Softing AG

Implementation examples of ASAM MCD in the process chain
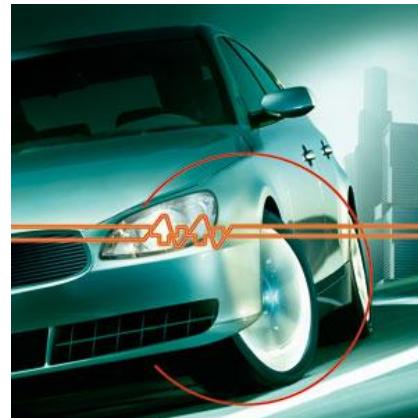

testingExpo Stuttgart 2008

Dipl.-Ing. Peter Subke

Softing AG

Contents

- Who is Softing (short company overview)

- Vocabulary: What are we talking about ?

- PC based tester inside: EDIABAS, ETESTER, ASAM MCD

- ASAM MCD goes ISO MVCI&ODX

- Implementation examples

      - ETAS LABCAR-AUTOMATION & LABTRUCK

      - dSPACE Automation Desk

      - Testrig for VCT transmission

      - Automation API and Labview^{TM}

      - Reprogramming the vehicle production line (WLAN FLASH)

      - Diagnosis tool with PDA and Bluetooth

      - Teradyne GRADE-X

**softing**
your connection to excellence

Who is Softing ?

- Softing AG
  - Headquarter in Munich, Germany
  - Regional sales offices

- hard&soft GmbH
  - Subsidiary in Reutlingen, Germany

- SoftingROM s.r.l.
  - Subsidiary in Cluj, Romania

- Softing North America Inc.
  - Subsidiary in Boston, USA

- Worldwide distribution partners
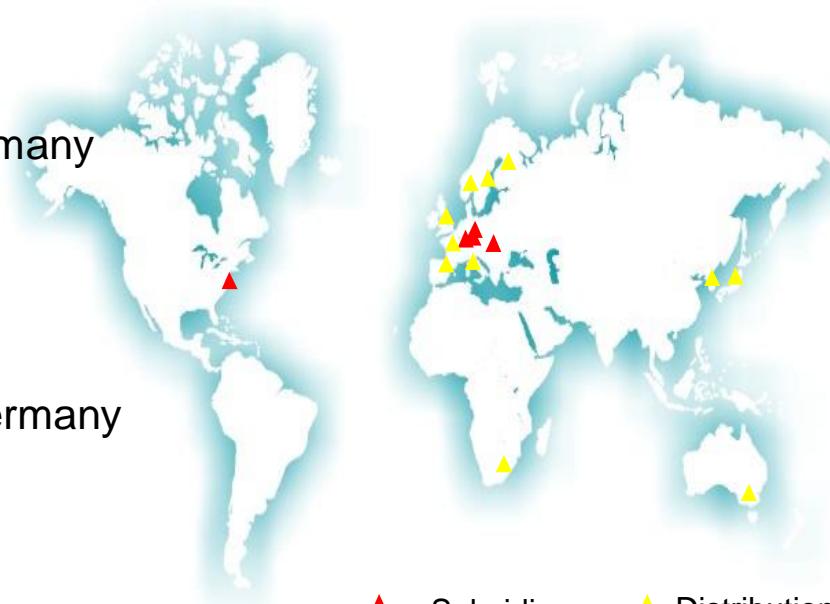
▲ Subsidiary   ▲ Distribution

210 employees
Turn over > 33 Mio $

# Business Group IA: Industrial Automation
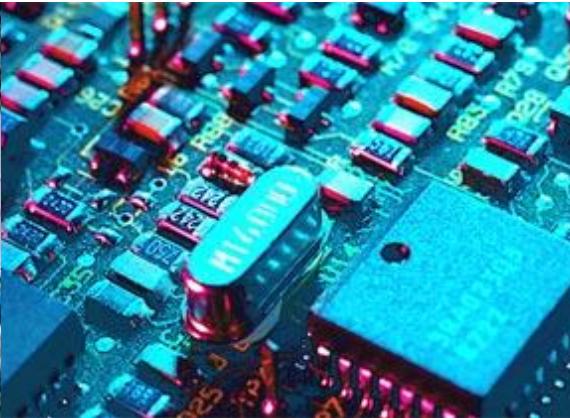
Industrial Automation

# Softing IA: Fieldbus Technology

- Interfaces
- Gateways
- Tester
- Analyzer
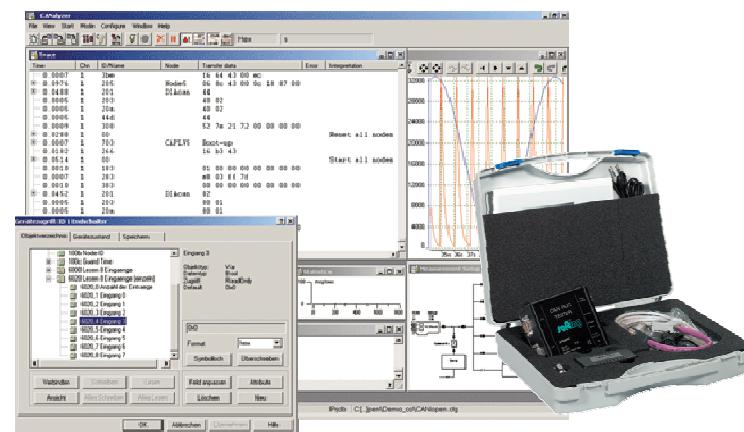
Softing IA: OPC

<u>OPC-Server</u> for Siemens S7/S5,
PROFIBUS, CANopen, FF HSE,
Modbus, TCP/IP
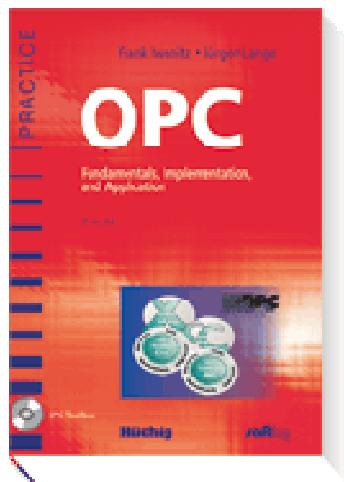
# Business Group AE: Automotive Electronics

Automotive Electronics

Softing AE: Automotive Electronics

Softing Automotive Electronics is THE specialist for

- **Data communication**
- **Diagnosis**
- **Test systems**

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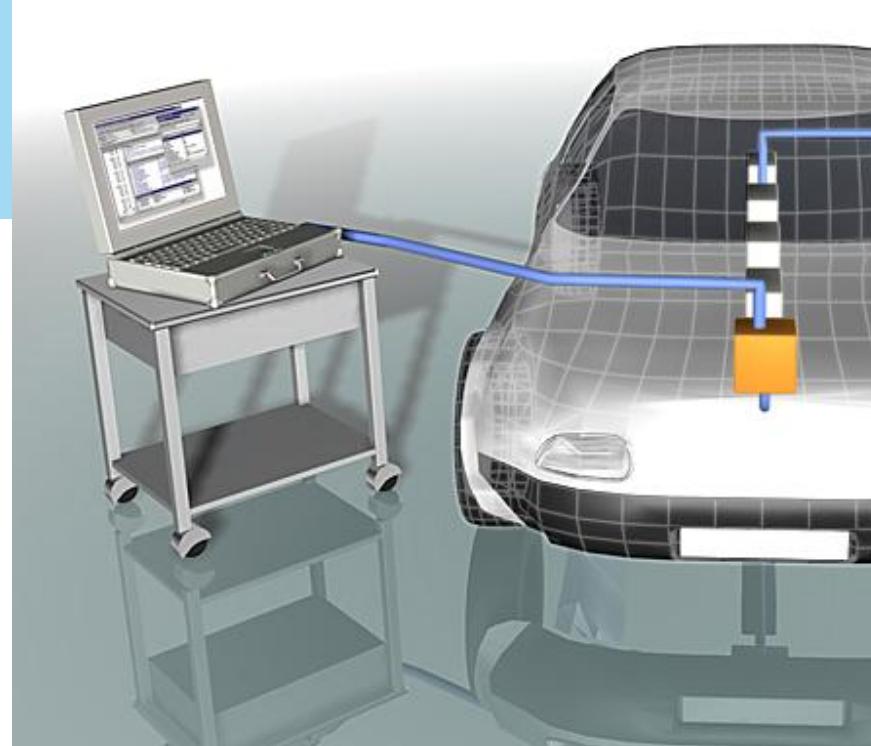
Softing AE: What are we talking about ?
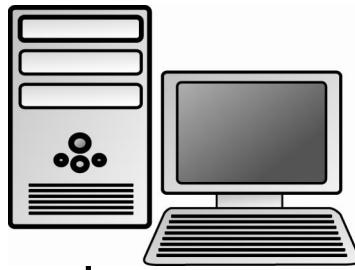
TESTER
Applications: E-Tester, VAS 5xxx, DTS-Monaco
Data: A2L, CANdb, CBF, EDF, ODX, FBX
Server: EDIABAS, E-TESTER, ASAM-MCD, MVCI, COS

