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ATM's Technical Specifications

Much effort is being invested by the world's network operators and equipment manufacturers in developing the standards and specifications for ATM. The standards are emerging in a range of different standards bodies and are still far from complete, but it is nonetheless important for all parties contemplating developing or using ATM to understand them. This chapter provides first a review of the institutions involved in developing standards, and reviews in particular the standards of greatest worldwide significance - those of ATM Forum and of ITU-T (International Telecommunications Union – Telecommunications Standardization Sector).

5.1 Standards Bodies

There are four bodies prominent in the development of ATM standards. These are, first and foremost, the ATM Forum and the world-recognized United Nations agency body, ITU-T. In addition, the regional standards bodies, e.g. ANSI and ETSI, are also playing an important role, particularly in identifying and resolving problems during implementation.

The ATM Forum came about through the interest of four major manufacturers who wanted to speed up the standardization process of ATM. It was set up in October 1991 by Northern Telecom (now called Nortel), Sprint, Sun Microsystems and Digital Equipment Corporation (DEC). In January 1992 membership was opened to wider participation from the telecommunication industry. The purpose of the ATM Forum is to promote the development of technical standards for ATM and to raise awareness in the market of its capabilities. Many ATM standards adopted by ITU-T are
heavily based on (if not identical with) those previously issued by the ATM Forum, but have tended to be published up to two years later. This can lead to confusion.

Recently, a slight divergence between ATM Forum and ITU-T has occurred. The ATM Forum appears to be more oriented to equipment manufacturers and Internet, thus tending to concentrate most on private ATM networks, while ITU-T retains its public network operator focus and OSI (Open Systems Interconnection) orientation. As a result, it is likely that ATM Forum will promote short-term, pragmatic solutions, while ITU-T is likely to generate robust standards, suitable for public networks.

As an example the ATM Forum has chosen SNMP (simple network management protocol – a heritage of the Internet world) as the basis for the ILMI (interim local management interface). The longer-term solution standardized by ITU-T will almost certainly base on CMIP (common management information protocol). CMIP is the OSI equivalent of SNMP. The ATM forum has thus suggested a pragmatic solution to start with, while those waiting for the full ITU-T solution will have to wait a little longer.

ANSI (American National Standards Institute) and ETSI (European Telecommunications Standards Institute) are regional standards-setting bodies which are active in the development of telecommunications standards. They are significant because of their strong influence (through both market force and regulatory edict) on the markets in North America and the European Community. However, neither ANSI nor ETSI is primarily focused on ATM standards, so they too are tending to base their work on output from the ATM Forum.

5.2 The ATM Forum

The work of the ATM Forum is split into three main areas: Technical, Marketing and User need analysis, and the working committees of the Forum are split into these areas. Technical committee meetings are those in which the technical standards are developed by the principal members of the forum. The market awareness and education (MA&E) committee then takes over the responsibility of educational material, tutorials, press releases and presentations needed to improve the general telecommunications market awareness of the capabilities of ATM. These meetings, too, may only be attended by principal members. Auditing members are not allowed to attend meetings of the forum but receive copies of the published documents. Finally, the end user roundtable (ENR) was set up in August 1993 for a new class of members, users. This committee is reserved only for user members, and is dedicated to the task of developing better understanding of users’ basic needs of ATM.