ETAS

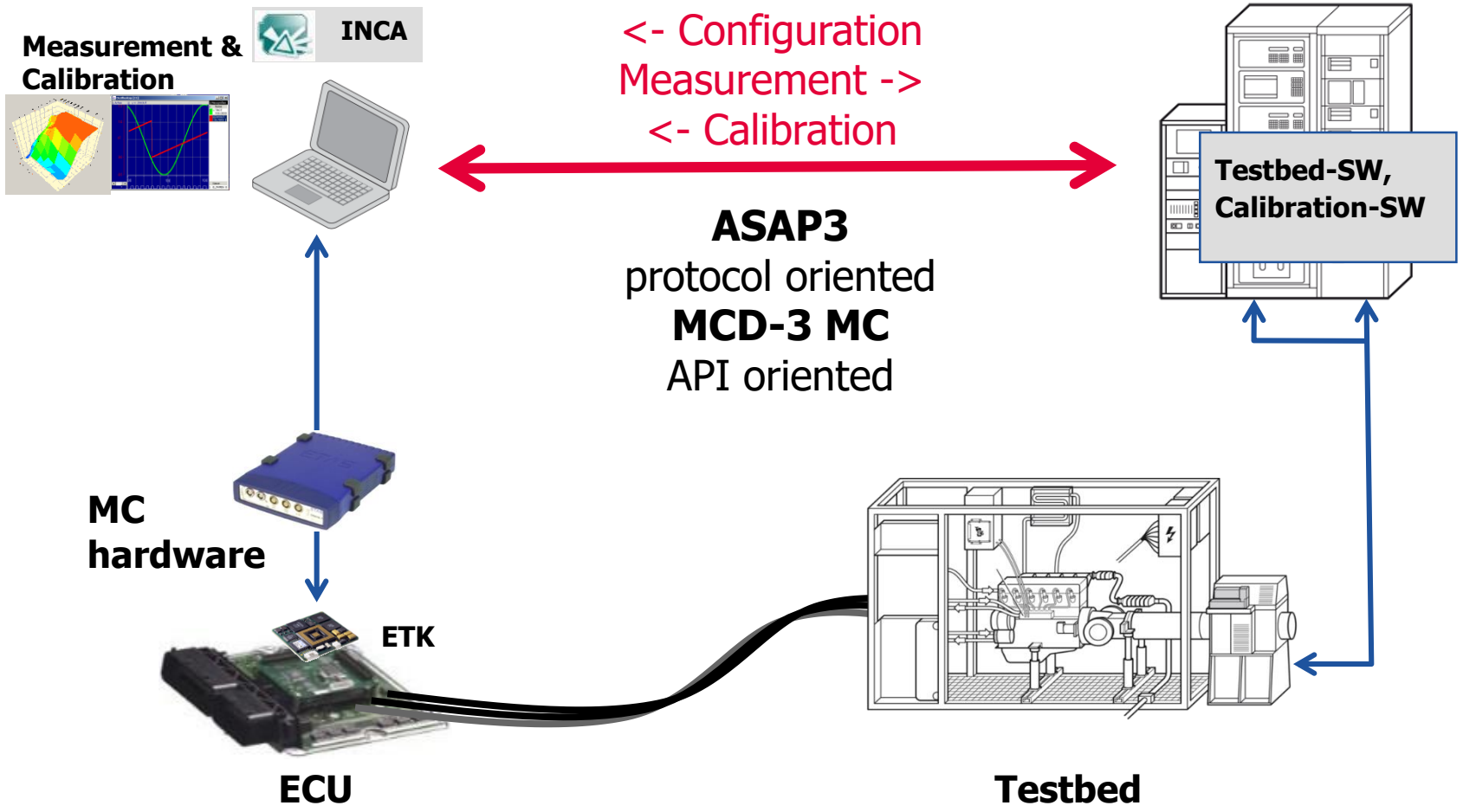
DRIVING EMBEDDED EXCELLENCE

# Revamping ASAM's MC-3 Area

## Increase Performance for existing and new Solutions

# MC-3 Standards

## Overview



# MC-3 History

## First version of ASAP3

1993-11-17 ASAP3 V1.0

**ASAP**

**A**rbeitskreis zur
**S**tandardisierung von
**Ap**plikationssystemen

**ASAP3 V1.0**
Interface between a
Test Control System and a MC Tool

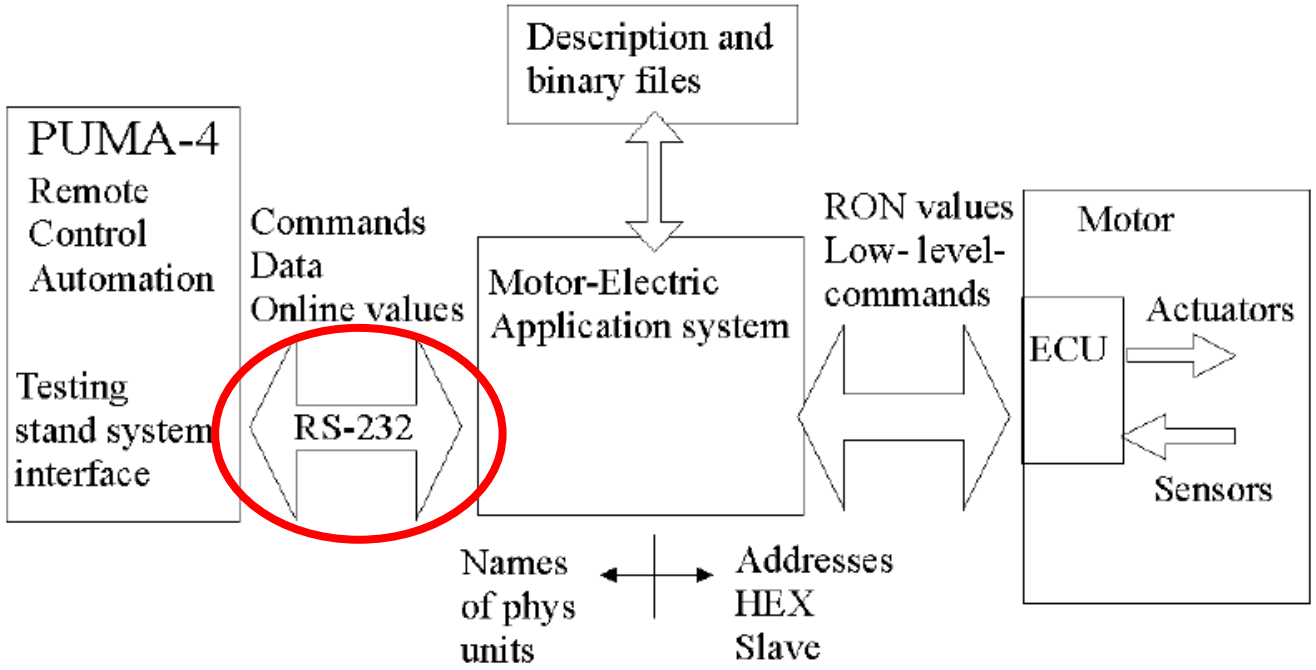
- Only basic commands
- Not published

# MC-3 History

## ASAP3 is published

1993-11-17 ASAP3 V1.0

