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CTEC 415

Video Notes

1. What is encapsulation versus decapsulation
   1. Encapsulation is the process of enclosing a lower layer protocol packet in a higher layer protocol packet. Decapsulation is the process of opening up encapsulated data.
2. What does PDU stand for?  Which layers produce a PDU?
   1. PDU is a protocol data unit. PDUs are blocks of information transferred over networks. Each layer produces PDUs, layer 1 uses bits, layer 2 uses frames, layer 3 uses packets, layer 4 uses segments, and layers 5-7 use data.
3. Name 1 difference between the physical and logical layer
   1. One difference between the physical and logical layer is that the physical layer determines how data is transmitted, while the logical layer determines how data is put together and separated.
4. Name the 7 layers of the OSI mode;
   1. Application, Presentation, Session, Transport, Network, Data Link, Physical
5. What is the encapsulation process?
   1. The transport layer breaks data from the upper layers into smaller pieces and adds a header onto each piece. The header contains the information needed to reassemble the message on the receiver’s transport layer. The piece then becomes a segment and is processed by the next layer.
   2. The network layer creates another header for each segment received that contains information for the addressing and routing of the source and destination for each segment. The segment then becomes a packet.
   3. The data link layer then creates both a header and trailer for each packet. The header contains information about the source and destination hardware addresses required for switching. The trailer contains information required to detect corrupt packets. The packet then becomes a frame.
   4. The physical layer receives the frame and converts it into a format that can be transmitted over the physical medium. The frame then becomes bits. The receiving computer receives the bits and begins the process of decapsulation, which is essentially the reverse of this process.
6. What is produced for the Transport Layer to perform its functionality
   1. The layers above the transport layer convert data into format that the network can transmit. The transport layer takes the converted data and begins the encapsulation process by breaking up the data into segments that the network can handle.
7. Define a reliable network and reliable delivery
   1. A reliable network is one that ensures that data can be delivered from one device to another. Networks use various topologies and full duplex communication to ensure that data can travel from device to another as often as possible. Reliable delivery involves using error messages and responses from a device to signal whether delivery was successful or not.
8. Purpose of Wireshark
   1. Wireshark is a packet analyzer software. This allows users to see the various headers and data transmitted through packets across a network. Wireshark can be used to troubleshoot network issues, check network applications, and ensure proper protocol functioning.
9. What does netstat do?
   1. Netstat is a command line utility that displays the active network connections for TCP, routing tables and network statistics.