Solving Mainframe Print Routing Problems

BY JOHN E. JOHNSTON

The printers connected to the network where I work must be able to print from several platforms including a mainframe, a NetWare network, and a Windows NT network. Our printers are connected to the network using Hewlett Packard JetDirect cards and we never experience any problems with print originating from the NetWare or Windows NT networks. We do, however, experience many problems with mainframe print.

The reason we have so many problems with mainframe print is because of the cumbersome way we route print from the mainframe to the printers. We selected one PC in each department that constantly runs a mainframe printer emulation session. The printer emulation session receives print from the mainframe and routes it to the LPT1 port of the PC. The LPT1 port is then re-directed to a NetWare print queue that is associated with the department's printer. Even though we placed large signs next to the PC running the printer emulator session stating that this PC must not be shut down, the users still can't seem to resist powering off the PC. Needless to say, this causes the mainframe print to cease. We also encounter problems when the end user accidentally shuts down the printer emulator session. To further compound the problem, if the PC running the printer emulator experiences a hardware malfunction, the mainframe print will be interrupted until the PC is fixed.

FINDING A BETTER WAY

These problems forced us to devise a better method to route mainframe print to our network printers. Our first idea was to utilize TCP/IP on the mainframe to route print to the network-attached printers. However, we do not currently have TCP/IP running on the mainframe and budgetary constraints prevent us from doing so for at least a year. Rather than wait a full year, we pressed on for more ideas. We considered placing in the computer room a handful of PCs that ran multiple mainframe print emulator sessions, one session for each department. This way, the PC was not under the control of the end user, which would resolve most of our problems. After further investigation, we discovered that we would need 15 dedicated PCs just to drive the printers. Needless to say, this was unacceptable. We pressed on and finally came up with a technique that solved our mainframe print routing problems.

Our solution revolves around the use of the Microsoft SNA Server software and the Windows NT printers. Here is what we did: We installed the Microsoft SNA Server software on our Windows NT Primary Domain Controller (PDC). We also installed a hot standby SNA Server on our Backup Domain Controller (BDC) that automatically takes over in the event of a failure of the PDC computer.

Next, we configured TCP/IP on the JetDirect cards that are installed in each printer. Figure 1 illustrates the JetDirect TCP/IP configuration panel.

Then we defined the printer to the PDC computer. The following steps were required to perform this function:

1. On the PDC, double-click on "My Computer."
2. Double-click on "Printers."
3. Double-click on "Add printer."
4. Click on the "My Computer" box.
5. Click on "Add Port."
6. Select "HP JetDirect Port," as shown in Figure 2.
7. Select "TCP/IP Printer."
8. Click on "Search." You should see the printer in the list that is displayed.
9. Select the printer to complete the printer definition.

Once the printer has been defined to the PDC computer, all that was left was to define the printer to the SNA Server. In this configuration we specified the mainframe LU address of the printer and then selected the appropriate printer to direct the print to. Figures 3 and 4 show a sample MS SNA Server mainframe printer configuration.
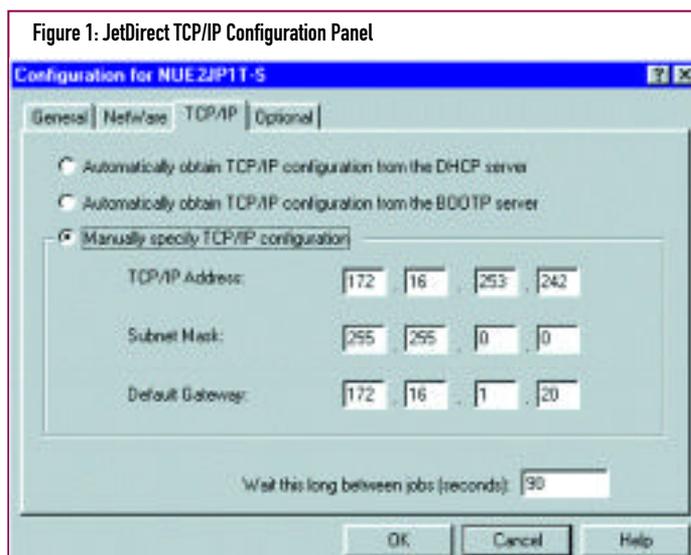

