

IEEE 802.3

Clause 30 management, MIB, registers and function

David Law

David_Law@3Com.com

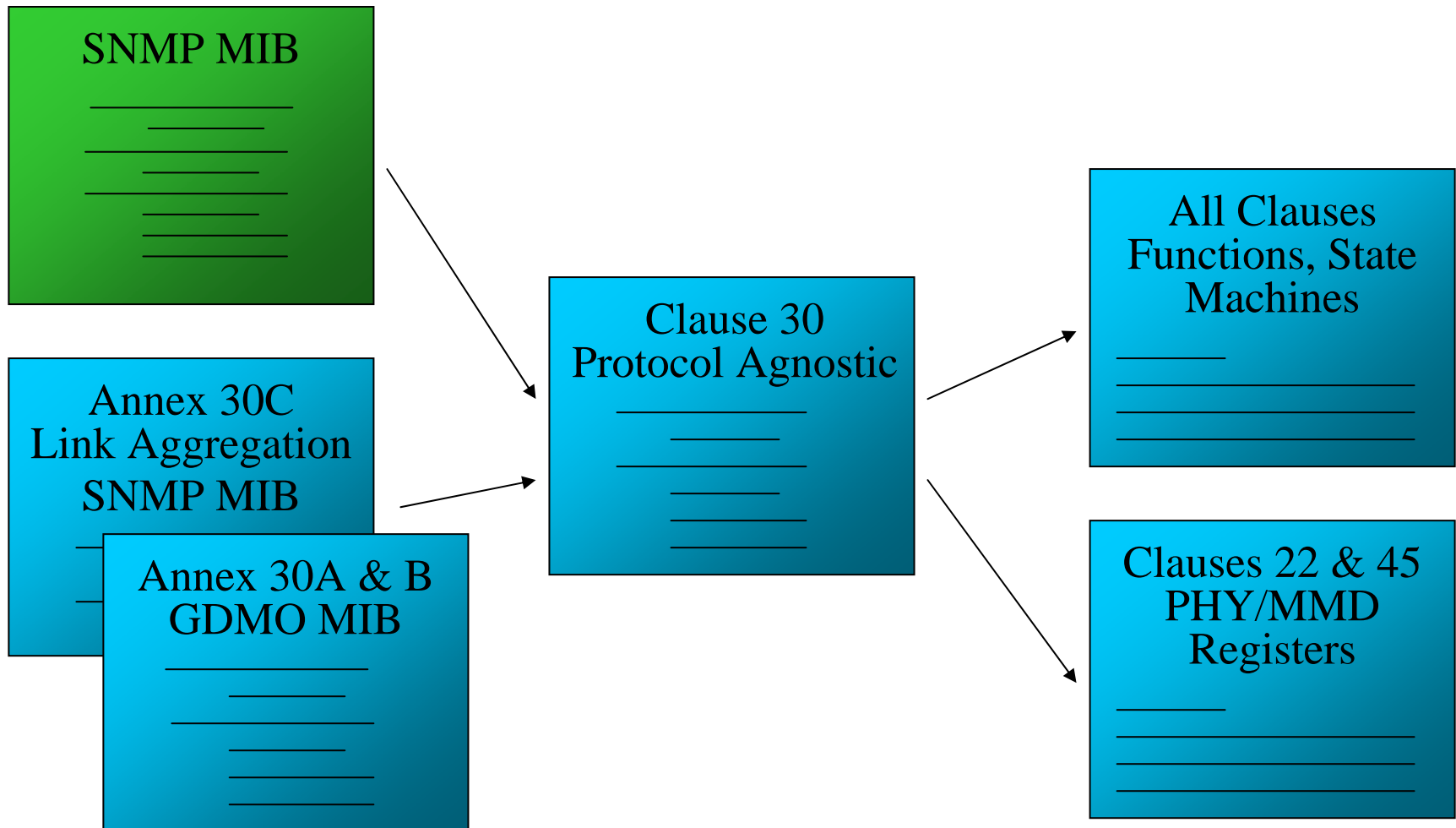
Document Structure

- Protocol independent MIB clause
 - Clause 30
- Protocol dependent MIB annexes
 - GDMO
 - Annex 30A & 30B
 - SNMP (Link Aggregation only)
 - Annex 30C
 - Being moved to IEEE P802.1AX
 - Part of IEEE 802.3ax and IEEE 802.3ay projects
- Other SNMP MIBs were produced by IETF
 - Referenced Clause 30 definitions
 - This is no longer going to happen