PC-ECU-Interfaces
VCI, DCDI, EDIC
Interface-Software
VeCom, D-PDU API

In-vehicle-communication
Bussystems: K-Line,
CAN, LIN, FlexRay, MOST

Offboard-Communication

Diagnostic protocols e.g.
KWP 2000, UDS

ECU-Software
AUTOSAR

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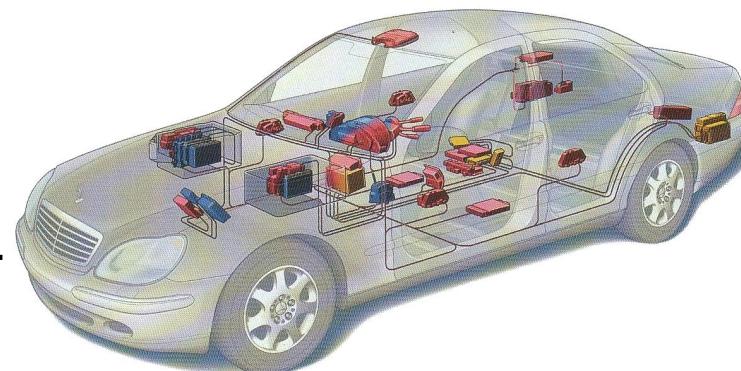
PC based TESTER: Components

Editor

Application

Database

Basesystem

PC software

PC-ECU-Interface

Automotive Bussystem
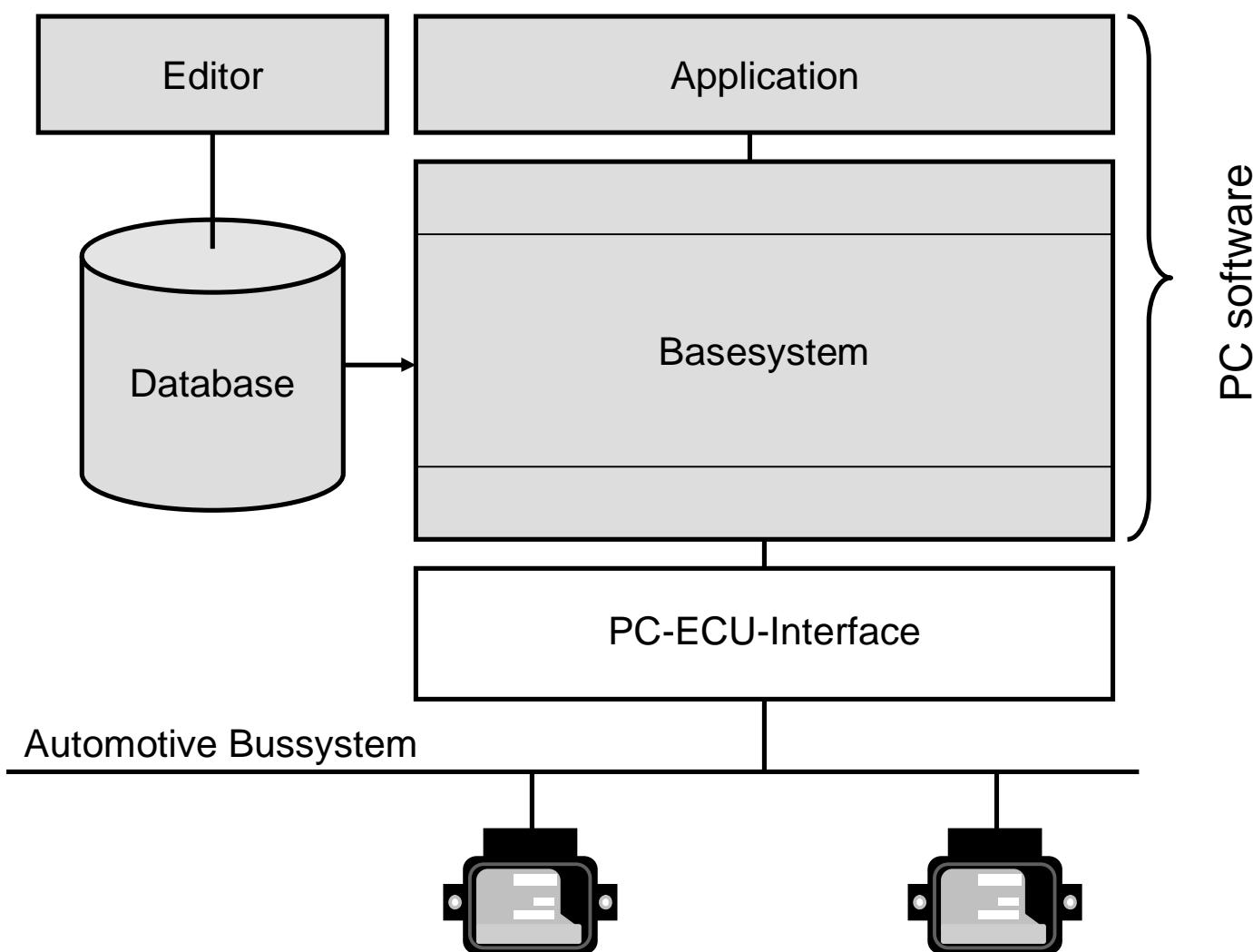
PC based TESTER : EDIABAS

EDF: ECU Description File
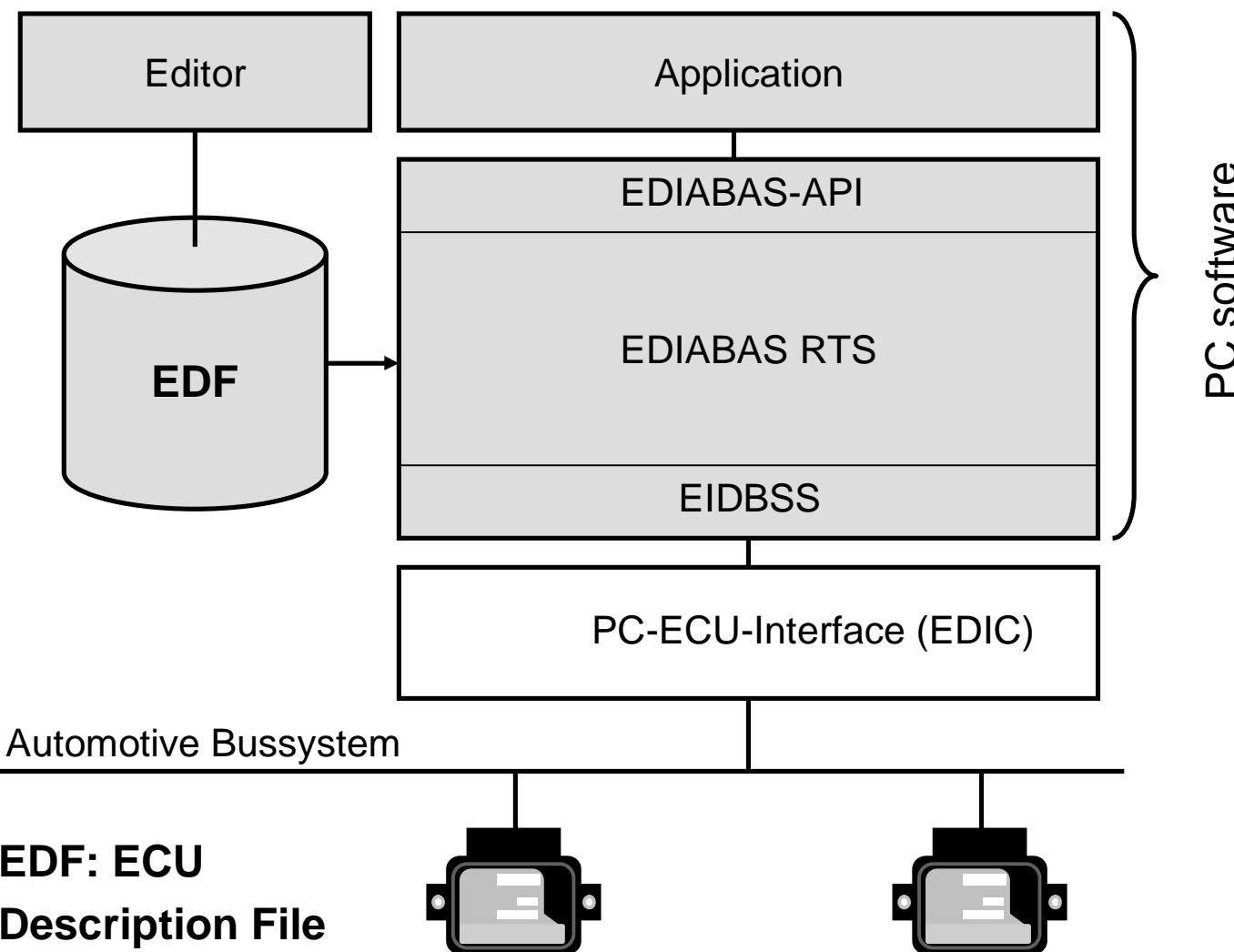
# EDIABAS Applications @ BMW and VOLKSWAGEN


BMW DIS und DISplus

VW/Audi VAS 505x

Even with the same basic technology (EDIABAS), EDF of BMW and Volkswagen are not compatible.

