LAN TIMES®

Novell Product Leverages SNA Nets for Interconnection

BY ANURA GURUGÉ

Novell NetWare SNA Links 1.0 permits geographically dispersed Novell NetWare LANs to be interconnected across an existing IBM Systems Network Architecture (SNA) network. SNA Links is a NetWare Loadable Module (NLM) that resides in a 80386- or 80486-based Novell server running NetWare 3.11 and NetWare for Systems Application Architecture (SAA) 1.2. It does not require any specific SNA Links software to be installed on an IBM host.

With SNA Links, NetWare users will be able to freely transport NetWare IPX/SPX packets from one LAN to another, using the long-distance, wide area data links already in place for carrying SNA traffic. This obviates the need for parallel WANs, one for SNA traffic and the other for interconnecting Novell LANs.

SNA Links thus addresses a significant and topical market requirement, given that NetWare-based LANs are installed worldwide in around 60 percent of IBM customer accounts. These users now have the option of further leveraging their current investment and knowledge base in SNA to encompass NetWare LAN interconnection, rather than having to invest in, and come to terms with, an alternate network.

INTEROPERABILITY. The LAN-to-LAN, data-transfer capabilities of SNA Links is based on the direct, peer-to-peer communications prowess of the new generation of SNA Type 2.1 (T2.1) peer nodes.

T2.1 nodes, which have been available since 1987, freely interact on a peer-to-peer basis across traditional, hierarchical SNA networks, using a standard, no-charge feature of current IBM SNA host software.

Some host intervention is still required to establish the end-to-end SNA sessions required for such interactions. The pertinent host functions are performed automatically and transparently by IBM's ACF/VTAM, the standard software needed on a IBM S/3x0 host to realize a classic SNA network.

Once a session has been established between T2.1 nodes, there is no further host involvement in the actual data transfers performed in the session. Data transfers are instead routed end-to-end across one or more IBM 37xx (or compatible) communications controllers, to which the T2.1 nodes are attached either via Synchronous Data-Link Control (SDLC) links or a token-ring LAN. The native session protocol used by T2.1 nodes to perform such data transfer is LU 6.2.

SNA Links acts as a T2.1 node in order to exploit this powerful, "host-independent," any-to-any, peer-to-peer, data-transfer facility of SNA. SNA Links, in two separate NetWare servers, establishes a session between them to interconnect the two LANs. Once this session is in place, the relevant IPX/SPX packets will be sent from one server to the other, encapsulated within an LU 6.2 data structure. In this respect, SNA Links can be viewed as an IPX/SPX-to-LU 6.2 encapsulator and decapsulator.

FEATURES. SNA Links permits E-mail, file transfer, file access, and remote printing to be performed between physically distant NetWare LANs across an SNA network. It supports concurrent LAN-to-LAN and LAN-to-host traffic alongside other SNA traffic on the same SNA link between a NetWare server and an IBM 37xx. The link to the 37xx is either SDLC or token ring.

By running on a standard NetWare server, in conjunction with NetWare for SAA, SNA Links permits a server to act as a file/print server, an SNA gateway for host-application access, and now also as an SNA-based LAN interconnection router.

SNA Links differs from previous attempts to provide similar SNA-based interconnection—such as the original offering from Phaser Systems—because it does not require any NetWare-specific software on the host. The downside of SNA Links 1.0 is that it only supports IPX/SPX traffic.

Ideally, a LAN interconnection offering of this type should be able to support other popular LAN protocols, such as TCP/IP, NetBIOS, and Xerox Networking System (XNS). Novell will likely extend the repertoire of SNA Links in future releases. By

then it will compete with other, more generic products—such as the "LAN-to-LAN SNA Router" announced by Harris Adacom in October—that will address the SNA-based LAN interconnection requirement for a wide range of LAN protocols, including IPX/SPX.

