



# Concept 710: Deterministic Communication with TSN

Final release planned for R24-11

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# Deterministic Communication with TSN

Final release planned for R24-11



Problem	Solution
Adaptive platform ECUs are currently not capable to communicate via IEEE1722 streams (e.g. audio and video streams)	Extended raw data stream to support IEEE1722 streams of various subtypes <sup>1)</sup> . Extended communication management with an additional network binding to handle IEEE1722 streams of subtype TSCF and NTSCF <sup>2)</sup>
Classic platform ECUs are not able to transfer IEEE1722 encapsulated bus frames (CAN, LIN) as ACF message (a.k.a. IEEE1722 tunneling) e.g. across a switched Ethernet network from one zone to another.	The BSW module L-SDU router supports routing of low-level service data units (L-SDUs) from the AUTOSAR communication stack <sup>3)</sup> to the IEEE1722Tp BSW module

1) AAF, RVF, 61833\_IIDC, CRF, TSCF / NTSCF  
2) TSCF / NTSCF: Transfer of IEEE1722 encapsulated bus frames (CAN, LIN)  
3) The respective bus-interface (<Bus>If) and upper layer modules

Standardized application APIs for e.g. audio / video streams (IEEE1722 streams) and support of zone connection (IEEE1722 tunneling)

# Hints for the presenter

## ■ Concept part 7

- Introduce support of IEEE1722 stream handling on AP
- AP ECUs are able to participate on a communication via IEEE1722 stream (see figure)
- AP ECUs can handle the supported IEEE1722 subtypes:
  - AAF: Audio stream
  - RVF: Video stream
  - 61883\_IIDC: Video stream
  - CRF: Distribution of system clock
  - TSCF / NTSCF: Transfer of IEEE1722 encapsulated bus frames (CAN, LIN)

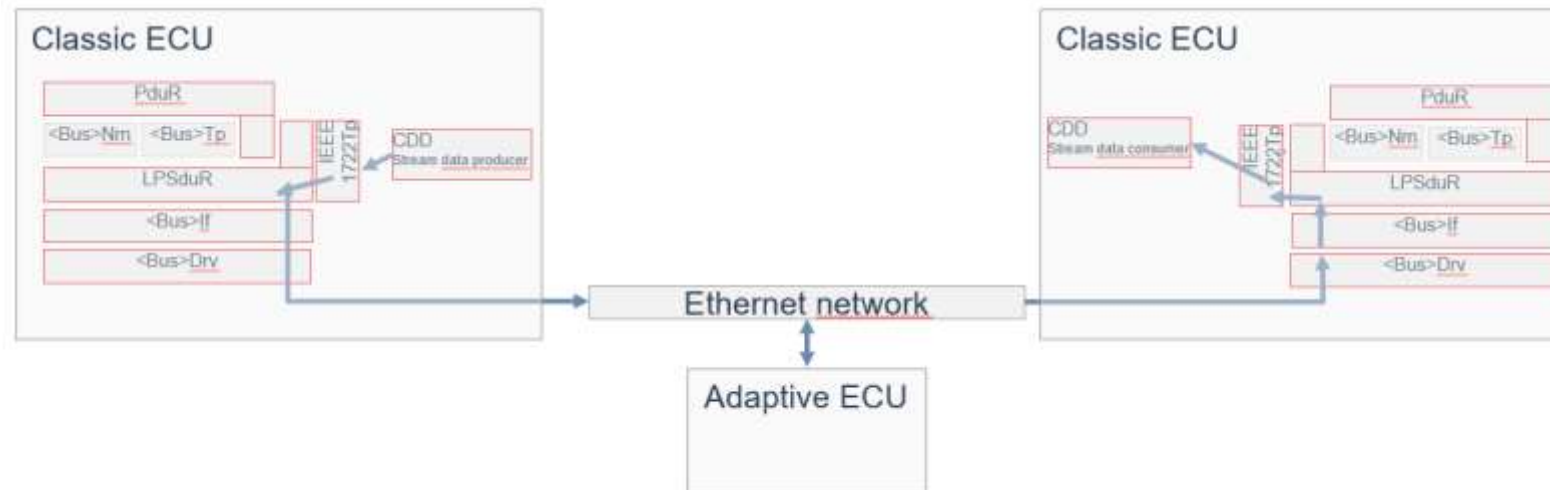


Fig.: AP ECUs are able to communication via IEEE1722 streams

# Hints for the presenter

## ■ Concept part 8

- Completion of IEEE1722 specified transfer for IEEE1722 encapsulate bus frames (CAN, LIN) as ACF message (a.k.a. IEEE1722 tunneling)
- CP ECUs fully support of IEEE1722 tunneling (Note: IEEE1722Tp modul was introduced in R23-11)
- CP ECUs can communicate with conventional / existing bus communication (CAN, LIN) across several architectural zones via an Ethernet network

