LLDP Capabilities Discussion/Summary/Proposal

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Capabilities Goals

- Provide efficient link for discovery and management of a particular capability
  - OSI layer forwarding capabilities are most interesting (repeater, bridge, router, NAT)
- Enable to local “mini” manager to describe the directly attached devices

A Recent Proposal

- Advertise a device classification vector, with bits for the following functions:
  a. Repeater
  b. Bridge
  c. Access Point
  d. Router
  e. Gateway
  f. End-station
- Setting one of the bits indicates this capability is present and a referenced MIB is likely to be supported.

Issues with this proposal

- Not very extensible
  - Referenced MIBs are tied to the document
  - Doesn't represent multiple forwarding behaviors at a particular layer (e.g. IP and IPX routing).
- Doesn't represent Admin and Oper states
- Doesn't indicate what the 'port' is capable of, rather the entire device.
- End-station capability is redundant
- Trying to classify a device rather than describe the capabilities of a particular port

New Proposal

- Forwarding Capabilities TLVs
  - One per OSI Layer (1-4)
  - Each TLV may contain multiple records if necessary (e.g. multiple L3 protocols routed)
    - Number of records
    - Oper bit
    - IANA protocol number for layer
    - OID or null
- End-station capability is handled by management address TLV (could include OID there as well)

Complete List of TLVs

- Current (mandatory)
  - ChassisID, PortID
- Current (optional)
  - Management Address, PVID, Duplex, Version, Vendor Specific
- New (optional)
  - Forwarding-L1, Forwarding-L2, Forwarding-L3, Forwarding-L4
  - Link Aggregation, Port and Protocol VLAN
  - Power ?

Backup

Link Agg TLV

- Includes indications of the following:
  - Link is capable of being aggregated
  - Link is currently in an aggregation
  - Port-ID info of the aggregated port (using Port-ID TLV info format).

Port and Protocol VLAN TLV

- Includes indications of the following:
  - Port is capable of supporting port and protocol VLANs
  - Port is currently enabled with port and protocol VLANs
  - for each management address TLV reported that is accessible via this port on a protocol VLAN
    - PPVID configured for the VLAN
    - Management Address TLV info for the VLAN

Power TLV

- Includes indications of the following:
  - Capable of sourcing or sinking power
  - Current amount of supply or draw