Diagnostics Overview

Ability to update SW package

The AUTOSAR adaptive platform is able to be extended with new software packages without re-flashing the entire ECU. The individual software packages are described by *SoftwareCluster*s. To support the current approaches of diagnostic management (like software updates), each *SoftwareCluster* have its own DiagnosticAddresses.

DM is intended to support an own diagnostic server instance per installed *SoftwareCluster*. All diagnostic server instances share a single TransportLayer instance (e.g. DoIP on TCP/IP port 13400).

Basic Requirements of DM

- Manage Security access
- Manage Session handling
- Support Busy handling NRC 0x78
- Support Confirmation response “Positive Response”
- Support Read / Write on ECU
- DTC setting control
- Aging of Memory Events
- Support UDS services
- Storing Snapshots

Diagnostic service management

The Diagnostic service management is similar to DCM in classic Autosar responsible for processing and dispatching diagnostic services

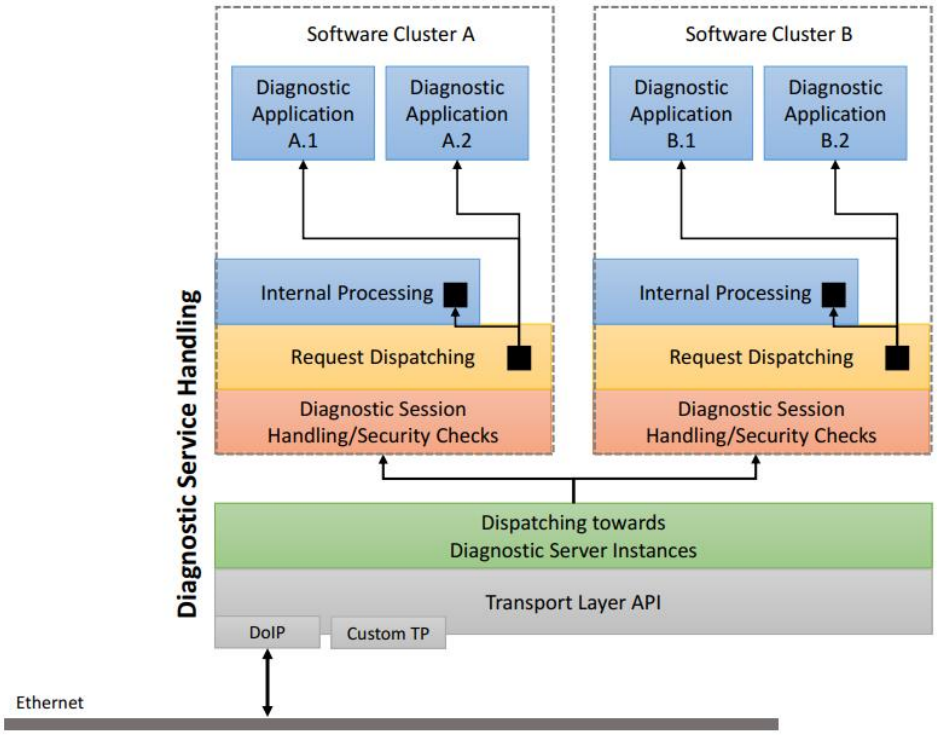

Figure 7.1: Architecture Diagnostic Service Handling

Receiving UDS diagnostic request messages from the network layer
• Extracting transport layer independent UDS information from it.
• Dispatching the request towards the Diagnostic Server instances depending on target address and target address type (physical or functional) of received UDS request message
• Correlating the diagnostic request to an existing UDS session (if already exists)
• Checking whether the diagnostic request is allowed within current session and security settings
• If diagnostic request is NOT allowed, generate negative UDS response and send it to the network layer
• If diagnostic request is allowed, depending on DM's configuration and request type,
– either process the service internally within diagnostic service handling function block of DM
– or process the service internally within event memory management function block of DM
– or hand it over for processing to an (external to DM) Adaptive Application
The figure below depicts those processing steps and functional blocks of DM's diagnostic service management part

UDS Transport Layer

Currently the Adaptive Platform only supports Ethernet-based network technologies, which mandates support of DoIP. It is very likely, that upcoming releases of the DM will also support CAN, CAN-FD, FR, ... networks.

DoIP Shall only work on Ethernet in Adaptive Autosar.

Transport Layer must embed VIN in DoIP messages.