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Sending Print Job:A Comparison Between LocalTalk & Direct Serial

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TOPIC -----

How can I determine the time difference between sending a print job from an MS-DOS computer to a Personal LaserWriter NTR via a serial port connection and an via an AppleTalk connection?

DISCUSSION -----

Using 50K of data as an example, and assuming that you have a theoretically perfect AppleTalk network using LocalTalk (230 Kbaud per second) with no other traffic, it takes approximately 2 to 3 seconds to send 50K over an AppleTalk/LocalTalk network to another node, once the communication has been established with that node.

An AppleTalk Printer Packet consists of 617 bytes per packet, which equals 586 bytes of data and 31 bytes used for overhead. To determine how long it takes to send the 50K of data, use these calculations:

- 1) Calculate the number of packets needed by dividing the number of data bytes to be sent by the number of data bytes per packet.

$$50,000 \text{ bytes divided by } 586 \text{ bytes} = 86 \text{ packets required}$$

- 2) Multiply the number of overhead bytes by the number of packets.

$$31 \text{ bytes} \times 86 = 2666 \text{ bytes of overhead}$$

- 3) Convert the number of data bytes and overhead bytes to bits by multiplying each number by 8 (8 bits per byte).

$$\begin{aligned} 50,000 \text{ bytes} \times 8 &= 400,000 \text{ bits of data} \\ 2,666 \text{ bytes} \times 8 &= 21,328 \text{ bits of overhead} \end{aligned}$$

- 4) Calculate the total information to be sent by adding the data bits to the overhead bits:

$$400,000 \text{ (data)} + 21,328 \text{ (overhead)} = 421,328 \text{ bits of information.}$$

5) Calculate the time it'll take to send the total bits of information by dividing that number by 230,400 bits per second (LocalTalk speed).

421,328 divided by 230,400 = 1.8 seconds

It takes about 8 seconds to send the same 50K of data through a direct serial connection at 57.6 Kbaud (8 data bits, 1 Stop bit, and so on).

At the 50K data level, there isn't an appreciable difference in the amount of time it takes to send the information to the Personal LaserWriter NTR. However, as the print jobs get larger, the time savings would be noticeable. For example, a 50-page document at 50K per page would take approximately 3 minutes longer to send via a serial connection.

Keep in mind that these calculations don't take into consideration the amount of time necessary for the printer to process the job. Much of the time required during the printing process is the actual time the printer requires to process the page. And, depending on the type of print job (text or graphics) being processed, the printer may not be able to process the entire job at once and may need to process the job in chunks page by page.

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