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