
IFIP Transactions C: Communication Systems



International Federation for Information Processing

Technical Committee 6

Communication Systems

IFIP Transactions Editorial Policy Board

The IFIP Transactions Editorial Policy Board is responsible for the overall scientific quality of the IFIP Transactions through a stringent review and selection process.

Chairman

G.J. Morris, UK

Members

D. Khakhar, Sweden

Lee Poh Aun, Malaysia

M. Tienari, Finland

P.C. Poole (TC2)

P. Bollerslev (TC3)

M. Tomljanovich (TC5)

O. Spaniol (TC6)

P. Thoft-Christensen (TC7)

G.B. Davis (TC8)

K. Brunnstein (TC9)

G.L. Reijns (TC10)

W.J. Caelli (TC11)

R. Meersman (TC12)

B. Shackel (TC13)

J. Gruska (SG14)

IFIP Transactions Abstracted/Indexed in:

C-14

HIGH PERFORMANCE NETWORKING, IV

Proceedings of the IFIP TC6/WG6.4 Fourth International Conference on
High Performance Networking
Liège, Belgium, 14-18 December, 1992

Edited by

A. DANTHINE

*Institut d'Electricité B28
Université de Liège
Liège, Belgium*

O. SPANIOL

*RWTH Aachen
Informatik IV
Aachen, Germany*



1993

NORTH-HOLLAND

Eugn

TK

5105.5

J342571

1992

ELSEVIER SCIENCE PUBLISHERS B.V.
Sara Burgerhartstraat 25
P.O. Box 211, 1000 AE Amsterdam, The Netherlands

Keywords are chosen from the ACM Computing Reviews Classification System, ©1991, with permission.
Details of the full classification system are available from
ACM, 11 West 42nd St., New York, NY 10036, USA.

ISBN: 0 444 81481 7
ISSN: 0926-549X

© 1993 IFIP. All rights reserved.

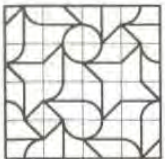
No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of the publisher, Elsevier Science Publishers B.V., Copyright & Permissions Department, P.O. Box 521, 1000 AM Amsterdam, The Netherlands.

Special regulations for readers in the U.S.A. - This publication has been registered with the Copyright Clearance Center Inc. (CCC), Salem, Massachusetts. Information can be obtained from the CCC about conditions under which photocopies of parts of this publication may be made in the U.S.A. All other copyright questions, including photocopying outside of the U.S.A., should be referred to the publisher, Elsevier Science Publishers B.V., unless otherwise specified.

No responsibility is assumed by the publisher or by IFIP for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions or ideas contained in the material herein.

pp. 119-134, 199-218, 267-281, 367-381: Copyright not transferred

This book is printed on acid-free paper.



hpñ⁹²

Table of Contents

Preface	v
Program Committee	xi
List of Reviewers	xii
Session A: MAC Layer Enhancements	1
Chair: Harmen van As, <i>IBM Research, Switzerland</i>	
DQDB for Time Constrained Services	3
Guven Mercankosk, Z.L. Budrikis, <i>QPSX Communications Ltd, Australia</i> , A. Cantoni, <i>Australian Telecommunications Research Institute, Australia</i>	
A New Reservation Scheme for CRMA High-Speed Networks	15
Nen-Fu Huang, Chung-Ching Chiou, Chiung-Shien Wu, <i>National Tsing Hua University, Republic of China</i>	
A Host Interface Architecture for High-Speed Networks	31
Peter A. Steenkiste, Brian D. Zill, H.T. Kung, Steven J. Schlick, <i>Carnegie Mellon University, USA</i> Jim Hughes, Bob Kowalski, John Mullaney, <i>Network Systems Corporation, USA</i>	
Session B: Flow and Rate Control	47
Chair: Marjory Johnson, <i>RIACS, USA</i>	
Dynamic Bandwidth Allocation and Access Control of Virtual Paths in ATM Broadband Networks	49
Ibrahim Wahby Habib, Tarek N. Saadawi, <i>City University of New York, USA</i>	
Congestion Control - Effective Bandwidth Allocation in ATM Networks	65
E.D. Sykas, K.M. Vlakos, K.P. Tsoukatos, E.N. Protonotarios, <i>National Technical University of Athens, Greece</i>	

A High Speed Data Link Control Protocol	81
Ahmed N. Tantawy, <i>IBM Res. Div., T.J. Watson Research Center, USA</i> , Hanafy Meleis, <i>DEC, Reading, UK</i>	
Session C: Parallel Implementation and Transport Protocols	101
Chair: Guy Pujolle, <i>Université P. et M. Curie, France</i>	
Parallel TCP/IP for Multiprocessor Workstations	103
Kurt Maly, S. Khanna, R. Mulkamala, C.M. Overstreet, R. Yerraballi, E.C. Foudriat, B. Madan, <i>Old Dominion University, USA</i>	
TCP/IP on the Parallel Protocol Engine	119
Erich Rüttsche, Matthias Kaiserswerth, <i>IBM Research Division, Zurich Research Laboratory, Switzerland</i>	
A High-Speed Protocol Parallel Implementation: Design and Analysis	135
Thomas F. La Porta, <i>AT&T Bell Laboratories, USA</i> , Mischa Schwartz, <i>Columbia University, New York, USA</i>	
Session D: Multimedia Communication Systems	151
Chair: Radu Popescu-Zeletin, <i>GMD FOKUS, Germany</i>	
Orchestration Services for Distributed Multimedia Synchronisation	153
Andrew Campbell, Geoff Coulson, Francisco Garcia, David Hutchison, <i>Lancaster University, UK</i>	
Towards an Integrated Quality of Service Architecture (QOS-A) for Distributed Multimedia Communications	169
Helmut Leopold, <i>Alcatel ELIN Research, Austria</i> Andrew Campbell, David Hutchison, <i>Lancaster University, UK</i> , Niklaus Singer, <i>Alcatel ELIN Research, Austria</i>	
JVTOS - A Reference Model for a New Multimedia Service	183
Gabriel Demmler, <i>University of Stuttgart, Germany</i> Konrad Froitzheim, <i>University of Ulm, Germany</i>	
Experiences with the Heidelberg Multimedia Communication System: Multicast, Rate Enforcement and Performance	199
Andreas Cramer, Manny Farber, Brian McKellar, Ralf Steinmetz, <i>IBM European Networking Center, Germany</i>	

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.