

CASE *IN PRINT*



SMS and LRS Hurdle Printing Challenge for SUNY HSC University Hospital

Like other teaching hospitals, University Hospital of the State University of New York (SUNY) Health Science Center at Syracuse has a unique dual mission. Along with providing a range of medical services for the sick and injured, the hospital provides training for the doctors of tomorrow.



An institution charged with those responsibilities needs powerful software to assist its missions. Bruce Peterson, information systems director for the 350-bed hospital, listed the attributes of the type of system University Hospital requires.

"It's important to have a system that can function as a teaching tool, provide a 'best practice' experience, and is somewhat leading edge as well," Peterson noted. "You're sending these medical students out into the world and you want to have them work on a system that's on a par

with, if not a cut above, what comparable hospitals would be working on."

University Hospital found what it needed in INVISION from Shared Medical Systems Corporation (SMS), the leading provider of information solutions for the health industry worldwide. INVISION, an OS/390 host-based product, offers a rich mix of clinical and financial applications.

INVISION handles important functions such as inpatient and outpatient registration, patient accounting, order processing, and a range of other health care clinical and business functions. It also integrates with additional software modules offered by SMS, as well as software from other providers.

To implement INVISION, University Hospital installed an IBM 9672 R22 host and connected it to its existing TCP/IP network. An AS/400 midrange computer, which ran the hospital's previous clinical software package, and approximately 200 laser printers are also part of that network.

EXECUTIVE *SUMMARY*

SMS' and LRS' software solutions enable SUNY Health Science Center/University Hospital to deliver electronic forms from SMS' INVISION[®] software to LAN-attached laser printers via their TCP/IP network.

Solution: Software Suite

SMS' partnership with Levi, Ray & Shoup, Inc., (LRS) provided the solution that University Hospital was looking for: a Dynamic Report System (DRS) with Smart Tag Interface and



VTAM Printer Support (VPS) with VPS/PCL and VPS/TCPIP modules.

An added benefit for University Hospital is the effective interface between LRS and SMS products, a result of the close working relationship between the companies.

Software experts at LRS and SMS teamed up to ensure effective DRS-INVISION integration. SMS provides a user exit written specifically to append a DRS Smart Tag Buffer to the first line of each INVISION-generated report, and route the report to DRS/STI.

"That was a nice thing to find out about," recalled Bill Lang, senior programmer analyst. "The two vendors had been working together and had the user exit that could be modified to our unique requirements."

When DRS/STI receives the INVISION output, it removes the Smart Tag Buffer and reads it to establish the printer and electronic form. DRS locates the correct JES attributes for the printer and form in the DRS/STI database and assigns those attributes to the output as it is sent to the JES spool. VPS retrieves output from the JES spool and routes it to the specified printer.

Forms Conversion

VPS/PCL obtains the appropriate AFP resources—overlays, fonts, graphics—from the AFP library and applies the resources to the

INVISION line data to create an AFP data stream. VPS/PCL then converts the data stream from AFP to PCL so it can be printed on any PCL5-based printer. VPS/TCPIP routes the output directly to printers on the University Hospital TCP/IP network; because their printers support a TCP/IP 'sockets' connection, VPS/TCPIP offers recoverability in case of printing errors.

Using DRS/STI gives University Hospital the flexibility to produce more than one form at each of its printers. Without the DRS/STI, the hospital would need a virtual printer definition for each form it wants to print at each printer. For the hospital to print 10 different forms at 10 different printers, for example, it would need 100 virtual printer definitions.

With the DRS/STI, University Hospital can create one virtual printer definition per physical printer and, with form information coming through on the Smart Tag Buffer, have the flexibility to print multiple forms at each printer.

