Towards an Optimized Software Architecture for Component Adaptation at Middleware Level

Abstract:
The amount of software in the automotive domain is steadily increasing. Existing functions are adapted or enhanced on a regular basis. Often, such adaptations do not allow to keep the interfaces of the concerned components stable, leading to incompatibilities with former systems. In this contribution, we propose an optimized adaptation software architecture to deal with mismatching interfaces. We extend existing middleware solutions with transparent adapter loading capabilities. This enables for seamless adapter integration on those systems. As adapter model we use a finite-state machine aside with a domain specific language. By extracting static adaptations from the state machine we achieve state reduction and performance gain. The approach is evaluated using an automotive case-study.