

Second International Workshop on RESTful Design (WS-REST 2011)

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ABSTRACT

Over the past few years, the discussion between the two major architectural styles for designing and implementing Web services, the RPC-oriented approach and the resource-oriented approach, has been mainly held outside of traditional research communities. Mailing lists, forums and developer communities have seen long and fascinating debates around the assumptions, strengths, and weaknesses of these two approaches. The *Second International Workshop on RESTful Design (WS-REST 2011)* has the goal of getting more researchers involved in the debate by providing a forum where discussions around the resource-oriented style of Web services design take place. *Representational State Transfer (REST)* is an architectural style and as such can be applied in different ways, can be extended by additional constraints, or can be specialized with more specific interaction patterns. WS-REST is the premier forum for discussing research ideas, novel applications and results centered around REST at the World Wide Web conference, which provides a great setting to host this second edition of the workshop dedicated to research on the architectural style underlying the Web.

Categories and Subject Descriptors

C.2.0 [Computer Communication Networks]: General

General Terms

Algorithms, Design, Languages, Standardization, Theory

Keywords

REST, HTTP, Web Architecture, Web Services

1. INTRODUCTION

With the advent of *service orientation* and *Service Oriented Architecture (SOA)* as important new approaches for large-scale IT system design, it has become an important (and sometimes contentious) issue what to define as a “service”. While many definitions in the scope of SOA stay on a very abstract level, eventually services need to be mapped to concrete IT architectures. In this area, there are two main design approaches. One approach has been to use a functional approach to services and define them in a way resembling a collection of *Messages* and *Remote Procedure*

Calls; this approach has also been the underlying principles of existing middleware frameworks, such as CORBA. The other approach is to center the design on resources instead of functions; this approach has its main background in *Representational State Transfer (REST)* [1], the architectural style underlying the Web.

Discussions about REST and the advantages and limitations of this approach gained some momentum, but they were mostly conducted in email forums and discussion groups. The *First International Workshop on RESTful Design (WS-REST 2010)* [2] was held at the WWW2010 conference in April 2010 and attracted more than 70 registrations; it was the second largest workshop held at WWW2010. The acceptance ratio of the papers for last year’s edition was 35%: 10 accepted papers out of 28 submissions. Because of the high quality of the submitted papers and the interest for the topic that we experienced, we are currently editing a book, called “REST: From Research to Practice,” that is based on the papers and submissions of WS-REST 2010 and will be published in early 2011 [3].

The *Second International Workshop on RESTful Design (WS-REST 2011)* has been planned based on last year’s success as a venue to continue the discussions around REST, its applications, and possible extensions or adaptations in the area of academic research. One of the main goals of WS-REST 2011 is to bring application-oriented developers and academic research closer together, so that discussions about RESTful design can be both informed by real-world usage and constraints, and also benefit from research in the areas of information systems and information integration that has been ongoing for a long time. Our goal is to build WS-REST into a series of events that will become one of the main forums to discuss how Web architecture and Web services can be brought together in a way that is useful and works well for both service providers and consumers.

2. WORKSHOP TOPICS

REST is the architectural style underlying the Web’s architecture and is the crucial difference between the Web’s decentralization and loose coupling, and the distributed and more tightly coupled approaches seen in many other information system architectures. When the term “Web Service” first appeared in the late 1990s, it was first mostly associated with architectures using HTTP as a transport protocol and building RPC services on top of that, starting with XML-RPC, and then continuing with SOAP. These Web services evolved into a complex and heavyweight set of layered specifications. As a response to this development of Web services,

REST gained attention as a more lightweight approach, and as one that explicitly did not target integration but cooperation, and that was using resources as the primary abstraction of architectures, as opposed to function calls. For a long time, SOAP and REST Web services were both regarded as different approaches to solve the same problem. However, it appears as if REST is now gaining more momentum in the Web-oriented spectrum of service design and implementation.

