IEEE P802.3az Energy-efficient Ethernet and LLDP

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Link Layer Discovery Protocol (LLDP)

- **IEEE Std 802.1AB-2005**

  [http://standards.ieee.org/getieee802/download/802.1AB-2005.pdf]

  – **IEEE Standard for Local and metropolitan area networks - Station and Media Access Control Connectivity Discovery**

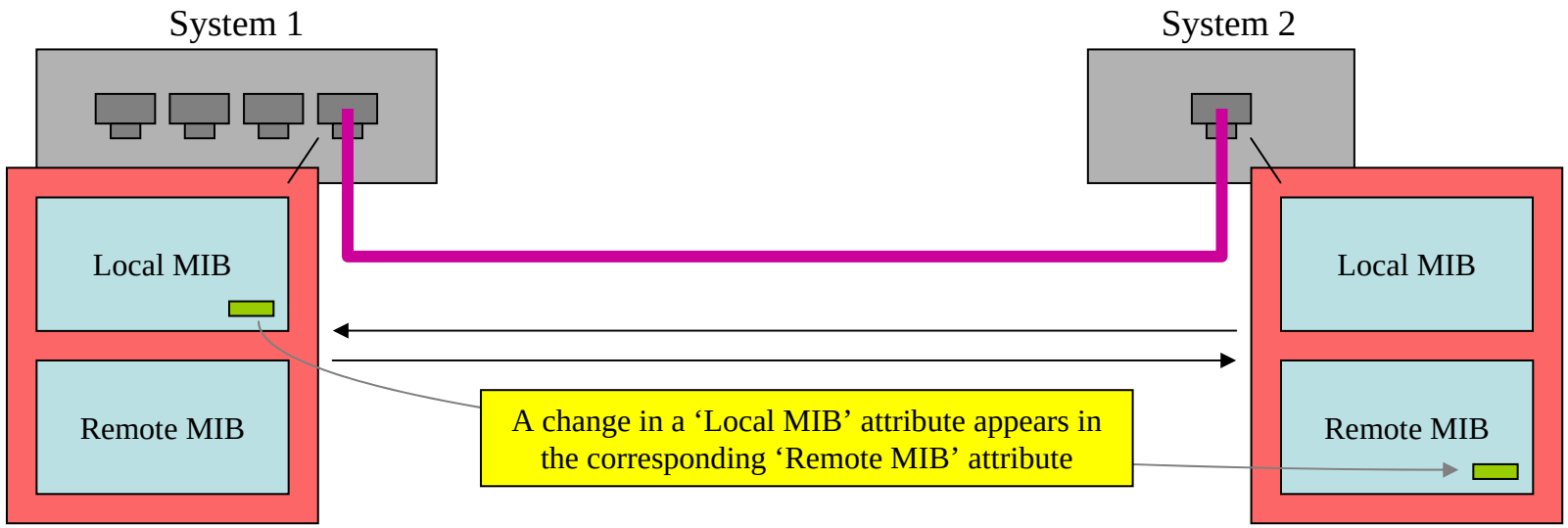
  – **Overview**

    - **The Link Layer Discovery Protocol (LLDP) specified in this standard allows stations attached to an IEEE 802® LAN to advertise, to other stations attached to the same IEEE 802 LAN, the major capabilities provided by the system incorporating that station, the management address or addresses of the entity or entities that provide management of those capabilities, and the identification of the station's point of attachment to the IEEE 802 LAN required by those management entity or entities.**
    - **The information distributed via this protocol is stored by its recipients in a standard Management Information Base (MIB), making it possible for the information to be accessed by a Network Management System (NMS) using a management protocol such as the Simple Network Management Protocol (SNMP).**

