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CS2705

Underlying Technologies

1. Label the following Ethernet MAC Address as either, unicast, multicast, or broadcast.
   1. FF:FF:FF:FF:FF:FF
      1. Broadcast
   2. 22:A0:F2:63:BC:04
      1. Unicast
   3. F5:93:C1:4B:03:77
      1. Multicast
   4. 56:20:6A:49:E7:90
      1. Unicast
   5. B4:3E:35:AB:6F:45
      1. Unicast
2. If 10-Gigabit Ethernet operated in half-duplex mode what would be the maximum length cable when run under the traditional Ethernet settings? I know that 10-gigabit ethernet does not operate in half-duplex. This is a hypothetical question.
   1. Gigabit Ethernet has a max cable length of 25m. Increasing the speeds 10 times to 10-Gigabit Ethernet would cut that max length down 10 times making it a theoretical max length of 2.5m.
3. What is the differences between CSMA/CA vs CSMA/CD?
   1. CSMA/CA has do do with collision avoidance. CSMA/CD has to do with collision detection. CSMA/CD will start transmitting information and go until it either reaches the end or detects a collision. If it detects a collision, it stops transmitting and retransmits at a later time. CSMA/CA tries to avoid collision altogether. Before it starts transmitting, it listens to make sure something isn’t transmitting from the other end.
4. Complete 1-3 of 3.9 Practice Set Exercises. When it says to use data from exercise 2, it means exercise 1.
   1. 1)
      1. 2500/200000000 = .0000125 seconds
   2. 2) If we went clear up to the .0000124th second and detected a collision, by the time we went back I have it calculated at .0000248 seconds.
5. Attach a screenshot of you running CORE Network Emulator (see Appendix A).
6. 