Figure 1: JetDirect TCP/IP Configuration Panel

Figure 2: Select the HP JetDirect Port
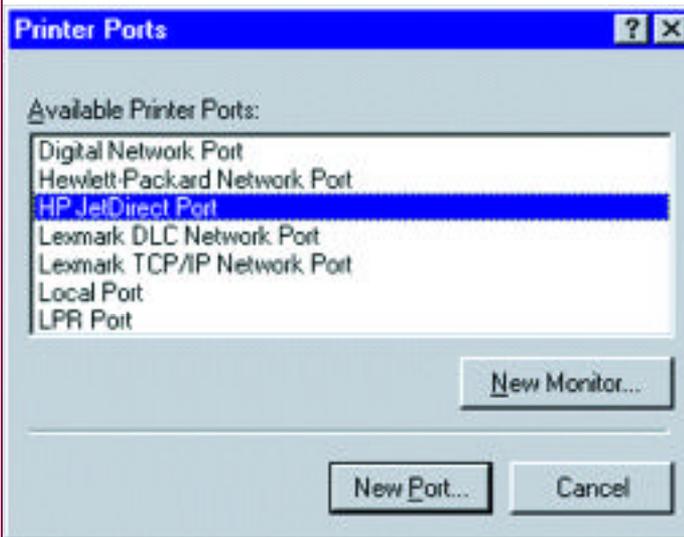

Figure 3: Sample MS SNA Server Mainframe Printer Configuration
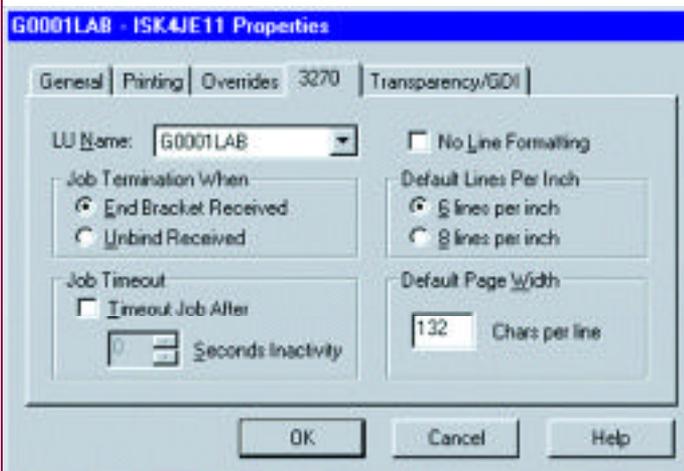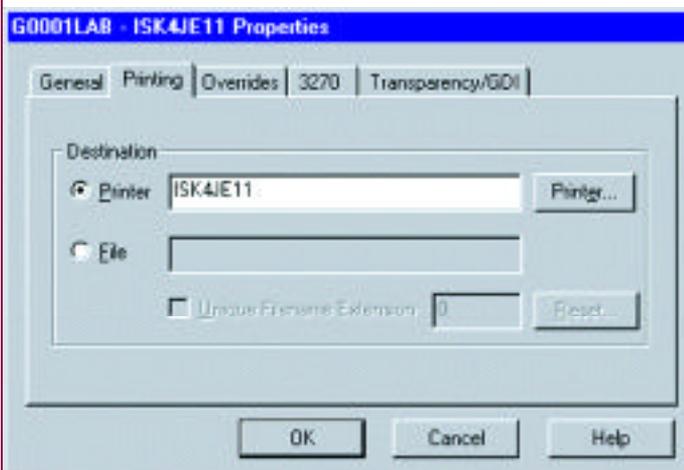

Figure 4: Sample MS SNA Server Mainframe Printer Configuration

Note: Prior to the configuration of the printer on the SNA Server, the appropriate VTAM modifications must be made to the mainframe to define the LU as a printer. This process is beyond the scope of this column.

Once the printer has been defined to the SNA Server, the mainframe print will be directed from the mainframe LU, through the SNA Server, out to the associated Windows NT printer using the TCP/IP protocol.

CONCLUSION

This process for routing mainframe print to our network-attached printers has solved all of our mainframe print routing problems. We no longer receive help desk calls related to end users shutting down the PCs that drive the printer emulator sessions. While we did implement the hot standby SNA Server on our Backup Domain Controller, we have not tested the process of switching from the primary SNA server to the secondary server yet. Hopefully this process will work as advertised and prevent us from relying upon a single point of failure for our mainframe printer sessions.

If you have any comments on this month's column, or have suggestions for future column topics, please feel free to contact me at johnj@fast.net or the editor at editor@naspa.net. **ts**

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