ASAM CMP Capture Module Protocol

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Initial Situation

Capture Module Protocol

EE development of vehicles requires data recording

- In vehicle communication (LIN, CAN, FlexRay, xBaseT1)

- Sensor data (CAM, LiDAR, Radar)

- Debug data (DLT, ECU internal)

- Reference sensors

Restrictions of actual systems (logger) for data collection

- Low scalability (number and type of Interfaces)

- TIER1 specific interfaces reduces reuse of loggers

- Simultaneously use of different TIER1 measurement in system test vehicle

- Centralized system with high impact on bus physics

- Implement new bus types in existing loggers not possible

The Idea

Capture Module Protocol
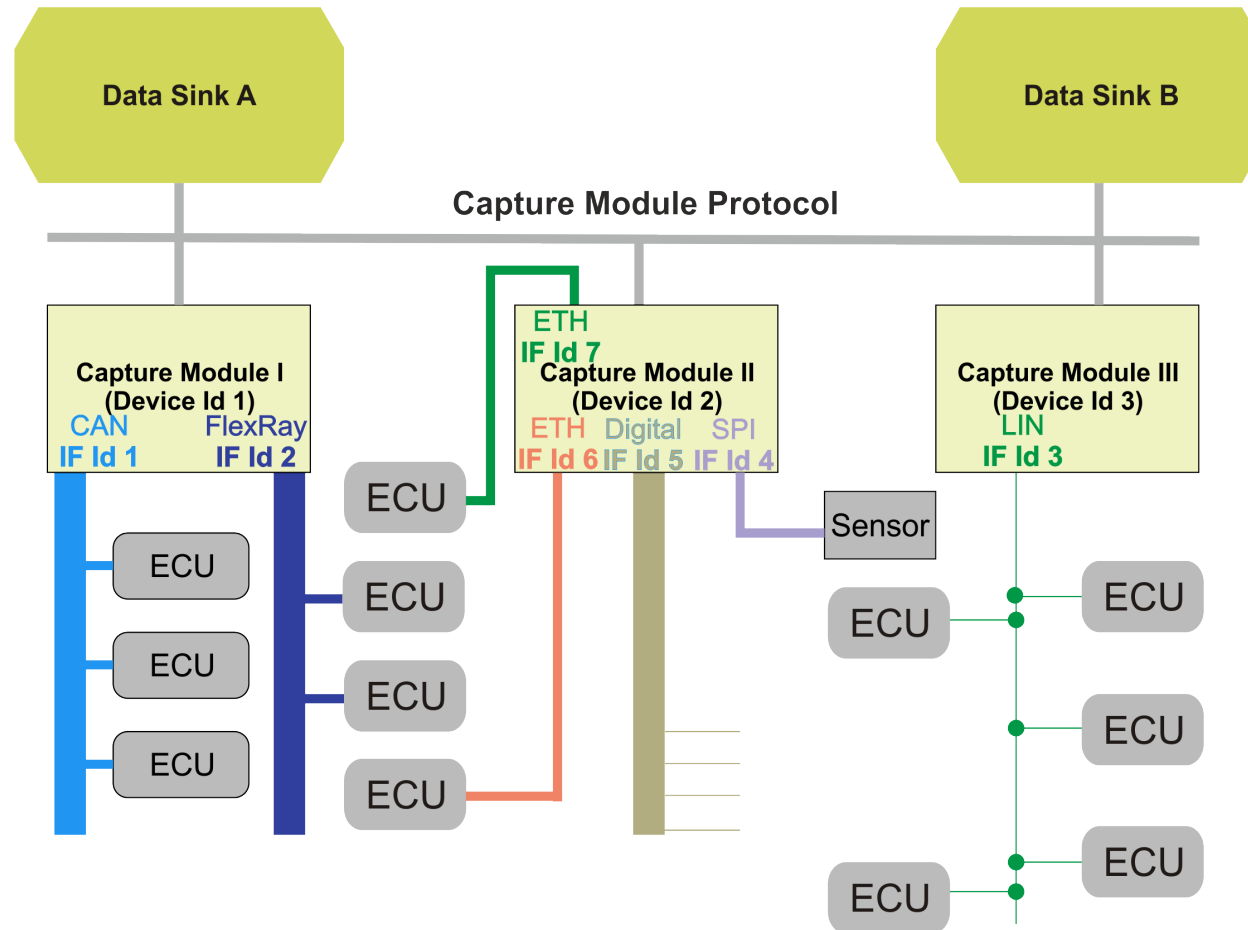
Splitting the logging system

- small stand alone components

- Standardize data transport within the measurement network

  - Standardize translation of vehicle bus communication
  - Standardize TIER1 specific ECU/sensor data output