"We can have a printer named VP40 within INVISION that we print to for certain documents based on a user's terminal ID, then

System REQUIREMENTS

- SMS INVISION(ICO and SIGNATURE® ICO
- SMS Delivery Systems 22.1 or 23.0
- SMS Software Update Tape (SUT) 97.2 or later
- DRS/STI Release 3.2
- Dynamic Report System (DRS) Version 1 R3.2 or later
- VTAM Printer Support (VPS) Version 1 R6.2 or later

Optional Add-ons:

- VPS/TCPIP – routes output to any TC/PIP-connected location or device
- VPS/AnyQueue and VPS/PageSorter – routes output to LAN-attached printers and e-mail packages
- VPS/PCL – converts host-based AFP resources into PCL data streams, then delivers the output to existing PCL printers

VP40 is carried all the way through from INVISION, CICS, DRS, and through VPS," Lang noted. "We can keep that name constant throughout the system."

Reaching Destinations

Along with output for University Hospital's electronic forms, INVISION generates various financial reports through its batch process and writes them to its General Queue, or GQ. Using VPS and VPS/TCPIP, Lang has the reports routed to the appropriate printers, even printers in a remote financial office that's miles from the hospital.

"All it took was defining the IP address," Lang noted. "It's no different whether the printer is in the next room or across the city."

The destination for a particular report doesn't have to be a printer. Lang created a JES destination that tells VPS to route some reports from the GQ to the hospital's AS/400, which writes the reports to an optical disk system for long-term archiving. He estimated that setting up the destinations took 20 minutes.

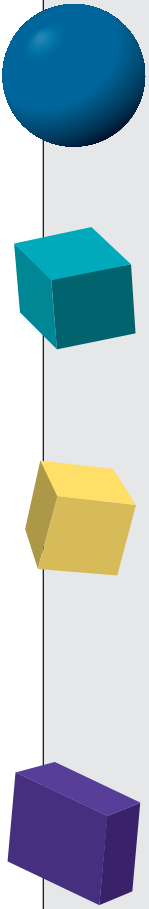
The SMS/LRS solution is working well for University Hospital, Lang noted, and the LRS components were very easy to install. Lang completed the installation with the help of a few phone conversations with LRS Technical Support, a group Lang praised as very knowledgeable and helpful.

Bruce Peterson, who at one time had considered the possibility of reverting to preprinted forms, now has an OS/390-based printing system that has allowed the hospital to protect its investment in electronic forms, the TCP/IP network, and the existing inventory of printers.

"This solution has been very successful for us and has afforded us a lot of flexibility," he noted.

LRS PRODUCTS

SUNY HSC University Hospital installed a collection of LRS products that work together to provide the solution to the hospital's network printing challenge. LRS products working for University Hospital are:



VPS—VTAM Printer Support streamlines printing in the OS/390 environment by efficiently routing output from the JES2/JES3 spool to the most appropriate printer or output device. Printers can be quickly and easily added to the VPS system without the need for IPLs, JES definitions, or re-starting the VPS system.

VPS/PCL—VPS/PCL is a VPS AFP extension product that enables you to send AFP output to your PCL5 compatible printers, without the need for expensive IPDS data stream conversion cards or other cumbersome solutions. All you need are the PCL printers that you've already purchased and already connected to the network.

VPS/TCPIP—VPS/TCPIP takes output from the JES spool and dynamically routes it to a remote IP device, whether that device is a printer or workstation queue, via the Line Printer Daemon (LPR/LPD protocol) process, or directly to an IP printer with a network interface adapter that supports TCP/IP.

DRS—Dynamic Report System lets you dynamically route output created by your online applications to the JES spool. From the JES spool, VPS can direct print jobs to any printer in your enterprise-wide network, including TCP/IP printers, VTAM printers, and LAN printers.

DRS/STI—The DRS/Smart Tag Interface gives you a single interface for dealing with all the output from vendor-supplied and legacy applications. All host applications can utilize a single, menu-driven screen to send output to printers or other devices anywhere on your enterprise network. The DRS/STI can also merge regular line-mode output from a mainframe vendor's package with AFP resources to create attractive, easy-to-read reports.



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