

*Fully configurable Token-Ring LAN switch at a competitive price*



## IBM 8270 Nways LAN Switch Family

- **High-speed Token-Ring switch solution**
- **Flexible enough to meet your exact needs**
- **Layer 3 switching**
- **Multiprotocol support**
- **Full-duplex (bi-directional) communication**
- **ATM uplinks**
- **Three new MSS Universal Feature Cards**
- **Year 2000 ready**



*IBM 8270 Nways Token-Ring Switch  
Model 600*



*IBM 8270 Nways Token-Ring Switch  
Model 800*

A new member has been added to the IBM 8270 Nways® LAN Switch family of Token-Ring LAN switches. The Model 600 joins the Model 800, providing a smaller entry configuration (six slots). Both models allow flexible configuration with rich functionality provided by the common set of Universal Feature Cards (UFCs) they share. Similar to the Model 800, a typical network would benefit from the Model 600 by having each of its high-volume servers on dedicated full-duplex segments and have client workstations on shared segments using standard Token-Ring concentrators, such as the IBM 8239 StackableToken-Ring Hub.

# Product Overview

## New features

Two new UFCs extend MSS forwarding and routing services to the 8270 Nways LAN Switch Family. Both the MSS Client and MSS Domain Client Universal Feature Cards (UFCs) provide forwarding and routing services. The MSS Client also has an integrated ATM port and provides ATM-to-LAN port bridging. These client-function products complete the MSS client/server family and allow the MSS Server products to perform their job in the network at maximum efficiency. Along with virtual LAN (VLAN) support by protocol, OSI Layer 2 and 3 forwarding of IP, IPX, AppleTalk and Banyan VINES protocols are provided.

## Cost-effective Token-Ring switching

The IBM 8270 Nways Token-Ring LAN Switch provides a cost-effective solution to Token-Ring LAN performance requirements. With a minimum of disruption to existing networks, you can significantly address LAN performance.

## A powerful LAN switch

With the 8270 you can build large switched networks with high-speed uplinks. A redundant power supply is available to help ensure continuous operation.

You can configure the versatile, modular 8270 LAN switch to:

- Add from 4 to 30 ports to your network configuration, more ports per switch than any other model.
- Install uplink UFCs to connect native protocols to high-speed links like high-speed Token Ring, ATM or the IBM 8260 Nways Multiprotocol Switching Hub.

Available UFCs include:

- 4-Port Token-Ring Enhanced UTP/STP
- 2-Port Token-Ring Enhanced Fiber
- 1-Port ATM Token-Ring II MMF
- MMS Client MMF
- MSS Client SMF
- MSS Domain Client

## Chassis-based for flexibility

Universal Feature Card slots allow you to build a wide variety of switched network configurations using the broad set of optional feature cards that are shared between both models. This set of features provides copper and fiber Token-Ring ports, high-speed uplinks and Multiprotocol Switched Services (MSS) Client support. This expands the capabilities of the 8270 with a sophisticated set of VLAN, filtering and Layer 3 switching functions. Unrestricted by a fixed-port configuration, the UFCs can be used in each of the slots of the IBM 8270 to construct a wide variety of switched networks.

## High-speed forwarding

When configured with the appropriate number of Token-Ring Universal Feature Cards, the 8270 provides high-speed forwarding of Token-Ring frames up to 30 shared or dedicated Token-Ring LAN segments. Similar in function to a multiport bridge, the 8270 forwards Token-Ring frames from one of the 30 ports to another, based on Token-Ring MAC addresses. The 8270 creates multiple, parallel paths among the connected Token-Ring LAN segments and devices. Since each of these parallel paths supports the full 16-Mbps Token-Ring bandwidth, total bandwidth of Token-Ring networks segmented using the IBM 8270 could be expanded by several hundred percent.

## High-speed Token-Ring Switching Solution

Growth in the number of networked workstations and the increase power of those workstations, allowing them to use the growing number of data-intensive applications such as multimedia applications, continue to place larger demands on Token-Ring networks. LAN segmentation has been a popular method for addressing these demands. In addition, LAN segmentation has increased due to trends toward server centralization. However, the implementation costs of LAN segmentation, as well as the real performance characteristics of using conventional network components, have served to limit growth of some Token-Ring networks. Other alternatives for addressing bandwidth demands present yet other inhibitors, usually relating to costs. Token-Ring switching provides users with an easy, cost-effective technique for addressing these demands.

## TokenPipe support

Two or more 8270s can be connected port-to-port, which effectively increases the number of Token-Ring LAN segments to be switched. These interconnected 8270s form a single "logical switch" called TokenPipe support. This allows two 8270s to communicate by connecting together up to four full-duplex Token-Ring ports on one 8270 to those on the other. With multilink TokenPipes, traffic is automatically distributed across the links within a TokenPipe using destination address so that traffic load can be more evenly balanced across each of the parallel links between switches. TokenPipe support provides customers with the ability to grow and tune the bandwidth required between their 8270s and thus within the LAN.

### **Investment Protection — Asset Protection**

The 8270 provides a cost-effective alternative solution to address your Token-Ring LAN performance requirements. With a minimum disruption to existing networks, and only minimal additional investment in network infrastructure components, you can go a long way in addressing current LAN performance requirements.

### **Supports full-duplex communication**

The 8270 supports full-duplex communication with LAN stations equipped with full-duplex Token-Ring adapters. Full-duplex Token-Ring connections can provide up to twice the bandwidth (up to 32 Mbps) of standard half-duplex connections. A typical bandwidth would benefit using the IBM 8270 by placing each of its high-volume servers on workstations on shared segments and placing client workstations on shared segments using standard Token-Ring concentrators, such as the IBM 8239 Token-Ring Stackable Hub.