1994-02-07 ASAP3 V2.0




**RS232 - 9600 Baud**

Only view signals to measure

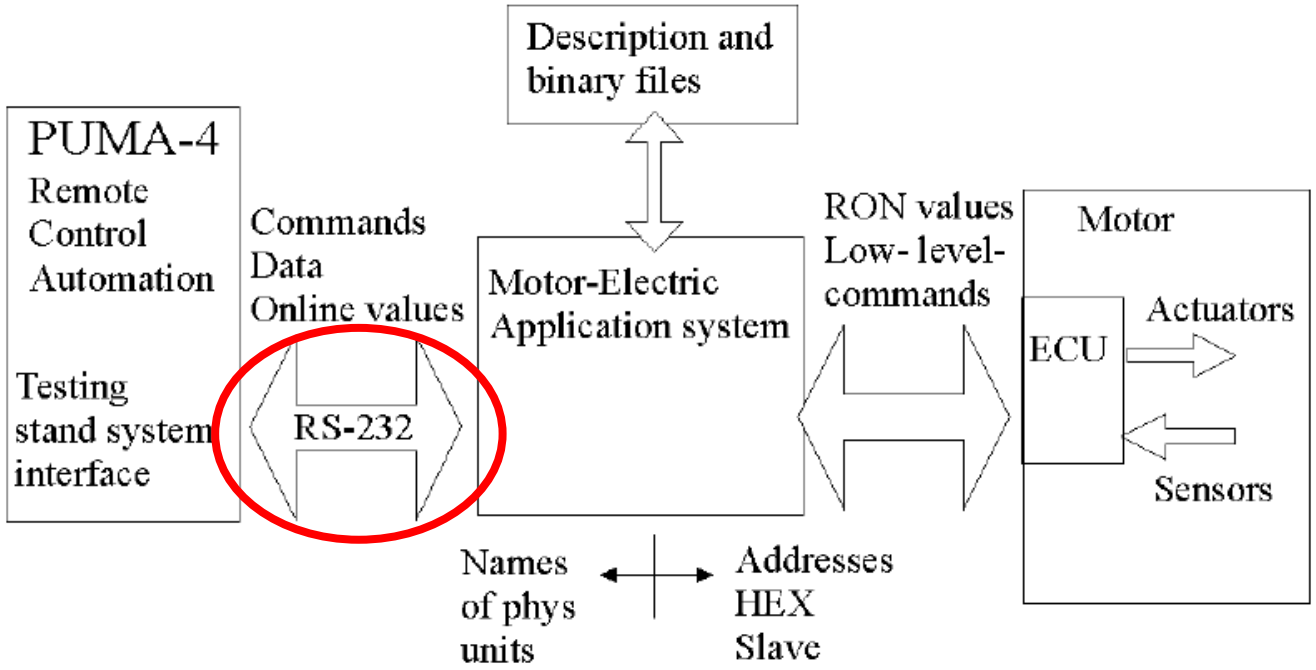
Polling mechanism to get values

Value range restricted to float32

# MC-3 History

## New Data Types

1993-11-17 ASAP3 V1.0
1994-02-07 ASAP3 V2.0
1998-08-17 ASAP3 V2.1




**EXTENDED COMMANDS**
Increase from 32bit float data to 64bit float data
Introduction of string type

# MC-3 History

## ASAP goes ASAM

1993-11-17 ASAP3 V1.0
1994-02-07 ASAP3 V2.0
1998-08-17 ASAP3 V2.1
1998-12-01 ASAM founded

