

Informationen

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Abstract

Due to the emergence of the internet and the ongoing evolution in software engineering the way how software products are developed has changed drastically in the last decades. From former monolithic software development the continuous evolution has emerged technologies, such as multi-agent and service-oriented systems. These systems provide a very high flexibility and the possibility to reuse functionality. Unfortunately, these advances in software engineering had little to no effect on software development in the automation industry. Due to the heterogeneous products and different platforms that are available on the market, the evolution progress in automation technology is very slow. The automation industry is a highly fragmented area with few common standards and platforms. This thesis points out the advantages of using service-oriented architectures in industrial automation software. The potential of Microsoft Robotics Developer Studio to establish as standard technology for industrial applications is highlighted. The orchestration of services to build complete applications is demonstrated and evaluated in a virtual simulated example application. The main target is the development of software which is highly related to the process that it controls and is not dependent on the hardware that it is using to fulfil its tasks. Therefore flexibility and reusability of production control software should be maximized.