### **Source-routing switch**

To support high-performance switching in source-route Token-Ring networks, IBM has developed a new technology called “source-route switching”. This technology is optimized to take advantage of the inherent benefits of source routing without forcing the user to manually configure “ring and bridge” numbers for each port on the Token-Ring switch. The 8270 functions similarly to a multiport bridge, forwarding frames among its ports. One key advantage of being a source-routing switch is that all ports appear to be on the same logical ring. This switch does not require any ring and bridge number; therefore, the

8270 substantially reduces the configuration burden on the network administrator, for both initial setup as well to support ongoing network changes. IBM has taken a leadership role within the IEEE in defining and developing standards for source-route switching technology.

### **Spanning tree support**

The 8270 supports the transparent Spanning Tree implementation that is fully compliant with the IEEE 802.1d, allowing the 8270 to effectively participate in complex configurations. It also provides the capability of having several IBM 8270s interconnected with redundant paths without having to administer source-route bridging and ring numbers. When more than one of the ports are connected to the same physical Token-Ring segment, the Spanning Tree support in the 8270 will configure only one of the ports in forwarding mode; the rest of the ports will be in blocking mode.

### **Source-route bridging**

With the source-route bridging function, an 8270 can transport frames between Token-Ring LAN segments with different ring numbers. The Token-Ring LAN ports of a Token-Ring switch can be divided into non-overlapping groups called virtual switches. The physical Token-Ring LAN segments within a single domain all have the same ring number. Ordinarily, no traffic is switched between virtual switch domains. However, when the source route bridging function is enabled, Token-Ring traffic can be transported among any of the domains within a switch. This function is comparable to an internal, multiport source-route bridge where each domain is connected to the internal bridge via a logical bridge port.

### **Auto-sense/auto-configure**

With the 8270s adaptive cut-through capabilities, it can be self-healing and self-optimizing when media quality problems arise, affecting overall network reliability and performance. Additionally, for each of its Token-Ring ports, the 8270 will automatically sense what type of Token-Ring connection is being employed on each of its ports, whether there are connections:

- To a shared media segment via a Token-Ring concentrator
- To a dedicated media segment, directly to a Token-Ring LAN station
- Operating in half-duplex or full-duplex mode
- Operating at 4 Mbps or at 16 Mbps
- Another IBM 8270, 8272 or 8270 Module in an IBM 8260

The auto-sense/auto-configure capability minimizes the network administrative burden associated with both initial installation and ongoing network changes and helps assure that you can easily get optimum use of your network without always having to manage the large number of configuration variables.

### **Installation and usability**

The 8270 processor card has three LEDs on its faceplate that indicate the operational status of the switch as well as a serial port that can be used for status display and operational control. Additionally, a four-character display is provided on the Token-Ring processor card faceplate that visually provides more detailed information about the operational status of the switch. The 8270 shipping carton has been specifically designed for hot-staging in the carton to allow the switch to be configured and tested under power in a staging location before shipment to a final destination for installation.

**Added capacity and flexibility**

With the 8270 you get added capacity and flexibility at a low cost per port.

The LAN shown in Figure 1 has provided excellent service in this data environment. But growth and new graphics applications are causing performance problems on this traditional, shared-media, 16-Mbps LAN.

Combining switching, full-duplex-attached servers and micro-segmented, shared-media LANs (Figure 2) gives the following advantages:

- No change to installed adapters
- No change to house wiring
- No change to application software
- Fewer users per segment
- More bandwidth per user
- Reduction in the number of bridges
- Reduced complexity
- Reduced cost

**8270 Nways LAN Switch Family**

Backbones remain overburdened by demands of e-mail, busy servers and Internet traffic (see Figure 3).

The 8270 can act as a powerful workgroup switch or replace the entire backbone with a single switch (see Figure 4). Use TokenPipes to double or quadruple the bandwidth if you need it. TokenPipe allows you to connect up to four parallel, 32-Mbps paths between any two Token-Ring switches, providing as much capacity between switches as you need. This solution means:

- No change to application software
- Elimination or reduction of bridges
- Elimination of all routers except those on the periphery
- Scalable bandwidth between switches using TokenPipes
- Simplified network management

