Lecture Notes in Computer Science 8304

Commenced Publication in 1973
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Principles of Distributed Systems

17th International Conference, OPODIS 2013
Nice, France, December 16-18, 2013
Proceedings

Springer

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ISSN 0302-9743 e-ISSN 1611-3349
ISBN 978-3-319-03849-0 e-ISBN 978-3-319-03850-6
DOI 10.1007/978-3-319-03850-6
Springer Cham Heidelberg New York Dordrecht London

Library of Congress Control Number: 2013954562

CR Subject Classification (1998): C.2.4, C.2, F.2, D.2, I.2.11, G.2.2

LNCS Sublibrary: SL 1 – Theoretical Computer Science and General Issues

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Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Preface

This volume contains the papers presented at OPODIS 2013. OPODIS, the International Conference on Principles of Distributed Systems, is an international forum for the exchange of state-of-the-art knowledge on distributed computing and systems among researchers from around the world. The 17th edition of OPODIS was held during December 16–18, 2013 in Nice, France.

Papers were sought soliciting original research contributions to the theory, specification, design and implementation of distributed systems. In response to the call for papers, 41 submissions were received, out of which 18 papers were accepted, after a rigorous reviewing process that involved 33 Program Committee members and at least three reviews per paper.

We would like to thank the Program Committee members, as well as the external reviewers, for their fundamental contribution in selecting the best papers.

In addition to the technical papers, the program included five invited presentations by: Marcos k. Aguilera (Microsoft Research, USA), Eitan Altman (Inria, France), Hein Meling (University of Stravanger, Norway), Nuno Preguica (Universidade Nova de Lisboa, Portugal) and Marc Shapiro (Inria, France).

September 2013

Roberto Baldoni
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Invited Talks

Geo-Distributed Storage in Data Centers

Marcos K. Aguilera

Microsoft Research
Mountain View, CA, USA

Abstract. Data centers increasingly have a storage system that is *geo-distributed*, that is, distributed across several geographic locations. We explain the general characteristics of this setting and the challenges that it brings, chief among them the need to operate with low latency despite significant network delays. These challenges lead to many interesting problems: migrating data online, dealing with congestion, providing efficient transactions, and more. We discuss these problems and some recent solutions, which bring together techniques from distributed computing, distributed systems, and database systems. Despite much progress, however, several algorithmic and fundamental questions remain open and serve as inspiration for further investigation.

Dynamic Game Models in Complex Systems

Eitan Altman *

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Abstract. We begin the tutorial with a theoretic part that covers two areas: non-cooperative game theory, and population propagation models. In the game theory part, a particular attention will be given to potential games. We shall focus in particular on congestion games and on the game version of the generalized Kelly mechanism problem, both of which are known to be potential games. In our presentation of models for population propagation models, we shall present several models which we shall classify according to the size of population of potential interested destination nodes (which can be finite and constant, finite but non-constant or infinite), and the virality of the content. This will include branching and epidemic models. We shall then use these tools to study various applications to large networks. This will include (1) security issues related to e-virus attacks, (2) the question of what type of content should service providers specialize in, which will be solved by transforming it into an equivalent congestion game, (3) issues related to viral marketing and competition issues in social networks. In these problems the generalized Kelly mechanism will be frequently used. The game theoretic analysis will allow us to get insight on how much to spend on advertising products and on what product should we advertise. Both journal and conference papers as well as video presentations covering this tutorial are available at http://www-sop.inria.fr/members/Eitan.Altman/dodescaden.html

* This work was supported by CONGAS Project (FP7- ICT-2011-8-317672), see www.congas-project.eu

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