

A Request for Information Concerning Local-Area ATM Switches

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1 Introduction

The Minnesota Supercomputer Center, Inc. (MSCI) is a participant in the MAGIC Gigabit Network Testbed. MSCI will build an ATM-based LAN to connect a number of workstations to the MAGIC backbone, a wide-area SONET/ATM network. MSCI will select, procure, and deploy a local-area ATM switch to act as the hub of this LAN. Details on the configuration of the LAN can be found in section 2.

To help gather information on local-area ATM switches, we have prepared this Request for Information (RFI). Your answers to the questions in section 3 will assist us in selecting a local-area ATM switch for the MAGIC project.

This RFI is not a commitment to purchase a switch. It is simply one vehicle for the collection of information which may lead to such a purchase. It is not to be construed as an indication of the process which will be followed in selecting a switch. The primary objective of this RFI is to reach vendors of ATM switches that MSCI would otherwise be unaware of.

The MAGIC Gigabit Network Testbed is sponsored by the Defense Advanced Research Projects Agency (DARPA).

2 Configuration

The ATM switch must connect 4–8 SPARC-based Sun workstations to a long-haul (several-hundred-mile) 622 Mb/s (OC-12c) SONET link. The ATM LAN is expected to initially connect four SPARCstations, but that number could grow to as many as eight. The wide-area network will initially consist of point-to-point SONET links with ATM cells being exchanged between the end points, but the network will be upgraded by the addition of one or more central-office ATM switches in the future.

Figure 1 shows the configuration of the local ATM switch.

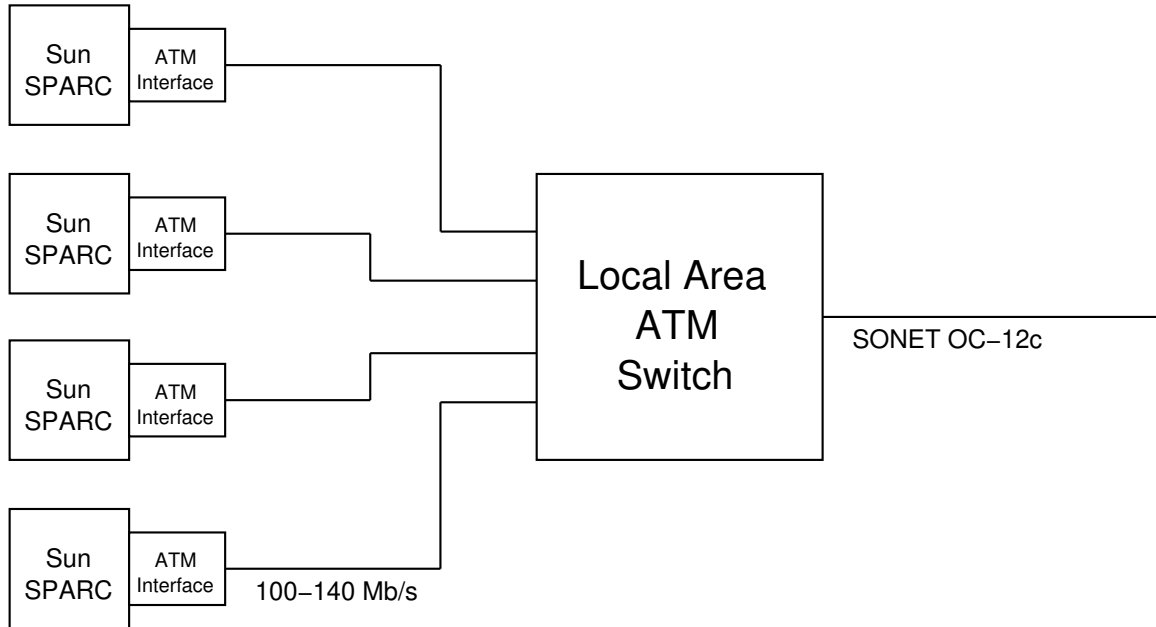


Figure 1: Configuration 1A—ATM Switch with 622 Mb/s SONET Interface

It may be possible for the ATM switch to connect to the 622 Mb/s SONET link using four 155 Mb/s (OC-3c) SONET links (configuration 1B). This is illustrated in figure 2. However, a single 622 Mb/s SONET link (configuration 1A) is strongly preferred.