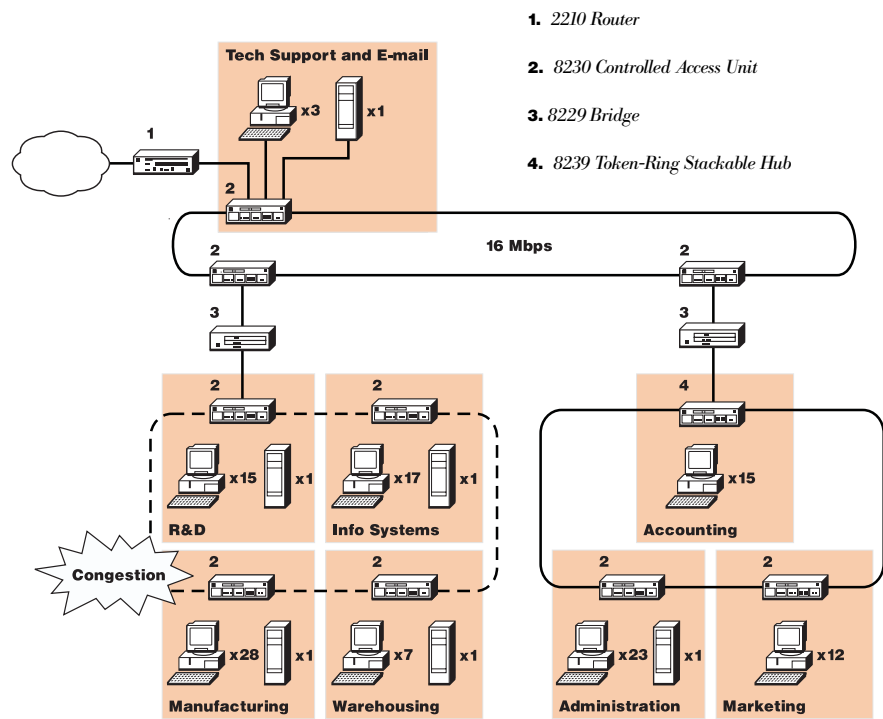


Figure 1. A typical Token-Ring LAN experiencing congestion

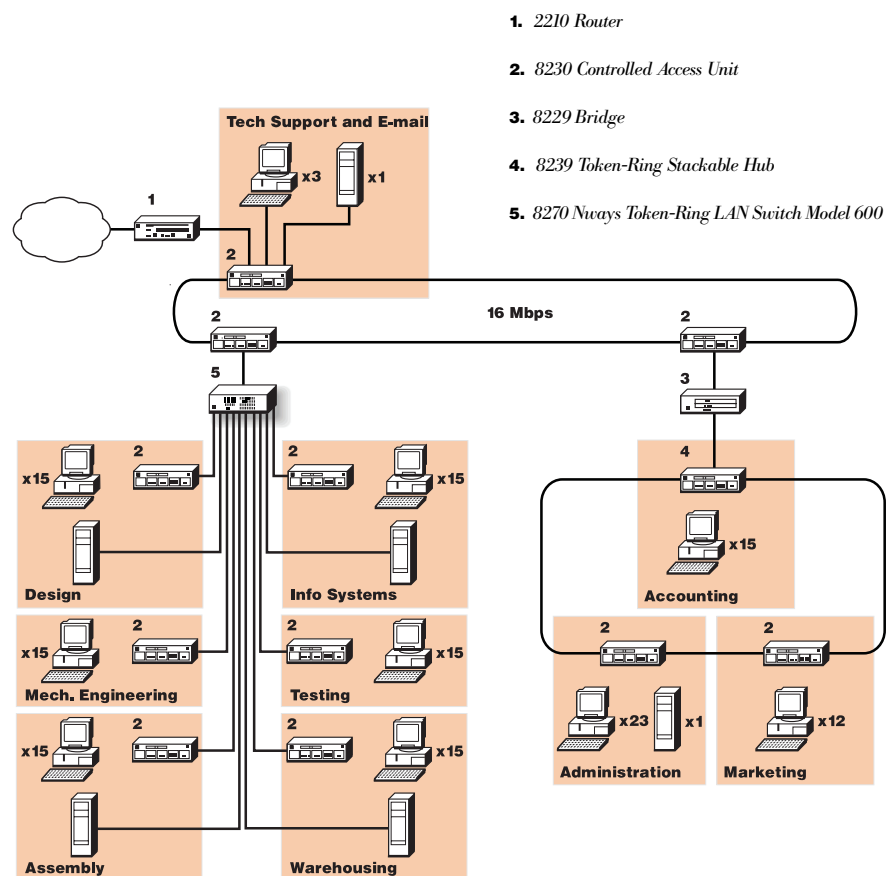


Figure 2. A Token-Ring switch relieving that congestion

## Network and device management

A full console interface, accessible using either a Telnet interface or the serial port (VT-100 or VT-100 emulator) on the front panel, can be used to configure and monitor the IBM 8270. Alternatively, the IBM 8270 contains a management agent that allows you to monitor and control its operation from SNMP applications. IBM's suite of network management applications, such as the IBM Nways Workgroup Manager for Windows NT® and the IBM Nways Manager for AIX®, allow you to manage your IBM 8270 using a rich set of graphical interfaces from a central location.

Further, when and if new functions or problem fixes become available, the IBM 8270 can be easily upgraded with new operational code. These software updates will be made available via the World Wide Web, allowing you to conveniently upgrade the operation of your IBM 8270.

With the IBM 8270's TokenProbe support, you can designate one of the Token-Ring ports to mirror the traffic on another Token-Ring port. This allows you to tune or troubleshoot any of the Token-Ring ports on your switch using an external protocol analyzer. The IBM 8270 SNMP agent also includes remote monitoring (RMON) support that allows you to monitor network conditions on all LAN segments attached to your 8270 simultaneously and to report this information to an RMON application using industry-standard protocols.