PC based TESTER: E-TESTER 6 (Daimler)
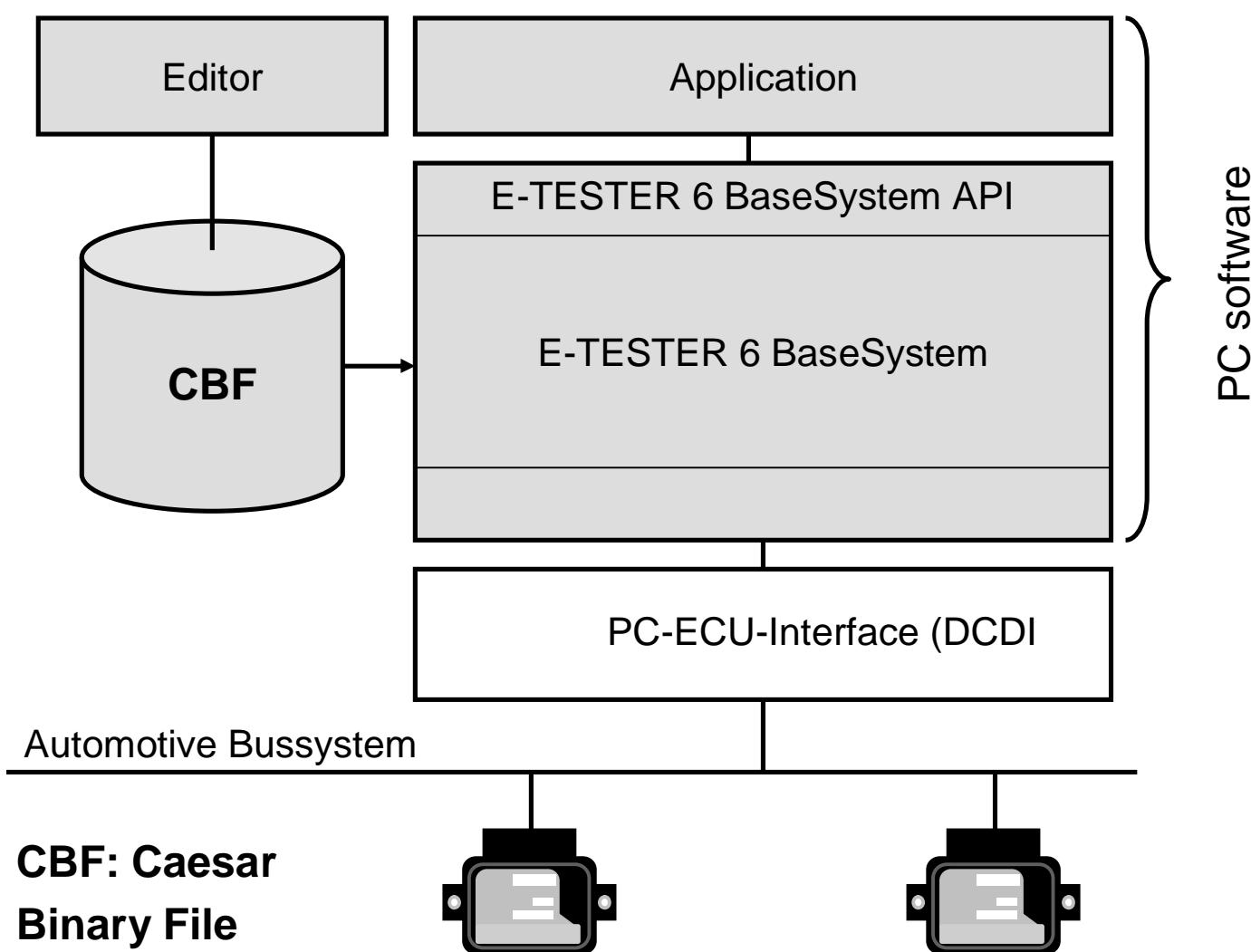
CBF: Caesar Binary File

Softing AE: E-Tester 6 (Daimler)

Application:
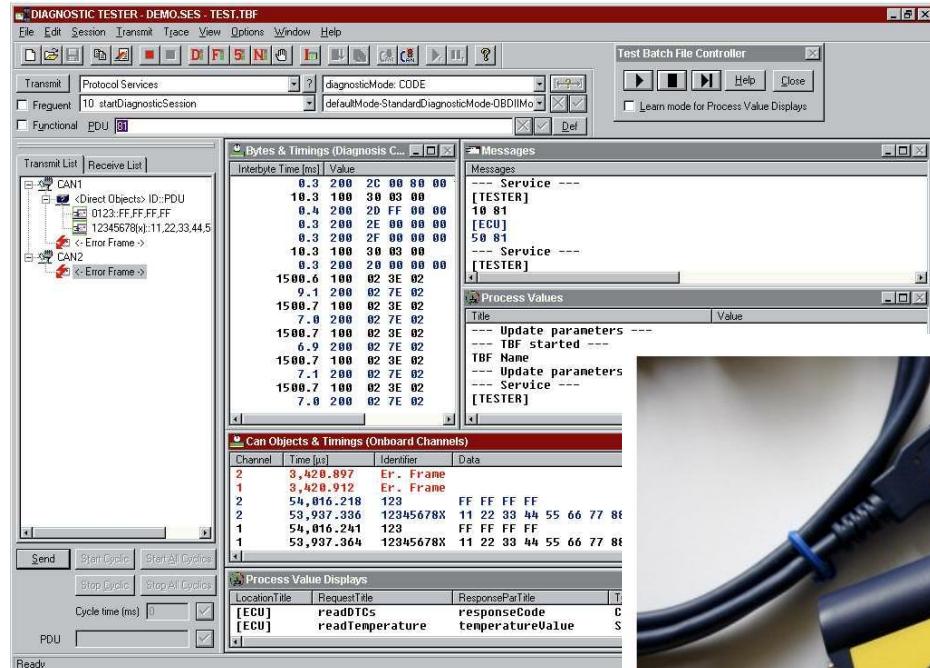
Diagnostic Tester

Vehicle Communication

Interface

„PART Y" by I+ME ACTIA

# Problem ... & Solution

Problem:

There are to many incompatible communication technologies.

Solution:

Standardization of software components and interfaces.
ASAM AE specified the „ASAM MCD system" with standardized interfaces.