**ASAM e.V.**

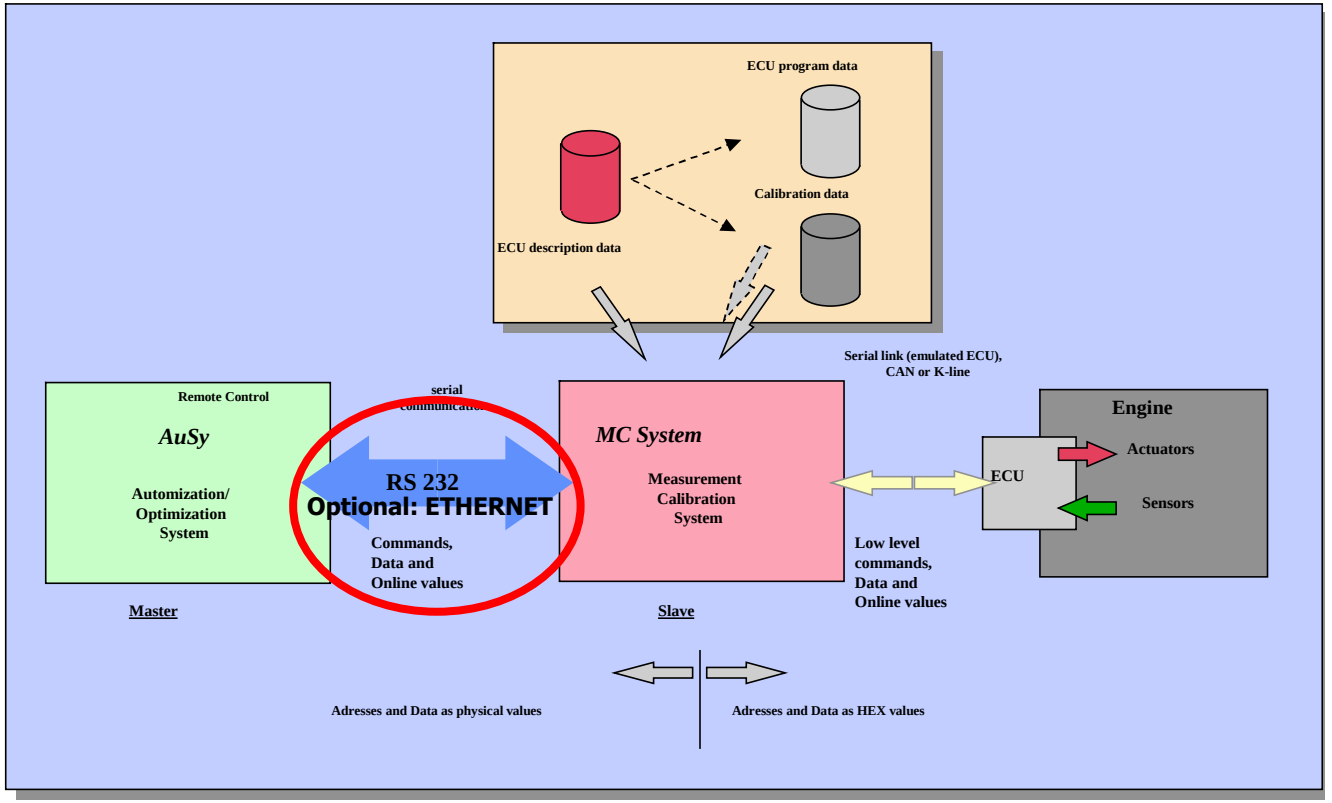
**A**ssociation for
**S**tandardization of
**A**utomation and
**M**easuring Systems

The number of needed standards grows. To cover the needs ASAM was founded.

# MC-3 History

## Final ASAP3 Version

1993-11-17 ASAP3 V1.0
1994-02-07 ASAP3 V2.0
1998-08-17 ASAP3 V2.1
1998-12-01 ASAM founded
1999-12-16 ASAP3 V2.1.1