UseCases

- Scalable measurement

- Reusability of components

- Segmentation of large data samples / Packaging of small data samples

- Timestamping

- Controlling

- Message-loss detection

- Scalable physical layer according to the required bandwidth
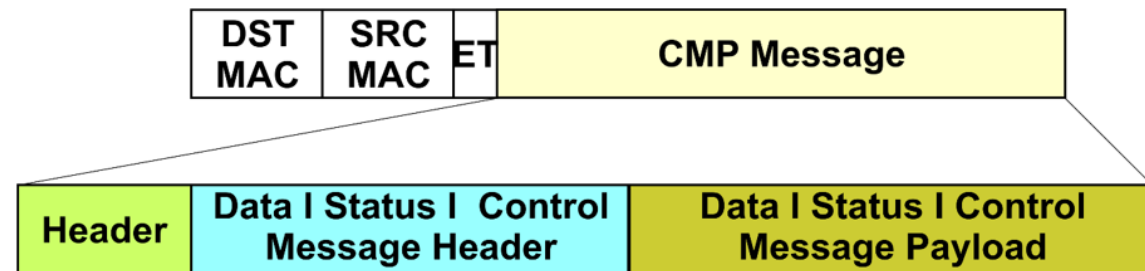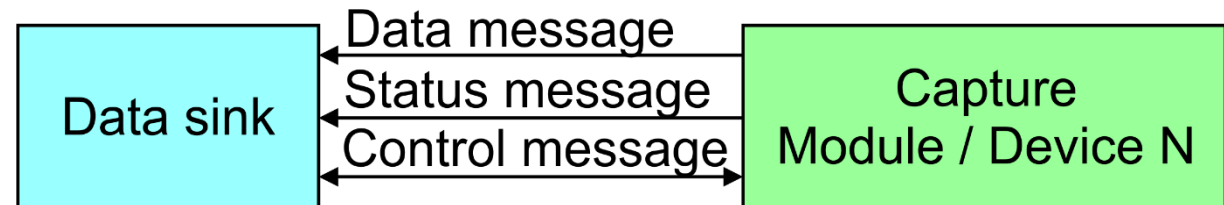
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System Overview