PERFORMANCE. Performance is a valid and paramount concern any time LAN interconnection is postulated across an existing, traditional SNA network. Because 37xx controllers are the typical data "routers" in such networks, all LAN-to-LAN traffic will normally have to pass through at least one 37xx. This adds at least one additional intermediate hop to each data path between the LANs being interconnected (NetWare server/ SNA Links-to-37xx controller(s)-NetWare server/SNA Links), as opposed to a direct NetWare server-to-NetWare server connection. Moreover, 37xx controllers are not in the same packets-per-second throughput league as today's high-end bridge/routers. Nonetheless, the preliminary performance characteristics of SNA Links is encouraging.

A 1MB file could be transferred between two 486-based servers, attached via 56Kbps SDLC links to a lightly loaded 3745-170 system, in just under three minutes and 38 seconds. The fastest speed-of-electrons time for 1MB data transfer across a 56Kbps link, with no intervening hardware or software, would be around two and one-half minutes.

So the whole SNA network, SNA Links, the server, modems, and the various protocol overheads are adding just over one minute worth of delay. While this is not perfect, it is acceptable, even taking into account the likelihood that this transfer time could increase as the load and complexity of an SNA network increases. Key here, however, is to use SNA Links with high-speed (56Kbps or 64Kbps) links because link speed is still a major factor in overall performance.

INSTALLATION AND USE. SNA Links, being a NLM, uses the standard, predominantly menu-based, NetWare Communication Services Installation procedure. NetWare for SAA, if running, needs to be brought down before SNA Links is installed. Once it is installed, you will also need to install NetWare for SAA 1.2 updates, an update to the CSCON configuration utility, and the burst-mode performance enhancement to NetWare.

Following installation of SNA Links and the accompanying software on the relevant servers, SNA Links must be configured at each server, using the menu-based CSCON utility, vis-à-vis the LAN interconnection it is supposed to perform. In addition, each server with SNA Links must be defined to the SNA network as a T2.1 node. This is achieved by updating the 37xx ACF/ NCP or, in the case of an ES/9370 system, the host ACF/VTAM network-configuration definitions, using IBM host-based utilities.

Once installed, configured, and activated, the actual operation of SNA Links is transparent to end users. SNA Links automatically works out which IPX/SPX packets have to be conveyed to a remote LAN to satisfy an inter-LAN operation being performed by a NetWare user.

DOCUMENTATION. SNA Links' specific documentation consists of a 140-page administration manual and a 12-page "Rules of Thumb" booklet. The documentation was well laid out, clear, comprehensive, and helpful. The only blemishes were minor, mainly cosmetic ambiguities related to SNA terminology and SNA definition requirements. ■

PRODUCT SUMMARY

Company: Novell Inc.
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Pricing: One server, $1,250
20 servers, $18,000
60 servers, $40,000

Summary: SNA Links 1.0 is a topical offering that addresses a major market need within the IBM community, although just for IPX/SPX traffic on NetWare LANs. The performance of the product is acceptable, and it is relatively ease to install.

LAN TIMES RATING

SNA Links 1.0 **4 Nodes**

Criterion	Weight	Score
Interoperability	200	5
Features	200	4
Performance	200	4
Installation & Use	200	4
Documentation	200	5

Total score 4.4

How we score: Products are rated on a scale from Unacceptable to Excellent, based on the following criteria:

Excellent: *5 nodes—Stellar, top of the line.*
Good: *4 nodes—Meets all standard criteria and includes some special features.*
Satisfactory: *3 nodes—Meets essential criteria and does everything it's expected to do.*
Poor: *2 nodes—Falls short in essential areas.*
Unacceptable: *1 node—May have some working features, but is seriously flawed.*

We multiply the weight, or importance, assigned to each category by the product's scores in each category, sum the results, and divide by 1,000 to come up with a final score between 1 and 5. Products' final scores are assigned a certain number of nodes to reflect their final ratings. For example, a product with a final score of 4 would receive 4 nodes. (To personalize this chart, use your own weights and follow this formula.)