

Meet today's needs and be prepared for tomorrow



IBM 8271 Nways Ethernet LAN Switches Models E12/24 and F12/24

- **Standards-compliant end-to-end policy and Quality of Service for optimum performance**
- **12- and 24-port models for either 10BASE-T or 10/100BASE-T half- or full-duplex operation**
- **Auto-sensing 10/100BASE-T ports on Models F12 and F24**
- **Mix-and-match models in a stack of up to four units for flexible configuration**
- **100BASE-T and 100BASE-FX uplinks available for all models today**
- **Gigabit Ethernet and ATM uplinks available soon**



Model E12



Model F24

The new IBM 8271 Nways® Ethernet LAN Switch Models E12, E24, F12 and F24 are the latest evolution of IBM's powerful family of Ethernet LAN switches. They combine the most advanced Ethernet technologies with ATM to provide solutions for any LAN networking environment, offering scalability, performance and manageability at an affordable price.

Models E12 and E24 are 12- and 24-port Ethernet Switches with two 10BASE-T/100BASE-TX Fast Ethernet ports plus one optional port in the back of the unit. This optional uplink port can be used for the matrix stacking module, 100BASE-FX uplinks to Gigabit Ethernet or ATM.

Models F12 and F24 are 12- and 24-port dual speed, auto-sensing 10BASE-T/100BASE-TX Fast Ethernet switches containing one optional port in the back of the unit. This optional port can be used for the matrix stacking module, 100BASE-FX uplinks to Gigabit Ethernet or ATM.

Positioning and Benefits

The IBM 8271 Nways Ethernet LAN Switch Models E12 and E24 offer 10-Mbps Ethernet connectivity to workgroup solutions requiring high functionality. The 8271 E Series delivers benefits to businesses growing to switched Ethernet networks through the addition of a number of new features, including high-performance stackable architecture, advanced traffic handling capabilities, management (Web-based, RMON and SNMP) and support for a range of backbone technologies.

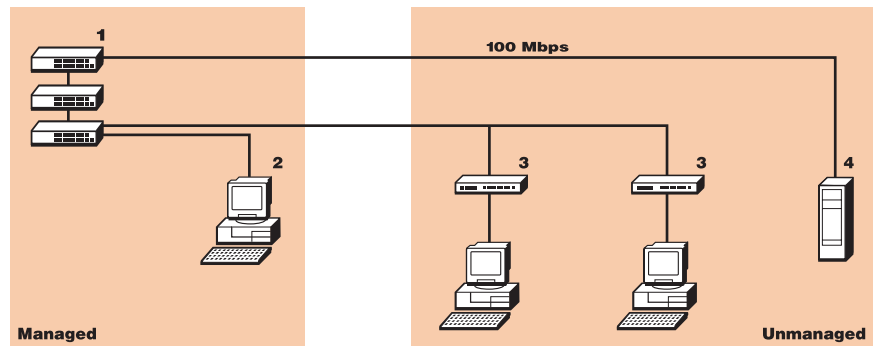
The 8271 Models E12 and E24 are recommended for switched Ethernet solutions aggregating Ethernet hubs, thereby protecting customer investment. The 8271 is also recommended as a stackable solution to the desktop, where budget constraints preclude the purchase of a 10/100 switch.

The 8271 E Series offers two 10/100 uplinks standard to either backbone or server connectivity.

Problem: Need for additional bandwidth and functionality in the network migrating from shared Ethernet to switched

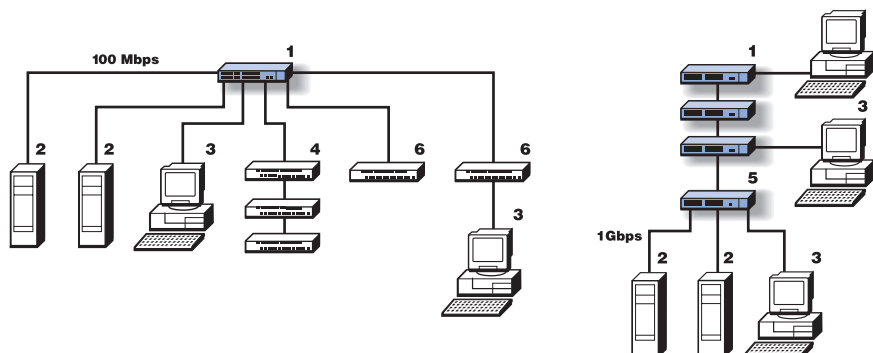
Environment: Shared networks requiring additional bandwidth to the server and desktop (segmentation), requiring high functionality such as stackability, Quality of Service (QoS), VLAN support and manageability for the existing network. The existing network is growing with the addition of new users.

