802.1AXdz
YANG for Link Aggregation

Editor’s Report: May 2024
Version 1

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May 15, 2024
802.1AX status

• First draft: 802-1AXdz-d0.0
  – Clause 2 and Annex G: Add a couple RFCs to the normative references and bibliography entries.
  – Clause 3: Add a couple definitions
  – Clause 4 and Annex A: Add a new bullet to conformance clause and to PICS.
  – Clause 10: Link Aggregation YANG definitions
    • This is the bulk of the document.
dot1ax YANG modules

• Three YANG modules:
  – ieee802-dot1ax-types
    • typedef, identity, etc. for the other two modules
  – ieee802-dot1ax
    • For Link Aggregation and LACP
      – System level container for the key-group list
      – Aggregator container to augment an if:interface
      – Aggregation-port presence container to augment an if:interface
  – ieee802-dot1ax-drni
    • For DRNI and DRCP
      – Presence container to augment an aggregator with DRNI
Key Groups

- A key group associates all Aggregation Ports (and Aggregators) that can potentially be aggregated.
  - The fundamental characteristic of LACP is that all aggregation-ports/aggregators that can potentially be aggregated have the same combination of system id, system priority, and key.
  - There are several other parameters that are expected to be the same for all aggregation-ports/aggregators that can potentially be aggregated (e.g. LACPDU destination address, CSCD parameters that describe a distribution algorithm).
  - The key-group list in the YANG manages these parameters:
    - Each entry has a unique system id and key combination, and includes the other parameters that are expected to be consistent.
    - This prevents having independent objects in each Aggregator and Aggregation Port that all (should) have the same value.
    - Reduces the likelihood of misconfigurations.
Create a single entry in the key-group list

Create a couple Ethernet interfaces, augment with Aggregation-Port, and assign to the key-group

Create a couple LAG interfaces, augment with Aggregator, and assign to the key-group
Name changes?

- **Xpaths get long:**
  - E.g.: `if:interfaces/if:interface[if:name]/dot1ax:aggregation-port/dot1ax:aggregation-port-cscd`

- **Proposed changes:**
  - **Module:**
    - `ieee802-dot1ax → ieee802-dot1ax-linkagg`
  - **Container:**
    - `link-aggregation → linkagg`
    - `aggregation-port → aggport`
    - `aggregator → lag (?)`
    - `aggregation-port/aggregation-port-cscd → aggport/cscd`
    - `aggregator/aggregator-cscd → lag/cscd`
  - **Leaf:**
    - `agg-key-group → key-group-name`
    - `Intra-relay-port → irp-name`
Plan going forward:

• Complete draft 0.1:
  – Implement name changes (?)
  – Where do statistics go?
  – Improve description of modules
    • E.g. use of higher-layer-if / lower-layer-if

• Complete first task group ballot before July
Thank You
Back up slides
LinkAgg Sublayer in Systems

- Link Aggregation Sublayer sits between Bridge Ports and MACs in a bridge; between MAC Client(s) and MACs in an end station.
Link Aggregation Service Sublayer

The Link Aggregation Sublayer is a collection of Aggregators and Aggregation Ports.
- Typically one Aggregation Port per MAC.
- At least one Aggregator per BridgePort/MACSAP. (Can always model with one Aggregator per Aggregation Port, but some Aggregators may be unused.)
- Aggregation Ports are attached to Aggregators dynamically by the Link Aggregation Control Protocol (LACP).