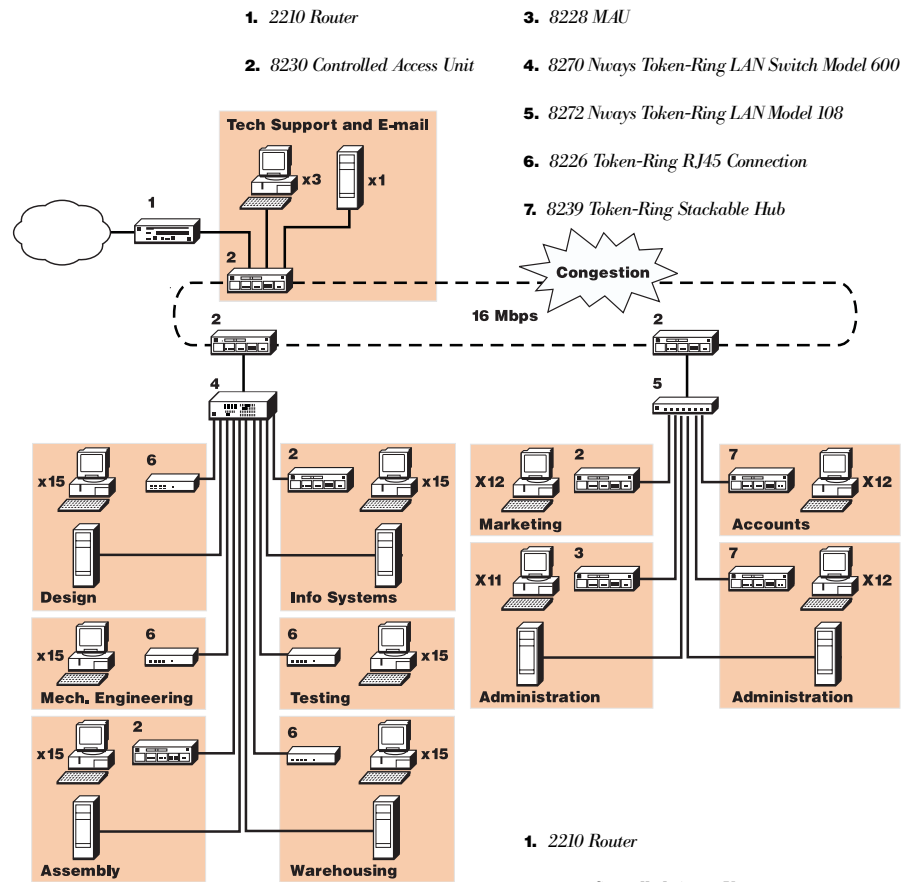


Figure 3. Backbone congestion

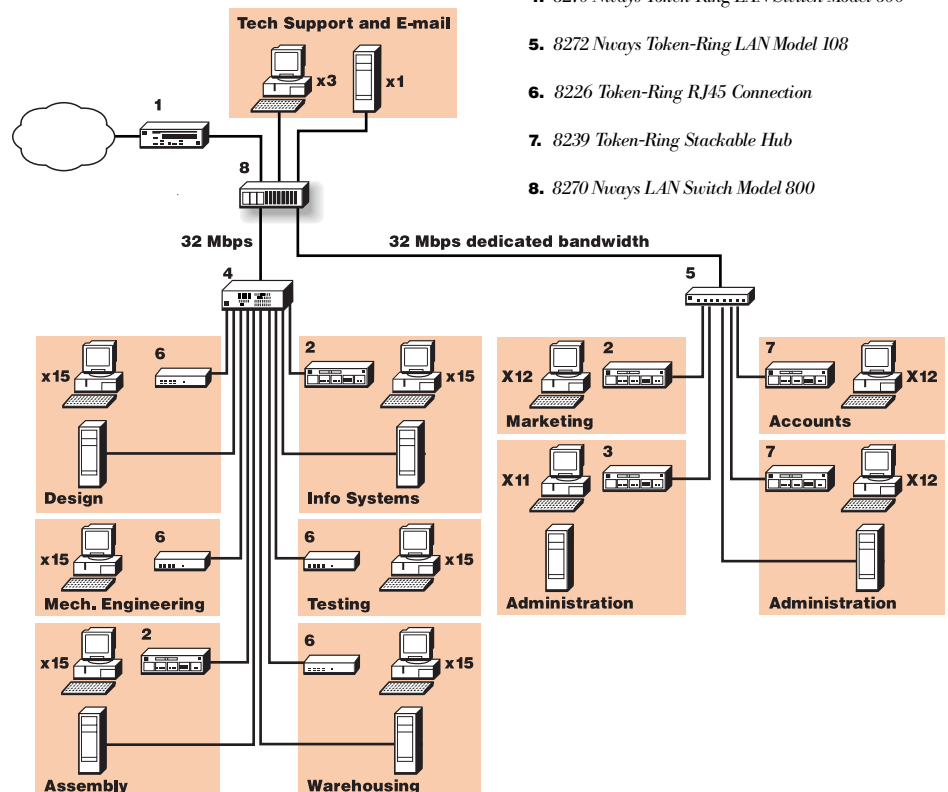


Figure 4. The 8270 Model 800 relieves backbone congestion



### What you get

A minimum IBM 8270 Model 600 configuration consists of an IBM 8270 Model 600 and at least one Token-Ring Universal Feature Card, each ordered separately. When you order an IBM 8270 Model 600, you get:

- IBM 8270 Model 600 switch (which includes an 8270-600 processor and power supply)
- Rack mounting brackets
- Cable management bracket
- Installation Guide and Service Information Card
- Safety Manual
- Publications CD-ROM (which includes softcopy of the IBM 8270 Planning, Configuration, and Operation Guide)
- Power cord (U.S. and Canada only)

A minimum IBM 8270 Model 800 configuration consists of the following components, each of which must be ordered separately:

- An IBM 8270 Model 800 Chassis kit
- An IBM 8270 Model 800 Processor Card
- At least one Token-Ring Universal Feature Card

When you order an IBM 8270 Model 800 Chassis kit, you get:

- IBM 8270 Model 800 chassis (including an 8270-800 power supply)
- Rack mounting brackets
- Cable management bracket
- Installation Guide and Service Information Card
- Safety Manual
- Power cord

When you order an IBM 8270 Model 800 Processor Card, you get:

- An IBM 8270 Model 800 Processor Card
- Publications CD-ROM (which includes softcopy of the *IBM 8270 Planning, Configuration, and Operation Guide*)

For 8270 Model 800 configurations, you can also order an optional redundant power supply.

