Automated Synthesis of Dynamic and Secured Choreographies for the Future Internet

CHOReVOLUTION

CHOReVOLUTION develops a technology based on dynamic choreographies that automatically compose and coordinate heterogenous distributed software services to enable applications supporting large numbers of providers and consumers of different shapes and forms in the context of the Future Internet, the Internet of Things and Smart Mobility.

AT A GLANCE

Project title:
Automated Synthesis of Dynamic and Secured Choreographies for the Future Internet.

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Viktoria, Sweden, www.viktoria.se

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Programme:
H2020-ICT 9-2014: Tools and Methods for Software Development

Further information:
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Context and motivation

A new software engineering approach is required to enable innovative applications and business models that can take advantage of the increasing diversity of connected devices and smart objects in the context of the Future Internet.

Challenge

Software systems that enable large-scale smart mobility cannot be developed using mainstream service composition approaches because these are currently mostly based on static, centralized service orchestrations techniques. While service orchestration works well in static environments where software services are predefined and environment changes are minimal, it is necessary to create a new approach based on an innovative flexible and scalable environment to develop applications that can support a large number of service providers and consumers of different and changing shapes and forms in the context of the Future Internet.

Solution

CHOReVOLUTION develops a new software engineering environment based on implementing dynamic and secure choreographies via the dynamic and distributed coordination of services. CHOReVOLUTION adds the automated synthesis of dynamic and secure choreographies to existing choreography technologies. This makes these technologies able to support stringent application requirements in terms of dynamism and cross-organization security. To meet its objectives, the CHOReVOLUTION project undertakes both research and innovation tasks:

- Research concentrates on choreography modelling, synthesis, adaptation, service bus, security, and cloud;

- Innovation focus on industrial validation, development support and integration platform, and the establishment of a CHOReVOLUTION community and market take-up. CHOReVOLUTION outcomes are assessed by experimenting with new applications in the field of Intelligent Transportation Systems.

The CHOReVOLUTION software will be published under an open source licence and be publicly made available through the OW2 community.

Expected impact

CHOReVOLUTION helps meet the increasingly complex challenges that are posed to application developers in terms of requirement for mobility, awareness, adaptability, security, privacy and trust. Unlike today's service composition approaches that are essentially static, CHOReVOLUTION will enable the development of new real-time application spanning from innovative business models to emerging societal applications.

CHOReVOLUTION will help address a growing wave a new needs in European and global markets arising from the growth of the Future Internet, the Internet-scale connection of highly heterogeneous objects (vehicles, sensors, mobiles devices, home appliances, etc.), the real time integration of smart devices, web applications and social media.

The CHOReVOLUTION Decentralized Approach