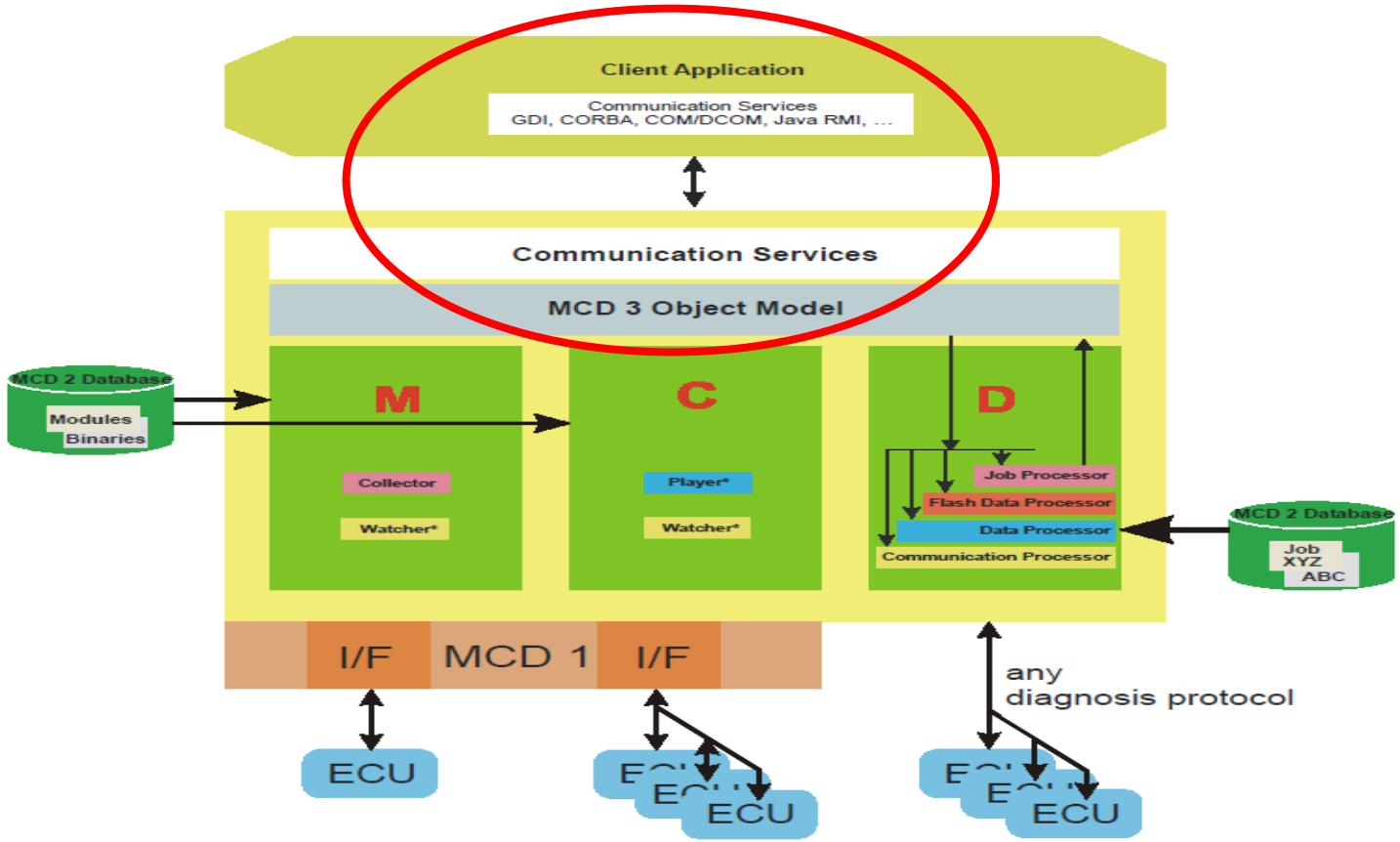

**ETHERNET**
Higher bandwidth (100MBit)

# MC-3 History

## Replacement of ASAP3

1993-11-17 ASAP3 V1.0
1994-02-07 ASAP3 V2.0
1998-08-17 ASAP3 V2.1
1998-12-01 ASAM founded
1999-12-16 ASAP3 V2.1.1

