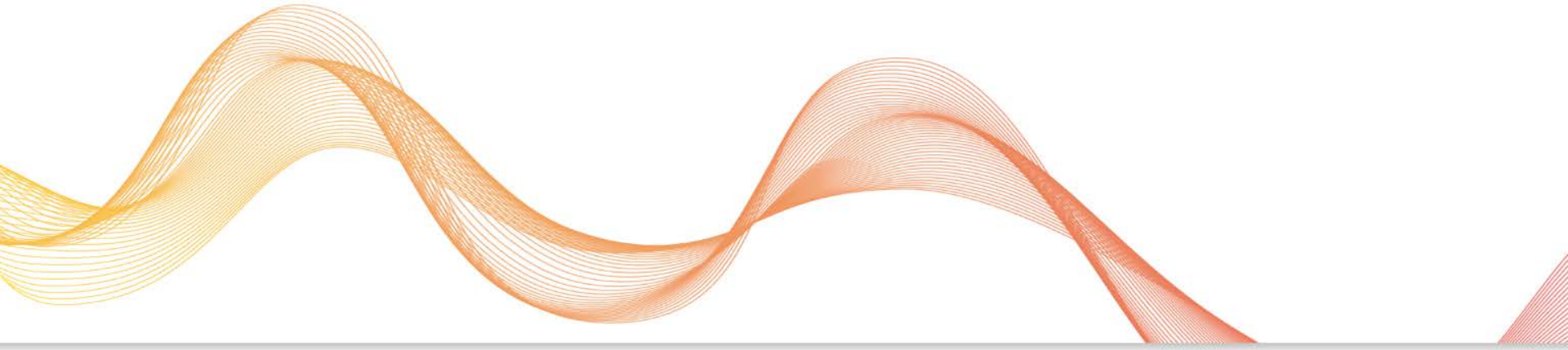
ASAM | Association for standardisation of automation and measuring systems



Impact of New System Concepts on ASAM Standards

General Assembly Meeting 2017, Stuttgart, Germany

Presenter

Thomas Thomsen

ASAM e.V.

Content

Paradigm Shift in E/E Development

	Classic	Adaptive
Development Duration	• SOP = ECU is feature-complete	• SOP = ECU has minimum feature set • Applications are added after SOP
ECU Connectivity	• In-vehicle networks • Ports to connect with workshop testers	• In-vehicle networks • Telematics unit to connect with external servers
Inter-ECU Communication	• Signal-oriented communication	• Service-oriented communication
Internal ECU Data	• Static memory allocation • Variables, recorded as time-series	• Dynamic memory allocation • Objects, recorded as event-series • Frame-based data, recorded as streams

The Classic Paradigm - Well Covered by ASAM

Classic

Development Duration

- SOP = ECU is feature-complete

ECU Connectivity

- In-vehicle networks
- Ports to connect with workshop testers

Inter-ECU Communication

- Signal-oriented communication

Internal ECU Data

- Static memory allocation
- Variables, recorded as time-series

- Well covered by ASAM standards
- Mature
- Proven in practice for 10 - 20 years
- Written by best industry experts
- Wide range of COTS tools available

The Adaptive Paradigm?

Adaptive

- SOP = ECU has minimum feature set
- Applications are added after SOP

- In-vehicle networks
- Telematics unit to connect with external servers

- Service-oriented communication

- Dynamic memory allocation
- Objects, recorded as event-series
- Frame-based data, recorded as streams

Development Duration

ECU Connectivity

Inter-ECU Communication

Internal ECU Data

Impact on ASAM Standards

Adaptive

ASAM MCD-2 D (ODX)

Problem:
How to diagnose/update applications, that may or may not be present in the ECU?

- Discovery or registration of applications and their DTCs
- ECU flashing with the "right" content

- SOP = ECU has minimum feature set
- Applications are added after SOP

- In-vehicle networks
- Telematics unit to connect with external servers

- Service-oriented communication

- Dynamic memory allocation
- Objects, recorded as event-series
- Frame-based data, recorded as streams

Development Duration
ECU Connectivity
Inter-ECU Communication
Internal ECU Data

Impact on ASAM Standards

Adaptive

- SOP = ECU has minimum feature set
- Applications are added after SOP

- In-vehicle networks
- Telematics unit to connect with external servers

ASAM MCD-2 NET (FIBEX)

FIBEX already covers SOME/IP.