Clause 30 Objects

- Generally provide Objects that are associated with hardware function
 - Object behaviour specifications reference functions and registers within the relevant Clause of 802.3
- Generally don't provide object if it doesn't require hardware support
 - Examples
 - Objects that could be calculated from other objects
 - These may be provided in SNMP MIB

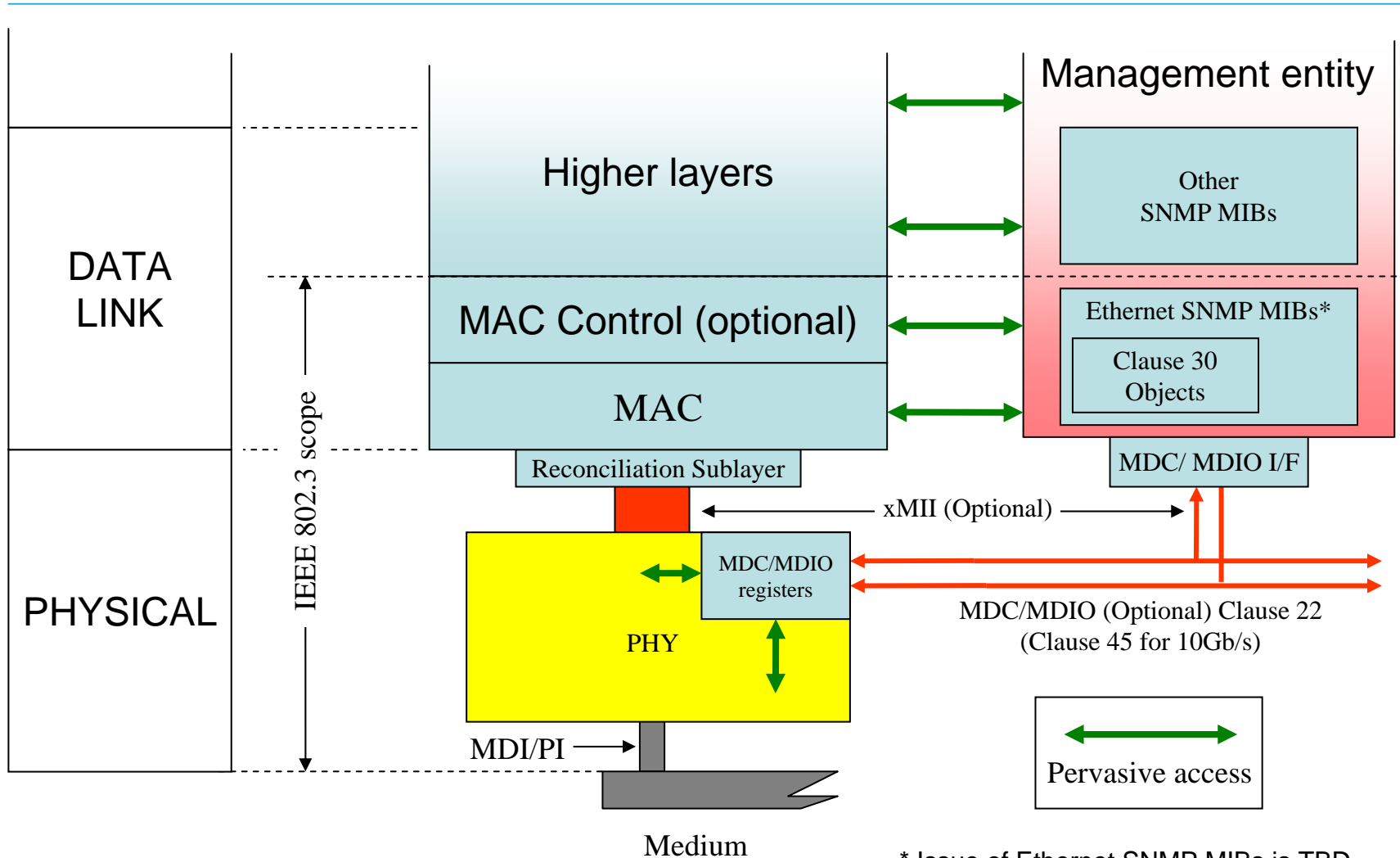
References to/from Clause 30



SNMP MIBs

- In the past the IETF defined and/or updated SNMP MIBs for IEEE 802.3 projects
 - This was performed by the Ethernet Interfaces and Hub MIB (hubmib) Working Group
- This will no longer happen
 - First informed in March 2004
 - http://www.ieee802.org/3/minutes/mar04/0304_IETF_report.pdf#Page=8
 - Not been a huge issue for the recent 10Gb/s PHY projects
 - Will be a issue for the more complex projects
 - Comments received on this issue in rules ballot
- Steps needed for 40Gb/s and 100Gb/s SNMP MIB
 - Take on ownership of the current SNMP MIBs
 - IEEE 802.1 going through this process (RFC 4663)
 - Then add modifications to MIBs as required
 - Could do these in separate projects or in one project

Management access

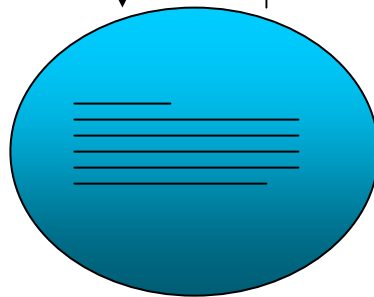
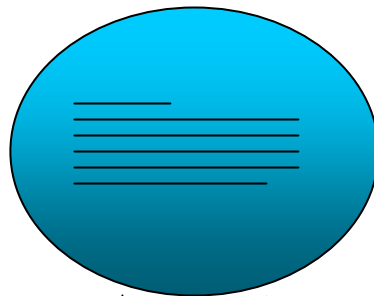