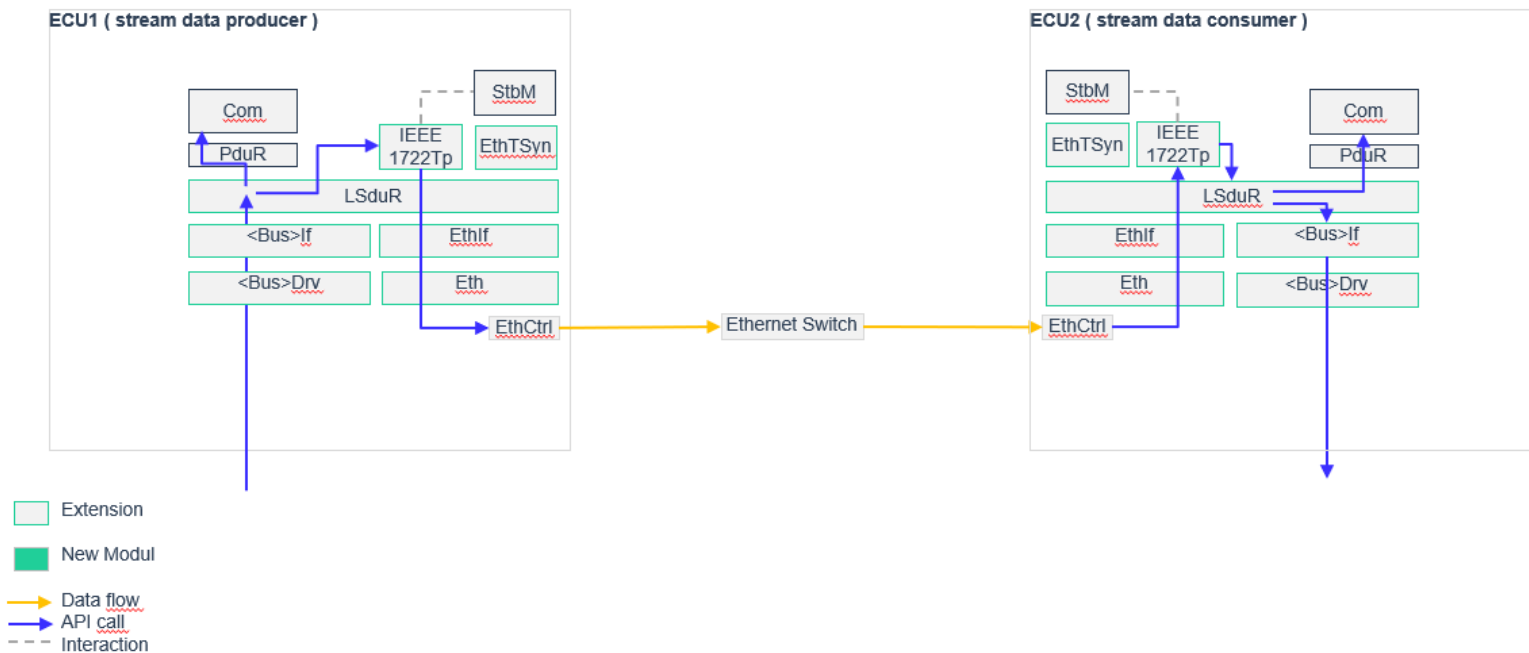


Fig.: CP ECUs are able to handle bus frames (CAN, LIN) transferred as IEEE1722 encapsulated ACF messages via an IEEE1722 stream

# Hints for the presenter

## Overview of concept parts

- Concept part 1: [CP] Introduce IEEE 1722 related features handling of streams and tunneling legacy communication (CAN and LIN); release: R23-11
- Concept part 2: [CP] Configuration of Scheduling & Policing Method (Ingress and Egress); release: R22-11
- Concept part 3: [CP] Configuration for Qav; release: R22-11
- Concept part 4: [CP] Methodology extension for modelling of TSN related features; R23-11
- Concept part 5: [CP] TSN Configuration Distribution (IEEE802.1[Qcc|Qcp]); planned for R25-11
- Concept part 6: [CP] Support of PTP physical clock adjustment; R23-11
- Concept part 7: [AP] Extension for AP regarding the part 1 – 6, 8; planned for R24-11
- Concept part 8: [CP] Completion of IEEE1722 specified tunneling process within the AUTOSAR communication stack for legacy communication (CAN and LIN); planned for R24-11





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