MCD = Measurement, Calibration, Diagnosis

	Communication Server API
standardized data format	Communication Server
	PC-ECU-Interface API
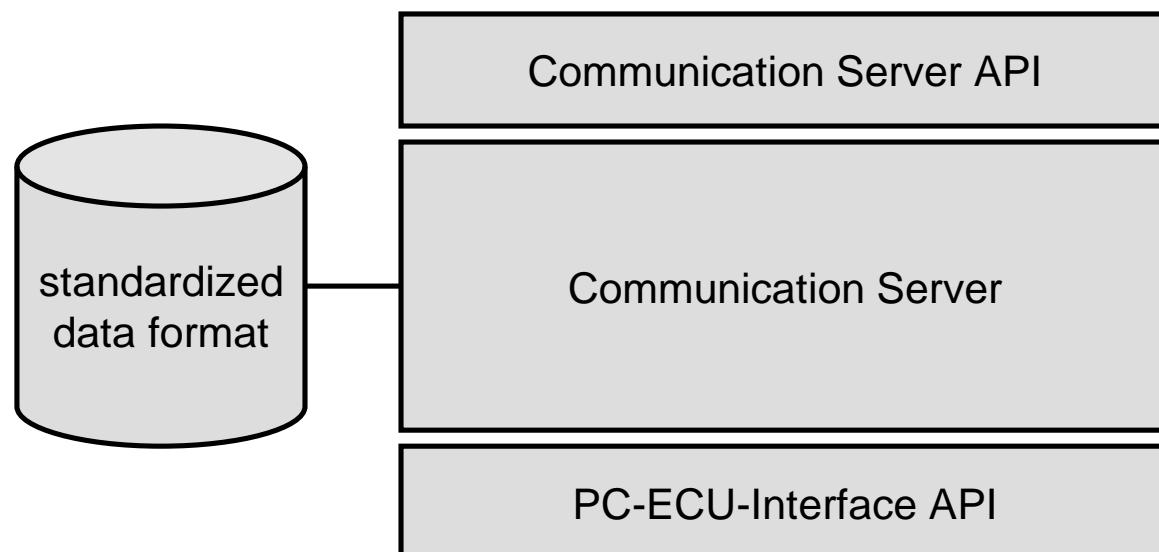
PC based TESTER: ASAM MCD (D-Part)
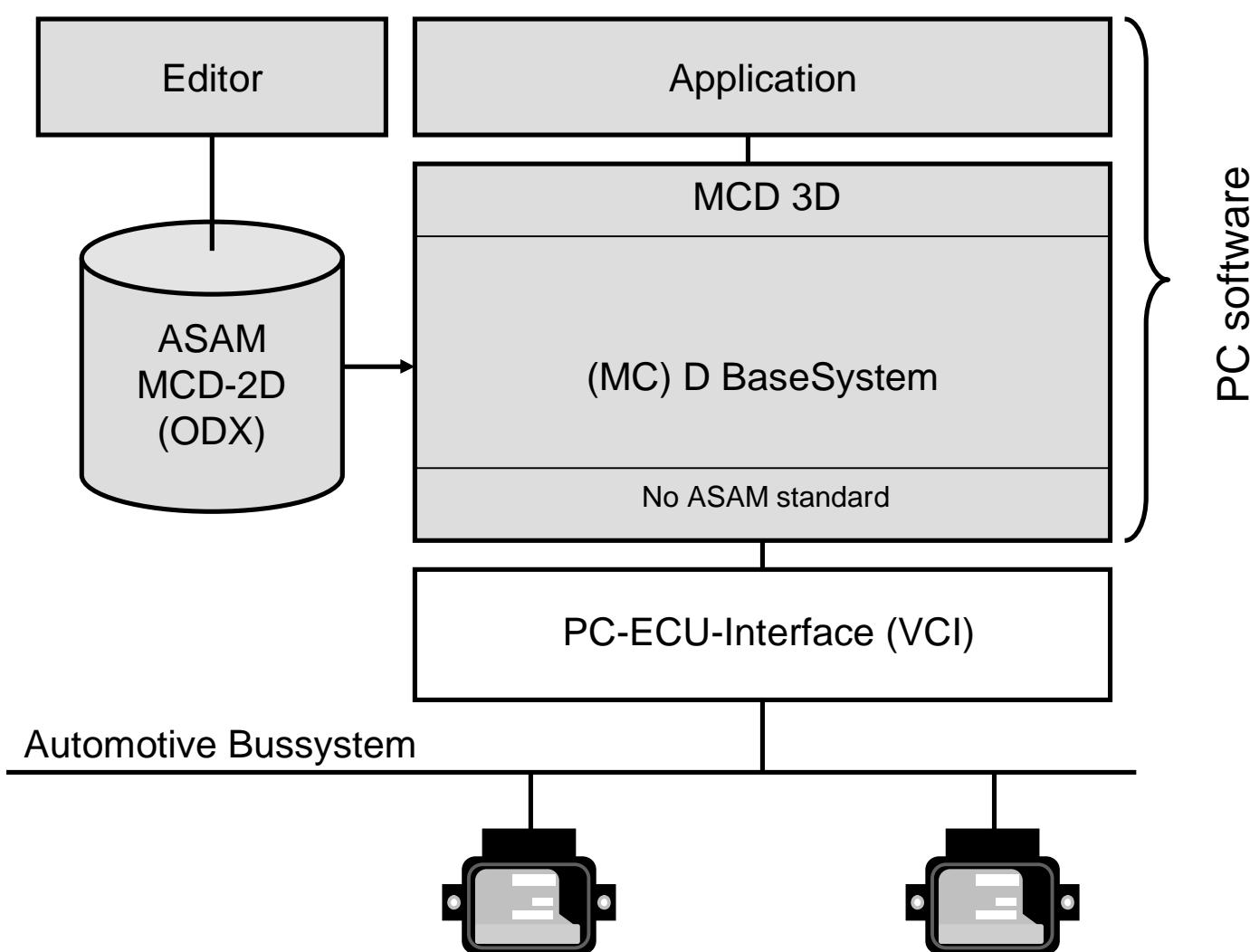
PC based TESTER: ASAM goes ISO (MVCI & ODX)
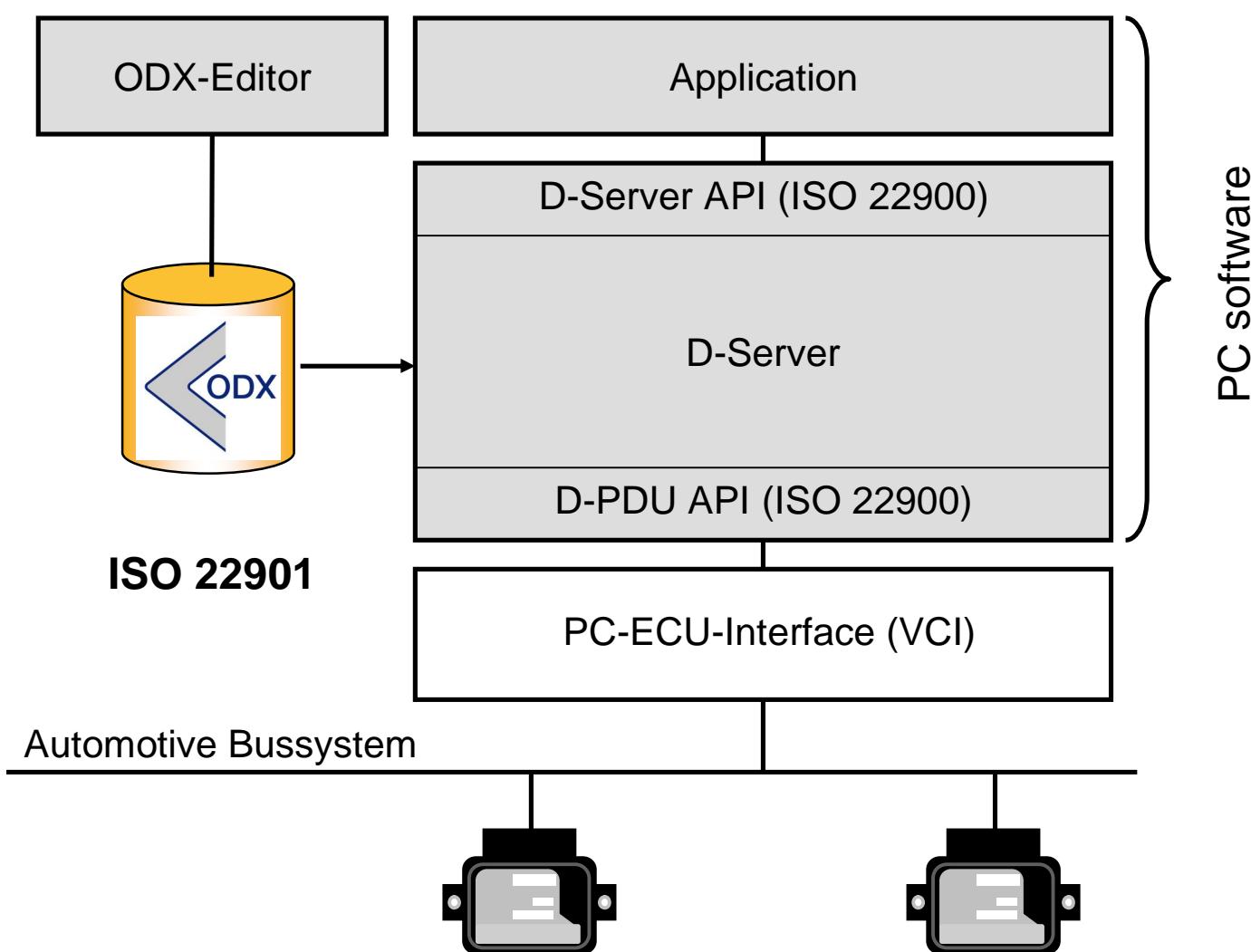
Softing´s MVCI D-Server „COS"

Venice

Application

ODX

D-Server API (COM)

D-Server COS

ISO 22900

ISO 22901

EDIC

Automotive Bussystem

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Automation API: COS-AUT

Application

COS - AUT

D-Server API (COM)