* Issue of Ethernet SNMP MIBs is TBD

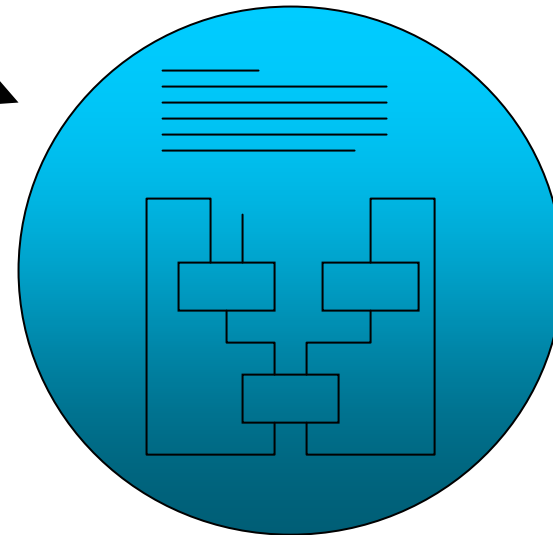
MIB, Registers and Function

Function in PHY needs register access to make it manageable

MIB definition



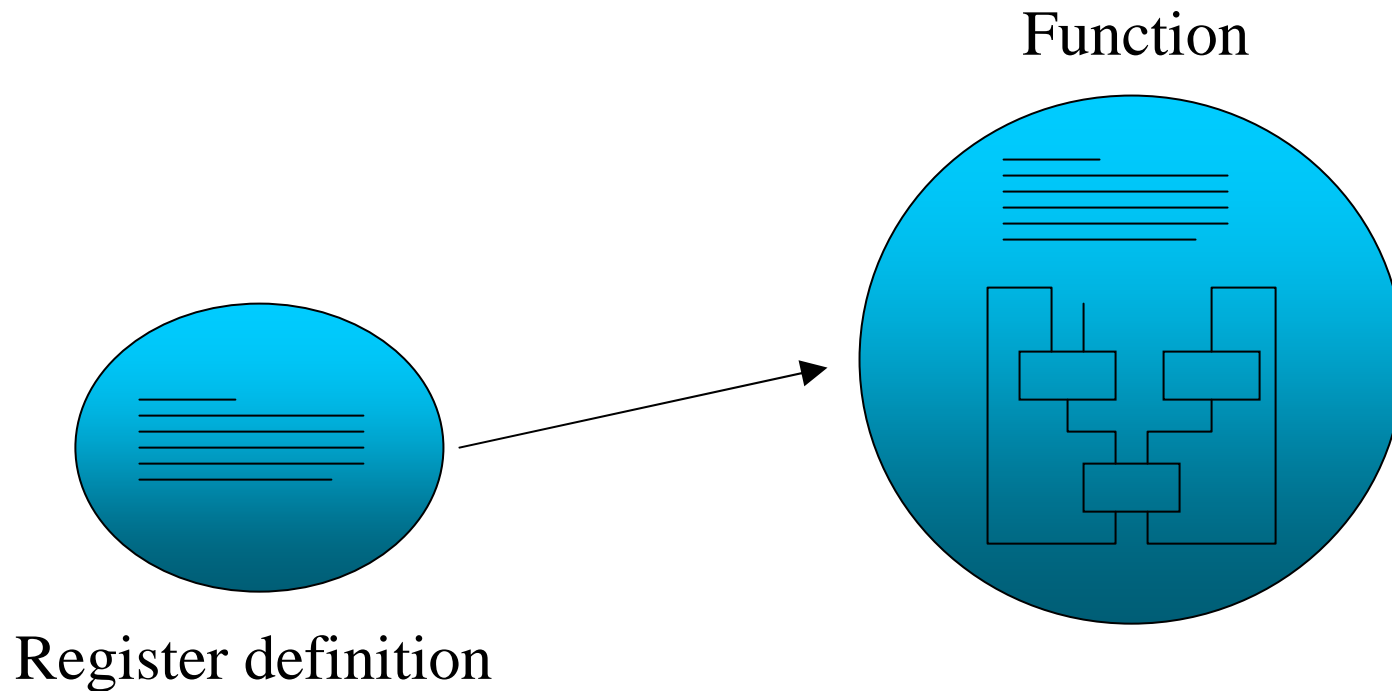
Function



Register definition

MIB, Registers and Function

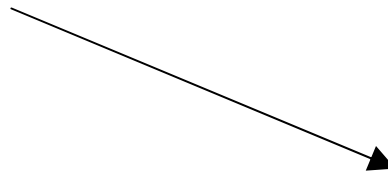
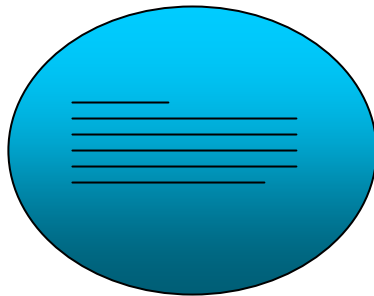
But can have a register but no MIB attribute – PHY test mode



