

John Deere 'WINs' with integrated networking

The following story was condensed from an article in the October 1989 issue of Networking Management.

How important is it to WIN? Ask Doug Foster, senior engineer at Deere Tech Services, the support and consulting arm of John Deere & Company. For Foster defines WIN as "Wide-area Integrated Network," a corporate-wide project to link disparate computer systems into an enterprise network that promotes communication and resource sharing.

Instrumental in achieving WIN have been ACC internetworking and IBM connectivity products.

A Variety of Computers

Reported as one of the largest IBM installation in the country, Deere maintains an installed base of approximately 30,000 SNA nodes. Each operating unit chooses the computer equipment it feels necessary to support itself. The result is a mixture of computers and operating systems encompassing Deere operations. Local information sharing occurred within divisions, but wide-area sharing was not available. Nor was intelligent access to the corporate IBM host mainframe. Communication with the IBM host was limited to data

entry and interactive terminal use. "Deere has long recognized the importance of effective employee communications," says Foster. "Every employee, whether in the office or on the factory floor, is a critical resource to the company. To maximize the contribution each employee can offer, exchange of information between employees must be open and interactive."

Bridging the Gaps

In the first phase of the WIN project, Deere integrated stand-alone LANs into a manageable,

Deere's productivity by making resources available to more users. Remote login, file transfer, and program-to-program communications have been brought to users of PCs, Sun workstations, Macintoshes, and DEC workstations. Computers of all classes now have access to resources within the entire network as if they were all locally connected.

IBM Host as Multi-Vendor Peer

Before WIN, transparent peer-to-peer information sharing between the corporate IBM host and other

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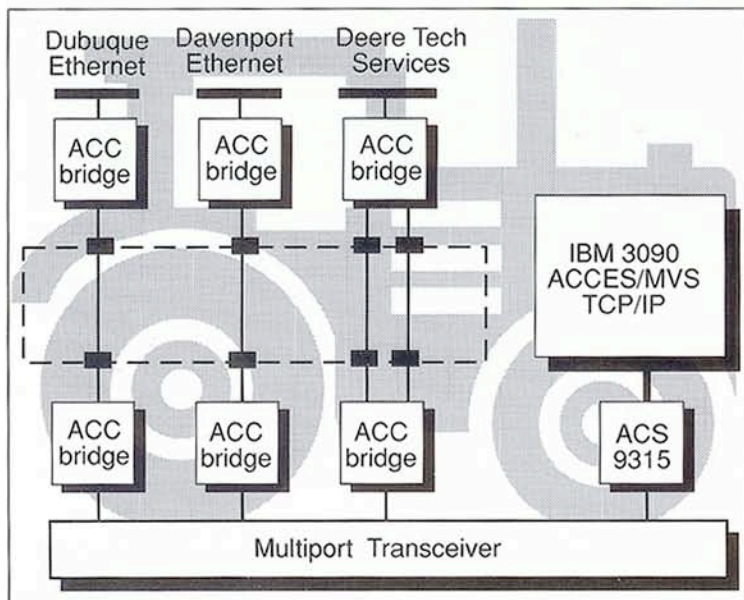
wide-area network so that any of the 350-plus computers could transparently exchange information. They installed ACC's 4030 and 4110 remote Ethernet bridges to interconnect the networks at four sites: Dubuque and Davenport, Iowa facilities, the corporate Computer Center, and Deere Tech Services, both in Moline, Ill.

non-IBM computers was non-existent. As part of an SNA network, the IBM host provided a master-to-slave relationship, limiting communication with the IBM host to data entry and interactive (3270) terminal use. By using industry standard TCP/IP software and the necessary hardware, Deere simplified communication between the IBM mainframe and remote intelligent workstations.

Deere installed ACC's TCP/IP software package, ACCES/MVS, on the IBM MVS host. ACCES/MVS includes applications for file transfer, electronic mail, and remote terminal access. ACC's ACS 9315 hardware interfaces to ACCES/MVS to connect the IBM host to an Ethernet LAN. These ACC products make the IBM host seem like a peer on the network, acting as a data server or providing a path to SNA applications.

"Manufacturing cells access and retrieve data from the Moline Computer Center," explains Foster who estimates at least 50 to 100 development days will now be saved per cell development.

"And there are things we can do now that weren't available before,"



John Deere & Company uses remote Ethernet bridges from ACC to connect individual LANs into a Wide-area Integrated Network.

Bridging the LANs so they act as a single network allows computers linked to networks that use different protocols to communicate on a peer-to-peer basis. This peer-to-peer communication increases

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he continues. "Manufacturing is now more likely to retrieve data from the IBM host instead of replicating it on microcomputers and workstations, and to store locally generated data on the mainframe." This has enhanced data sharing, security, backup, and recovery.

According to Foster, "The IBM TCP/IP connection is truly a revolutionary approach to mainframe communications. Until now, the only way a non-IBM intelligent device could communicate was to emulate an IBM 3270 terminal in order to stimulate interactive communication and file transfer. This required a separate development

effort for each application in each environment."

Outside the Domain of Big Blue

Giving non-IBM users access to the resources and capabilities of the IBM host was only half the battle. Deere also needed to enable hundreds of 3270 terminal users to send electronic mail, transfer files, and access database services outside of the Big Blue domain.

With elements like ACCES/MVS and the ACS 9315 already in place, the most cost-effective way to achieve this was through ACCES/VT, a software package that allows IBM 3270 terminals to look like DEC VT100s. "With ACCES/VT," says Foster, "a 3270 user has a wide

range of connectivity to workstations on the Ethernet network."

ACCES/VT provides full-screen ASCII terminal emulation and resides on the IBM host as a VTAM application. Any authorized user on an existing SNA network has ASCII terminal emulation; users can communicate with the Ethernet wide area network from their workstations via the SNA network.

Foster concludes, "It shouldn't matter what kind of workstation is on the front end, or what machine operates as the back end or data server. The idea behind WIN is to make the connections transparent so intelligent workstations of different classes can share the company's resources. □"