D-Server
COS

← ODX

EDIC
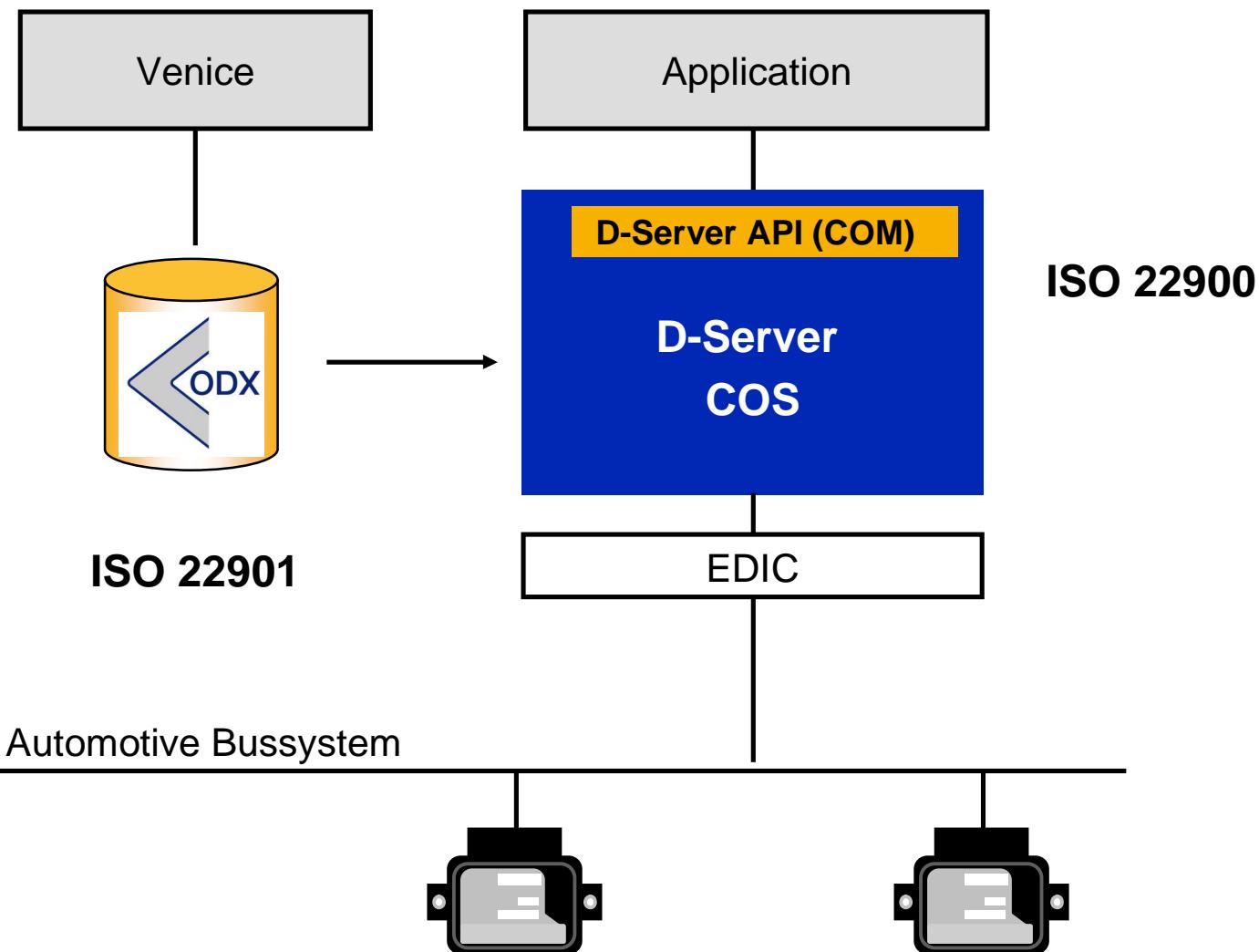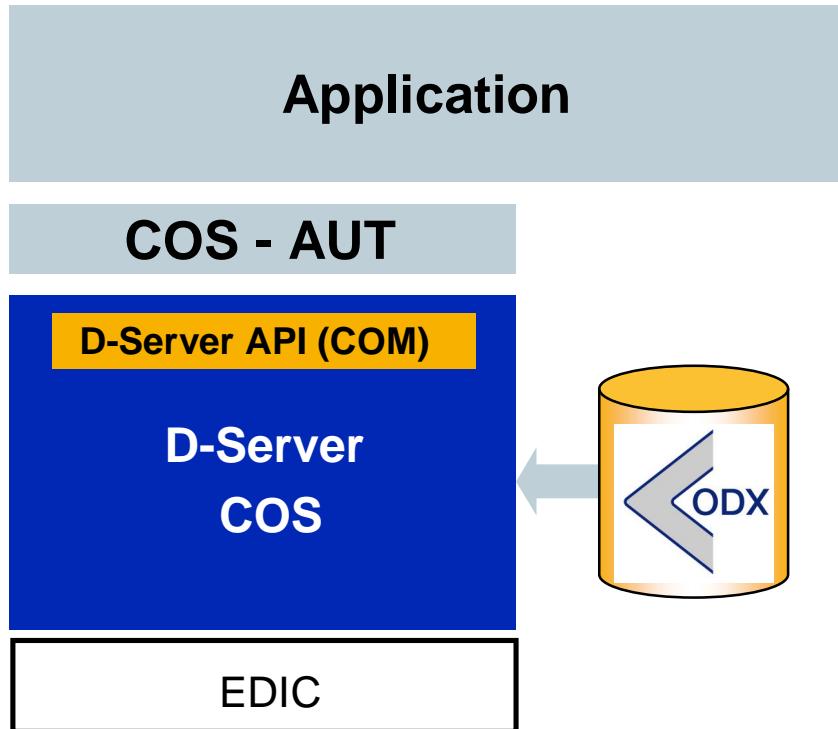
Automation API COS-AUT simplifies the access to diagnostic communication

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Implementation Examples

ETAS LABCAR-AUTOMATION & LABTRUCK

LABCAR-AUTOMATION

Set Fault

Read DTC

LABTRUCK

COS - AUT

D-Server API (COM)

