

IEEE First International Workshop on Service Orchestration and Choreography for the Future Internet (OrChor 2014)

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I. INTRODUCTION

During the last years there is a growing interest around the development of new ideas envisioning the opportunities combining Internet and services. The buzzword “Future Internet” (FI) has been introduced and it is now central to several initiatives.

Specifically, with respect to the Internet of Services, many research communities refer to the well-founded Service-Oriented Computing (SOC) as the reference paradigm for Future Internet computing. SOC promotes the idea of assembling application services into a network of services that can be loosely coupled to create flexible, dynamic business processes and agile software systems that span organizations and computing platforms.

Service orchestrations and choreographies, as different (yet complementary) service composition approaches, will certainly have an important role in shaping the SOC within the vision of Future Internet. Differently from the centralized approach taken in service orchestrations, choreographies aggregate services in a decentralized way.

Within a Future Internet context, we imagine the establishment of a service federation in which different providers and consumers are composed following a combined approach where Orchestrations and Choreographies (OrChor) complement each other. The goal is to achieve high flexibility while simplifying intra- to inter-organization integration according to the requirements coming from a specific business context (e.g., high security guarantees). However, this combination will contribute to the SOC vision within the Future Internet only if supported by suitable design and development environments, as well as a set of infrastructural services and middleware-based services providing the run-time support for executing OrChor applications.

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Despite the great interest in the FI of services, no common foundations and principles have been established yet. As consequence, a set of ground-breaking challenges emerges from this vision, which requires radical changes on the way applications are designed, developed, validated and operated. Indeed, FI applications will execute on a highly dynamic context, where changes may concern both the application itself and the environment with whom the application is interacting. Applications in the future are then characterized, in varying degrees and flavors, as distributed, pervasive, adaptive, reconfigurable, context-aware, dynamic and critical. Developing FI applications encompasses a variety of aspects, ranging from modeling and analysis issues in the early phases of their development, to issues related to their implementation and run-time management.

To this extent, the OrChor 2014 Workshop aims at investigating, from the software engineer perspective, how to design and develop applications that can fully benefit from the centralized and/or decentralized composition of services, being flexible and dynamic at the same time, as well as dependable.

II. WORKSHOP OBJECTIVES AND THEMES

OrChor 2014 provides the opportunity for discussing how the FI affects the traditional software development methods and tools. More specifically, we seek answers on how to assist software engineers while designing, developing, validating and operating orchestration-based and choreography-based applications for the FI. The workshop constitutes a forum for scientists and engineers in academia and industry to present and discuss their latest research. Topics of interests of OrChor 2014 Workshop include, but are not limited to:

- Software Engineering Methods and Practices
 - Principles of Engineering OrChor applications
 - OrChor applications development process
 - Requirement Engineering for OrChor applications
 - OrChor applications Design and Programming
 - Verification and Validation of OrChor applications

- Model-driven methods and tools
- Run-time support for OrChor applications
 - Middleware (publication, discovery, access, etc.)
 - Convergence and integration of centralized and/or decentralized composition of services
 - Scalability, mobility, heterogeneity
- Quality of OrChor applications
 - Performance, reliability and availability
 - Security (vulnerabilities, malwares, etc.)
 - Sustainability, trustiness and privacy
- Crosscutting concerns
 - Context-, semantic- and resource-awareness
 - Pervasiveness, seamlessness and adaptiveness
 - Decentralized vs centralized service composition
- Tools, case studies, use cases
 - Smart grid, smart house, smart cities, sustainable and green services
 - Killer OrChor applications

III. PROGRAM COMMITTEE

- Andrea Zisman, Open University, UK
- David Garlan, Carnegie Mellon University, Pittsburgh
- Domenico Bianculli, Univ. du Luxembourg
- Gwen Salaun, INRIA, Grenoble-Rhone-Alpes, France
- Guglielmo De Angelis, CNR-IASI/ISTI, Italy
- Kelly Rosa Braghetto, Univ. of São Paulo, Brazil
- Joni da Silva Fraga, UFSC, Brazil
- Luciano Baresi, Politecnico di Milano, Italy
- Marco Pistore, Fondazione Bruno Kessler, Italy
- Mauro Caporuscio, Politecnico di Milano, Italy
- Nelson Souto Rosa, UFPE, Brazil
- Nikolaos Georgantas, INRIA, Paris, France
- Paola Inverardi, Univ. of L'Aquila, Italy
- Pascal Poizat, Univ. Paris Ouest, France
- Radu Calinescu, Univ. of York, UK
- Schahram Dustdar, Univ. of Technology Wien, Austria

IV. PAPERS ACCEPTED

OrChor 2014 accepted 10 papers covering topics related to: Adaptable and Evolving Choreographies, Choreographies Enactment, Cross-Organizational Business Collaboration, Service Composition Modeling and Analysis, Business Processes, QoS Estimation of Service Compositions, Dynamic Services Selection, Workflow Patterns, and Reliable and Flexible Service Compositions.

Each submitted paper was formally peer reviewed by at least three program committee members.

After the workshop, authors of selected papers will be invited to submit an extended version of their work to be considered for publication in the *Springer Journal of Internet Services and Applications* (JISA - Editors-in-Chief: F. Kon and G. Blair).

V. WORKSHOP ORGANIZERS

Marco Autili is an Assistant Professor at the Department of Information Engineering Computer Science and Mathematics (DISIM) - University of L'Aquila. His main research topics include application of (from theory to practice) methods to the Verification, Analysis and Automatic Synthesis of adaptable applications, Component-based and Service-based Software Engineering, software architectures with particular reference to Service Oriented Architectures, and application of Context-oriented Programming techniques to the development of adaptable (mobile) applications. He published several papers in journals, international conferences and workshops in these topics. He is and has been reviewer and in the Program Committee of several international conferences, workshops, and journals like Science of Computer Programming, Software and Systems Modeling, Journal of Systems and Software, Automated Software Engineering, and a number of Transactions. He is (has been) involved in many EU and Italian projects contributing to Research and Development, Management and Coordination activities.

Alfredo Goldman is a full time professor at the Institute of Mathematics and Statistics (IME) - São Paulo University. He finished his Ph.D. in France at Grenoble (November 99). Graduated with a BA in Applied Mathematics from the University of São Paulo (1990), MSc in Applied Mathematics from the University of São Paulo (1994) and Ph.D. in Informatique et Systèmes - Institut National De Polytechnique Grenoble (1999). He is currently associate professor at the University of São Paulo, associate editor of the journal Parallel Computing, part of the program committee of conferences like XP, IPDPS, IEEE NCA, ICPP, JSSPP, SBAC, SBRC, SBES and SBQS. In 2014 he is co-chair of IEEE NCA and SBAC. He has experience in different areas of Computer Science, mainly in the following topics: parallel and distributed computing, scheduling and agile software development.

Massimo Tivoli is an assistant professor at the Department of Information Engineering Computer Science and Mathematics (DISIM) - University of L'Aquila. His research interests include component adaptation and coordination; connector synthesis; software models elicitation; and choreography synthesis. His research work leverages the exploitation of software models as building blocks to enable automated reasoning. He is a reviewer for several leading international peer-reviewed journals, among which, IEEE TSE and TII, JSS and SoSyM. He participated and participates to Program Committees of several relevant conferences on software architectures and software engineering, among which ESEC/FSE, CBSE, SEFM, and SEAA. Massimo Tivoli has been (co-)chair of CBSE'13 and organizer of both WCAT'05 and WCAT'06 workshops, and of the ModComp 2014 workshop.