Cables for each of the ports on the 8270 are required but are not included with the switch. When operating as a Token-Ring switch the 8270 uses the following types of cabling:

- Category 3, 4 or 5, 100-ohm, UTP cables with RJ-45 connectors wired to support Token Ring
- 150-ohm, STP cables with shielded RJ-45 connectors wired to support Token Ring
- Any current Token-Ring lobe cabling support for all types of connectors
- EIA-232-C cable with a DB-9 connector for connection to the management port
- Multimode or single-mode optical fiber with SC or ST connectors for fiber ATM or Token-Ring ports

### Model Comparison

Except for considerations pertaining to their number of feature slots and redundancy characteristics, the IBM 8270 Model 600 is suitable for use in the same environments as the Model 800. However, with different redundancy characteristics, the 8270 Model 600 may be better placed closer to the edge rather than the center of your network.

### Universal Feature Cards

*ATM 155 Mbps Multimode Fiber/Token-Ring II Universal Feature Card (FC 2762, PN 86H2762):* Switches Token-Ring frames between the LAN segments connected to the LAN switch and an ATM network. The ATM Multimode Fiber UFC achieves this connection by providing an industry-standard LAN emulation proxy client (LEC) that is fully-compliant with ATM Forum specifications. When attached to the same ATM network, the LEC on this UFC allows LAN traffic to be switched between LAN stations/segments attached to a LAN switch and other devices with compatible ATM LAN Emulation (LANE) implementations.

For example, traffic can be switched between LAN stations/segments attached to similarly equipped IBM 8270 or 8272 LAN switches across an ATM backbone network. Furthermore, using compatible LANE clients, traffic can be switched between LAN applications on Token-Ring-connected stations and those on ATM-connected stations. This means that traffic can be switched between a LAN client attached to an IBM 8270 or 8272 equipped with this ATM UFC and a file server (for example, one equipped with any of the IBM TURBOWAYS® ATM 25/100/155-Mbps Adapters) attached directly to a connected ATM network.

The ATM Multimode Fiber UFC provides one ATM user-network interface/user side (UNI) and in all cases must be connected to a compatible ATM switch, such as that available on the IBM 8265 Nways ATM Switch. This interface complies with UNI 3.0 and 3.1 ATM Forum specifications and operates at 155 Mbps using SONET STS-3c framing format. Physically, this interface is provided via an SC fiber connector for multimode fiber media. There are two pairs of LEDs on the faceplate of the UFC, one indicating the operational status of the UFC port and one indicating the operational status of the ATM.

The ATM Multimode Fiber UFC supports switched virtual connections (SVCs) only and does not support permanent virtual connections (PVCs). This UFC can terminate up to 1032 virtual channel connections (VCCs), requiring one VCC for each unique source/destination LEC pair. The ATM Multimode Fiber UFC does not support the VPI field of the Virtual Path/Channel Identifier. This UFC assembles/disassembles LAN frames from/to ATM cells according to ATM Adaptation Layer 5 (AAL-5) specifications.

The LAN Emulation Client (LEC) component of the ATM Multimode Fiber UFC can be preconfigured with the address of its required LAN Emulation Server (LES) and, as an alternative, can discover the address of its LES dynamically by communication with a LAN Emulation Configuration Server (LECS). The LEC on the ATM UFC is compatible with LES/LECS Version 1.0 implementations.

For example, the LEC on this UFC can communicate with the LES and LECS components that are part of the IBM 8285 ATM Workgroup Switch (LES), the IBM 8210 Multiprotocol Switching Services (MSS) Server (LES or LECS), and the Multiprotocol Switching Services (MSS) Server Module for the 8260/8285 (LES and LECS). The ATM Multimode Fiber UFC supports Best Effort (Unspecified QoS), Variable Bit Rate (VBR) and Constant Bit Rate (CBR) connections only; other QoS modes, such as Available Bit Rate (ABR), are not supported.

The ATM Multimode Fiber UFC switches frames between physical LANs connected to the LAN switch and emulated LANs within an ATM network. Each UFC can provide connections to multiple emulated LANs, each represented by a logical emulated LAN port (ELP) within the UFC and all sharing the same physical link to the ATM network. Each ELP is designated by distinct ATM station addresses and is associated with a separate LEC instance within the UFC. ELPs are analogous to physical LAN ports and support the LAN switch functions that apply to physical LAN ports (for example, enable/disable, virtual switch/domain grouping, and so on).

The products within the IBM 8270 family of LAN switches are not designed to be ATM switches. The ATM UFC does not support two ELPs on a single ATM UFC assigned to the same virtual switch/domain. A second ATM UFC can be installed in the 8270 containing ELPs in the same domain as the first. This configuration is allowed for backup and redundancy. Attempting to switch traffic at high data rates from one ATM UFC to another may exceed the design limitations of this device. An ATM switch, such as the 8265, should be used instead if you have this requirement. A maximum of eight ELPs (and emulated LANs) can be within a single ATM UFC.

In Token-Ring LAN switches configured for source route switching, ATM emulated Token-Ring LAN segments in a single virtual switch/domain will have the same ring number, (this is also true for physical Token-Ring LAN segments.)

This ATM UFC is supported in an IBM 8270 configured with the source-route bridging function enabled.

The following management interfaces will be provided or enhanced by the ATM Multimode Fiber UFC; these interfaces are accessible via the SNMP agent within the base IBM 8270.

