Switching to high speed in one small package

IBM 8273 Nways Ethernet RouteSwitch

Highlights

- ***Powerful, transparent switching at wire speed with automatic any-to-any translation***
- ***Internal IP and IPX routing***
- ***Comprehensive LAN-to-ATM internetworking***
- ***LAN Emulation, Multiprotocol Encapsulation over ATM and Classical IP over ATM***
- ***Shared Ethernet networking over shared LANs, FDDI, ATM and WAN networks***
- ***RMON***
- ***SNMP trap support***
- ***12 Ethernet ports for dedicated bandwidth; 2 slots for user-selectable, high-speed uplinks***
- ***Direct port access to high-speed servers and backbones***
- ***Three models — 100, 10E and 10U***
- ***Flexible midrange LAN switching***
- ***Access to ATM, FDDI or Fast Ethernet backbones***
- ***Low-cost, high-port density, high function***
- ***WAN connectivity through ATM and Frame-Relay modules***
- ***Extension of switching benefits to the desktop through the 8276 Nways Ethernet RoutePort***
- ***RouteSwitch Network Management with Advanced Routing and IP Filtering***



High throughput, low latency

Ideal for small workgroups, the IBM 8273 Nways™ Ethernet RouteSwitch uses advanced hardware architecture to provide high-speed switching between a fixed number of Ethernet ports and two uplinks for high-speed server and backbone access. It supports a very large numbers of hubs and segments throughout your network by connecting multiple 8273s together over FDDI, CDDI, 100BASE-TX, 100BASE-FX or ATM backbone links. It's easy to set up. As soon as it's connected to your network, the 8273 automatically learns the locations of over 1000 devices and starts passing traffic to your network. You can increase your capacity by 10 times, add a small hub or reconfigure a multisegment hub and connect each new segment to its own 8273 port. Throughput is high and latency is low.

More horsepower for your LAN

Bottlenecks are common in networks that use high-speed technologies. Often the problem is server access. The 8273 improves overall network performance by providing high-speed server access ports. These include CDDI, ATM (OC3c) and 100BASE-TX.

The switch automatically translates from Ethernet to any of these server access ports. The process couldn't be more simple: attach Ethernet hubs, segments or devices to 8273 ports, install a CDDI, 100BASE-TX or ATM card in your servers and attach each server to its own high-speed port on the 8273.

And you can connect to a high-speed backbone while still providing server access. With the exception of ATM and FDDI, you can mix and match high-speed ports, including CDDI or 100BASE-TX by using an additional high-speed slot. Or if you are putting your switch in a branch office, you can use ATM WAN (DS3 or E3) or Frame- Relay WAN over leased line to your headquarters.

You can connect directly to ATM in several ways: connect your 8273 to ATM using RFC 1483 (Multiprotocol Encapsulation of ATM) to provide point-to-point bridging across ATM. Or with the 8273's support for ATM LAN Emulation (LANE) Version 1.0, invest in ATM switches and attach your servers to an ATM switch.

The 8273 also offers redundant connections into your hub. You can connect two ports from the same hub into any two ports on the 8273. The switch will automatically keep one connection idle as a backup. If there's a wiring or port failure on the primary connection, the backup connection will automatically take over.

Integration: slick and simple

When using switched virtual LANs (VLANs), frames are switched within a VLAN and routed between VLANs. As an administrator you can arrange users into logical groups regardless of their physical location in a network. The 8273 provides the flexibility of policy-based VLANs.

Features	*Benefits*
Universal LAN connectivity	*The IBM 8273 Ethernet RouteSwitch provides powerful, inexpensive, transparent switching at wire speed with any-to-any translation including:* Ethernet-to-Ethernet Ethernet-to-FDDI Ethernet-to-CDDI Ethernet-to-ATM Fast Ethernet-to-ATM Ethernet-to-Fast Ethernet Fast Ethernet-to-FDDI Ethernet-to-WAN Frame Relay
High-speed hardware	Fast Ethernet (UTP or optical fiber) FDDI DAS CDDI 155-Mbps ATM (OC3) ATM WAN (DS3 or E3) Frame-Relay WAN
Low cost	Midrange switching with a low cost per port
8276 connection	Extends switching benefits to the concentrator

The 8273 automatically configures the switching mode of each port, based on what you connect to it. If it senses a dedicated device, it sets the port for dedicated connection. If it detects that a LAN is connected to the port, it uses 802.1d Spanning Tree Transparent Bridging Protocol. This means you have the following capabilities for your Ethernet workstations and FDDI, CDDI, Fast Ethernet and ATM servers:

