Redes y Sistemas Distribuidos: Práctica sobre la Introducción

Del libro de Tanembaum primer capítulo, resolver los siguientes ejercicios: 3, 10, 16, 17, 22, 24, 31:

3. The performance of a client-server system is strongly influenced by two major net-work characteristics: the bandwidth of the network (that is, how many bits/sec it can transport) and the latency (that is, how many seconds it takes for the first bit to get from the client to the server). Give an example of a network that exhibits high band-width but also high latency. Then give an example of one that has both low bandwidth and low latency.

10. What are two reasons for using layered protocols? What is one possible disadvantage of using layered protocols?

16. A system has an n-layer protocol hierarchy. Applications generate messages of length M bytes. At each of the layers, an h-byte header is added. What fraction of the net-work bandwidth is filled with headers?

17. What is the main difference between TCP and UDP?

22. How long was a bit in the original 802.3 standard in meters? Use a transmission speed of 10 Mbps and assume the propagation speed in coax is 2/3 the speed of light in vacuum.

24. Ethernet and wireless networks have some similarities and some differences. One property of Ethernet is that only one frame at a time can be transmitted on an Ethernet. Does 802.11 share this property with Ethernet? Discuss your answer.

31. Make a list of activities that you do every day in which computer networks are used. How would your life be altered if these networks were suddenly switched off?

Del libro de Kurose(última edición)primer capítulo resolver los siguientes ejercicios: R7, R8, R10, R16, R18, R22, R25, P10.

R7. What is the transmission rate of Ethernet LANs?

R8. What are some of the physical media that Ethernet can run over?

R10. Describe the most popular wireless Internet access technologies today. Compare and contrast them.

R16. Consider sending a packet from a source host to a destination host over a fixed route. List the delay components in the end-to-end delay. Which of these delays are constant and which are variable?

R18. How long does it take a packet of length 1,000 bytes to propagate over a link of distance 2,500 km, propagation speed 2.5·108 m/s, and transmission rate 2 Mbps? More generally, how long does it take a packet of length L to propagate over a link of distance d, propagation speed s, and transmission rate R bps? Does this delay depend on packet length? Does this delay depend on transmission rate?

R22. List five tasks that a layer can perform. Is it possible that one (or more) of these tasks could be performed by two (or more) layers?

R25. Which layers in the Internet protocol stack does a router process? Which layers does a link-layer switch process? Which layers does a host process?

P10. Consider a packet of length L that begins at end system A and travels over three links to a destination end system. These three links are connected by two packet switches. Let d_i , s_i , and R_i denote the length, propagation speed, and the transmission rate of link i, for i=1,2,3 . The packet switch delays each packet by d proc.
Assuming no queuing delays, in terms of d_i , s_i , R_i , (i=1,2,3) , and L, what is the total end-to-end delay for the packet? Suppose now the packet is 1,500 bytes, the propagation speed on all three links is 2.5·108m/s, the transmission rates of all three links are 2 Mbps, the packet switch processing delay is 3 msec, the length of the first link is 5,000 km, the length of the second link is 4,000 km, and the length of the last link is 1,000 km.
For these values, what is the end-to-end delay?