- **IEEE P802.1AB-REV revision project**

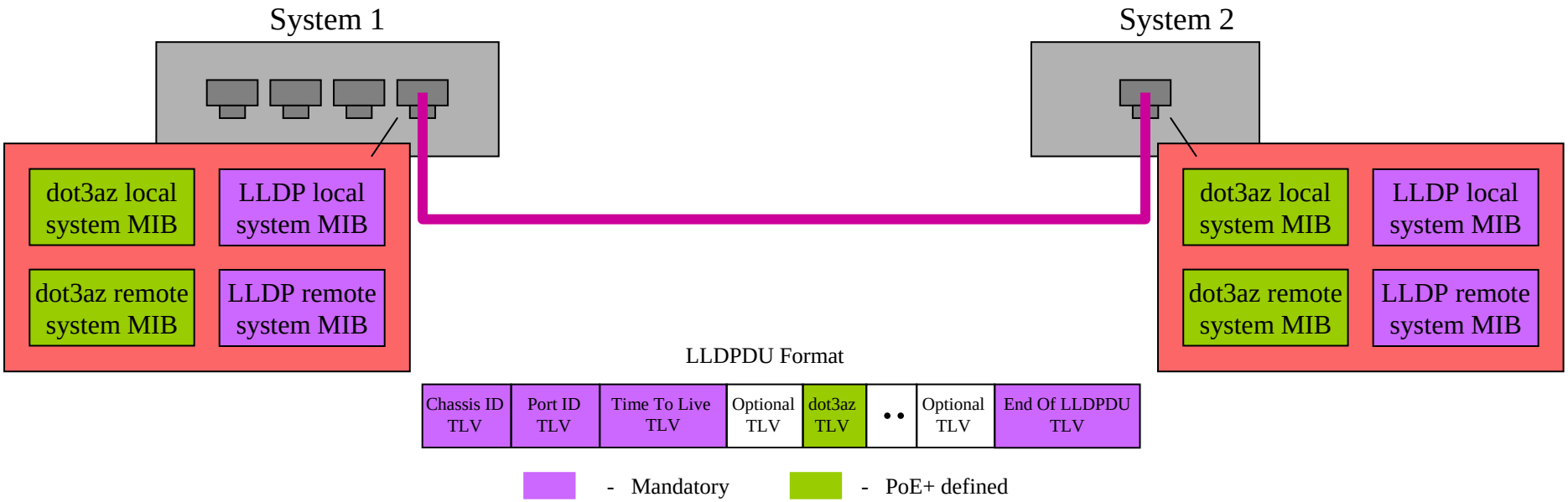
LLDP

- Operates over point to point link
- Completely enclosed protocol
  - We define data, it gets transported for
    - Don't get to make changes to the protocol
- Data in ‘Local MIB’ transported to ‘Remote MIB’
  - Transported by TLVs (type, length, value)

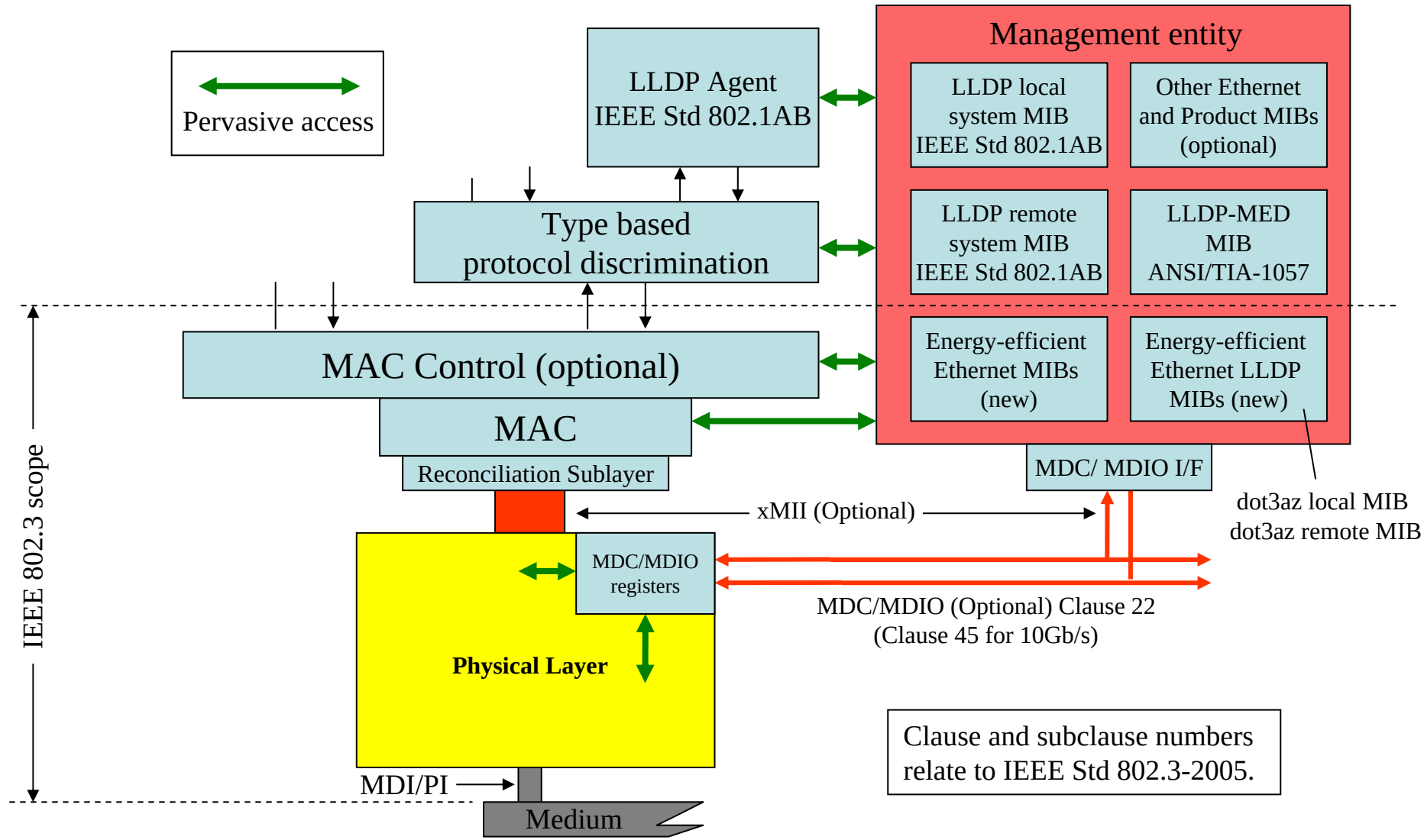


LLDP

- Two types of LLDP MIB
  - Mandatory basic LLDP MIB
    - Associated basic TLVs
  - Optional organizationally specific LLDP MIB extensions
    - Associated optional organizationally specific TLVs
- IEEE P802.3az would needs to define LLDP MIB extension and TLVs
  - This is in addition to a new ‘EEE’ MIB change