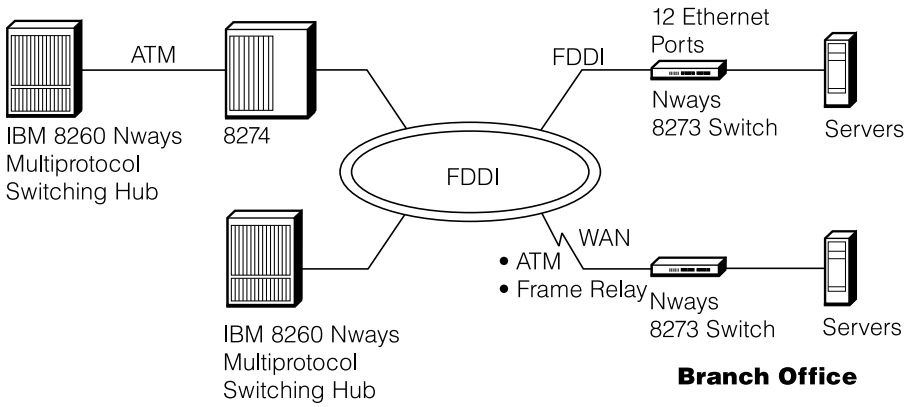
- Connect devices with a variety of MAC types. A single VLAN can include Ethernet workstations connected to ATM or CDDI servers.
- Any of your VLANs can span an entire building or campus. And members of the same VLAN can be connected to any number of 8273s across Fast Ethernet, FDDI, CDDI or ATM.
- The 8273 automatically establishes VLANs based on a set of policies you configure in the network management system. Policy-based configurations include the following policy types:
  - –Physical port
  - –MAC address
  - –Layer-3 address
  - –Protocol type

With these features you get the benefits of custom filters at wire speeds.

You can connect multiple VLANs to a single switch port and, likewise, a single device can belong to more than one VLAN. And when you move a user or server from one location to another, the 8273 network automatically tracks the change and reconfigures itself. Policy-based VLANS mean a rich toolset for connecting to LANE clients and ATM LANE servers. Policy-based VLANS offer more routes to ATM LANE.

IBM 8273 Nways Ethernet RouteSwitch at a glance

Models	100, 10E, 10U
LAN ports	• Model 100: 12 Ethernet 10BASE-T, plus 2 slots for uplink modules • Model 10E: 12 Ethernet 10BASE-T, plus 2 slots for uplink modules • Model 10U: 8 universal slots for any mix of Ethernet adapter boards, plus 2 slots for uplink modules
Other ports	1 serial port, EIA 232-C, 9-pin D connector, configured per IBM AT® serial port (DTE)
Memory	Model 100: 8-MB DRAM, 2-MB flash Model 10E: 16-MB DRAM, 4-MB flash Model 10U: 8-MB DRAM, 2-MB flash
Data rate	10 Mbps (fixed ports)
Standards compliance	• IEEE 802.1d, 802.2, 802.3, 802.5; ATM Forum UNI 3.0/3.1; additional standards including LAN Emulation, UBR and congestion control. • IP and IPX routing protocols.
Physical specifications	Width: 432 mm (17 in.) Depth: 330 mm (13 in.) Height: 51 mm (2 in.) Weight: 3.6 kg (8 lb)
Certifications	CSA 950; EC CISPR22, (Class A) EN50081-1 / EN55022, 1987 EN50082-1, 1992; EN50091-1 / EN55022, 1987 EN60950; FCC Part 15, Subpart B (CLASS A) IEC 801-4, 1988; UL 1950 VCCI V-3/93.01; ISO 9000
Warranty	1 year
Related publications	*IBM 8273 Nways RouteSwitch User's Guide*, GA27-4166 *IBM Nways RouteSwitch User's Release Note*, GC30-3874 *IBM 8276 Nways Ethernet RoutePort* specification sheet, G224-4449



Desktop switching

The 8273, when used with the IBM 8276 RoutePort concentrator, extends the benefits of switching, LAN segmentation, VLANs, routing and increased bandwidth to the user's desktop. For more information on this price-performance improvement, refer to publication G224-4449.

Powerful management

IBM's Nways RouteSwitch Network Manager

IBM's Nways RouteSwitch Network Manager provides what you need in a network management package. Replace guesswork or calculations with real-time, graphical representations of network performance, alarms and configurations. Complete network configuration, monitoring and diagnostic information are simple regardless of the mix of different vendor equipment that makes up your network. You can integrate the RouteSwitch Manager with a variety of network platforms including HP OpenView for Windows®, HP OpenView for UNIX®, SunSoft SunNet Manager and, of course, IBM's NetView® for AIX®.

RouteSwitch Manager is now available with increased power in the form of advanced routing functions and integrated security features. The Advanced Routing software includes OSPF and RIP-II and provides extended routing protocol capabilities.