- LEC MIB (ATM Forum LEC Management Specification Version 1.0)
- AToM MIB (RFC 1695)
- Interface group of MIB-II (RFC 1213 and 1573) enhanced to include ATM.

The switch's SNMP agent is accessible through any of the Token-Ring LAN ports. When the LAN switch is configured with an ATM UFC, the switch's SNMP agent is also accessible via an emulated LAN connection across an ATM port. Though the ATM UFC provides and uses an Interim Local Management Interface (ILMI) 3.0 and 3.1 interface for ATM configuration management, the switch's SNMP agent is not accessible using this ILMI.

*4-Port Token-Ring/Enhanced UTP/STP Universal Feature Card (FC 5092, PN 85H5092):* The 4-Port Token-Ring card provides four Token-Ring ports for each UFC installed in the IBM 8270. Each or all of these UFC ports can be configured to be used in multilink TokenPipe connections and/or configured to be included in virtual switches. These UFC ports support address filters, support BootP/TFTP, Telnet, or SNMP sessions, and can participate in the TokenProbe facilities of the IBM 8270 (either as monitoring ports or as monitored ports).

The 4-Port Token-Ring/Enhanced UTP/STP Universal Feature Card ports support Token-Ring twisted pair (UTP/STP media via RJ-45 connectors. Any of these four UFC ports can be configured to provide either shared (half-duplex) 4 or 16-Mbps Token-Ring connections or 16 Mbps (dedicated) or 32-Mbps (dedicated, full-duplex) connections. In addition to the RJ-45 connectors for the Token-Ring ports, there are 14 LEDs (one set of three for each port plus two for the UFC overall) on the faceplate of this Universal Feature Card that indicate the operational status of the UFC and the ports.

The IBM 8270 supports a maximum of 1700 active Token-Ring LAN station addresses per port.

*2-Port Token-Ring/Enhanced Fiber Universal Feature Card (FC 5087, PN 85H5087):* The 2-port Token-Ring card provides two Token-Ring ports for each UFC installed in the IBM 8270. Each or all of these UFC ports can be configured to be used in multilink TokenPipe connections and/or configured to be included in virtual switches. These UFC ports support address filters, support BootP/TFTP, Telnet, or SNMP sessions, and can participate in the TokenProbe facilities of the IBM 8270 (either as monitoring ports or as monitored ports).

The 2-Port Token-Ring/Enhanced Fiber Universal Feature Card provides two Token-Ring multimode fiber connections via ST connectors. Each port on the 2-Port Token-Ring Fiber UFC is a switched port that can be connected to one of the following:

- A shared Token-Ring segment via a fiber Ring-In (RI) or Ring-Out (RO) port on a Token-Ring concentrator or hub that forms the segment, for example, the IBM 8230 Token-Ring Network Controlled Access Unit, the IBM 8239 Nways Token-Ring Stackable Hub or the IBM 8250 or 8260 Multiprotocol Intelligent Hub. Token-Ring segments with IBM 8270s connected in this manner will utilize both the backup ring path as well as the main ring path. Consequently, the redundant path is in use and not available for ring recovery.
- A Token-Ring fiber port on another IBM 8270. This is a TokenPipe connection that can be combined with other Token-Ring connections (UTP/STP or fiber) to another IBM 8270 to form a multilink TokenPipe. When used as TokenPipe connections, these fiber ports can be configured to be full-duplex.

Each of the Token-Ring fiber ports is independent and can be used in any mix of the above connections. However, unlike Token-Ring UTP/STP ports, 2-Port Token-Ring Fiber UFC ports do not support the following connection types:

- Direct fiber connection between the switch and a Token-Ring adapter
- Fiber connection between switch port and Token-Ring lobe port on a Token-Ring concentrator or hub

When more than one of the Token-Ring fiber or UTP/STP ports are connected to the same physical Token-Ring segment (for example, for redundant access), the Spanning Tree support in the IBM 8270 will configure only one of the ports in forwarding mode and the rest of the ports will be in blocking mode.

In addition to the ST connectors for the Token-Ring fiber ports, there are nine LEDs (one set of three for each port plus three for the Universal Feature Card overall) on the faceplate of this Universal Feature Card that indicate the operational status of the UFC and the ports.

*MSS Client UFCs (FC 5205, FC 5206):* The Multiprotocol Switched Services (MSS) Client UFCs are intended for use in Token-Ring networks that have an ATM backbone.

There are two versions of the MSS Client UFC: one that provides a 155-Mbps multimode fiber ATM port (FC 5205) and one that provides a 155-Mbps single mode fiber ATM port (FC 5206). Each occupies two slots in an IBM 8270.

*MSS Domain Client UFC (FC 5207):* Similar in function to the MSS Client UFCs. Requires an external ATM-155 UFC for connection to the network.

Both UFCs support:

- Layer 3 Routing/Switching (for IP, IPX, Appletalk, and Banyan Vines) using an imbedded high speed Power PC 603e™ processor. Additionally, this function supports RIP, RIPV2, OSPF, BGP, DVMRP, and NHRP protocols.
- VLAN support. In addition to MAC-level VLANs, this function allows you to group users by the type of protocol that they are running. Distinguishable protocols are IP, IPX, Appletalk, and NetBIOS. IP and IPX VLANs can be divided by Subnet or network ID.
- Source-Route Bridging. There is only one SRB function active in the 8270 at any time. When the SRB function of the UFC is active, its configuration parameters take precedence over those of the SRB function in the base switch.
- LAN Network Manager (LNM) agents. These agents act as surrogates for the LAN Network Manager in the management of the physical Token-Ring segments attached to the switch (not applicable to the emulated Token-Ring segments).
- Sophisticated frame filtering facilities.

