Autosar adaptive

COMMUNICATION MIDDLEWARE

C Runtime Environment (RTE) from AUTOSAR
one standard, multiple proprietary implementations

SOME/IP protocol from AUTOSAR
one standard, multiple implementations

CommonAPI C++ from Genivi
open-source, developed mainly by BMW

Adaptive AUTOSAR Communication
one standard and reference implementation

ROS 2.0 from OSRF
open-source, based on DDS

ROS 1.x from Open-Source Robotics Foundation (OSRF)
open-source, developed by an open-source foundation, large community

DDS 1.x standard from OMG
Open and proprietary implementations from multiple vendors


COMMUNICATION MIDDLEWARE

Adaptive AUTOSAR Communication
one standard and reference implementation

ROS 2.0 from OSRF
open-source, based on DDS

Convergence?

• Use within same organisations:
  • BMW, Bosch et al. develop Adaptive AUTOSAR
  • BMW, Bosch et al. use ROS for research

• Complementary strengths:
  • AUTOSAR is strong on Specification
  • ROS is strong on Implementation and Tooling

• Adoption with next-generation employees:
  • ROS is used and taught in university
  • Automotive industry currently hires many graduates

• API design and behavior:
  • API follows similar design patterns
  • Slightly different service discovery
  • Different terminology
ARA::COM architecture

- Bindings can be implemented for REST, DDS or other Middleware Transport Layers that support publish subscribe / event patterns.
- SOMEIP is the default transport layer available on the shelf for ARA::COM

DDS Across Platforms, Industries, and Networks

- Integration in larger systems
DDS binding adopted by AutoSar Adaptive:


Licencing question

- Would it be OK if there were an open source implementation of ARA::COM in Autoware.auto?
- Useable by anyone or only AWF members?
- Remark: as a beginning of answer, we there is the example of SOME/IP
protocol where the specifications are defined in AUTOSAR consortium and open source code is in GENIVI.
https://github.com/GENIVI/vsomeip