- 1. 8237 Ethernet Hub managed stack
- 2. End user workstation
- 3. 8242 Ethernet Desktop Hub Model 003
- 4. Server



Solution: Segment or replace the 10-Mbps hub in the existing LAN with the 8271 E Series products, where 10-Mbps connectivity to the desktop or aggregate connectivity is sufficient network improvement. Stacking the 8271 product family is a strong solution for bringing Ethernet switching improvement to the network by providing a 1-Gbps backbone. Adding the 8271 E Series products provides VLAN support, Quality of Service (QoS), stackability, a roving analysis port and increased management capabilities, as well as increased network performance. Connecting servers to the high-speed uplinks provides increased network performance.

- 1. 8271 Nways Ethernet LAN Switch Model E24
- 2. Server
- 3. End user
- 4. 8237 Ethernet Stackable Hub
- 5. 8271 Nways Ethernet LAN Switch Model F24
- 6. 10-Mbps unmanaged Ethernet hub



Benefits

- 10-Mbps switching solutions with high functionality and manageability
- VLAN and QoS support
- High speed uplink capabilities are standard
- SNMP and Web-based management
- Flexibility through stackability options
- RMON support (seven groups)
- Support for a range of backbone technologies such as ATM, fiber and Gigabit Ethernet

The IBM 8271 Nways Ethernet LAN Switch Models F12 and F24 offer high performance, high functionality and scalable 10/100-Mbps connectivity solutions for Ethernet switching. Customers requiring 10/100-Mbps aggregation of 10-Mbps switches (with 10/100 uplinks) find that the 8271 stackable family is flexible and allows for easy migration while also providing uplink capability to the backbone or server. For networks requiring 100 Mbps to the desktop for power users, the 8271 family provides those connections, also. The 8271 F Series is utilized best as a workgroup solution providing flexibility and high functionality through stackability, advanced traffic handling, high manageability and support for a range of backbone technologies.

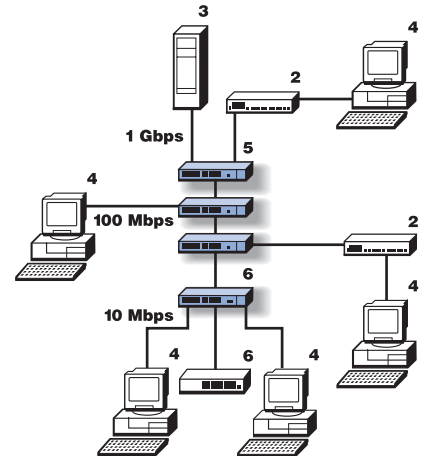
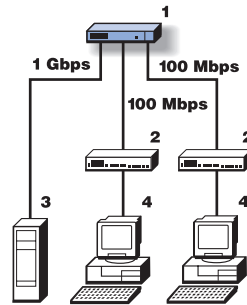
Problem: Need for additional bandwidth and functionality in the network while providing aggregation capability for existing infrastructure; migration to additional bandwidth and performance

Environment: Shared and switched Ethernet networks experiencing congestion as well as adding new users and needing higher performance for power users and servers. Requirements also include advanced traffic handling capabilities and advanced management.

1. 10-Mbps managed Ethernet switch
2. 10-Mbps managed Ethernet hub
3. Server
4. End user



1. 8271 Nways Ethernet LAN Switch Model F12
2. 8275 Ethernet Desktop Switch Model 1B3
3. Server
4. End user
5. 8271 Nways Ethernet LAN Switch Model F24
6. 8271 Nways Ethernet LAN Switch Model E24
7. 8222 Ethernet Workgroup Hub



Solution: Using the 8271 Model F24 to aggregate 10-Mbps switches provides high-speed uplink capabilities and 10/100 connectivity to the desktop for power users. The 8271's stackable capability provides flexibility to network configuration, and advanced management capabilities and traffic handling functions increase the network performance.

