IEEE 1914 NGFI

IEEE 1914.3a RoE – Auto Negotiation and Structure Agnostic Extensions

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04 Feb 2020
Teleconference
Auto Negotiation Diagram
RoE Structure Agnostic Mapping

- Simple Mapping for Port to Port connections
- Connections maybe over Ethernet L2 or IP L3 (new addition)
- 2 Order Info Modes defined
  - Sequence Number
  - Presentation Time (but there is no indication of the network delay)
- Autoneg
  - Requires rate to be transferred to the Proxy Master
- Currently RoE Structure Agnostic Ports DO NOT support any control packets
  - This is to keep the design simple and should be preserved
Extended Header for RoE

• What is needed?
  – Network Delay (to adjust dejitter buffers)
  – Rate Information for Autoneg
  – Alarms/Errors for Autoneg and actions
  – For IP transport packets can be lost or re-ordered need to use seq. num but still have delay measurements

• Proposal
  – Add a 32 bit optional Extended Header to the RoE header for Structure Agnostic modes
  – Could be a new subtype which is Structure Agnostic with extended header
    • This subtype will support Autoneg and also allow for demapper to be able to adjust dejitter buffer
Proposal

- 4 bits for CPRI rate information for auto-neg
- 8 bits for Alarms and Status
  - LOS, LOF
    - 1 bit can be used to transfer full rate with a further extension
    - Remote Alarms ???
- 4 bits reserved for future use
- 16 bits timestamp
  - MSB 2 bits indicate resolution (512ns, 32ns, 8ns, 1ns)
  - LSB 14 bits are the from the timestamp ns field right shifted to match the resolution
    - PHY can use when delay is symmetric, if delay is directionally different some higher layer process can adjust dejitter buffers