Chapter 15 Problems Philip Bock

15.3)

a: $(1\ 000\ 000\ *\ 8)/\ 64\ 000\ =\ 125\ sec\ 64$ kbit

b1: 256-80=176 data/packet 8,000,000/176=45.45k(rep) frames 1Mb/45.45k(rep)=3.90625k frames/trip 45.45k(rep)/3.90625k=11.6 trips 11.6*10us = 116.352 us throughput = 256 bit + 88 bit = 344 bit * 1 M bit / 424 bits = 811 kbps

b2: 256-80=176 data/packet 8,000,000/176=45.45k(rep) frames 10Mb/45.45k(rep)=39.0625k frames/trip 45.45k(rep)/39.0625k=1.16 trips 1.16*10us=11.6us throughput = 256 bit + 88 bit = 344 bit * 10 M bit / 424 bits = 8.11 Mbps

b3: 256-80=176 data/packet 8,000,000/176=45.45k(rep) frames 1Mb/45.45k(rep)=3.90625k frames/trip 45.45k(rep)/3.90625k=11.6 trips 11.6*100us=1.16352ms throughput = 256 bit + 88 bit = 344 bit * 1 M bit / 424 bits = 811 kbps

b4: 10,000-80= 9.92k data/packet 8,000,000/9.92k=806.45 frames 50Mb/806=62.03k frames/trip 806.45/62.03k=0.013 trips 0.013*10us=130ns throughput = 10000 bit + 88 bit = 10088 bit * 50 M bit / 10168 bit = 49.6 Mbps

15.4)

a: 1000m / 200m/us + 1 kbit /10 Mbit = 105 us

15.4)

b: 1000 m / 200m/us = 5 us / 2 = 2.5 5 us * 10 Mbit/sec = 50 bits

15.5)

a: 1000m / 200m/us + 1 kbit /100 Mbit = 15 us

15.5

b: 1000 m / 200m/us = 5 us / 2 = 2.5 5 us * 100 Mbit/sec = 500 bits

15.10)

Ports are the Lan designation, 101 is the root bridge all are designated bridges.

101 is designated root bridge because of lower number

only Lan E has redundancy and so since 104 and 107 unit cost are the same, 104 is chosen as the designated bridge since it has the lower number.

Bridge 101 Both ports root and cost =0 Bridge 102 Lan A root unit cost=0 Bridge 103 Lan B root unit cost=1 Bridge 104 Lan B root unit cost =1 Bridge 105 Lan C root unit cost =2 Bridge 106 Lan C root unit cost =2 Bridge 107 Lan A root unit cost =1

Lan E unit cost =2