

The Task Force Report

By William C. Miller

SMPTE Engineering Vice-President

In this issue of the *Journal*, you will find the first report of the EBU/SMPTE Task Force on the Harmonization of Standards for the Exchange of Television Program Material as Bitstreams. We have taken this unusual step because of the importance and timeliness of the material it contains.

The Task Force was formed in September 1996, at a joint meeting of the technical leadership of SMPTE and the European Broadcasting Union (EBU). The representatives of the two organizations recognized that it was imperative that standards be established to permit all devices that create, store, or process television program material in digital form to communicate that material to each other. Moreover, we recognized that this communication had to happen transparently, without significant user intervention. The analogy most often cited is facsimile.

Before universal fax standards were established, if you wanted to send a fax, you often had to send the recipient a fax machine first. The lack of compatibility kept prices high and market penetration low. Since the adoption of universal standards for fax, machines have become ubiquitous, prices have plunged, and competition has focused on features. As a result, every deli has a fax machine, and sending a fax is as easy as making toast.

We need to bring this same guarantee of interoperability and ease of use to the motion imaging industry. Central to this process is the recognition that "program material" consists of more than audio and video. There is also a plethora of descriptive, content-related material associated with the audio and video that adds considerable value to it. This additional data, called metadata, can be thought of as "the bits about the bits," to use Nicholas Negroponte's words.

It includes such things as signal coding information, time code, scripts, ownership information, edit decision lists, camera and lighting data, and anything else that might be associated with the program material in any database. In conventional practice, the program was stored on a reel of tape, and the metadata was kept with it, either on labels applied to the reel and box or on sheets of paper folded and stored in the box with the reel. In a digital world, the program is often stored on fixed media, and the associated data

is kept in a separate but related database. These databases are often proprietary, and it is rare that data can be moved in a straightforward manner from one to another.

The key to solving this problem is the creation of a hierarchical structure for categorizing metadata, a universal wrapper format for transporting it as well as the audio and video, and an international registry where the categories can be defined and their labels fixed. Over the next few months, the Task Force will be grappling with the first two issues. The Society has already begun to deal with the third.

As regular readers of the *Journal* know, last year the Society agreed to a request from ATSC to become the Registration Authority for ATSC Program Identifiers. About the same time, a Working Group under the Packetized Television Technology Committee developed a method for creating Universal Labels to be used for identification of bitstreams created according to defined standards. This method was standardized as SMPTE 298M.

As the result of another request, the Society has applied to JTC1, the Joint Technology Committee on Information Technology of the International Electrotechnical Commission (IEC) and the International Organization for Standardization (ISO), to be recognized as the Registration Authority for MPEG format identifiers. We are currently working through the accreditation process.

As a result of these activities, the Society will be in a position where it can coordinate the various registries to ensure that, wherever possible, the same numbers are assigned to data and metadata types no matter what their representation. This will greatly simplify the process of moving data back and forth between systems.

The next few months and years will be a critical time in the evolution of the motion imaging industry. If we ever wish to have the security of guaranteed simple interconnection that we enjoyed with analog NTSC or PAL, there is much work to be done and very little time in which to do it. As the report notes, almost 80 people, meeting five times in person and collaborating between meetings by phone and e-mail, labored for five months to create this report. Under the leadership of the Task Force co-chairmen, S. Merrill Weiss and Horst Schachlbauer, they are continuing to work through the summer and into the fall on an equally aggressive schedule. The Task Force is an open effort; if you wish to participate, I encourage you to do so. For further information, see the SMPTE Web site (<http://www.smpte.org>), or contact Carl Girod, SMPTE's Director of Engineering.

SMPTE Engineering Vice-President William C. Miller is with Capital Cities/ABC, Inc., New York, NY 10023.