> BUSINESS MADE **SIMPLE**

IEEE 802.1ah – Management Proposal

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July 2006

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MIB

MIBs for IEEE 802.1 Projects

The standards below each detail their own MIB, individually building on an 802.1ap MIB

P802.1aq (SPB)

P802.1aj (TPMR)

P802.1ah (PBB)

P802.1ag (CFM)

Amendments to 802.1Q-2005

The standard below details its own MIB, building on an 802.1X MIB

P802.1af (KeySec)

Amendment to 802.1X-2004

An 802.1ap MIB will cover all the standards below, building on the IETF MIBs

P802.1ap (VLAN MIB)

802.1Q-2005 [incorp's 802.1s-2002 (MSTP)]
802.1ad-2005 (PB)
P802.1ak-2007 (MRP)

RFC 4363, RFC 4318 & RFC 4188

802.1D-1998	802.1Q-2003
802.1t-2001 (D maint)	802.1u-2001 (Q maint)
802.1w-2001 (RSTP)	802.1v-2001 (VLAN classif)

New standards below, each detailing their own MIB

P802.1AS (TimeSync)

P802.1AR (SecDvcID)

P802.1AE (MACSec)

P802.1AC (MACsvc)

P802.1AB (LLDP)

MIB relationships

PROPOSED EVOLUTION		
Module	**Managed objects for**	**Defined in**
BRIDGE MIB	802.1D	RFC 4188
RSTP-MIB	802.1w	RFC 4318
P-BRIDGE MIB	802.1D & 802.1t	RFC 4363
Q-BRIDGE MIB	802.1Q, 802.1u & 802.1v	RFC 4363
CFM MIB	*802.1ag*	*802.1ag*
PB-BRIDGE MIB MSTP MIB MRP MIB	*802.1ad, 802.1ak, MSTP*	*802.1ap*
PBB-BRIDGE MIB	*802.1ah*	*802.1ah*

Q-BRIDGE MIB Subtrees & Tables

> Base
  - Version, etc

> Transparent Bridging
  - FDB table
  - FID
  - Forwarding

> Static
  - Unicast addresses per FDB
  - Mulitcast/Broadcast addresses

> VLAN
  - Current
  - Static
  - Port configuration
  - Port statistics
  - Learning constraints

Actual from RFC 4363

PB-BRIDGE MIB Subtrees & tables

> Priority

- Port
- Service Access
- Port decoding/encoding

> Provider Bridging

- Port
- VID Translation
- CVID Registration
- Customer Edge
- Priority regeneration

> Statistics ?

Proposed based on clause 12 of 802.1ad

PBB-BRIDGE MIB Subtrees & Tables

> Transparent Bridging
- FDB table
  - entries

> Provider Bridging
- Port

> Provider Backbone Bridges
- Port
- I-SID to VIP Mapping
- Connection identifier to B-MAC Mapping
- I-SID Registration
- I-SID to B-VID Registration
- I-SID Translation
- B-MAC Translation

> Statistics ?

Anticipated based on clause 12 proposal for of 802.1ah

802.1ap MIB considerations

> Incorporating existing IETF MIB modules using IETF OID root

  - Duplicate existing modules or reference in clause 17?

> New modules (as new tables instead of augmenting) will use IEEE OID root

  - PB
  - MSTP
  - MRP

Current MIB proposal for PB & MSTP in one module

Managed Objects

802.1D-2004 Clause 14 managed objects

> Bridge Management Entity (14.4 and 7.11).

> Individual MAC Entities associated with each Bridge Port (14.5, 7.2, 7.5, and 7.6).

> Forwarding Process of the MAC Relay Entity (14.6, 7.2, and 7.7).

> Filtering Database of the MAC Relay Entity (14.7 and 7.9).

> Spanning Tree Protocol Entity (14.8, 7.10 and Clause 17).

> GARP Participants (Clause 12).

> GMRP participants (14.10 and Clause 10).