Benefits

- 10/100 stackable solutions for Ethernet workgroups
- High functionality and manageability
- 10/100 aggregation connectivity for 10-Mbps switching
- Support for a range of backbone technologies such as ATM, fiber and gigabit Ethernet
- Flexible configurations
- VLAN and QoS support

Product Overview

Since IBM introduced the first 8271s over 4 years ago, more and more customers have moved from shared Ethernet segments starved for bandwidth to switched, full-duplex Ethernet that makes up to 20 Mbps of bandwidth available to the desktop. With the announcement of these new models of the 8271, we are going a step further. In addition to models that provide full-duplex, standards-compliant, switched 10BASE-T, our new F12 and F24 models provide auto-sensing 10/100BASE-T ports to meet the aggregate bandwidth demands of power users and servers. These latest models of the 8271 have been designed to make fast transitions to higher speed technologies as new applications demand additional network bandwidth.

All the new models can be assembled together in a stack of up to four units. You can provide switched 10BASE-T to desktops through the Models E12 and E24 and 10- or 100BASE-T for servers and power users through Models F12 and F24 all in the same stack. So you pay only for the bandwidth you need. All models can provide switched 100BASE-T or 100BASE-FX single- or dual-port uplinks for attachment to the campus backbone. Dual-port modules provide both trunking and redundancy. In the near future, uplinks will be available for Gigabit Ethernet and 155- and 622-Mbps ATM. All uplinks are provided through the Expansion and Switch Matrix Module Slot.

You can link 8271 units together into a stack, either by connecting the matrix ports of two units or by connecting the matrix port of one to three units to another unit that has a matrix module installed in its Expansion and Switch Matrix Module Slot. Each stack can have multiple uplink modules installed to provide more bandwidth to the backbone. The uplink modules are also installed in the Expansion and Switch Matrix Module Slot located on the back of the machine.

Management from all the right perspectives

8271s have been designed with management built-in from the conception of the design. After all, your network is critical to your organization, so network components that warn you of impending trouble help you to avoid failures and provide the most reliable possible service to your network users.

All models of the 8271 allow you to organize users, printers, servers and other resources into logical broadcast domains called virtual local area networks (VLANs). The 8271 supports up to 16 VLANs to help control traffic on your network. VLANs restrict communication to members of the same VLAN. 8271 VLANs have been implemented strictly according to IEEE 802.1 and 802.1Q to ensure compatibility with other Ethernet devices implementing VLANs.

8271s also support SNMP management and groups 1 through 6 and 9 of RMON simultaneous instrumentation on every port to monitor, analyze and minimize network traffic. This enables you to manage your network from any SNMP—or RMON-based manager, including IBM LAN Network Manager. In addition, integrated Web-based management lets you manage your switches with any Web browser connected directly to a switch or over the network. 8271s let you manage the network virtually any way you want to look at it.

Investing in the future of your network

The 8271 allows you to meet the bandwidth demands of your existing applications and make sure that future demands don't force you into major infrastructure changes in your networking environment. All models of the 8271 support multiple 100BASE-T uplinks to a campus or enterprise backbone to meet the bandwidth demands of most installed applications.

But the applications of the future are going to be increasingly bandwidth-intensive and demand real-time interactive voice and video throughout the network. Therefore, by the end of 1998, Gigabit Ethernet and 155- and 622-Mbps ATM Expansion Modules will be available for all models of the 8271. This powerful combination of bandwidth choices will allow you to provide maximum bandwidth to power users and servers and less, though adequate, bandwidth to users whose applications are not particularly bandwidth-intensive. Rather than ripping out large parts of your existing infrastructure, with the 8271s you can evolve to higher bandwidth solutions when and where you need them with minimal disruption and expense.

Real-time multimedia networking and Ethernet simplicity

The new 8271s are among the first generation of Ethernet devices that can deliver real-time multimedia applications such as news services and videocasting while retaining the simplicity and reliability of Ethernet. The 8271s implement such advanced features as end-to-end global policy, network control and pervasive management to ensure smooth delivery of multimedia applications. Global policy is executed with a combination of Ethernet standard Quality of Service (IEEE 802.1p), IP Multicast and software application features for prioritization using transparent, non-proprietary multicast control. The 8271 implements Ethernet standards-based Quality of Service using eight levels of priority. In addition, the dual-queues function

automatically enables a second port buffer to allow higher priority traffic to bypass lower priority traffic for faster forwarding within the switches.

The 8271 provides the latest standards-Management from all the right perspectives.

Big-box features in a small package

8271s have been designed to meet the stringent requirements of organizations that rely on their networks to run their businesses. 8271s provide the following features to help ensure that you get the maximum value from your network.

