CASE IN PRINT

Novo Nordisk Sends AFP Output To More Than 2000 PCL Printers

Reduces IPDS Investment with VPS Products

When Novo Nordisk A/S looked at its global computing environment in the mid-90s, it saw a collection of mainframes, midrange systems, UNIX hosts, servers, PCs, and LANs, all connected by a worldwide SNA network. The output created by applications in that environment went to a large number of printers.

"We have no less than 2,100 printers installed in our company," noted Hans Sylvest Larsen, MVS systems programmer in the central EDP department at Novo Nordisk's Bagsvaerd, Denmark, headquarters. "About 100 of the printers are installed in subsidiaries in more than 50 countries. There are all sorts of types of printers, from the popular HP laser printers to special printers for fixed forms, labels, etc."

Novo Nordisk's global operation manufactures and markets a large number of pharmaceutical and bioindustrial products. It is the world leader in insulin and diabetes care and the world's largest producer of industrial enzymes. More than 14,000 Novo Nordisk employees work in 61 countries, engaged in research, production, and sales activities.

Like many other organizations in the '90s, Novo Nordisk wanted to reduce cost by replacing its SNA network with TCP/IP. Making that switch meant the company needed the ability to route mainframe output—AFP documents such as invoices and purchase orders as well as line data—over the TCP/IP network to its vast collection of printers.

EXECUTIVE*SUMMARY*

Novo Nordisk A/S, a world leader in pharmaceutical and bioindustrial products, installed VPS products to distribute mainframe output to more than 2,000 printers worldwide. The VPS modules Novo Nordisk installed can print AFP documents on existing PCL laser printers over TCP/IP without making changes to mainframe software or adding special hardware. Novo Nordisk has reduced its investment in IPDS hardware and improved print management with VPS while enabling its 1,900 PCL printers to receive AFP output.

But the print utility software on the Bagsvaerd mainframe at the time, CA-SPOOL, could not meet Novo Nordisk's IP printing requirement. And it faced the dilemma of printing AFP documents.

"The shift of communications protocols from SNA to TCP/IP has proved to be strategically right, but it created a number of challenges," Larsen noted. "The mainframe applications' print logics are tied to IBM's AFP architecture, whereas the local laser printers are mainly running under HP's PCL5 protocol."

Novo Nordisk had a choice to make—the company could invest in IPDS hardware, adding to the 15 IPDS printers it already had, or it could search for some other way to print the AFP documents created by its SAP R/2 system and other host-based applications.

Larsen investigated several options, including installing dedicated print servers and actually eliminating AFP. He found the answer for Novo Nordisk in VTAM Printer Support (VPS) products from LRS.

"We looked around for quite some time to find a method to establish a bridge between our very different printer languages," Larsen recalled. "We found it when we discovered VPS, after having investigated many alternative possibilities. VPS quickly proved itself to be the best and the least expensive solution."

With a family of extensions that provide a range of functionality, VPS provided Novo with the capability to install precisely the functions it needed (see "LRS Products"). Novo installed the VPS and Dynamic Report System (DRS) modules that can:

- Convert AFP data streams to PCL for printing on common laser printers
- Distribute output from mainframe applications over TCP/IP networks
- Route output to LAN print queues
- Monitor operation of all VPS-controlled printers and detect problems.

With the capability to print AFP output on PCL laser printers, Novo Nordisk can now print AFP documents on approximately 1,900 laser printers whenever it needs to.

"VPS/PCL can, without problems, dynamically convert from AFP to PCL5, so that the print from the mainframe can be routed directly to any of our users worldwide," Larsen noted. "We print with the correct formatting, characters, fonts, highlights and so on, without us having to change the source code. I don't know any area where we can't print AFP the same as before."

Novo Nordisk also installed DRS/SAPR2, a utility that places output from SAP R/2 applications on the JES spool without requiring any changes to the SAP R/2 software. Larsen recalled that DRS/SAPR2 was easy to install and, once installed, the software does its work dynamically.

