, they are synonyms. Some host systems, tvs, gaming consoles computers, server?

1.2 R19

$A->R_1->R_2->R_3->B$ $R_1 = 500kbps, R_2 = 2Mbps, R_3 = 1Mbps.$

a)

The bottleneck of the system is R_1 and therefore 500kbps.

b)

$File = 4000kb.$

$Time = \frac{4000}{500} = 8 seconds.$

c)

$R_2 = 100kbps$

$Time = \frac{4000}{100} = 40 seconds.$

1.3 R23

Layers of the internet protocol stack: (Se bogen side 80).

1. Application

2. Transport layer (TCP: Segments/reasemblies packets, flow control ... UDP: No flow control, no congestion control).

3. Network layer

4. Link layer

5. Physical

1.4   R24

Encapsulation: Happens at each step of the internet protocol. Where one layer packeges the recieved message and attaches a header. De-encapsulation: Removes the header and sends the message down the internet protocol.

1.5   P25

a) $R = 5Mbps$
$d_prop = \frac{20000}{2.5*10^8} = 0.08 seconds$
$Bandwidth delay product = R * d_prop = 400000 bits$

b) Se svar a)

c) The Bandwidth delay product is the number of bits on the line at once.

d) $20000000/400000 = 50 meter$ 1 bit's "width" is 50 meter.

e) $\frac{L}{R\frac{L}{c}} = \frac{L}{R\frac{1}{c}L} = \frac{1}{R\frac{1}{c}} = \frac{1}{\frac{R}{c}} = \frac{c}{R}$