2003-06-01 ASAM MCD-3 V1.0



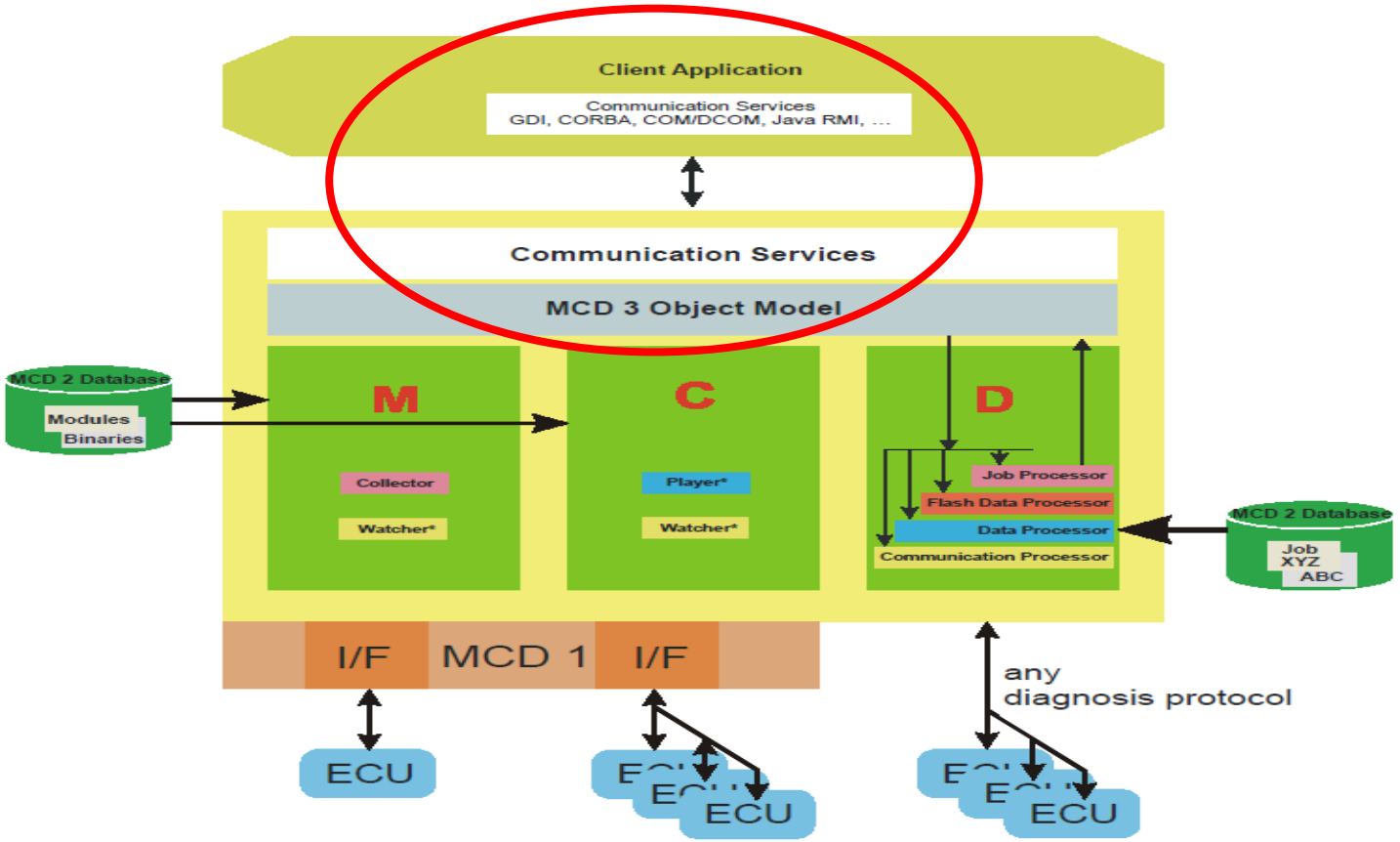

**API to Object Model**
Separation of API and transport layer (Windows COM used)
Client has access to all details
Event mechanism (Collectors) for measurement
Calibration in parallel to measurement

# MC-3 History

## Multi Client

1993-11-17 ASAP3 V1.0
1994-02-07 ASAP3 V2.0
1998-08-17 ASAP3 V2.1
1998-12-01 ASAM founded
1999-12-16 ASAP3 V2.1.1

2003-06-01 ASAM MCD-3 V1.0
2004-04-16 ASAM MCD-3 V2.0



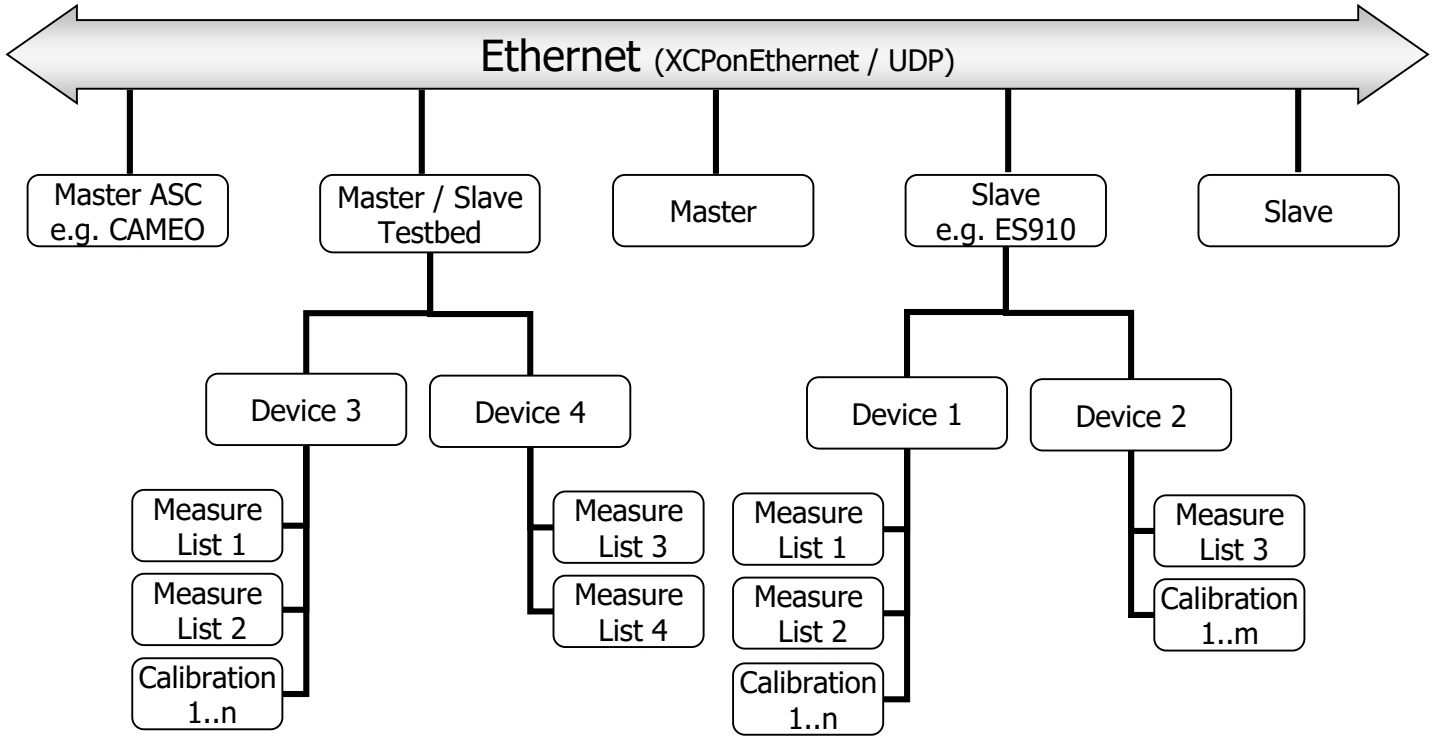

**API to Object Model**
Multi Client improvement
Measurement Collector Optimizations
Optimizations to get Windows DCOM more performant

# MC-3 History

## Alternative high speed Data Path

1993-11-17 ASAP3 V1.0
1994-02-07 ASAP3 V2.0
1998-08-17 ASAP3 V2.1
1998-12-01 ASAM founded
1999-12-16 ASAP3 V2.1.1