Capture Module Protocol
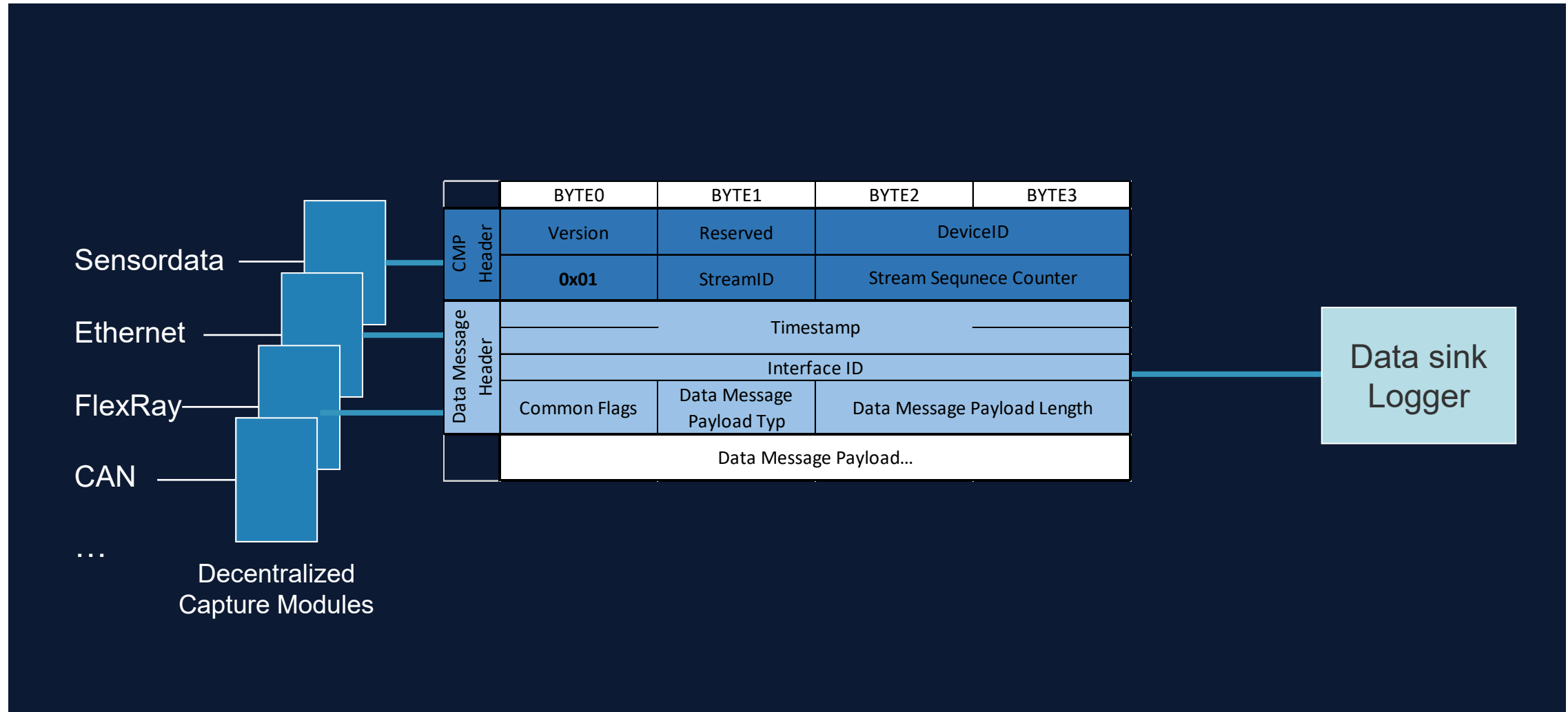
Protocol Basics

Capture Module Protocol

- Transport based on Ethernet MAC Layer (optionally also with UDP)

- Messages dedicated to streams

- Protocol for Time synchronization IEEE 802.1AS-2020

- Segmentation

- Packaging

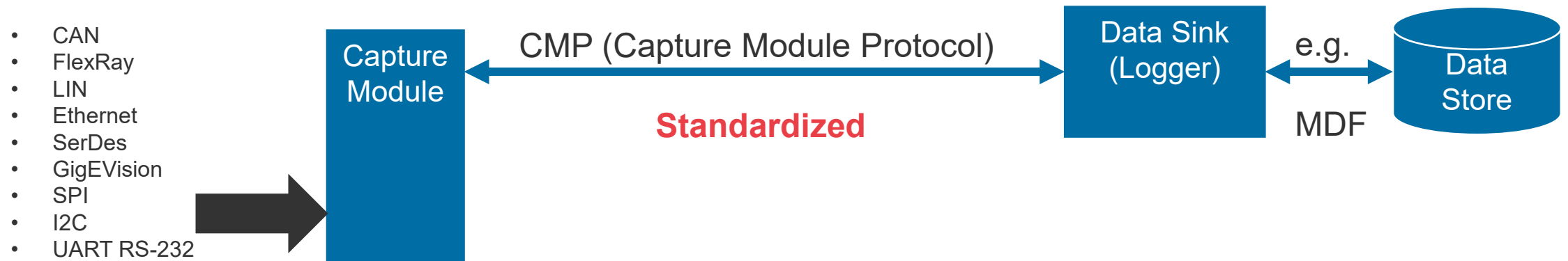# Data message

Capture Module Protocol

Supported Data Message types

Capture Module Protocol

There will be a variety of Capture Modules and Data sinks (e.g. Loggers) to be supported:

- Ones that tap into the in-vehicle communication for layer-2 communication protocols (e.g., CAN, LIN, CAN-FD, FlexRay, Ethernet, etc)
- Ones that tap into the Interfaces for Lidar, Cameras, RADAR (e.g., MIPI-CSI via SerDes, GigEVison etc.)
- Ones that tap into sensor busses for SPI, I2C, Digital

- CAN
- FlexRay
- LIN
- Ethernet
- SerDes
- GigEVision
- SPI
- I2C
- UART RS-232

Capture Module

CMP (Capture Module Protocol)

Standardized

Data Sink (Logger)
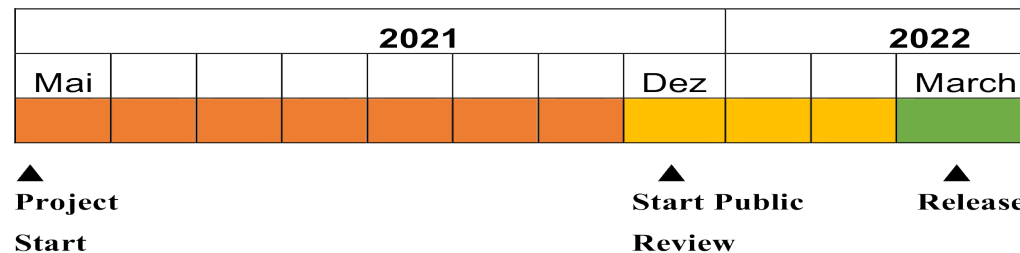
e.g.

MDF

Data Store

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Timeline
Capture Module Protocol

Project Members

- Accurate Technologies
- Audi AG
- BMW AG
- ETAS GmbH
- Technica Engineering
- ViGEM GmbH

Project Members

- AeD Engineering GmbH
- B-plus GmbH
- dSPACE GmbH
- RA Consulting GmbH
- Vector Informatik GmbH
- X2E GmbH

| 2021 | | | | | | | | | 2022 | |
| Mai | | | | | | Dez | | | March | |

▲ Project Start

▲ Start Public Review

▲ Release

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