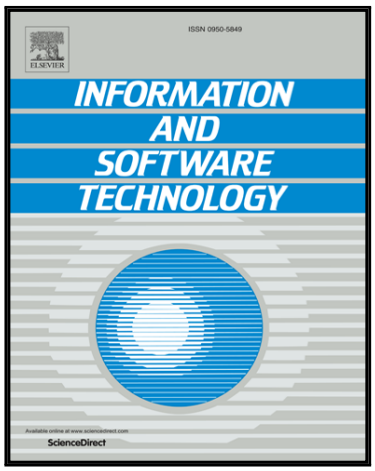

Choreography in the Embedded Systems Domain: A Systematic Literature Review

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PII: S0950-5849(17)30446-9
DOI: 10.1016/j.infsof.2017.06.008
Reference: INFSOF 5842

To appear in: *Information and Software Technology*

Received date: 11 September 2016
Revised date: 20 June 2017
Accepted date: 28 June 2017

Please cite this article as: Nebojša Taušan , Jouni Markkula , Pasi Kuvaja , Markku Oivo , Choreography in the Embedded Systems Domain: A Systematic Literature Review, *Information and Software Technology* (2017), doi: 10.1016/j.infsof.2017.06.008

Choreography in the Embedded Systems Domain: A Systematic Literature Review

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Keywords: choreography, service-oriented architecture, embedded systems, systematic literature review

Abstract

[Context] Software companies that develop their products on a basis of service-oriented architecture can expect various improvements as a result of choreography. Current choreography practices, however, are not yet used extensively in the embedded systems domain even though service-oriented architecture is increasingly used in this domain. **[Objective]** The objective of this study is to identify current features of the use of choreography in the embedded systems domain for practitioners and researchers by systematically analysing current developments in the scientific literature, strategies for choreography adaption, choreography specification and execution types, and implicit assumptions about choreography. **[Method]** To fulfil this objective, a systematic literature review of scientific publications that focus on the use of choreography in the embedded systems domain was carried out. After a systematic screening of 6823 publications, 48 were selected as primary studies and analysed using thematic synthesis. **[Results]** The main results of the study showed that there are differences in how choreography is used in embedded and non-embedded systems domain. In the embedded systems domain, it is used to capture the service interactions of a single organisation, while, for example, in the enterprise systems domain it captures the service interactions among multiple organisations. Additionally, the results indicate that the use of choreography can lead to improvements in system performance and that the languages that are used for choreography modelling in the embedded systems domain are insufficiently expressive to capture the complexities that are typical in this domain. **[Conclusion]** The selection of the key information resources and the identified gaps in the existing literature offer researchers a foundation for further investigations and contribute to the advancement of the use of choreography in the embedded systems domain. The study results facilitate the work of practitioners by allowing them to make informed decisions about the applicability of choreography in their organisations.

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