2003-06-01 ASAM MCD-3 V1.0
2004-04-16 ASAM MCD-3 V2.0
2006-08-30 iLinkRT V1.0



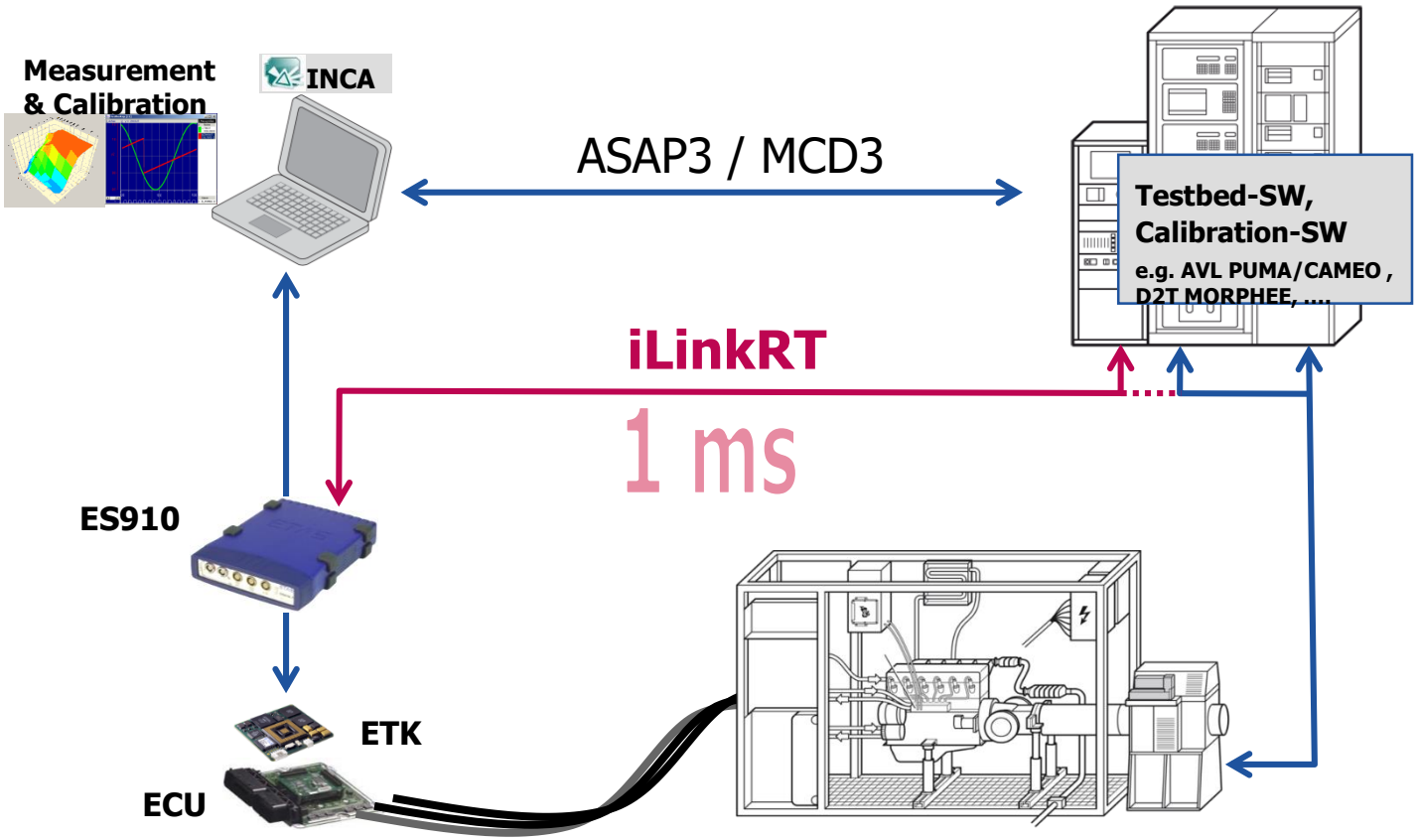

**Introduced by AVL & ETAS, open for others**
High bandwidth / Event driven data transfer
Multi Client - Multi Master
Measurement / Calibration in parallel

# MC-3 History

## Alternative high speed Data Path

1993-11-17 ASAP3 V1.0
1994-02-07 ASAP3 V2.0
1998-08-17 ASAP3 V2.1
1998-12-01 ASAM founded
1999-12-16 ASAP3 V2.1.1