In addition, the MSS Client UFCs (FC 5205, FC 5206) support:

- LAN Emulation Client. These UFCs provide near ATM media speed Layer 2 forwarding (using hardware assistance). This function allows the MSS Client UFCs to use ATM Forum Compliant LAN Emulation for LAN traffic. The MSS can concurrently join multiple different emulated LANs. With initial versions of this function, traffic can be source-route bridged or routed between the switch's Token-Ring ports and emulated Token-Ring LANs. This LANE Client can operate in QoS-II environments.



- Classical IP Client (RFC 1577). The MSS Client UFCs can be the entrance point for LAN IP traffic to ATM Classical IP networks. The MSS Client UFCs can connect to multiple different Logical IP Subnets (LISs). This support can also serve as a Classical IP Client ARP server, eliminating the need for a separate device for this purpose. Further, these UFCs can also provide IP Multicast Client (RFC 1112) support.

- NHRP Client. This function is an industry standard that allows NHRP clients to establish a direct ATM connection. The advantage is that the default routed path between NHRP clients can include multiple router hops. When the NHRP clients develop a shortcut path, all intermediate router hops are bypassed.

A maximum of two UFCs from the following list can be installed in an IBM 8270.

- 1-Port ATM/TR II (FN 2762, PN 86H2762)
- MSS Client MMF (FN 5205, PN 85H4596)
- MSS Client SMF (FN 5206, PN 85H4599)
- MSS Domain Client (FN 5207, PN 85H9303)

There may be usage considerations associated with some of these combinations.

## Benefits

- Full-duplex operation
  - Provides up to 32 Mbps, twice the bandwidth of standard half-duplex connections
  - Provides for simultaneous, two-way transmission between the switch and a LAN station
  - Improves server throughput by doubling available bandwidth when used on a dedicated LAN segment
- Configuration management
  - Console function accessible via Telnet or VT-100 (or VT-100 emulator) connected to serial port
  - SNMP management for network management platforms capable of accessing SNMP (MIB-II compliant) management agents, such as Nways Workgroup Manager for Windows NT and Nways Manager for AIX.
- Source-route switching
  - Choice of switching modes, including store-and-forward switching, cut-through switching and adaptive cut-through switching
- Source-routing bridging
  - Eliminates the need for external bridges but still offers the benefits of source routing
- TokenProbe
  - Allows a LAN analyzer to be attached to any copper port for diagnostics or tuning, even allowing the monitoring of FDX traffic
- TokenPipe connectivity between Models 800
  - Enables customers to build configurations of more than eight ports
- Interconnectivity
  - TokenPipe support permits greater LAN segmentation by allowing you to interconnect multiple IBM Nways Token-Ring LAN switches.

- Ease of use
  - Automatic sensing and configuring of connection types
- Installation
  - Can be mounted in a standard 19-inch rack or on a flat surface
- Enhanced management tools
  - Address filters, virtual switch support, and BootP/TFTP/TokenProbe port

## Model Comparison

The Model 600 and Model 800 are functionally comparable but have the differences that are summarized in the following table:

Model	Feature Slots	Redundant Characteristics	Processor
600	6	N/A	Included (built-In)
800	8	Redundant Power Supply Option; Redundant fans included	Separately ordered

Note that the ordering/pricing structure requires a separate explicit order for the Model 800 processor card, while the processor card is included in the base price for the Model 600.

To help ensure continuous operation a single, redundant power supply can be optionally ordered for the 8270 Model 800. Only one power supply is required to support a fully populated 8270; the second power supply on the Model 800 is redundant. Both power supplies are load-sharing and hot-pluggable. The Model 800 chassis also includes two fans, one of which is redundant.

### Positioning

Except for considerations pertaining to number of feature slots and redundancy (power) characteristics, the IBM 8270 Model 600 is suitable for use in the same environments as the current 8270 Model 800. However, with different redundancy characteristics and feature slots, the Model 800 can be used in the network backbone or near the center of the network, while the Model 600 can be better placed closer to the edge rather than the center of your network.

The 8270 should be positioned against the IBM 8272 or 8272 modules for the 8260/8265 as follows:

A key parameter affecting LAN Switch product positioning is processor loading, especially with heavy broadcast traffic or bridged explorer traffic.

The 8270 Models 600 and 800 with their high-performance CPU, redundant power option (Model 800 only), flexibility and scalability offer a powerful solution for all Token-Ring switch applications and environments. Applications can range from small office networks to large establishment backbones. The 8270 is the correct choice for carrying traffic among large dynamic network populations.

Conversely, the IBM 8272-based products which use a more modest processor, should be viewed primarily as workgroup switches at the edge of the network. Certainly, existing IBM 8260 customers who want to integrate LAN switching into their single platform may prefer to use one of the 8272 LAN Switch Modules for the IBM 8260, taking these guidelines into consideration.