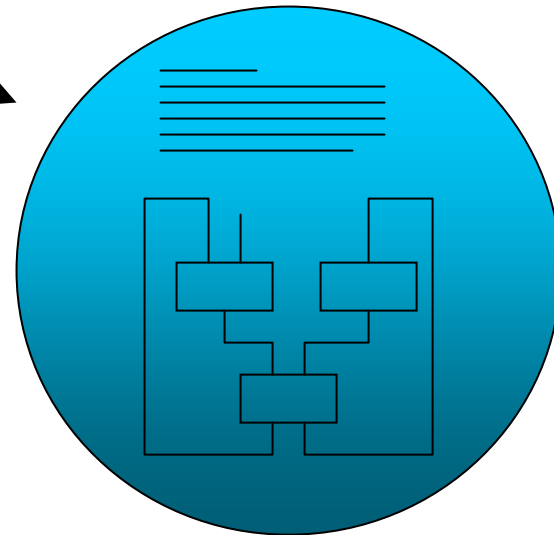
MIB, Registers and Function

And can have a MIB attribute but no register – MAC Counters

MIB definition



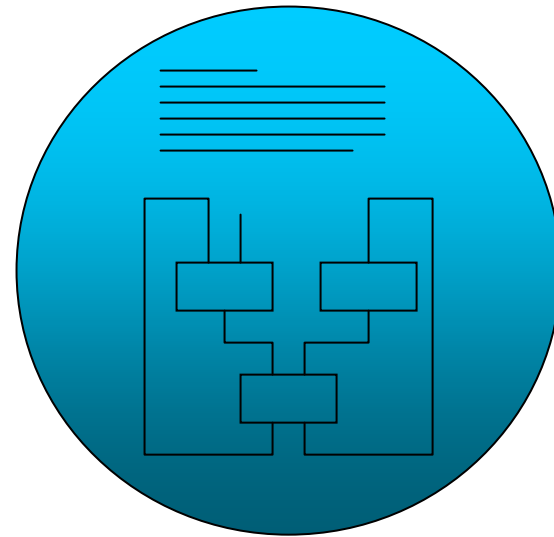
Function



MIB, Registers and Function

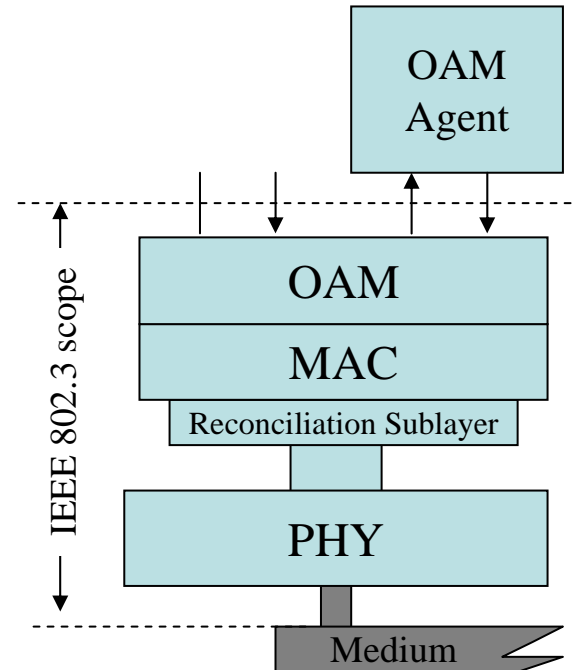
And of course can have a function but no register or MIB attribute

Function



IEEE 802.3 Operations, Administration, and Maintenance (OAM) (see Clause 57)

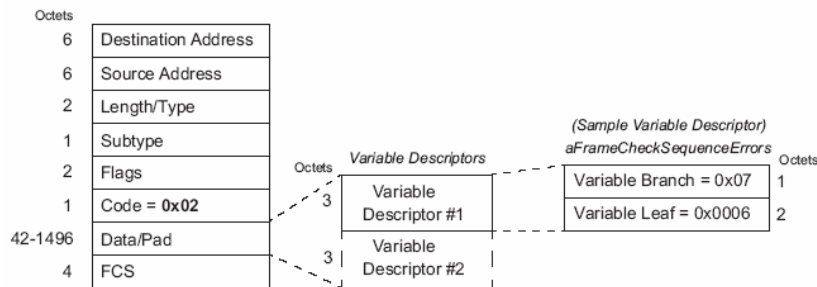
- Optional sublayer
 - Monitor link operation
 - Provide fault isolation
- Supports
 - Discovery
 - Events
 - Remote Loopback
 - Organization Specific Extensions
 - **Variable Retrieval**
- OAM is a Slow Protocol
 - Operates over a point to point link
 - Intent to be able implemented in software
- For more details see tutorial



http://www.ieee802.org/3/efm/public/jul03/oam/efm_oam_tutorial_2003_07_23.pdf

OAM Variable Retrieval

- IEEE OAM provides Variable Retrieval
 - Transfer Ethernet counters and statistics
 - Variables referenced using Annex 30A (GDMO) registration arcs