2003-06-01 ASAM MCD-3 V1.0
2004-04-16 ASAM MCD-3 V2.0
2006-08-30 iLinkRT V1.0



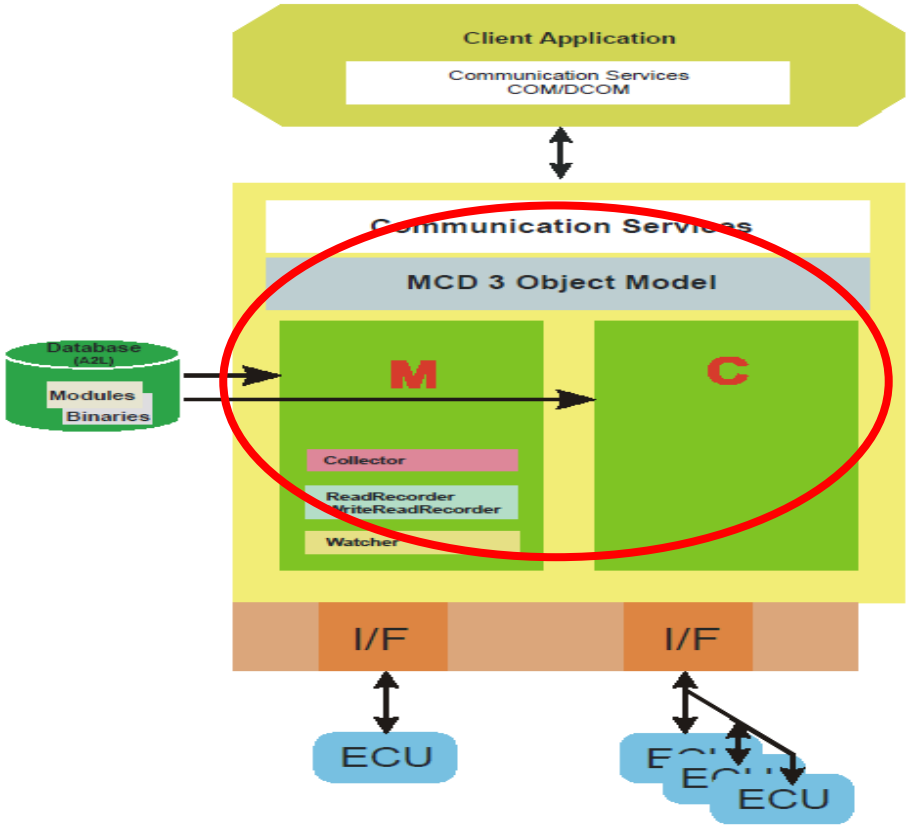

**Speed up ASAP3 / MCD3**
Configuration via ASAP3 / MCD3
High Speed data via iLinkRT
Use ASAP3 (MCD3) / iLinkRT in parallel

# MC-3 History

## Final MC-3 Version

1993-11-17 ASAP3 V1.0
1994-02-07 ASAP3 V2.0
1998-08-17 ASAP3 V2.1
1998-12-01 ASAM founded
1999-12-16 ASAP3 V2.1.1

2003-06-01 ASAM MCD-3 V1.0
2004-04-16 ASAM MCD-3 V2.0
2006-08-30 iLinkRT V1.0
2011-09-23 ASAM MC-3 V3.0




**Separation of MC and D**
No combined servers for MC+D available or requested
Simplification of documents
Further development of 'MC' and 'D' can be done separately

# MC-3 Today

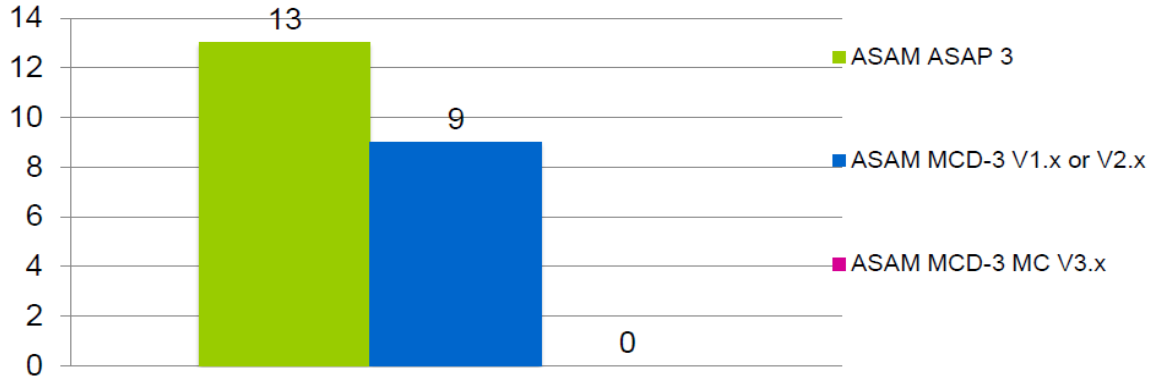
## What's going on with the existing MC-3 Standards ?

1993-11-17 ASAP3 V1.0
1994-02-07 ASAP3 V2.0
1998-08-17 ASAP3 V2.1
1998-12-01 ASAM founded
1999-12-16 ASAP3 V2.1.1

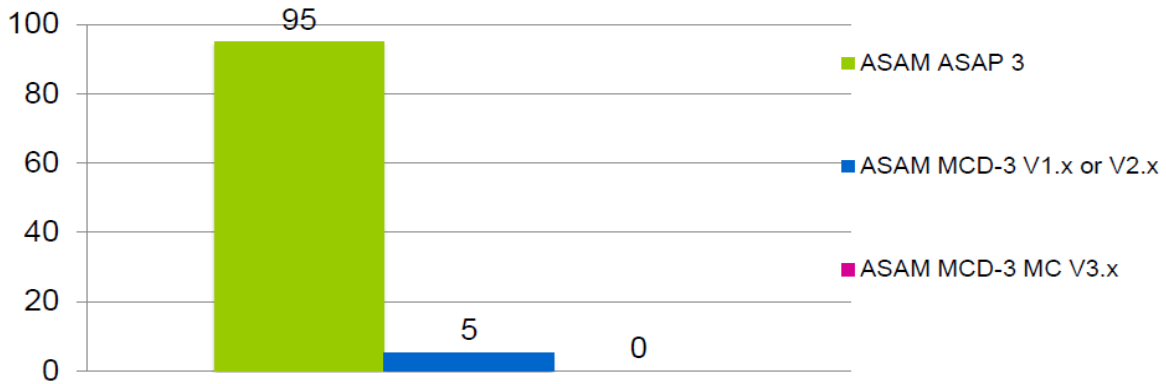
2003-06-01 ASAM MCD-3 V1.0
2004-04-16 ASAM MCD-3 V2.0
2006-08-30 iLinkRT V1.0
2011-09-23 ASAM MC-3 V3.0