# IBM 8270 Nways LAN Switch Family Specifications

<b>Part numbers</b>	85H6584: IBM 8270 Nways LAN Switch Model 800 25L4970: IBM 8270 Nways LAN Switch Model 600 72H4650: Token-Ring Processor Card (for Model 800 only) 72H4648: Redundant Power Supply (optional for Model 800)
<b>LAN ports</b>	<ul style="list-style-type: none"><li>• Port number and type depend on which UFCs are installed and on the 8270 model.</li><li>• Support for 1700 active MAC addresses per port and 10 000 per 8272.</li></ul>
<b>UFC slots</b>	Model 800: 8 slots Model 600: 6 slots
<b>Standard compliance</b>	Supports IEEE 802.5 network components
<b>Hardware requirements</b>	Requires at least one Token-Ring Universal Feature Card
<b>Physical specifications</b>	<p><i>8270 Model 800 Chassis</i> Width: 440 mm (17.3 in.) Depth: 356 mm (14.0 in.) Height: 222 mm (8.7 in.) Weight: 23 kg (50 lb.) fully loaded Weight: 17 kg (37 lb.) empty</p> <p><i>8270 Model 600</i> Width: 440 mm (17.3 in.) Depth: 305 mm (12.0 in.) Height: 133 mm (5.2 in.) Weight: 10 kg (22 lb.) fully loaded Weight: 7 kg (16 lb.) empty</p> <p><i>8270-800 Token-Ring Processor Card</i> Width: 170 mm (6.7 in.) Depth: 210 mm (8.4 in.) Height: 51 mm (2.0 in.) Weight: 0.5 kg (1.2 lb.)</p> <p><i>8270-800 Power Supply (optional)</i> Width: 76 mm (3.0 in.) Depth: 350 mm (13.8 in.) Height: 170 mm (6.7 in.) Weight: 2.7 kg (6 lb.)</p>
<b>Publications</b>	<ul style="list-style-type: none"><li>• <i>8270 Models 600 and 800 Planning, Configuration, and Operation</i></li><li>• <i>8270 Models 600 and 800 Installation and Service Guide</i></li></ul> <p>Softcopy of these publications are included on the IBM 8270 Publications CD-ROM. Copies of this CD-ROM may be obtained using order number SK2T-0434.</p>
<b>Warranty</b>	1 year
<b>Year 2000 ready</b>	The IBM 8270 Nways LAN Switch Family is Year 2000 Ready when used in accordance with its associated documentation and is capable of correctly processing, providing and receiving data within and between the 20th and 21st centuries, provided that all other hardware, software, and/or firmware used with the product properly exchange accurate data with it.

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**8270 Universal Feature Cards**


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<b>4-Port Token-Ring Enhanced UTP/STP</b>	Part number: 85H5092 Cabling: <ul style="list-style-type: none"> <li>• UTP/STP via RJ-45 connectors</li> <li>• Supports Token-Ring STP cabling and category 3, 4 or 5 Token-Ring UTP cabling</li> </ul> Ports: 4 Token Ring, half-duplex (HDX) or full-duplex (FDX) Data rate: 4- or 16-Mbps HDX or 32-Mbps FDX
<b>2-Port Token-Ring Enhanced Fiber</b>	Part number: 85H5087 Cabling: Multimode fiber via ST connectors Ports: 2 Token Ring, HDX or FDX Data rate: 4- or 16-Mbps HDX or 32-Mbps FDX
<b>1-Port ATM Token-Ring II MMF*</b>	Part number: 86H2762 Cabling: Multimode fiber via an SC connector Ports: 1 ATM (LANE) Data rate: 155 Mbps
<b>MSS Client MMF*<sup>1</sup></b>	Part number: 85H4596 Cabling: Multimode fiber via SC connectors Ports: 1 ATM (LANE, CIP, NHRP) Data rate: 155 Mbps
<b>MSS Client SMF*<sup>1</sup></b>	Part number: 85H4599 Cabling: Single-mode fiber via SC connectors Ports: 1 ATM (LANE, CIP, NHRP) Ports: 1 ATM (LANE, CIP, NHRP) Data rate: 155 Mbps
<b>MSS Domain Client*</b>	Part number: 85H9303 Cabling: N/A Ports: N/A Data rate: N/A
<b>Publications</b>	<ul style="list-style-type: none"> <li>• <i>ATM Multimode Fiber Universal Feature Card Planning and Installation Guide, GA27-4156</i></li> <li>• <i>MSS Client Universal Feature Card Planning and Installation Guide, GA27-4170</i></li> <li>• <i>MSS Domain Client Universal Feature Card Planning and Installation Guide, GA27-4171</i></li> <li>• <i>2-Port Fiber and 4-Port UTP/STP Token-Ring Enhanced Universal Feature Cards Planning and Installation Guide, GA27-4168</i></li> </ul>

\* Limitations: Maximum of two UFCs in this set may be installed in an IBM 8270. There may also be usage consideration associated with some of these combinations.

<sup>1</sup> The MSS Client (MMF and SMF) UFCs each occupy two slots in an 8270. All of the other UFCs occupy one slot each.

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## Key Customer Benefits

- High-speed Token-Ring switching solution (adaptive cut-through further reduces latency)
- AutoSense and auto-configuration capabilities
- TokenPipe and TokenProbe capabilities
- IBM's patented, adaptive cut-through switching technology, enabling the switch to adapt to changing network conditions
- Redundant power supplies and cooling fans (Model 800 only)
- Flexible configuration with rich functionality provided by the UFCs
- FDX Token-Ring support, enabling the doubling of network access bandwidth in a cost-effective manner
- Source-route switching, easing the configuration burden for administrators
- Source-routing bridging, allowing external bridges to be replaced, thereby reducing costs
- Network management capabilities
- Compatibility with all current IBM Token-Ring networking products

## Supplementary Information

The following sales tools are available for the IBM 8270 Nways LAN Switch Family:

- Specification sheet:  
*IBM 8270 Nways LAN Switch Family, G224-4510-02*
- Information on the IBM 8270 Nways LAN Switch Family is available at:  
*[www.networking.ibm.com](http://www.networking.ibm.com)*.