Generic Repeater MIB

Jeff Johnson

cisco Systems

jjohnson@cisco.com

Agenda:

- Background
- Inputs to the process
- Assumptions
- Factored MIB objects
- Factored notifications
- Indexing
- New MIB objects
- Other Issues

Background:

- Multiple repeater MIBs are being developed by the IETF.
- Every repeater MIB under development consists of generic objects as well as media-specific objects, with the generic objects replicated in multiple MIBs.
- This is inconsistent with the approach taken for interfaces, which have a generic core MIB that is enhanced by media-specific MIBs.
- A generic core repeater MIB would promote consistency, provide a common basis for the management of all repeaters, and would reduce the number of MIB objects.

MIBs Evaluated:

- 802.3 Repeater MIB (RFC 1516)
- 802.3u Repeater MIB (draft from DeGraaf & Lui)
- 802.12 Repeater MIB (draft-ietf-vgmib-repeater-dev-00)

Assumptions:

- MIB objects defined in RFC 1516 are considered useful.
- MIB indexing defined in RFC 1516 is not set in stone.
- Generic MIB should not be limited to ethernet-type media.

Basic Repeater Information:

- Group Capacity
  [rptrGroupCapacity, rptr100GroupCapacity, vgRptrGroupCapacity]
- Operational Status
  [rptrOperStatus, rptr100OperStatus, vgRptrHealthState]
- Health Text
  [rptrHealthText, rptr100HealthText, vgRptrHealthText]
- Reset
  [rptrReset, rptr100Reset, vgRptrReset]
- Non-Disruptive Test
  [rptrNonDisruptTest, rptr100NonDisruptTest, vgRptrNonDisruptTest]

Basic Group Information:

- Group Description
  [rptrGroupDescr, rptr100GroupDescr, vgRptrGroupDescr]
- Group Object ID
  [rptrGroupObjectID, rptr100GroupObjectID, vgRptrGroupObjectID]
- Group Opertional Status
  [rptrGroupOperStatus, rptr100GroupOperStatus, vgRptrGroupOperStatus]
- Group Last Operational Status Change
  [rptrGroupLastOperStatusChange, rptr100GroupLastOperStatusChange, vgRptrGroupLastOperStatusChange]
- Group Port Capacity
  [rptrGroupPortCapacity, rptr100GroupPortCapacity, vgRptrGroupPortCapacity]

Basic Port Information:

- Port Administrative Status
  [rptrPortAdminStatus, rptr100PortAdminStatus, vgRptrPortAdminStatus]
- Port Operational Status
  [rptrPortOperStatus, rptr100PortOperStatus, vgRptrPortStatus[1]]

1.different enumerations

Repeater Monitor Information:

- none

Group Monitor Information:

- Group Total Frames
  [rptrMonitorGroupTotalFrames, rptr100MonitorGroupTotalFrames, vgRptrGroupTotalFrames]
- Group Total Octets (both 32 and 64 bit counters)
  [rptrMonitorGroupTotalOctets, rptr100MonitorGroup*TotalOctets, vgRptrGroup*TotalOctets]
- Group Total Errors
  [rptrMonitorGroupTotalErrors, rptr100MonitorGroupTotalErrors, vgRptrGroupTotalErrors]

Port Monitor Information:

- Readable Frames

  [rptrMonitorPortReadableFrames, rptr100MonitorPortReadableFrames, vgRptrPortReadableFrames]

- Readable Octets (both 32 and 64 bit counters)

  [rptrMonitorPortReadableOctets, rptr100MonitorPort*ReadableOctets, vgRptrPortReadableOctets]

- Error Frames

  [rptrMonitorPortTotalErrors, rptr100MonitorPortTotalErrors]

Port Address Tracking:

- Address Changes

  [rptrAddrTrackSourceAddrChanges,
  rptr100AddrTrackSourceAddrChanges,
  vgRptrAddrTrainedAddrChanges]

- Last Address

  [rptrAddrTrackNewLastSrcAddress,
  rptr100AddrTrackLastSourceAddress,
  vgRptrAddrLastTrainedAddress]

Notifications:

