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Title: Proposed work outline for H.MediaMIB

Purpose: Discussion

Proposed work outline for H.MediaMIB

1.0 Introduction

This contribution outlines a work program for development of a "Management Information Base" or "MIB" for use with multimedia systems including H.323 terminals, gateways, and gatekeepers. A broad working definition of the term "MIB" is included.

Some features of H.323 systems, those also found in LAN devices such as routers, have already been the subject of MIB development and it is recommended that existing MIB work be used with H.323 systems wherever possible. However, some features of H.323 are unique to multimedia systems and a new MIB must be developed to support those features in a network management context. Since the features of multimedia systems are found in common in systems designed to work over several network types and providing several functions (H.320 and H.310 terminals, multipoint control units, etc.) MIB development efforts will take account of the possible use of the new MIB for non-H.323 systems. Because of the broad scope of application of the document to be developed, it is suggested that the working name of the development project be "H.MediaMIB" rather than "H.LANentity."

The work program is to be carried out using the timetable discussed at the May/June 1996 SG 15 meeting, that is a first draft of the MIB document to be completed for the December 1996 experts' meeting and a second and preferably final draft to be ready for the March 1997 experts' meeting. Definition of requirements for the document should begin immediately.

Pointers to sources of information on network management technology and previous and ongoing work on MIB development are provided in this contribution. It is suggested that participants note well the requirements for coexistence of the two versions of SNMP, as well as the conventions for MIB description and use. In order to assure good harmonization of the multimedia MIB with existing network management systems, the editor will seek review by and participation of MIB experts from the IETF.

2.0 Definition, Motivation, and Scope

Studies of "Management Information Bases" are new to Study Group 15, but work in this areas has been going on for some time in other groups. There is an installed base of "MIB" based network management systems and there are conventions associated with the style and structure of MIBs and MIB documents. In

order to work effectively at defining a MIB which will be accepted and used by implementers, it is important that participants in the development process understand existing conventions and apply them in this work. It is also important that multimedia system experts participate in the process, since the MIB must have useful content as well as acceptable style. Experts in ITU multimedia systems technology are encouraged to familiarize themselves with the fundamentals of MIBs and SNMP-based network management and participate in the MIB development process.

The formal definition "Management Information Base" is documented in many places, including the book by Rose listed in the Recommended Reading section of this contribution. A MIB is basically a data record containing data fields ("managed objects") which are updated by processes running on a managed device and which can be retrieved by a management terminal on the network using SNMP.

The MIB model for network management has been successfully applied to data network devices as well as to software configuration management for PCs. Multimedia devices have many of the same features as those systems and can use MIBs developed to monitor and manage those common features. H.323 systems in particular share many common features with data network devices, but at the same time H.323 and other multimedia systems include new features such as media codecs and multiplexed media and control streams.

While these multimedia features are not found in network routers or MAC-layer bridges, they are common to all multimedia systems. The initial efforts under H.MediaMIB will be aimed at providing a multimedia MIB for use in H.323 systems, but the MIB produced will also be useful for SNMP-based management of other types of multimedia systems, such as H.320 terminals equipped with a LAN-based management interface.

Some managed objects which might be part of the multimedia system MIB include system capabilities, current multiplex structure, call progress and connection state information, loopback state, and E.164 address. For H.323 systems, useful managed objects might include gatekeeper association for terminals, availability of transcoding functions for gateways, and current calls and call permission rules for gatekeeper systems. As the first stage of the MIB work, a definitive list of managed objects will be developed.

3.0 Organizations and Procedures

The MIB associated with multimedia terminals will be standardized within the ITU. The H.MediaMIB editor intends to submit development versions of the multimedia MIB as Internet Drafts for review and to encourage technical input from IETF participants, but final approval of the document will be by the ITU. MIBs have been studied in the ITU under Q.13/7 in the 1993 to 1996 Study Period and Recommendations in the X.700 to X.799 range describe management information base aspects. Liaison activity with SG 7 or its successor in this area will clarify the required procedures for MIB standardization.