- Auto-ranging power supplies to eliminate the need for multiple models for different countries.
- Redundant and resilient links to ensure availability of critical resources.
- Congestion control to help eliminate lost packets and reduces delay in the switch.
- Uplink fiber trunking for 100BASE-FX to help eliminate bottlenecks and delivers bandwidth where you need it.

8271 Ethernet LAN Switch Models E12/24 and F12/24 Specifications

Models	E12, E24, F12, F24
Total ports	<ul style="list-style-type: none"> • Model E12: 12 full-duplex, switched 10BASE-T • Model F12: 12 full-duplex, switched, auto-sensing 10/100BASE-T • Model E24: 24 full-duplex, switched 10BASE-T • Model F24: 24 full-duplex, switched, auto-sensing 10/100BASE-T • All Models: MDI and MDIX port for cascading; slot for uplink modules or matrix module
Physical Specifications	<p><i>All Models</i></p> <p>Height: 76 mm (3 in.)</p> <p>Width: 483 mm (19 in.)</p> <p>Depth: 305 mm (12 in.)</p> <p>Weight: 4.4 kg (9.7 lb)</p>
Power	<p><i>All Models</i></p> <p>The internal power supply supports standard voltages throughout the world. The nominal input voltage and frequency ranges are 90 to 240 V ac and 50 to 60 Hz, respectively. All models require 3A maximum. An advanced Redundant Power System (RPS) can be attached to the RPS socket to protect against failure of the internal power supply.</p>
Operating environment	<p>Temperature: 0° to 50° C (32° to 122° F)</p> <p>Relative humidity: 10 to 95% non-condensing</p> <p>Maximum wet-bulb temperature: 27° C (84° F)</p>
Noise level	56 dB
Operating clearances	<ul style="list-style-type: none"> • Front: Adequate space for viewing LEDs and attaching cables • Sides: 50.8 mm (2 in.) • Rear: Adequate space for installing Expansion Modules and attaching cables

Standards*Ethernet*

IEEE 802.3 Ethernet
 IEEE 802.3u Fast Ethernet
 IEEE 802.1P Multicast filtering (Release 1)
 IEEE 802.1Q VLAN tagging (Release 2)
 IEEE 802.3x Flow control on full-duplex links
 IEEE 802.1D Bridging (spanning tree)

Management

RFC 1157 SNMP Protocol
 RFC 1212 MIB II
 RFC 1493 Bridge MIB
 RFC 1516 Repeater MIB
 RFC 1573 VLAN MIB
 RFC 1271 RMON MIB
 RFC 951 BOOTP

Terminal Emulation

RFC 854 Telnet

Administration

RFC 768 UDP
 RFC 791 IP
 RFC 792 ICMP
 RFC 792 TCP
 RFC 826 ARP
 RFC 783 TFTP

Safety Certifications

UL 1950 second edition
 EN60950: 1992/A3: 1995 plus ZB/ZC Deviations
 CSA 22.2 No. 950
 TUV GS Mark applied for

- Electromagnetic Compliance (Emissions)
 - EN55022 Class B as a standalone product (Category 5 ScTP only)
 - EN55022 Class A as a standalone product (UTP cables)
 - EN55022 Class A as a stack (Category 5 ScTP only)
 - FCC Part 15 Class A as a stack, using shielded cables
 - ICES-003
 - VCCI Class B
 - JEIDA
 - AS/NZS 3548 Class B
 - CSA C108.8-M1983
 - EN 50082-1 (IEC801 parts 2-4)
 - EN 61000-3. -2
 - EN 61000-4. -4
 - ENV50140
 - ENV50141
- Environmental
 - EN60068 (IEC68)

Cabling supported

- For 10BASE-T operation: Category 3, 4 or 5 UTP or ScTP cable as specified in TIA/EIA/ANSI 568A or ISO IEC 11801.
- For 100BASE-T operation: Category 5 UTP or ScTP as specified in TIA/EIA/ANSI 568A or ISO IEC 11801.
- For operation on optical fiber: 62.5/125 multimode optical fiber cabling as specified in TIA/EIA/ANSI 568A or ISO IEC 11801.

Installation

Either tabletop or rack-mounted

Supplementary Information

The following sales tools are available for the IBM 8271:

- Specification sheet:
IBM 8271 Nways Ethernet LAN Switches Models E 12/24 and F 12/24, G224-4568
- Information on the IBM 8271 is available at:
www.raleigh.ibm.com/netprod.html
www.raleigh.ibm.com/821/821prod.html
www.networking.ibm.com/support/8271