D-Server
COS

EDIC

CAN-Bus
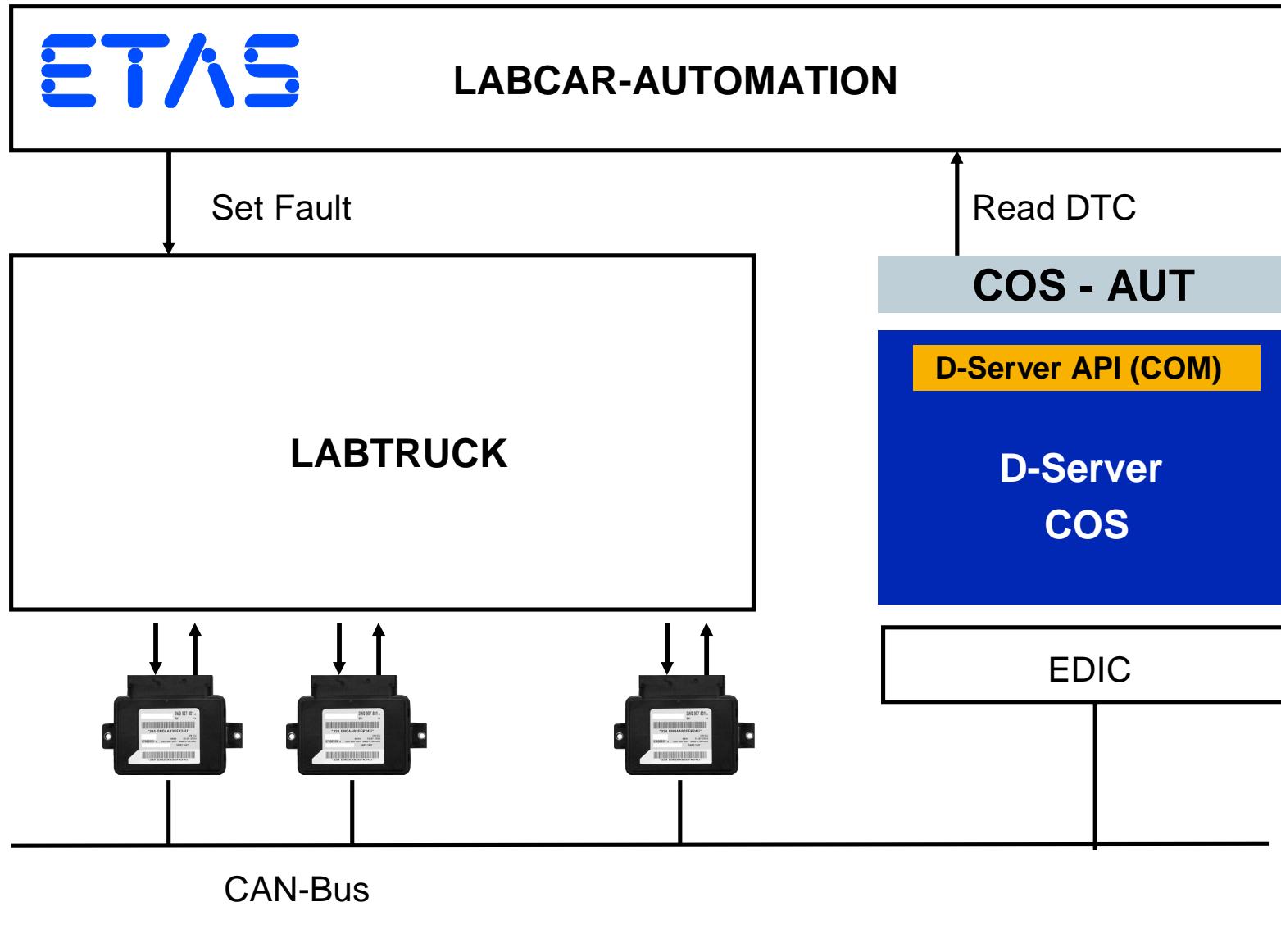
ETAS LABTRUCK

Foto: ETAS

dSPACE AutomationDesk

AutomationDesk

Testreport

Simulator

COS - AUT

D-Server API (COM)

D-Server COS

EDIC

CAN

Wiring harness

ECU
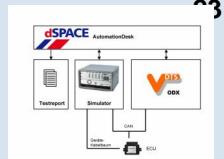
© Softing AG 2007
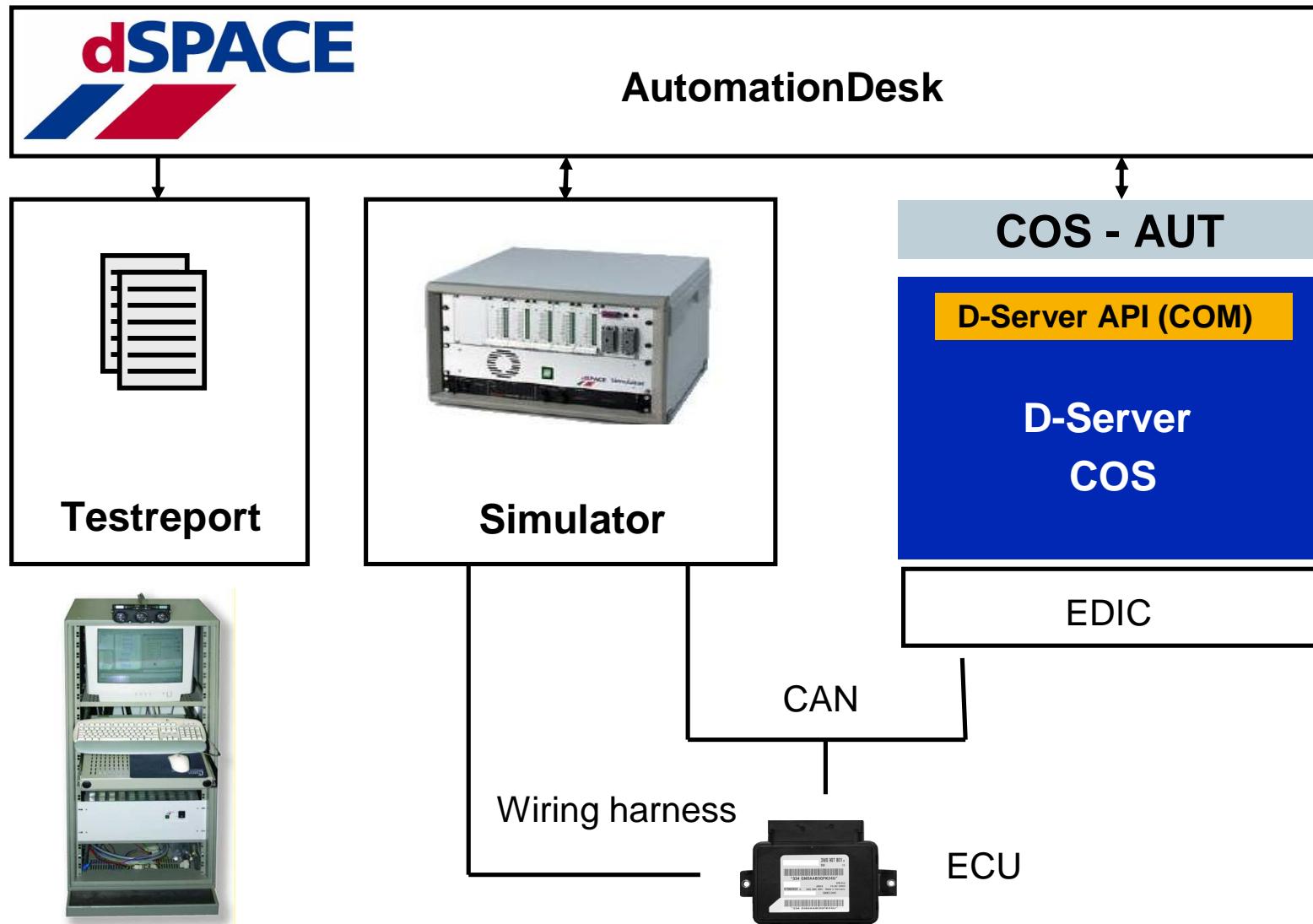
Testrig for VCT transmissions using the COM-API (Haas)

Application (C++)

D-Server API (COM)

D-Server COS

ODX

CAN interface for bus node emulation

EDIC interface for diagnostic communication

Foto: Haas

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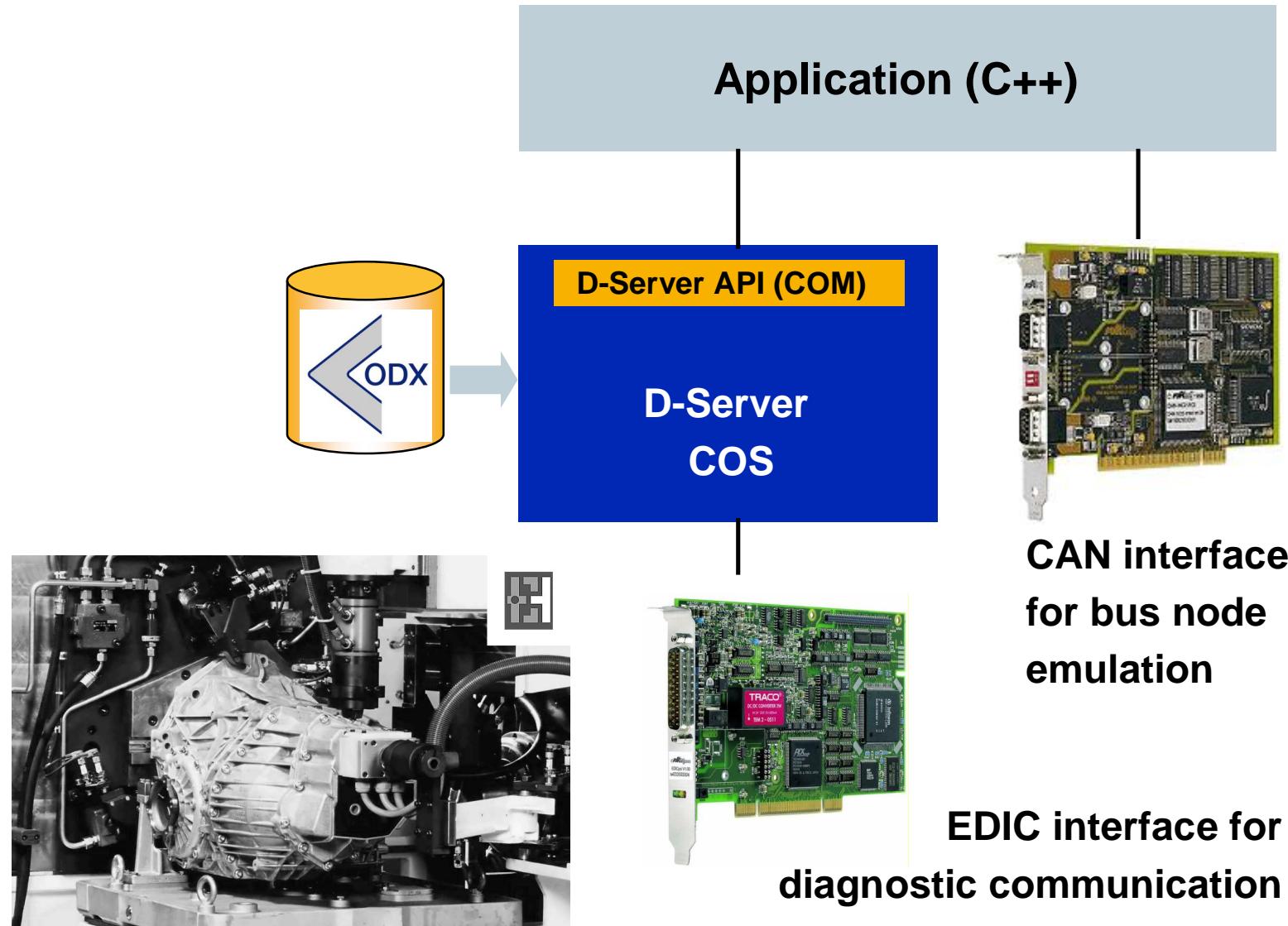
Automation API and LabView for a transmission teststand (Kleinknecht)