Over the past two years, with the W3C's "Workshop on Web of Services for Enterprise Computing" marking an important inflection point, the discussion between the two major architectural styles for designing and implementing Web services, the RPC-oriented approach and the resource-oriented approach, has been mainly held outside of traditional research communities. Mailing lists, forums and developer communities have seen long and fascinating debates around the assumptions, strengths, and weaknesses of these two approaches. The RESTful approach to web services has received significant amount of attention from industry and developer communities as indicated by the numerous technical books on the topic. At the same time, academics are just starting to pay attention to the research implications of applying REST to advanced decentralized system scenarios. With this workshop proposal, we want to get more researchers involved in the debate by providing a forum where discussions around current research on the resource-oriented style of Web services take place. We are not interested in providing a forum for merely presenting RESTful services, but instead want to focus on research that advances the field by tackling new problems, making interesting comparisons, drawing novel conclusions, or tackling the hard problem of how to decide when to apply REST, and when to use something else.

3. ORGANIZERS

- *Cesare Pautasso* is assistant professor in the new Faculty of Informatics at the University of Lugano, Switzerland. Previously he was a researcher at the IBM Zurich Research Lab and a senior researcher at ETH Zürich. His research focuses on building experimental systems to explore the intersection of model-driven software composition techniques, business process modeling languages, and autonomic/Grid computing. His teaching, training, and consulting activities cover advanced topics related to Web Development, Middleware, Service Oriented Architectures and emerging Web services technologies. He has recently organized the *3rd International Workshop on Web APIs and Services Mashups at OOPSLA (Mashups'09)*. He is currently co-authoring a book on SOA with REST, to be published by Prentice Hall.
- *Erik Wilde* is associate adjunct professor at the UC Berkeley School of Information. He holds a diploma in computer science from the Technical University of Berlin, and a Ph.D. from ETH Zürich. His general interest is Web architecture and Web-oriented information architecture. His research focus is on XML and related technologies, Web services and REST, and loosely coupled architectures for exposing data and services in easily usable and accessible ways.

- *Rosa Alarcon* is assistant professor in the Computer Science Department at Pontificia Universidad Catolica de Chile. She is member of SIGSE, the Special Interest Group on Software Engineering at PUC, and she is particularly interested in Service Oriented Architecture, software composition, distributed systems and web architecture. She was a post-doc researcher at UC Berkeley where she focused on the REST architectural style as a platform for supporting service composition that enables Business Processes. She received a Ph.D. from the Pontificia Universidad Catolica de Chile, where she is currently exploring the relationship of RESTful services and the Linked Data project, as well as the design of semantic models for standardized media types and its impact on Mashups and crawlers.

4. PROGRAM COMMITTEE

The program committee of WS-REST 2011 has been assembled to thoroughly review all submissions to the workshop. Each submission is reviewed by various PC members, which results in a fair and balanced reviewing process and a helpful feedback for the authors. The program committee of WS-REST 2011 consists of:

- Rosa Alarcon, Pontificia Universidad Catolica de Chile
- Jan Algermissen, Nord Software Consulting, Germany
- Subbu Allamaraju, Yahoo Inc., USA
- Mike Amundsen, USA
- Benjamin Carlyle, Australia
- Stuart Charlton, Canada
- Duncan Cragg, ThoughtWorks, UK
- Joe Gregorio, Google, USA
- Michael Hausenblas, DERI, Ireland
- Ralph Johnson, University of Illinois, USA
- Rohit Khare, 4K Associates, USA
- Yves Lafon, W3C, USA
- Frank Leymann, University of Stuttgart, Germany
- Alexandros Marinos, University of Surrey, UK
- Cesare Pautasso, Faculty of Informatics, USI Lugano, Switzerland
- Ian Robinson, Thoughtworks, UK
- Stefan Tilkov, innoQ, Germany
- Steve Vinoski, Verivue, USA
- Tomas Vitvar, ProgrammableWeb
- Jim Webber, NEO4J
- Erik Wilde, School of Information, UC Berkeley, USA
- Olaf Zimmermann, IBM Zurich Research Lab, Switzerland

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5. REFERENCES

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- [3] ERIK WILDE and CESARE PAUTASSO, editors. *REST: From Research to Practice*. Springer-Verlag, Heidelberg, Germany, 2011.