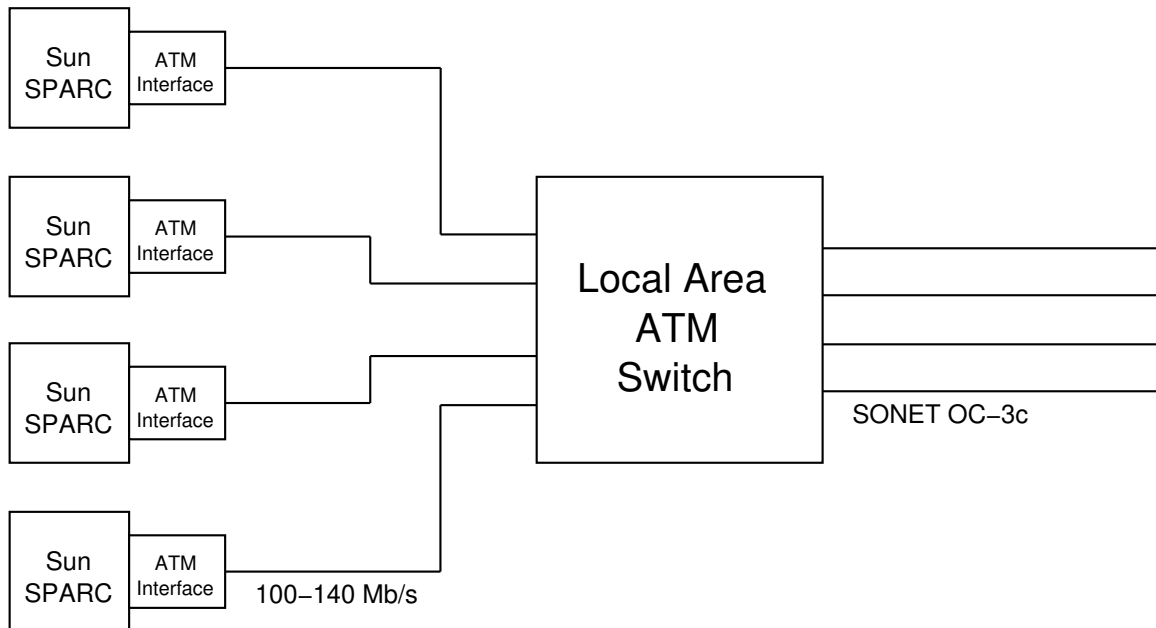


Figure 2: Configuration 1B—ATM Switch with 155 Mb/s SONET Interfaces

3 Technical Information

Local-Area ATM Interfaces

The local-area ATM interfaces must be compatible with the workstation ATM interfaces used by MAGIC. The vendor for the ATM interfaces has not been selected.

- How many local ATM ports does your switch support?
- What local physical interfaces does your ATM switch support?
 - 100 Mb/s TAXI interface and FDDI-compatible multi-mode fiber?
 - 140 Mb/s TAXI interface and FDDI-compatible multi-mode fiber?
 - SONET OC-3c?
 - Other (e.g. Ethernet, Token Ring, FDDI, etc.)?
- With what workstation ATM interfaces does your local ATM interface operate?
- How does your switch conform to *Network Compatible ATM for Local Network Applications*, by Apple Computer, Bellcore, Sun Microsystems, and Xerox?
- How does your switch conform to *ATM User–Network Interface Specification*, Version 2.0, by the ATM Forum?

Wide-Area ATM Interfaces

The wide-area ATM interface(s) must be compatible with the wide-area SONET links used by MAGIC. The SONET equipment used will be the S/DMS TransportNode, manufactured by Northern Telecom. At some future time, the wide-area network will be upgraded to include one or more central-office ATM switches. The vendor for the central-office ATM switches has not been selected.

- How many wide-area ATM ports does your switch support?
- What wide-area physical interfaces does your ATM switch support?
 - SONET OC-3c?
 - SONET OC-12c?
 - T3?
 - Other?
- With what SONET equipment does your wide-area ATM interface operate?
 - Does your SONET interface provide the SONET path, framing, and management information required by public carriers?
- With what central-office ATM switches does your local ATM switch interoperate?

Functional Description

An understanding of the high-level architecture of your ATM switch will assist us in our selection.

- Please describe the switching fabric employed in your switch.
- What aggregate bandwidth will your switch sustain?
- Will the switching fabric require modification or replacement if higher speed interfaces (e.g. OC-12c) are employed? What is the upper limit that the fabric can handle?
- What signaling does your switch support?
 - At the user-network interface (UNI)?
 - At the network-network interface (NNI)?
- What sorts of connections does your switch support?
 - Point-to-point
 - Multipoint
 - Broadcast
 - Switched
 - Semi-permanent
 - Permanent
- What capabilities are available through administrative procedures?
- What is the administrative user interface?
- What test and diagnostic functions are supported?
- What is the user interface to the test/diagnostic functions?
- What interface(s) to other LAN or WAN ATM switches does your switch support?
- What are your switch's power, cooling, and environmental requirements?

Pricing and Schedule

It is important that the switch we purchase be available within the constraints of our schedule and budget.

- Provide a price and schedule quotation for delivery of configuration 1A (figure 1), including applicable discounts. Staged delivery with configuration 1B (figure 2) as an interim step may be acceptable.
- What is the date when production units were or are scheduled to be shipped to customers?
 - 155 Mb/s switch?

- 622 Mb/s switch?
- TAXI interface?
- OC-3c interface?
- OC-12c interface?
- What type (e.g. production, pre-production, prototype) of units of your ATM switch will be available by the third quarter of 1992?
- What plans or schedules do you have for supporting the UNI as defined by the ATM Forum?
- What plans or schedules do you have for supporting an NNI with a central-office ATM switch?

Company Overview

We would like to know what experience your company has had with ATM and similar technologies. We would like to understand your capabilities for designing and producing ATM switches.

- Describe your company's experience, expertise, and background.
 - Origins and ownership of the company
 - ATM experience and expertise
 - * Background
 - * SONET experience
 - * Hardware design experience
- Describe your company's participation or interaction with standards-setting bodies.
- How many of your ATM switches have been installed in the field?
- Can you provide references to current customers?

Other Information

- What enhancements are planned or scheduled for your ATM switch?
- What other information do you believe will assist us in selecting a local-area ATM switch?

4 Responses

It is important that responses to this RFI be received by MSCI as soon as possible. Quick, informal responses are preferred to slower, more formal responses. Responses on paper and by electronic mail are both acceptable.

Please direct questions, comments, and responses to:

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Copies of this document may be obtained from John Cavanaugh, or by anonymous FTP:

Machine:	<code>ftp.magic.net</code>	
Directory:	<code>/pub/magic</code>	
Files:	<code>atm-switch-rfi-v1.ps</code>	PostScript
	<code>atm-switch-rfi-v1.ps.Z</code>	compressed PostScript
	<code>atm-switch-rfi-v1.txt</code>	ASCII