Application (LabView)

COS - AUT

D-Server API (COM)

ODX

**D-Server
COS**

PC-ECU-Interface (VCI)

Automation API COS-AUT eases the Access to diagnostic communication
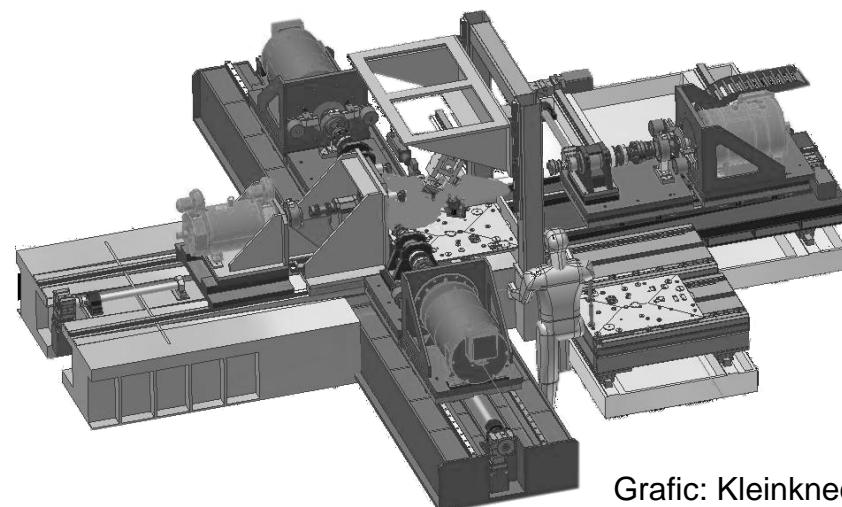
Grafic: Kleinknecht

Labview user interface
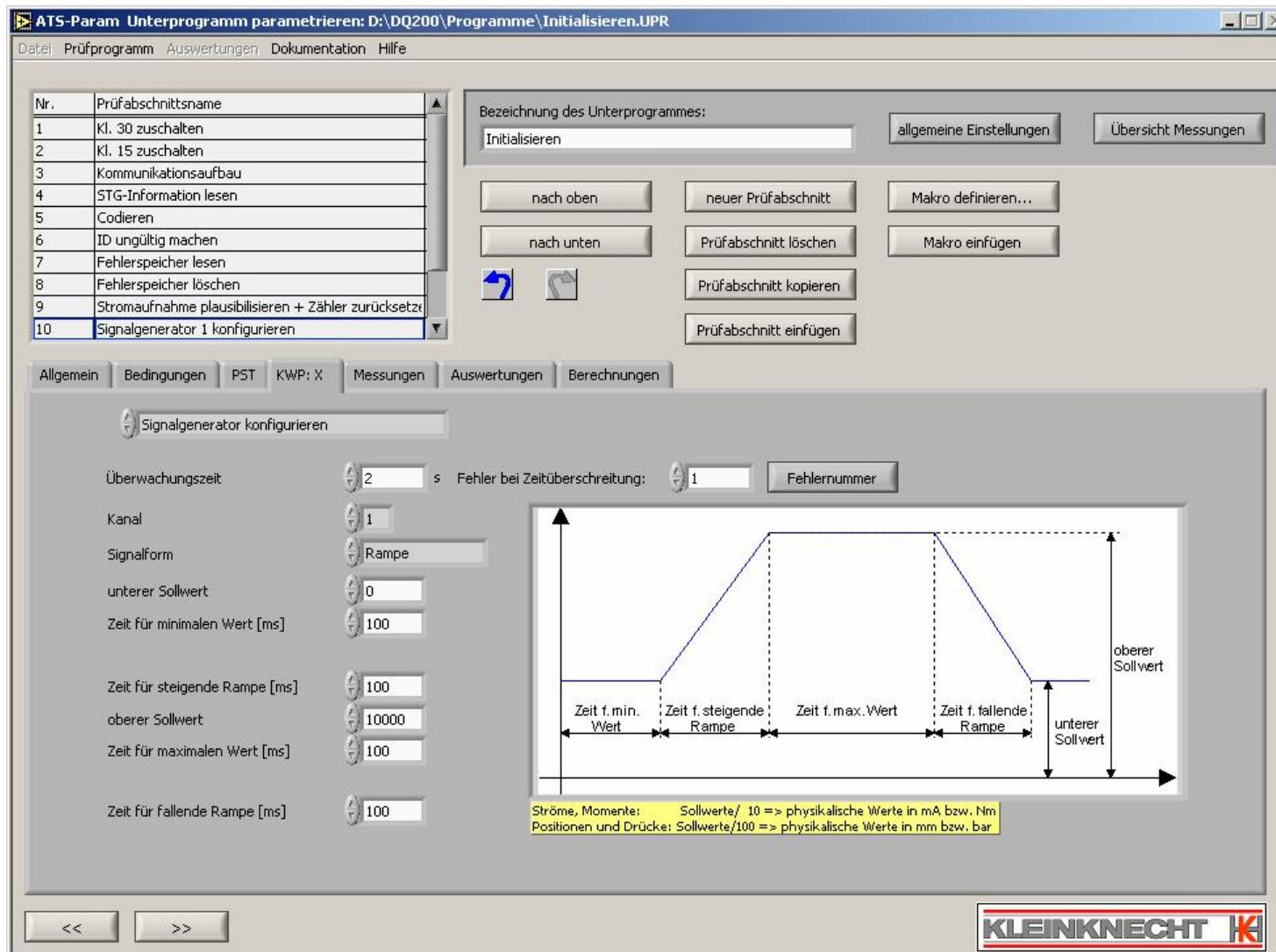
Typical Programming Example
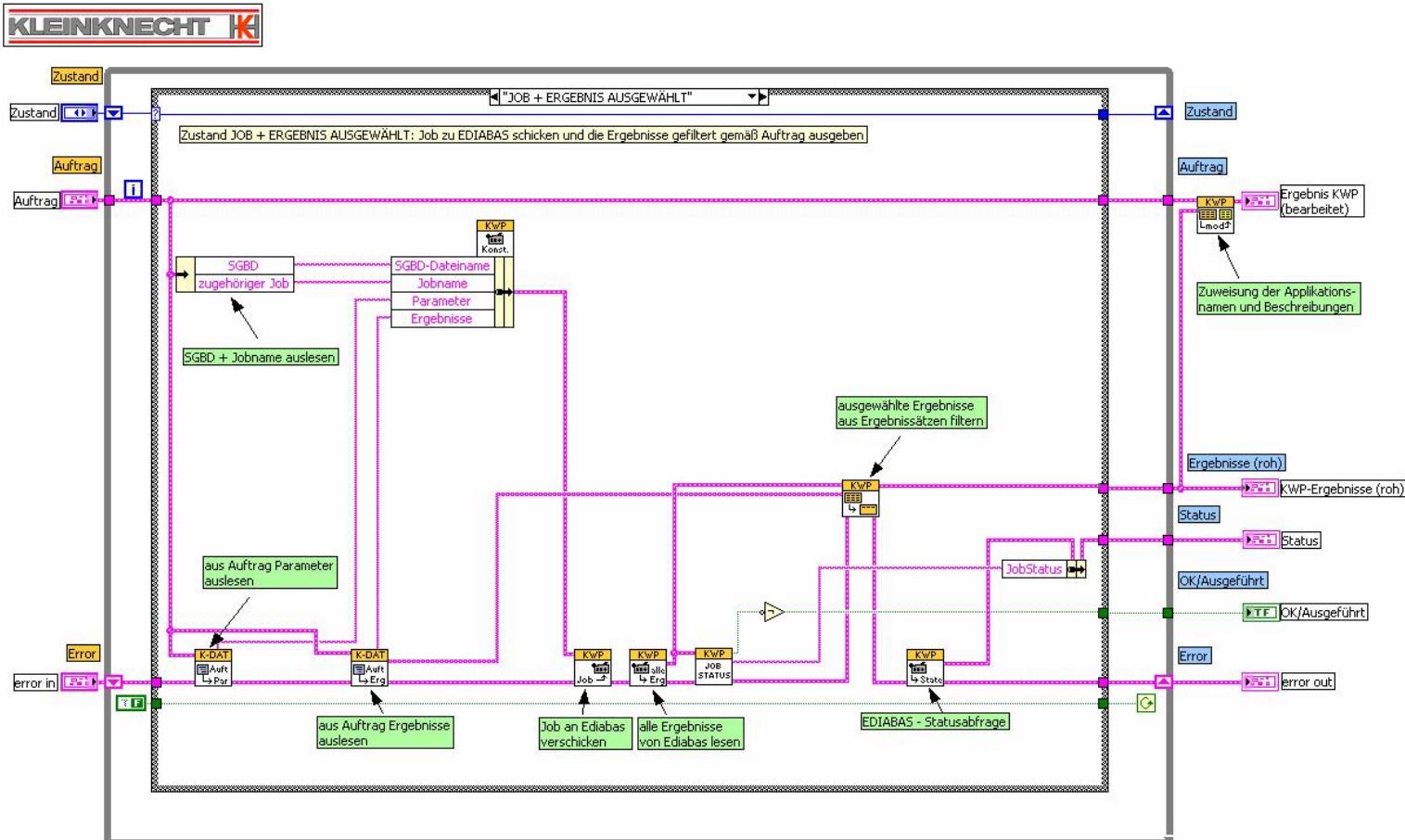
WLAN Flash in the vehicle manufacturing (Ford)

