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Title: Logical MIB for Frame-Level Performance Management at the M4 Interface

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Abstract:

A protocol independent MIB for the frame-level performance management requirements of the M4 interface as defined in contribution atm97-0610R1 is presented.

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### 1. Introduction

This contribution attempts to define a protocol independent MIB for the requirements given in contribution atm97-0610R1. The reader should be familiar with the requirements defined in that contribution before proceeding further.

The contribution atm97-0610 was presented to AF-NM in the July meeting. The network management group indicated that this and related contributions should be discussed in AF-TM first or jointly

in AF-TM and AF-NM. Therefore, atm97-0610R1 and this contribution are being distributed to both groups.

To summarize, in contribution atm97-0610R1 six counts were introduced for the purpose of performance management. They are:

- 1) Count of cells discarded due to frame discard per ATM interface
- 2) Count of frames received per ATM interface
- 3) Count of frames successfully passed per ATM interface
- 4) Count of frames discarded due to congestion per ATM interface
- 5) Count of frames discarded due to UPC/NPC disagreements
- 6) Count of frames successfully passed due to UPC/NPC disagreements

Of the six counts defined above, counts 1 to 4 should be defined for each ATM interface regardless of the type of interface. Counts 5 and 6 should be defined in UPC/NPC Disagreement Monitoring Current Data (see section 3.67 of [1]) and UPC/NPC Disagreement Monitoring History Data (see section 3.68 of [1]) in a similar manner as the other counts in those two managed entities have been defined.

The first four counts have been defined in sections 2.1 and 2.2 in a manner similar to the managed entities defined in [2] and the remaining two counts in sections 2.3 and 2.4 of this contribution.

## 2. Protocol Independent MIB

To define the first four counts for each ATM interface, the following two new managed entities (ATM Interface Current Data and ATM Interface History Data) are needed for each interface.

### 2.1 ATM Interface Current Data

An instance of this managed entity is used to collect and report current 15 minute counts with respect to a specific ATM interface. An instance of this managed entity may be explicitly created by the management system for each ATM interface managed entity created so that 15 minute counts may be collected and retrieved for each ATM interface managed entity.

#### Attributes

**Managed Entity ID:** This read-only attribute provides a unique name for the managed entity instance in the ATM NE.

**Administrative State:** This read/write attribute is used to activate and deactivate the data collection function performed by this managed entity.

**Suspect Flag:** This read-only attribute indicates the reliability of the current data collected by the managed entity. This attribute may have one of two possible values: reliable or unreliable.

**Elapsed Time:** This read-only attribute represents the difference between the current time and the start time of the present summary interval.

**Threshold Data ID:** This read/write attribute provides a pointer to an instance of the Threshold Data managed entity that contains the threshold values for the performance monitoring data collected by this managed entity.

Cells Discarded Due To Frame Discard: This read-only attribute provides a raw thresholded count of the number of cells discarded as a result of frame discard at the ATM NE on this ATM interface.

Received Frame Count: This read-only attribute provides a raw unthresholded count of the number of frames received at the ATM NE on this ATM interface.

Successfully Passed Frame Count: This read-only attribute provides a raw unthresholded count of the number of frames successfully passed at the ATM NE on this ATM interface.

Congestion Discarded Frame Count: This read-only attribute provides a raw thresholded count of the number of frames discarded due to congestion at the ATM NE on this ATM interface.

#### Actions

Receive a request to report current 15 minute counts.

On request, report the value of the requested count and the Elapsed Time for the current 15 minute interval.

#### Notifications

Threshold Crossing Alert: This message is used to notify the management system when the value of either Congestion Discarded Frame Count or Cells Discarded Due To Frame Discard exceeds a pre-set threshold value. The following information shall be supplied with this notification:

- The ID of the Managed Entity Reporting the Threshold Crossing Alert
- The Type of Performance Parameter that Exceeded the Threshold

#### Relationship

One instance of this managed entity may exist for each instance of any ATM interface managed entity.

### 2.2 ATM Interface History Data

An instance of this managed entity is used to collect and report prior 15 minute counts with respect to a specific ATM interface up to a maximum of thirty-two 15 minute counts. An instance of this managed entity may be explicitly created by the management system for each ATM Interface Current Data managed entity created so that these 15 minute counts may be collected and retrieved for each ATM interface managed entity.

#### Attributes

Managed Entity ID: This read-only attribute provides a unique name for the managed entity instance in the ATM NE.

Period End Time: This read-only attribute records the time at the end of the interval.

Suspect Flag: This read-only attribute indicates the reliability of the performance monitoring data collected by the managed entity. This attribute may have one of two possible values: reliable or unreliable.

Number of Suppressed Intervals: This read-only attribute is present only if the ATM NE is suppressing ATM Interface History Data creation when the current interval terminates with "all-zeroes" performance measurements.

Cells Discarded Due To Frame Discard: This read-only attribute provides a count of the number of cells discarded as a result of frame discard at the ATM NE on this ATM interface.

Received Frame Count: This read-only attribute provides a count of the number of frames received at the ATM NE on this ATM interface.

Successfully Passed Frame Count: This read-only attribute provides a count of the number of frames successfully passed at the ATM NE on this ATM interface.

Congestion Discarded Frame Count: This read-only attribute provides a count of the number of frames discarded due to congestion at the ATM NE on this ATM interface.

#### Actions

Receive a request to report data for an identified summary interval within the maximum interval allowed.

Report the value of the performance parameter requested for the specified summary interval.

#### Notifications

No notifications have been defined for this managed entity.

#### Relationships

Instances of this managed entity shall exist for each instance of the corresponding ATM Interface Current Data managed entity.

### 2.3 UPC/NPC Disagreement Monitoring Current Data

In addition to the current definition in [1], the following two counts should be included.

#### Attributes

Discarded Frames due UPC/NPC: This read-only attribute provides a raw, thresholded count of the number of frames discarded due to

combined CLP=0 and CLP=1 UPC/NPC policing.

Successfully Passed Frames: This read-only attribute provides a raw, unthresholded count of the number of frames passed by the combined CLP=0 and CLP=1 UPC/NPC policing.

#### 2.4 UPC/NPC Disagreement Monitoring History Data

In addition to the current definition in [1], the following two counts should be included.

##### Attributes

Discarded Frames due UPC/NPC: This read-only attribute provides a count of the number of frames discarded due to combined CLP=0 and CLP=1 UPC/NPC policing.

Successfully Passed Frames: This read-only attribute provides a count of the number of frames passed by the combined CLP=0 and CLP=1 UPC/NPC policing.

### 3. Motion

It is moved that the ATM Forum add sections 2.1 - 2.4 of this contribution to the current M4 Interface Requirements and Logical MIB: ATM Network Element View.

### 4. References

1) Thomas A. Meserole, "M4 NE View Interface Requirements and Logical MIB Baseline Text," Network Management WG of the ATM Forum Technical Committee, Document Number BTD-NM-M4NE-REQ-02.04d, July 20-25, 1997.

2) C. Anthony Cooper, "Proposed development of a Logical MIB to better support performance management for an M4 "NE View" Interface Requirements and Logical MIB, V2+, ATM Forum document," contribution 97-0573, July 21-25, 1997.