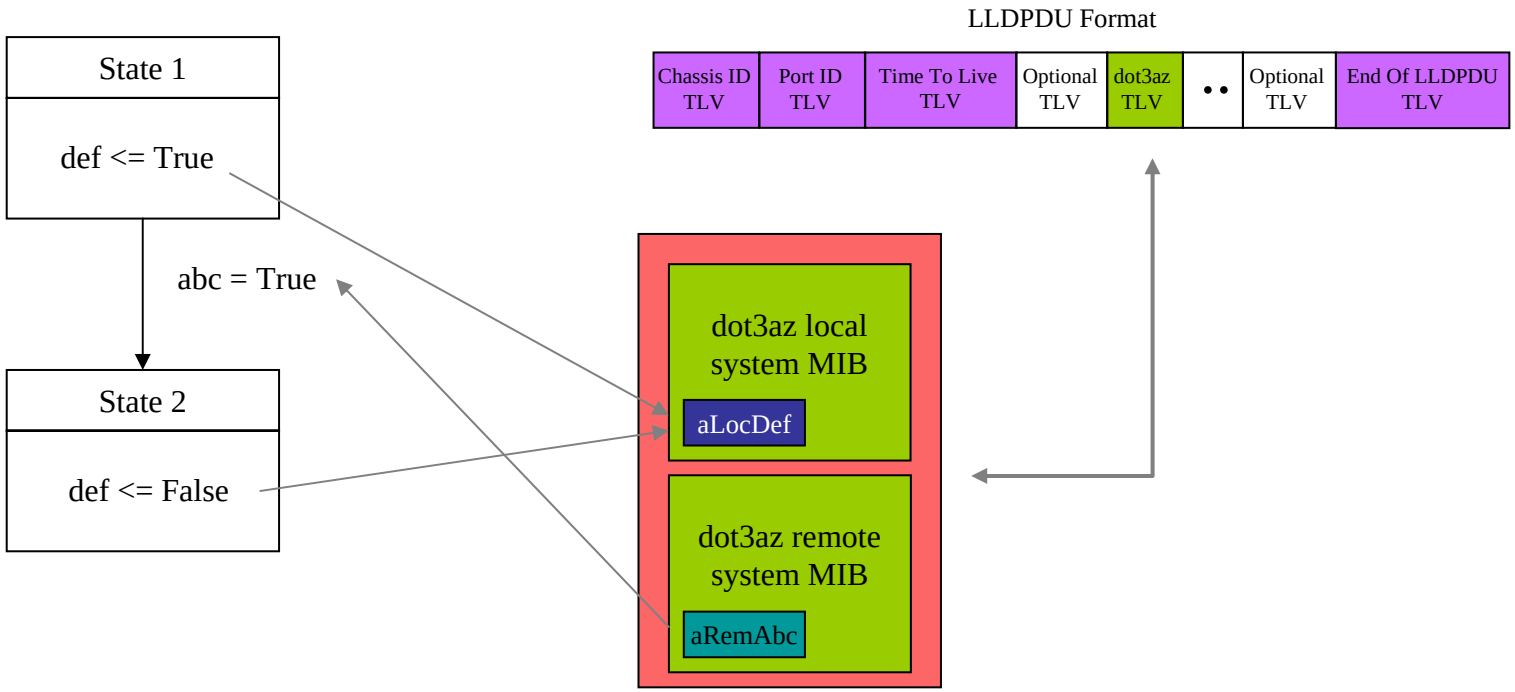


Management access



LLDP and State diagrams

- Can’t map directly to TLV contents
  - Map through objects in dot3az local and remote MIB
  - Define MIB attribute to variable mapping



Document structure

- IEEE Std 802.1AB subclause 9.6 Organizationally Specific TLVs

  'Each set of Organizationally Specific TLVs shall include associated LLDP MIB extensions and the associated TLV selection management variables and MIB/TLV cross reference tables (for example, see F.6 and G.6).'
- Hence to use LLDP IEEE P802.3az would have to define
  - LLDP MIB extensions
  - LLDP TLV selection management variables
  - MIB/TLV cross reference table
    - MIB attribute to TLV variable mapping
- IEEE P802.3az would also needs to define if required
  - MIB to state diagram cross reference table
    - Maps state diagram inputs and outputs to MIB attributes
  - State diagram using MIB derived variables