BAS 2000
Proceedings of the 5th Symposium on Computer Networks
June 15-16, 2000

5. Bilgisayar Ağları Sempozyumu
Bildiriler Kitabı
15-16 Haziran 2000

Bilkent University / Bilkent Üniversitesi
Ankara

Edited by / Derleyenler
Tuğrul Dayar
Ezhan Karaşan
Murat Alanyalı
Proceedings of the
5th Symposium on Computer Networks

Edited by

T. Dayar, E. Karaşan, M. Alanyalı
Bilkent University, Ankara, Turkey

BAS2000
June 15-16, 2000, Bilkent-Ankara, Turkey
©2000, The authors mentioned in the Table of Contents.


BINDING BY METEKSAN A.Ş.
Contents

Preface v

Program Committee vi

List of Referees vii

LD-BLLB: A Traffic Policing Mechanism for ATM Networks
M. Salamah, H. Lababidi 1

Approximations on the Aggregate MPEG Video Traffic and Their Impact on
Admission Control
F. Alagöz, B. Vojcic, A. AlRustamani 9

Structured Chains with Repeated Rows: A Simple Algorithmic Solution
R. Jafari, K. Sohraby 19

Storage System with General Fluid Flow: An Algorithmic Approach
M. Agapie, K. Sohraby 29

Application and Mobility Sensitive Routing Schema for Mobile Networks
S. Tekinay, I. Al-Naser 39

An Evaluation of Three Mobile Computing Systems
D. Turgut, R. Elmasri, N. Aydin 49

Measured Performance of GSM High Speed Circuit Switched Data Link
H. Laamanen, J. Penttinen, J. Laukkanen 59

Evaluation of GSM Security
B. Kasim, L. Ertaul 69

Networks with Dynamic Topologies: A Greedy Algorithm for Satellite Place-
ment Problem
U. Topkara, İ. Uysal, İ. Yoncaci 79

Communication Performance of Fast-Ethernet Based Cluster Multicomputer
K. Atasu, U. Çağlayan, B. Gürdağ, C. Özturan 87

Layouts for Multi-Stage Interconnection Networks Suitable for Photonic
Switching
İ. Cahit, A. Adaher 95

Transmission of Stored MPEG-1 Videos over the Internet
A. Kantarcı, T. Tunali 103

Centralized Policy-Based Management of VPN Devices Using SNMPv3
O. Adaher, H. Gümüşkaya 113

Secure Management of a Proxy Server Using SNMP and Java Applets
T. Dursun, S.H. Karabas, B. Örencik, İ. Soğukpınar 122
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refinements on MPLS Routing: An Application of Graceful Numbering to IP Based Networks</td>
<td>132</td>
</tr>
<tr>
<td>R.C. Arktas, I.C. Arktas</td>
<td></td>
</tr>
<tr>
<td>Multicast Routing with End-to-End Delay Constraints</td>
<td>141</td>
</tr>
<tr>
<td>Z.B. Cimendag, C. Ersoy</td>
<td></td>
</tr>
<tr>
<td>Evaluating Multicast Protocols for Large-Scale DIS Applications</td>
<td>151</td>
</tr>
<tr>
<td>B. Elmaci, H. Oguztuzun, A. Ozgit</td>
<td></td>
</tr>
<tr>
<td>A Simulation Model for an Epidemic Multicast Protocol</td>
<td>161</td>
</tr>
<tr>
<td>O. Ozkasap, K.P. Birman, T. Tunali</td>
<td></td>
</tr>
<tr>
<td>A Survey for Developing a Generic Network Management Methodology</td>
<td>171</td>
</tr>
<tr>
<td>N. Zincir-Heywood, M. Heywood, T. Kiran, F. Gulusekayya</td>
<td></td>
</tr>
<tr>
<td>Üçüncü Nesil PCS Teknolojilerinin Gelecek Nesil Taktik Muhahere Sistemlerine Uyarlanmasi</td>
<td>178</td>
</tr>
<tr>
<td>E. Cayirci, C. Ersoy</td>
<td></td>
</tr>
<tr>
<td>Ağ Dışsallıkları ve Fiyatlandırma Modelleri</td>
<td>188</td>
</tr>
<tr>
<td>M. Donduran</td>
<td></td>
</tr>
<tr>
<td>Kurumsal Ağ Güvenliğinde Sayısal İmza Kullanımı: Tasarım ve Uygulama</td>
<td>198</td>
</tr>
<tr>
<td>F. Çenesiz, İ. Soğukpınar</td>
<td></td>
</tr>
<tr>
<td>Yazma Ritmi Yöntemiyle Bilgisayar ve Ağ Güvenlik Sistemi Tasarımı</td>
<td>208</td>
</tr>
<tr>
<td>A. Güven, İ. Soğukpınar</td>
<td></td>
</tr>
<tr>
<td>Ağ Topolojili Sistemlerde Güvenilirliğin Sistemin Başarımına Etkisinin Değerlendirilmesi</td>
<td>218</td>
</tr>
<tr>
<td>İ.M. Aliev</td>
<td></td>
</tr>
<tr>
<td>Windows İşletim Sistemi için Ekran İzleme Uygulaması</td>
<td>225</td>
</tr>
<tr>
<td>M.A. Kara, S. Oktug</td>
<td></td>
</tr>
<tr>
<td>Kapalı Saha Kablosuz Yerel Alan Ağlarında Alıcı/Vericileri Optimal Yerleştirme Yöntemleri ve Performans Analizi</td>
<td>234</td>
</tr>
<tr>
<td>E. Arslan, G. Yılmaz</td>
<td></td>
</tr>
<tr>
<td>FDDI ile ATM’ın Karşılaştırılması ve Ortak Çalışabileme Olanaklarının İncelenmesi</td>
<td>244</td>
</tr>
<tr>
<td>S.E. Karlık, G. Yılmaz</td>
<td></td>
</tr>
<tr>
<td>Arızalı Hiperküpte Tek Düğümden Tek Düğüme Yönlendirme Algoritması</td>
<td>254</td>
</tr>
<tr>
<td>S. Günes, N. Yılmaz, N. Allahverdi</td>
<td></td>
</tr>
<tr>
<td><strong>Author Index</strong></td>
<td>260</td>
</tr>
</tbody>
</table>
Preface

