802.1CM conference call

CPRI requirements for Ethernet Fronthaul
CPRI TWG Status of Work
Assumed Types of Traffic

- **Synchronization**
  - Timing synchronization of Radio Access Network (RAN) wide
  - Frequency synchronization of Radio Access Network (RAN) wide
  - Master node of synch may not be REC but other node (e.g. PTP grand-master)

- **User Plane**
  - “IQ data” (and Real-Time vendor specific control signal) for current CPRI function split between REC and RE
  - No CPRI framing encapsulation assumed
  - One QoS type is required for now
  - Different function split(s) may be necessary for next step
    - Multiple QoS types may be necessary

- **C&M Plane**
  - Control and Management signal between REC and RE
  - “best effort” type QoS is assumed

- **Link management**
  - Ethernet OAM
  - “best effort” type QoS is assumed

- **Background traffic**
  - Only “best effort” type QoS is assumed for a first profile
The simplest but the most typical (useful) network model

MME, SGW, etc

Backbone Network (no limit of distance)

Target of discussion

Out of scope of discussion

Geometrically Local

Access Network (R ~<10km)
• Maximum End to End Latency:
  – 100µs (including fiber length, PDV, bridges delay,...)
  – Minimum maximum distance* to be supported for full performance RE/REC system:
    • CPRI current working assumption: 10km
    • Such requirement should be given by operators

• Maximum PDV:
  – 5µs or 10% of the E2E latency
  – Further discussions needed

• PLR:
  – Actual PLR caused by bit error, congestion, out of delay packet: $10^{-6} \ldots 10^{-9}$
  – Further studies required to evaluate the impact on the performance

*Geographical distance between REC and RE, not fiber length accumulation between REC and RE
Next steps

• Frequency synchronization
  – Agree on possible solutions and derive requirements

• Time alignment
  – Agree on the time alignment goals and derive requirements

• Latency/PDV/PLR
  – Balance these interacting requirements
  – Evaluate the PLR impact on the performance

• Remaining requirements