

Commenced Publication in 1973

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Combinatorial and Algorithmic Aspects of Networking

First Workshop on Combinatorial and
Algorithmic Aspects of Networking, CAAN 2004
Banff, Alberta, Canada, August 5-7, 2004
Revised Selected Papers



Springer

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Library of Congress Control Number: 2005929059

CR Subject Classification (1998): F.1.1, F.2.1-2, C.2, G.2.1-2, E.1

ISSN 0302-9743
ISBN-10 3-540-27873-7 Springer Berlin Heidelberg New York
ISBN-13 978-3-540-27873-3 Springer Berlin Heidelberg New York

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© Springer-Verlag Berlin Heidelberg 2005
Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India
Printed on acid-free paper SPIN: 11527954 06/3142 5 4 3 2 1 0

Preface

The Internet is a massive global network of over 700 million users and it is adding users at the rate of 300,000 per day. This large, distributed, and everchanging network poses a challenge to researchers: How does one study, model, or understand such a decentralized, constantly evolving entity? Research in large-scale networks seeks to address this question, and the unique nature of these networks calls for a range of techniques from a host of disciplines. The workshop Combinatorial and Algorithmic Aspects of Networking and the Internet (CAAN 2004) provided a forum for the exchange of ideas on these topics.

The primary goals of the workshop were to bring together a diverse cross-section of researchers in an already scattered and distinct community and also to provide a snapshot of the cutting-edge research in this field. We succeeded in these goals: among the participants were mathematicians, computer scientists in theory and algorithms, computer scientists in networks, physicists, and engineers, as well as researchers from Europe and North America, participants from industry and academia, students, and established researchers; and among the papers were some new and surprising results as well as some introductions to the foundations of the field.

The workshop program featured 12 peer-reviewed papers bracketed by two hour-long invited survey talks — an opening talk by Ashish Goel and a closing talk by Andrei Broder. Topics covered by the talks ranged from the Web graph to game theory to string matching, all in the context of large-scale networks. This volume collects together the talks delivered at the workshop along with a number of survey articles to round out the presentation and give a comprehensive introduction to the topic.

We were fortunate to be given the opportunity to hold the conference as a two-day workshop at the Banff International Research Station for Mathematical Innovation and Discovery, BIRS. The breathtaking and inspiring setting and ample amenities contributed greatly to the success of the workshop. Attendance at BIRS is by invitation only and we had 24 participants at CAAN 2004. The small number of participants facilitated an intimate atmosphere perfect for generating discussions and initiating collaborations.

We would like to thank the Steering Committee for their guidance, and the Program Committee for their diligent work in reviewing the papers and selecting an excellent and balanced program. Special thanks goes to the organizational team at BIRS, especially Andrea Lundquist and Jackie Kler who made our job easy. We also thank Chris Taylor (<http://photos.t-a-y-l-o-r.com>) who graciously gave us permission to use the photographic artwork on the workshop poster. Finally, of course, we thank all the participants whose enthusiasm and support made CAAN 2004 a success and encouraged us to offer the workshop again.

CAAN 2005 will be held in August 2005 in Waterloo, Ontario, Canada as a satellite workshop of the Workshop on Algorithms and Data Structures (WADS 2005).

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