2015-08/-09 ASAM Survey

**Tools supporting ASAP3 / MCD-3 MC**




**Usage of ASAP3 / MCD-3 MC**



# MC-3 Future

## How to continue with the MC-3 Standards ?

1993-11-17 ASAP3 V1.0
1994-02-07 ASAP3 V
1998-08-17 A
1998-12-0
1999-12-

**revamp MC-3**

2003-06-01
2004-04-16 ASAM
2006-08-30 iLinkRT V1.0
2011-09-23 ASAM MC-3 V3.0

2015-08/-09 ASAM Survey
2017-01-25 ASAM MC-3 Concept project

**ASAM asked the Experts**

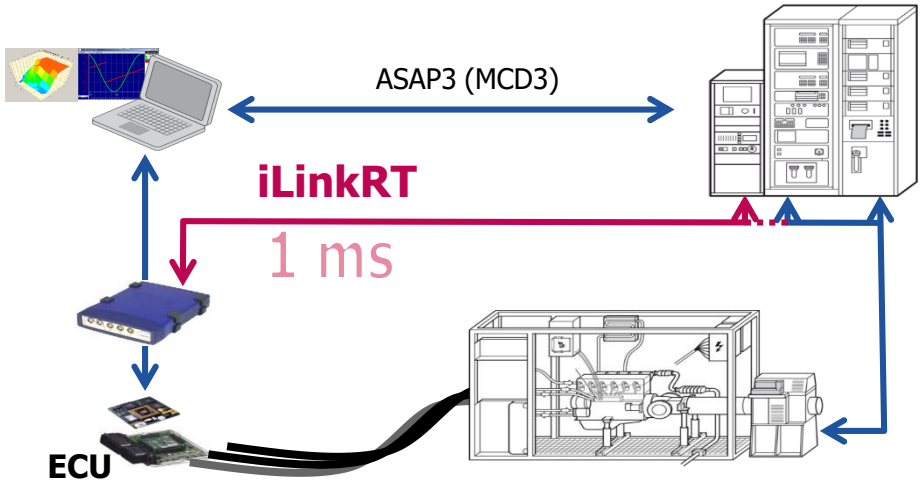
| | |
|---|---|
| Continue with MCD3 ? | (Programming API) |
| Continue with ASAP3 ? | (Protocol Interface) |
| Use iLinkRT ? | (High Speed) |
| Use ASAM XIL ? | (widely used at HIL systems) |
| Develop a new Standard ? | (best out of all) |

**Result**

a) Continue ASAP3 – protocol is easier to handle
b) Bring iLinkRT to ASAM – high speed is needed
c) Configure iLinkRT via ASAP3 – already used in the field
d) Extend iLinkRT – Add a configuration for Multi Client
e) Extend XIL that iLinkRT can be used as data access

# MC-3 Projects

## How to realize the Ideas from the Concept Project ?




### 1st ASAM Project

started 01/2018 release expected 03/2019

**Continue ASAP3**

- Be compatible to former Versions
- Add missing data types
- Add missing commands

It makes it easy to extend existing applications
New features can be used in parallel to former ones

**Bring iLinkRT to ASAM**

- Transfer the Industry standard

Event driven measurement data
Calibration in parallel to measurement

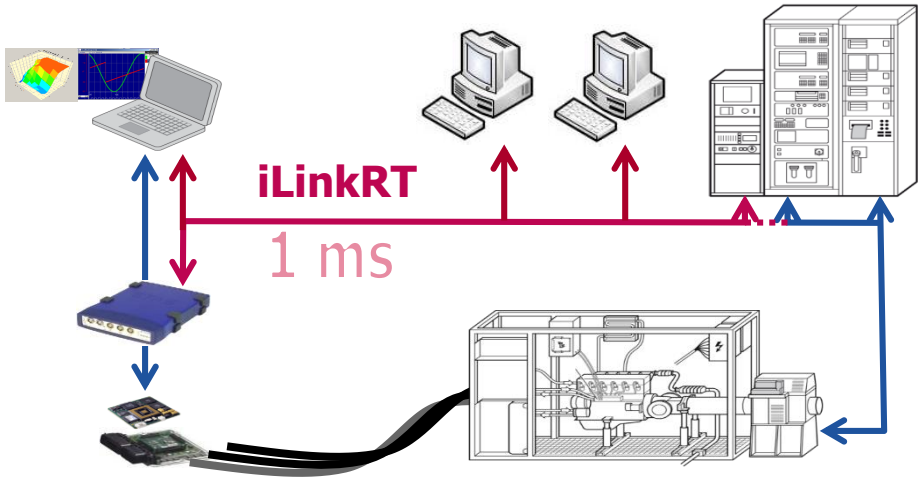
**Configure iLinkRT via ASAP3**

- Describe current usage
- Add specific iLinkRT configuration chapter to ASAP3 specification

Standardize the current technology
Ensure the compatibility of new implementations

# MC-3 Projects

## How to realize the Ideas from the Concept Project ?




### 2nd ASAM Project

starts when 1st Project is finished

Make iLinkRT independent from ASAP3
- Extend iLinkRT with Configuration
- Multi Client usage

} High performance + Multi Client

### 3rd ASAM Project

starts when 2nd Project is finished

Use iLinkRT together with XIL
- Future version of XIL API

} Same interface for test bed and HIL

ETAS
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# Thank you

Thilo Wenzel
ETAS GmbH