"With VPS we are now driving five times the number of printers we had before without using more manpower at the task," Larsen explained. "This is done by automating many of the print management tasks through VMCF (VPS Monitor and Control Facility). It has an interface where we can see which printers have problems and print waiting, so it is possible to act in advance so that the user doesn't need to call because of problems. Before we got VPS, when the users had a print problem they had to call the help desk operators to get help. There was no automation at all."

Managing print problems required the equivalent of one full-time employee before Novo Nordisk installed VPS; now it requires about a tenth of that time. Larsen also reported that the number of print problems had decreased since VPS was installed. Improved print management was one of the main benefits Novo Nordisk gained by installing VPS, he said.

The other major benefit is the increased AFP printing capacity Novo Nordisk has gained by enabling the existing inventory of PCL printers to print AFP output. The company now uses just two IPDS printers.

Along with those two benefits, Novo Nordisk has nearly achieved another goal—decentralizing its mainframe printing.

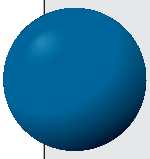
"We produce almost no print centrally," Larsen said. "Not more than 200,000 lines a month."

NOVO NORDISK***FACTS***

- World leader in insulin and diabetes care
- World's largest producer of industrial enzymes
- Approximately 14,600 employees in 61 countries on six continents
- Approximately 2,000 IP printers and 60 SNA printers
- Production facilities in seven countries
- More than 3,000 employees involved in research and development

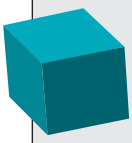
LRS***PRODUCTS***

Novo Nordisk installed a collection of LRS products that work together to provide the solution to the company's global print production needs. LRS products working for Novo Nordisk include:

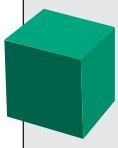


VPS —*VTAM Printer Support streamlines printing in the OS/390 environment by efficiently routing output from the JES2/JES3 spool to the most appropriate printer or output device. Printers can be quickly and easily added to the VPS system without the need for IPLs, JES definitions, or re-starting the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

VMCF—*VPS Monitor and Control Facility (VMCF) is a single point of control for network printing, giving you the ability to monitor all VPS-controlled output devices and fix any problems that occur.*

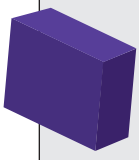


VPS/PCL—*VPS/PCL is a VPS AFP extension product that enables you to send AFP output to your PCL5 compatible printers, without the need for expensive IPDS datastream conversion cards or other cumbersome solutions. All you need are the PCL printers that you've already purchased and already connected to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



VPS/PC-WIN—*Used in conjunction with VPS on the host, VPS/PC receives mainframe reports from the host and routes it to various servers, queues, files, mail, and printers anywhere on any corporate LAN. VPS/PC communicates with VPS on the host using standard SNA LU6.2 or TCP/IP protocols.*

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/SAPR2—*A direct interface from SAP R/2 applications to the JES spool, DRS/SAPR2 enables any existing SAP R/2 application to create a report on the JES spool without any application changes and without the use of either SAP R/2 exits or the SAP R/2 external spool interface. DRS/SAPR2 is simple to install and requires no changes to SAP R/2 software.*

Levi, Ray & Shoup, Inc.

ENTERPRISE OUTPUT MANAGEMENT

LRS OFFICES

Levi, Ray & Shoup, Inc.
2401 West Monroe Street
Springfield, Illinois 62704
USA
Phone: 217.793.3800
Fax: 217.787.0979
Internet: http://www.lrs.com

Levi, Ray & Shoup, Inc.
Türkenstr. 11
80333 München
Deutschland
Phone: +49 (0)89/28 66 95-0
Fax: +49 (0)89/28 66 95 11

Levi, Ray & Shoup, Inc.
Beethovenstr. 18
63263 Neu-Isenburg
Deutschland
Phone: +49 (0)6102/7958-0
Fax: +49 (0)6102/7958-50

Levi, Ray & Shoup, Sucursal en España
Consell de Cent, 106–108, 1º-3ª
08015-Barcelona
España
Phone: 34-9-3-426-5143
Fax: 34-9-3-423-9006

Levi, Ray & Shoup, Inc. U.K.
226 Berwick Avenue
Slough Trading Center
Slough SL1 4QT
United Kingdom
Phone: 44 1753 567267
Fax: 44 1753 567265