Where applicable, existing MIB RFCs for interfaces or other applications will be referenced in the multimedia system MIB document. Interface and other MIBs for LAN features are generally implemented along with network stacks. For documents from the IETF/ISOC, the procedure described in ITU-T document TSAG R29 (Report of the Meeting of the Group on Cooperation and Coordination held during the TSAG Meeting, Geneva, 1-5 July 1996), Annex 6 and Annex 7 will be used to include IETF documents by reference. Discussion of the usefulness of IETF MIBs such as the ISDN line control MIB is welcomed by the editor.

In the work plan presented in TD 59(1/15) (5 June 1996), gatekeeper to gatekeeper communication is listed for discussion as part of H.MediaMIB (then known as H.Management) along with MIB development for H.323 entities and "other topics related to overall H.323 system management," but it is noted that, "the MIB work is thought to be of a high priority, with the other topics of lesser priority; this may result in a split into two versions." In the initial stages of H.MediaMIB work, effort will be focused on MIB development. As a secondary issue, development of a list of requirements for GK-GK communication and other management topics may proceed using the H.MediaMIB mailing list and resources and should be completed in time for the December 1996 experts' meeting. At that time a decision should be made regarding the best way to move forward on non-MIB aspects.

Resources

Correspondence related to development of H.MediaMIB will be carried on an e-mail reflector supplied by PictureTel Corporation. The list is "mediamib@standard.pictel.com". Interested parties can subscribe to

the list by sending mail to "majordomo@standard.pictel.com" with the line "subscribe mediamib" in the body (not the subject line) of the message. A file repository accessible on the Internet has also been provided by PictureTel at "ftp://standard.pictel.com/mediamib/".

Recommended Reading

For an overview of MIB-oriented network management the editor recommends, ***The Simple Book: An Introduction to Networking Management*** by Marshall T. Rose (Revised 2nd Edition, Prentice Hall, ISBN 0-13-451659-1). This book provides an unusually complete and comprehensible summary of terms and motivations. The author was the long-serving chair of the IETF SNMP Working Group and provides insights into MIB development based on his experience.

The RFCs for completed MIBs and for SNMP are listed in Table 1, as are some current Internet Drafts associated with relevant MIBs under development. MIB development is associated with the Network Management Area of the IETF; for further information consult "http://www.ietf.org/html.charters/wg-dir.html#Network_Management_Area".

A rather large archive of MIB files is available from "ftp://venera.isi.edu/mib/". RFC documents are available from "ftp://ds.internic.net/" and other RFC repositories.

Table 1: Some Useful IETF Documents

Document	Subject
RFC 1155	Structure of Management Information
RFC 1212	Concise MIB Definitions
RFC 1157	Simple Network Management Protocol (SNMPv1)
RFC 1213	Management Information Base II (for SNMPv1)
RFC 1420	SNMP over IPX
RFC 1901-1908	SNMPv2 and Coexistence of v2 with SNMPv1
RFC 1573	Evolution of the Interfaces Group (from v1 to v2 of SNMP)
RFC 1406	DS1 Interface Type MIB
RFC 1407	DS3 Interface Type MIB
RFC 1643	Ether-like Interface Type MIB (SNMPv1)
RFC 1650	Ether-like Interface Type MIB (SNMPv2)
RFC 1187	Bulk Table Retrieval with the SNMP
RFC 1215	A Convention for Defining Traps for Use with the SNMP
RFC 1270	SNMP Communication Services
RFC 1303	A Convention for Describing SNMP-based Agents
http://www.ietf.org/html.charters/trunkmib-charter.html	DS1/DS3 MIB Working Group charter, pointers to current Internet Drafts in this WG
http://www.ietf.org/html.charters/isdnmib-charter.html	ISDN Interface MIB Working Group charter and pointers to current Internet Drafts
http://www.ietf.org/html.charters/ifmib-charter.html	Interfaces MIB Group charter and pointers to Internet Drafts; this group's MIB model relationships between data link and physical layers
http://www.ietf.org/html.charters/agentx-charter.html	Agent Extensibility Working Group charter and pointers to documents; possible application to GK-GK communication