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Interoperability of Test System Specific Functions based on Generic SCXML.

ABSTRACT - Masterthesis

In complex product development, OEM and many suppliers work on a different component of the final product, which they integrate later in the development cycle. Lower-tier suppliers support higher-tier suppliers and finally, OEM can integrate to form a product as per specification. Each supplier produces small components of the system and hereby, they are using various testing methods to validate components being developed. There are many test tools and test scripting languages from different vendors available and OEM, suppliers are free to choose any tool according to component requirements. This creates heterogeneity in the test processes across many components in the product development and prevents efficient collaboration between test processes within the supply chain. The collaboration needs to exchange test cases that are heterogeneous according to syntax and semantics. One of the ways to handle this heterogeneity is translating test cases from one scripting language into another. Currently, this approach lacks supports for test-specific functions. This thesis proposes experimentation to enable support of test-specific functions in test case translation using SCXML as an interoperability model. For that purpose, the approach divides test-specific functions into three transformation categories based on how they behave in a test case. Based on the classification, Java-based implementation is presented to perform the transformation of proprietary representation of test-specific functions into functions represented by generic SCXML elements. In the end, this report shows an evaluation of this experimentation based on order and execution time criteria and finally concludes with the efficiency of the overall approach.