- Health
- Group Change
- Reset Event

Factoring Effect on the 802.3 MIB:

- rptrRptrInfo
  - ~~rptrGroupCapacity~~
  - ~~rptrOperStatus~~
  - ~~rptrHealthText~~
  - ~~rptrReset~~
  - ~~rptrNonDisruptTest~~
  - **rptrTotalPartitionedPorts**
- rptrGroupInfo
  - ~~rptrGroupDescr~~
  - ~~rptrGroupObjectID~~
  - ~~rptrGroupOperStatus~~
  - ~~rptrGroupLastOperStatusChange~~
  - ~~rptrGroupPortCapacity~~

Factoring Effect on the 802.3 MIB:

- rptrPortInfo
  - ~~rptrPortAdminStatus~~
  - **rptrPortAutoPartitionState**
  - ~~rptrPortOperStatus~~
- rptrMonitorRptrInfo
  - **rptrMonitorTransmitCollisions**
- rptrMonitorGroupInfo
  - ~~rptrMonitorGroupTotalFrames~~
  - ~~rptrMonitorGroupTotalOctets~~
  - ~~rptrMonitorGroupTotalErrors~~

Factoring Effect on the 802.3 MIB:

- rptrMonitorPortInfo
  - ~~rptrMonitorPortReadableFrames~~
  - ~~rptrMonitorPortReadableOctets~~
  - **rptrMonitorPortFCSErrors**
  - **rptrMonitorPortAlignmentErrors**
  - **rptrMonitorPortFrameTooLongs**
  - **rptrMonitorPortShortEvents**
  - **rptrMonitorPortRunts**
  - **rptrMonitorPortCollisions**
  - **rptrMonitorPortLateEvents**
  - **rptrMonitorPortVeryLongEvents**
  - **rptrMonitorPortDataRateMismatches**
  - **rptrMonitorPortAutoPartitions**
  - ~~rptrMonitorPortTotalErrors~~

Factoring Effect on the 802.3 MIB:

- rptrAddrTrackPortInfo
  - ~~rptrAddrTrackLastSourceAddress~~
  - ~~rptrAddrTrackSourceAddrChanges~~
  - ~~rptrAddrTrackNewLastSrcAddress~~
- Notifications
  - ~~rptrHealth~~
  - ~~rptrGroupChange~~
  - ~~rptrResetEvent~~

Factoring Effect on the 802.3 MIB:

- This is all that is left
  - rptrTotalPartitionedPorts
  - rptrPortAutoPartitionState
  - rptrMonitorTransmitCollisions
  - rptrMonitorPortFCSErrors
  - rptrMonitorPortAlignmentErrors
  - rptrMonitorPortFrameTooLongs
  - rptrMonitorPortShortEvents
  - rptrMonitorPortRunts
  - rptrMonitorPortCollisions
  - rptrMonitorPortLateEvents
  - rptrMonitorPortVeryLongEvents
  - rptrMonitorPortDataRateMismatches
  - rptrMonitorPortAutoPartitions

Current MIB Object Indexing:

- Basic Repeater Information: scalar
- Basic Group Information: groupIndex
- Group Monitor Information: groupIndex
- Basic Port Information: groupIndex, portIndex
- Port Monitor Information: groupIndex, portIndex
- Port Address Tracking: groupIndex, portIndex

Problems With Current Indexing Scheme:

- Multiple logical repeaters must be represented by multiple instances of the MIB, usually selected via community string.
- Confusing to the end user.
- Not consistent with IEEE.
- Not RMON friendly.
- Not utilized by network management applications.

Proposed MIB Object Indexing:

- Repeater Information: repeaterIndex
- Group Information: repeaterIndex, groupIndex
- Port Information: repeaterIndex, groupIndex, portIndex

New MIB Objects:

- Physical Port Mapping Table
  - read-write table
  - indexed by physical port
  - contains repeaterId, GroupId and portId
- Physical Port Mapping Capability Table
  - read-only table
  - indexed by physical port and repeater Id
  - an instance of this table is present if the given port can be mapped to the given repeater

Other Issues:

- Are “group” objects really useful
- Mapping ports to IF-MIB entries
- Security objects