802.1Q-2005 Clause 12 managed objects

> Bridge Management Entity (12.4 and 8.12)

> Individual MAC Entities associated with each Bridge Port (12.5, 8.2, and 8.5)

> Forwarding Process of the MAC Relay Entity (12.6, 8.2, and 8.6)

> Filtering Database of the MAC Relay Entity (12.7 and 8.8)

> Bridge Protocol Entity (12.8 and 8.10; 8 and 17 of 802.1D)

> GARP Participants (12.9, 12 of 802.1D)

> GVRP participants (12.10, 11)

> GMRP participants (12.11, 10 of 802.1D)

> MST Configuration Table (12.12)

802.1ad-2005 Clause 12

> Forwarding Process of the MAC Relay Entity (12.6)

Additions

- Priority Handling objects for each Port (12.6.2)
    - Read/Set Port Priority Code Point Selection
    - Read/Optionally Set Port Priority Code Point Decoding Table
    - Read/Optionally Set Port Priority Code Point Encoding Table
    - Read/Optionally Set Use_DEI parameter
    - Read/Optionally Set Require Drop Encoding parameter
    - Read/Optionally Set Service Access Priority Selection
    - Read/Optionally Set Service Access Priority Table

> Provider Bridge (12.13)

New

- Provider Bridge Port Type managed object (12.13.1)
    - Read/ Optionally Configure Provider Bridge Port Type
        - Provider network, customer network, customer edge
- Network Port Configuration managed object (12.13.2)
    - Read/ Configure VID Translation Table Entry
- Customer Edge Port Configuration managed object (12.13.3).
    - Read/Configure C-VID Registration Table Entry
    - Read/Set Provider Edge Port Configuration
    - Read/Set Service Priority Regeneration Table

802.1ak Clause 12

> Filtering Database of the MAC Relay Entity (12.7)

> MRP Participants (12.9)

> MVRP participants (12.10)

> MMRP participants (12.11)

Mostly changing 'GARP' to 'MRP'

802.1ag Clause 12

> Connectivity Fault Management (12.14)
- CFM Managed Object (12.14.1)
  - Read CFM Configuration
  - Create/Delete Maintenance Domain Managed Object
  - Read CFM Stack Managed Object
  - Read/Write Default MD Level Managed Object
- CFM Stack Managed Object (12.14.2)
- Default MD Level Managed Object (12.14.3)
- Maintenance Domain Managed Object (12.14.4)
- Maintenance Association Managed Object (12.14.5)
- Maintenance association End Point Managed Object (12.14.6)
  - Read/ Write Maintenance association End Point Managed Object
  - Transmit Loopback Messages
  - Transmit Linktrace Message
  - Read Linktrace Reply
  - Read MEP Database
  - Transmit MEP Fault Alarm

New

802.1ah Clause 12

> Filtering database (12.7)
- Create/Delete/Read filtering entry (12.7.7)
  - Connection identifier

> Provider Bridge (12.13)
- Provider Bridge Port Type managed object (12.13.1)
  - Read/ Optionally Configure Provider Bridge Port Type
    - Provider backbone = provider network, customer instance = customer edge

> Provider Backbone Bridge (12.15)
- Provider Backbone Bridge Port Type managed object (12.15.1)
  - Read/ Optionally Configure Provider Backbone Bridge Port Type
    - Customer backbone, provider instance
- Provider Instance Port Configuration managed object (12.15.2)
  - Read/Configure Virtual Instance Port (VIP) Configuration
    - Read/Set I-SID to VIP Mapping Table Entry
    - Read/Set Connection identifier to B-MAC Mapping Table Entry
- Customer Backbone Port Configuration managed object (12.15.3)
  - Read/Configure 'to customer' I-SID Registration Table Entry
  - Read/Configure 'to provider' I-SID to B-VID Registration Table Entry
  - Read/Configure I-SID Translation Table Entry (optional)
  - Read/ Configure B-MAC Translation Table Entry (optional)

Additions

New

802.1ah Managed Object Considerations

> No managed object changes are required for the addition of service access point (SAP) to ISS/EISS
  - Should there be one? In .1Q or .1D?

> Connection identifier is a note in the FDB, not a new parameter

> Virtual instance port is internal so its not a visible managed object

> Provider backbone & customer instance ports are .1ad ports
  - So add to PB managed objects (12.13) as aliases
  - Customer instance may have protection later

> No priority regeneration table
  - It would be in customer backbone port if required

> S-VID to I-SID Mapping Table on Provider Instance port is not necessary
  - Covered by 'port map' in filtering database

> Terminology of table names
  - Registration = 1 way; Mapping = 2 way, different parameters; Translation = 2 way, same parameter

Conclusion

> 802.1ap should include

- Clause 17
- References to IETF MIBs
- New tables for PB, MSTP, MRP

> 802.1ah should include

- Clause 12 & Clause 17 additions
- New tables for PBB

> IETF RFCs remain MIBs

- Baseline 802.1D & 802.1Q