

Disambiguating LLDP agents over a Link Aggregation

Paul Congdon

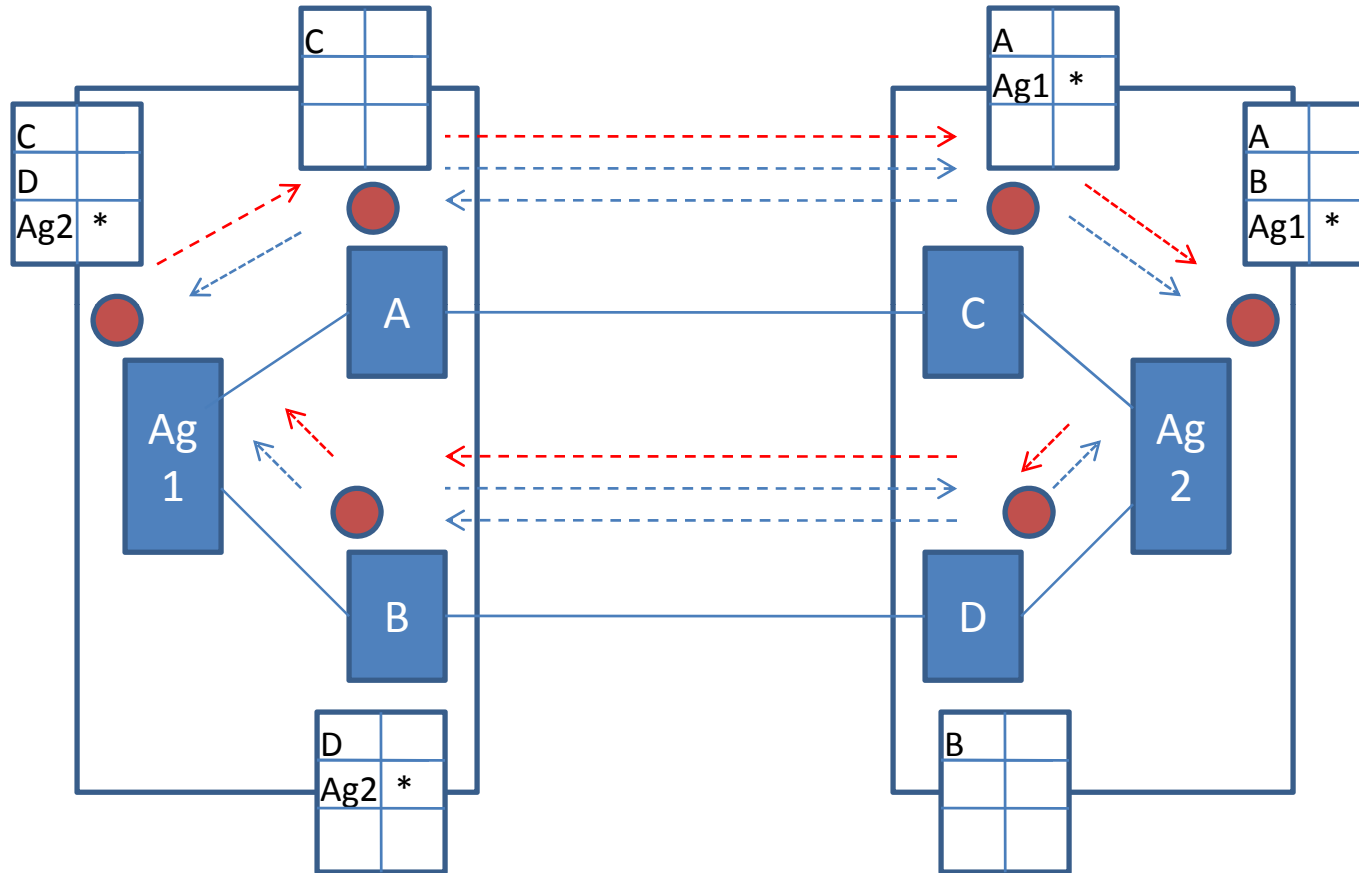
Objective

- Provide a mechanism for receiving LLDP agents to determine the source of LLDP frames over a link aggregation
- Propose a way to document this within our standards under construction