EDICnet

EDICnet

← Assembly line

Flash-Station

Access-Point
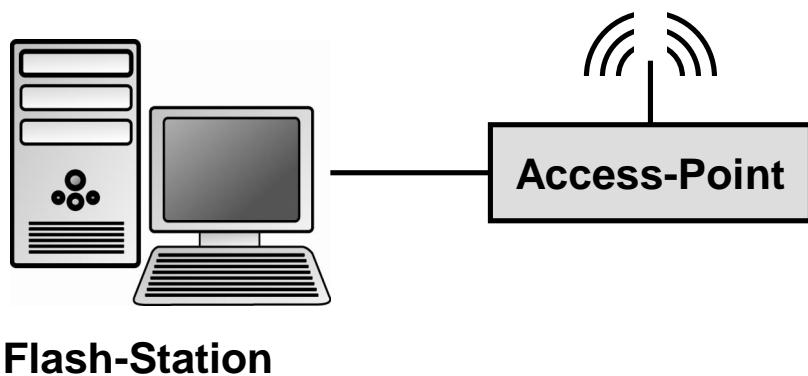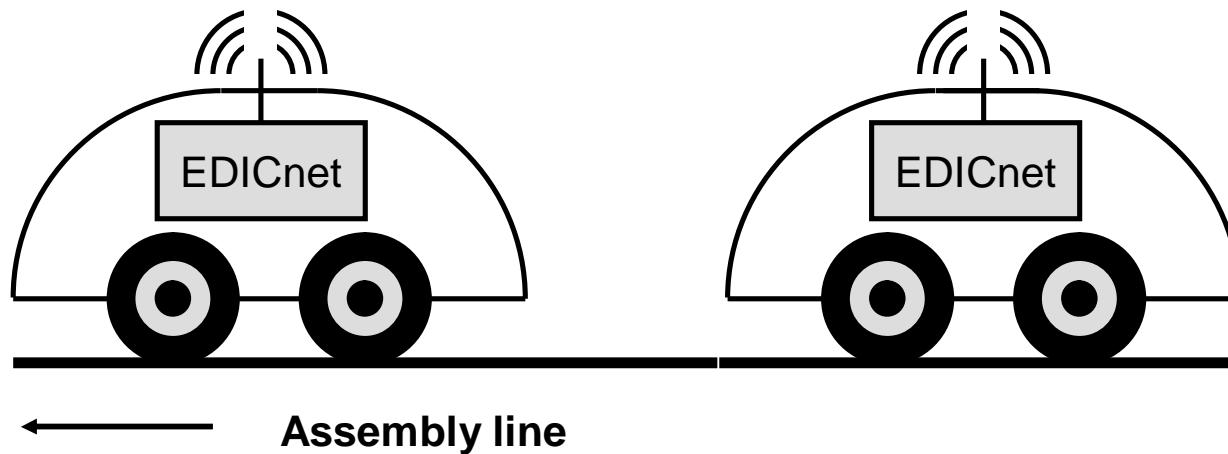
Benefit of MVCI/ODX:
Parallel diagnostic
communication
with more than one
ECU / car

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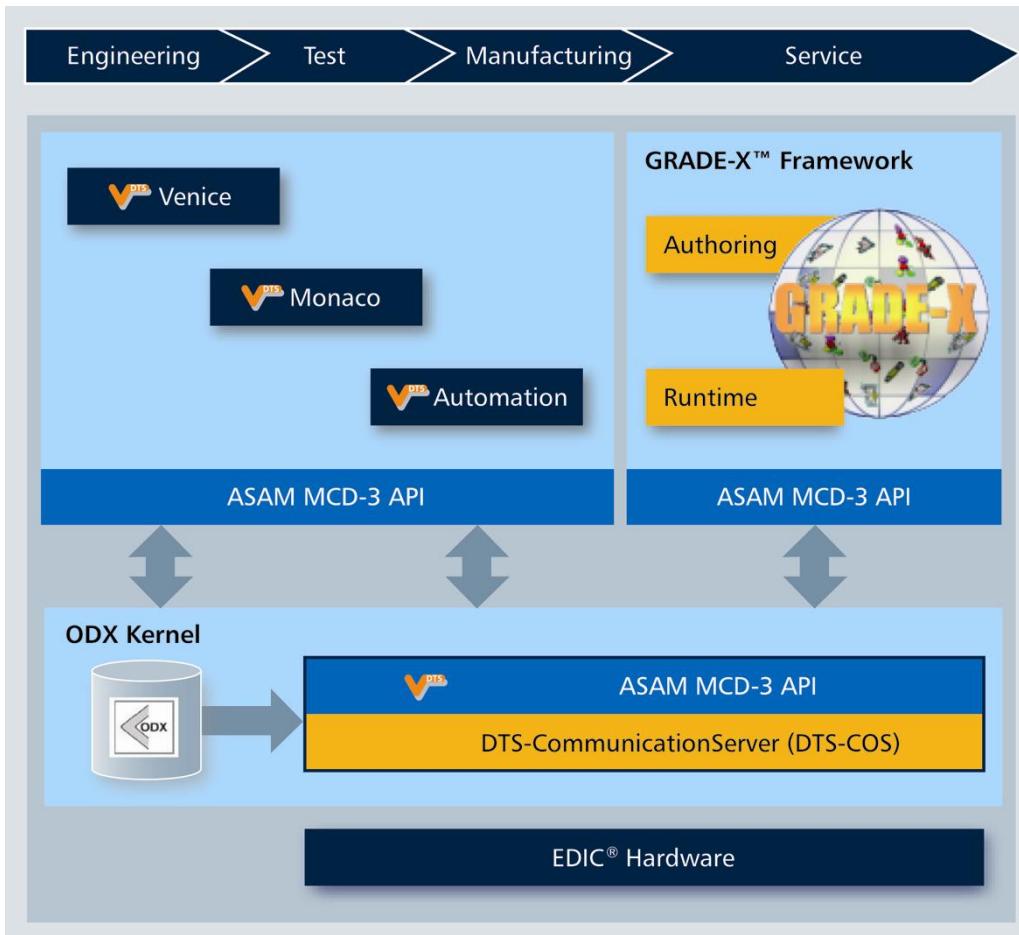
Teradyne GRADE-X

Testing of the compatibility...

Result:

GRADE-X (Teradyne) connects directly to the D-Server API

ASAM MCD / DTS-COS References

- VW: Service tester, flash programming (entire process)

- Ford (Australia): Flash programming in manufacturing

- ETAS: Integration in INCA and LabCAR

- dSPACE: Integration in AutomationDesk/ControlDesk

- SiemensVDO: Standard flash programming solution

- Teradyne: service tester prototype

- AVL: Puma integration prototype

- Behr: Standard manufacturing solution

- DC: Gearbox system test

- Hella: FlexRay ECU Tester

- Conti Temic: FlexRay ECU Tester

- ...

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