This volume contains papers presented at the 5th Symposium on Computer Networks (BAS2000), held in Ankara, Turkey, June 15-16, 2000.

The symposium is the fifth in a series of annually held symposia whose aim is to bring together researchers from academia and industry in the area of computer networks so that they can exchange their experiences about theoretical and applied research work. This year the symposium is organized jointly by the Computer and Electrical-Electronics Engineering Departments of Bilkent University in Ankara.

The symposium contains two invited talks. The first talk titled “Smart Box Architecture” is given by Bülent Yener of Bell Laboratories. The second talk titled “Agent-based Active Networks for VPN Provisioning” is given by Şahin Albayrak of Technische Universität Berlin. The proceedings include 28 papers of which 19 are in English and 9 are in Turkish.

BAS2000 would not have taken place without the contributions of many people. We would like to express our deepest appreciation to the program committee members and all the referees. We are grateful to TÜBİTAK (Turkish National Scientific Research Council) for the financial support. We are indebted to Vice-Rector Professor Ümit Berkman, the Dean of Faculty of Engineering Professor Mehmet Baray, and the Dean of Faculty of Art, Design, and Architecture Professor Bülent Özgüç of Bilkent University for their support and help. We would like to thank Reyvan Ayfer and İdil Battal Avşoğlu, the graphic designer of Bilkent University, for the cover design and their help in printing the proceedings. Finally, we wish to thank all who contributed to the planning and realization of the symposium.

Tuğrul Dayar, Ezhan Karasän, Murat Alanyali
BAS2000 Program Co-chairs
Program Committee

Co-chairs
Tuğrul Dayar, Bilkent University
Ezhan Karaslan, Bilkent University
Murat Alanyali, Bilkent University

Nail Akar, Sprint
Mustafa Akgül, Bilkent University
Adil Alpkoçak, Dokuz Eylül University
Erdal Arıkan, Bilkent University
Tülin Atmaca, Institut National des Télécommunications
Ender Ayanoğlu, Cisco
Semih Bilgen, Middle East Technical University
Ufuk Çağlayan, Boğaziçi University
İsmail Dalgıç, SCom
Cem Ersoy, Boğaziçi University
Levent Ertaul, Hacettepe University
Erol Gelenbe, University of Central Florida
Çetin Koç, Oregon State University
Cem Oğuz, University of Missouri-Kansas City
Sema Öktüğ, Istanbul Technical University
Yavuz Oruç, University of Maryland-College Park
Sedat Ölçer, IBM-Zurich
Bülent Örencik, Istanbul Technical University
Atilla Özgit, Middle East Technical University
Nihal Pekergin, Université de Versailles
Ali Saatçi, Hacettepe University
Veli Şahin, Marconi
Turhan Tunah, Ege University
Mehmet Ulema, Daewoo
Hasan Ural, University of Ottawa
Abbas Yongaçoğlu, University of Ottawa
Nur Zincir-Heywood, Dokuz Eylül University
List of Referees

Akar, N.
Akyamaç, A.
Alanyali, M.
Arikan, E.
Bilgen, S.
Çağlayan, U.
Dalgıç, İ
Dayar, T.
Dogrusöz, U.
Ersoy, C.
Ertaul, L.
Fourneau, J.-M.
Gusak, O.
Gürsoy, A.
Hassan, M.
Karaşan, E.
Koç, Ç.
Oğuz, C.
Oktuğ, S.
Oruç, Y.
Örencik, B.
Özgit, A.
Pekergin, N.
Tekinay, S.
Tuğcu, T.
Zeghlache, D.
Zincir-Heywood, N.