➢ Current project fixes some minor issues.

- Service-oriented communication

- Dynamic memory allocation
- Objects, recorded as event-series
- Frame-based data, recorded as streams

Impact on ASAM Standards

Adaptive

All ASAM MCD Standards

Problem:
Memory objects are dynamic, i.e. they

- may or may not exist
- may have multiple instances
- may or may not contain data
- have no fixed address

➢ Data discovery or registration

➢ Event-based data logging

Problem:
Objects and frame-based data have totally different formats than time-series data

➢ Re-definition of calibration protocol (XCP)

➢ Re-definition of data storage format (MDF)

- SOP = ECU has minimum feature set
- Applications are added after SOP

- In-vehicle networks
- Telematics unit to connect with external servers

- Service-oriented communication

- Dynamic memory allocation
- Objects, recorded as event-series
- Frame-based data, recorded as streams

Development Duration
ECU Connectivity
Inter-ECU Communication
Internal ECU Data

Impact on ASAM Standards

Adaptive

- SOP = ECU has minimum feature set
- Applications are added after SOP

- In-vehicle networks
- Telematics unit to connect with external servers

- Service-oriented communication

ASAM ODS

Problem:
Objects have totally different formats than time-series data

- Object-oriented ODS base model
- Object-oriented data base

Problem:
Frame-based data have high bandwidth and storage requirements

- Making ODS ready for Big Data

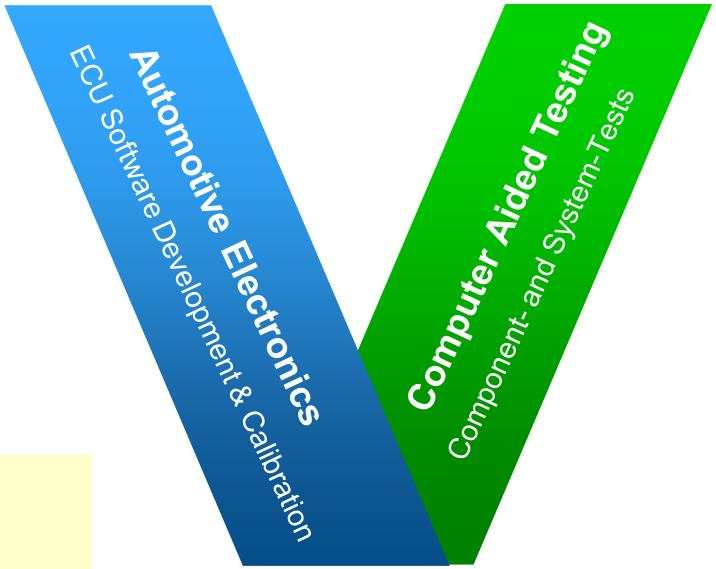
- Dynamic memory allocation
- Objects, recorded as event-series
- Frame-based data, recorded as streams

Development Duration
ECU Connectivity
Inter-ECU Communication
Internal ECU Data

Summary

New Development-Paradigms for ASAM Standards

- Applications are added after SOP
- Telematics unit to connect with external servers
- Service-oriented communication
- Dynamic memory allocation
- Objects, recorded as event-series
- Frame-based data, recorded as streams



Panel

Horst Pflügl	AVL LIST GmbH
Gerd Winkler	Continental Automotive GmbH
Martin Lunt	Robert Bosch GmbH
Alfred Kless	Vector Informatik GmbH

How to ask questions

Cisco webex Instructions

- Per default, you are muted.
  People cannot hear you.

- You may ask a question any time:
  1. Please use the Chat feature of WebEx and type your question.
  2. Please be concise and clear. Please write in English.
  3. The question will be given to the moderator.
     He will try to bring it into the discussion.