IBM Nways RouteTracker Manager
A powerful, graphical application, RouteTracker provides the flexibility of policy-based VLANs with the security and isolation of port VLANs using RouteTracker grouping capability. A separate Spanning Tree is maintained for each auto-tracked group. You can establish RouteTracker groups across an FDDI backbone. This is especially useful because the 8273 can send information directly to FDDI-attached devices in native form, on the same physical interface that is carrying trunking streams between 8273s. You can view the relationship between groups, VLANs and devices across the entire network. Drag-and-drop features with smart wizards make VLAN setup and maintenance easy.

RouteTracker policy-based VLANS, internal IP and IPX routing, graphical network management on a broad set of standard management platforms, RMON, port mirroring, SNMP trap support —it's all yours!

And the 8273 supports ASCII (DEC VT100) console management, software and configuration downloads over the network, a powerful protocol toolkit (FTP, SLIP, Telnet, Zmodem), port mirroring and RMON.

Technical details
The IBM 8273 Model 100 and Model 10E are equipped with 12 Ethernet ports that provide dedicated bandwidth to segments and directly attached stations. Additionally, you can configure each model with the following uplink options:

To servers:
- 100BASE-TX
- CDDI
- ATM OC3

To backbones:
- 100BASE-FX
- FDDI
- ATM OC3

To WANs:
- Frame Relay
- ATM DS3 or E3

High-speed, content-addressable memory (CAM) stores over 1000 station addresses, so that a single 8273 can support a network with a large number of individual devices and heavily loaded segments.

Model 10U is more flexible, with eight front-panel slots that accept any of the adapter boards listed in the 8273 Model 10U adapter boards table.

Model 10U also includes two slots for the same high-speed uplink options available with Models 100 and 10E.

Models 100 and 10E are similar in all ways except for the on-board memory. Model 100 features 8-MB DRAM and 2-MB flash; Model 10E features 16-MB DRAM and 4-MB flash.

When you order the 8273, specify which uplink modules you want installed (see the 8273 uplink modules table).

Connecting the IBM 8276 Nways RoutePort
The 8273 connects to the 8276 using either copper or fiber ports.

For more information
To find out more about the IBM 8273 Nways Ethernet RouteSwitch and other high-performance IBM communications and networking products, contact your IBM representative or call IBM Direct at 1 800 IBM-CALL (1 800 426-2255). You can also access the IBM Networking Home Page at http://www.networking.ibm.com.

Copies of this and other related product specification sheets can be obtained from the IBM FAX Information Service by dialing 1 800 IBM-4FAX (1 800 426-4329) in the U.S. or Canada or by dialing 415 855-4329 outside the U.S. and Canada and requesting document number 6198.

8273 uplink modules

Type Feature Number	Cable	Connector	Number of ports
100BASE-TX FDX/HDX			
F/N 7120 (RESM-100C)	UTP	RJ-45	1
100BASE-FX			
F/N 7121 (RESM-100FM)	Multimode fiber	SC	1
F/N 7122 (RESM-100FS)	Single-mode fiber	SC	1
100BASE-TX HDX			
F/N 7123 (RASM-100C)	UTP	RJ-45	4
ATM 155-Mbps (OC3c)			
F/N 7125 (2M SRAM)	Single-mode fiber	SC	1
F/N 7126 (500K SRAM)	Single-mode fiber	SC	1
F/N 7127 (2M SRAM)	Multimode fiber	SC	1
F/N 7128 (500K SRAM)	Multimode fiber	SC	1
ATM WAN			
F/N 7124 (DS3)	RG-59 Coax	BNC	1
F/N 8721 (E3)	RG-59 Coax	BNC	1
CDDI			
F/N 7129 (RFSM-C)	UTP	RJ-45	4
FDDI			
F/N 7130 (RFSM-S)	Single-mode fiber	SC	1
F/N 7131 (RFSM-M)	Multimode fiber	MIC	1
Frame Relay (model 10E only)			
F/N 0596 (RWSM-S)	DTE and DCE types	HD-26	2
F/N 0597 (RWSM-SC)	DTE and DCE types	HD-26	4

8273 Model 10U adapter boards

Ethernet type Feature Number	Cable	Connector	Number of port slots required
10BASE-FL			
F/N 7118	Multimode fiber	ST	1
10BASE-FL			
F/N 7117	Single-mode fiber	ST	1
10BASE2			
F/N 7115	Thin coax	BNC	1
10BASE-T			
F/N 7116	UTP	RJ-45	1
10BASE5 FDX			
F/N 7114	Thick coax	AUI	2
10BASE5 and 10BASE-T			
F/N 7119	Thick coax and UTP	AUI and RJ-45	2

Notes: 1. Each adapter board supports IEEE 802.3 and base protocol standards.

2. Maximum frame size for all adapter ports is 1518 bytes.



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