 - Provides precise definition of the information
 - No requirement to actually implement MIB
- Assuming 40Gb/s or 100Gb/s needs new attributes
 - Options
 - Don't support OAM - deprecate GDMO
 - Support OAM - update GDMO
 - Support OAM - update OAM to use SNMP arcs and deprecate GDMO



aFrameCheckSequenceErrors	ATTRIBUTE
DERIVED FROM BEHAVIOUR REGISTERED AS	aCMCounter; bFrameCheckSequenceErrors; {iso(1) std(0) iso8802(8802) csma(3) csmacdmgmt(30) attribute(7) frameCheckSequenceErrors(6)};
bFrameCheckSequenceErrors	BEHAVIOUR
DEFINED AS	See "BEHAVIOUR DEFINED AS" in 30.3.1.1.6
	NOTE—The approximate minimum time between counter rollovers for 10 Mb/s operation is 80 h.;

Summary

- Protocol agnostic Clause 30
 - Generally hardware related Objects
 - References functions and/or registers in other clauses
- Protocol devoted MIB annexes
 - GDMO
 - Annex 30A & 30B
 - Required to support current OAM
 - SNMP
 - Annex 30C
 - Resurrected after deletion by IEEE 802.3ay revision project
- Detailed approach to SNMP MIBs to be agreed
 - IEEE 802.3 wide issue