Interpretation of current specs

- 802.1AB does not say anything specific about how agents work in an aggregation environment
- The current LinkAgg-TLV has fields to indicate capability of being aggregated and current status of the aggregation
- Assumption from 802.1AB is that agents would exist on the physical links and potentially on the aggregation as well

Example LLDP over LinkAgg



Note: Aggregation agent LLDP frames are distributed over the aggregation to one link
Aggregation agent sees all LLDP agents
Physical link agent sees physical link peer and possibly the aggregation agent

Disambiguating Agents

- Require LinkAgg TLV to be present if running in a Link Aggregation

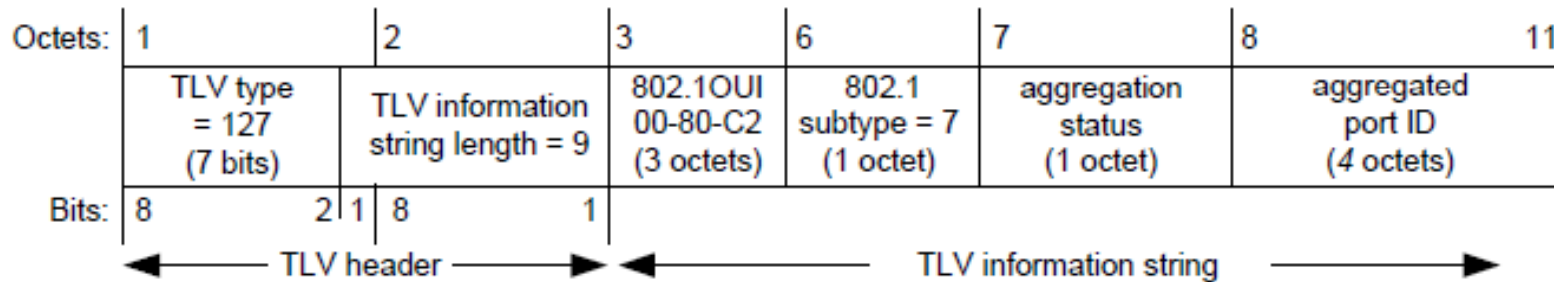


Figure E.7—Link Aggregation TLV format

Table E.3—Link aggregation capability/status

Bit	Function	Value/meaning
0	Aggregation capability	0 = not capable of being aggregated 1 = capable of being aggregated
1	Aggregation status	0 = not currently in aggregation 1 = currently in aggregation
2-7	reserved for future standardization	—

Disambiguating Agents (cont)

- Agents on physical links
 - Aggregation capability = 1
 - Aggregation status = 1
 - Aggregated PortID = PortID of aggregated link
 - PortID TLV = physical link PortID
- Agents on aggregates
 - Aggregation capability = 0
 - Aggregation status = 1
 - Aggregated PortID = PortID of aggregated link
 - PortID TLV = aggregated link PortID

Standardizing this proposal

- There is a proposed PAR to open 802.1AX to document how to use LinkAgg over TPMRs
- Insert a small clause to document requirements for LLDP in the present of LinkAgg

Issues

- Will setting capable=0 and status=1 trigger error conditions within existing management stations?
- Aggregation portID can not be the same as any physical portID for this to work.
- Chassis-ID+Port-ID must be unique for each agent to be identified. If the aggregate uses the same Chassis-ID+Port-ID the receiver will wipe-out previously received data.
- This proposal makes it impossible to aggregate an aggregation. This may be already true
- Adds LLDP to the long list of protocols that must be coordinated in the implementations of Link Aggregations split across multiple chassis.

Alternatives Discussed

- Define a new address to direct frames only to the aggregate (e.g. Nearest-Aggregate Address)
- Create a new mandatory TLV that must only be sent by the aggregate agent