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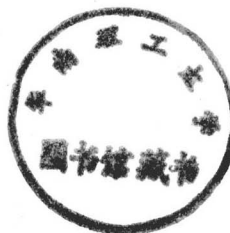


With SUPERCOM '96, ICA Europe and ICC

CONVERGING TECHNOLOGIES
FOR TOMORROW'S APPLICATIONS

ICC '96
JUNE 23 - 27, 1996
DALLAS CONVENTION CENTER
DALLAS, TEXAS USA

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VOLUME 1 OF 3



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The 1996 IEEE International Conference on Communications is pleased to be a part of the most remarkable telecommunications events ever.

This is the fourth time that we have co-located with SUPERCOMM, the trade show/conference sponsored by the U.S. Telephone Association and the Telecommunications Industry Association. For 1996, this venture has been expanded. The International Communication Association Annual Conference and members of the user community will be with us, too. Plus, the International Engineering Consortium's Seminars and Forums are featured in this event, offering programs for telecom industry management.

To get the most out of this unprecedented gathering, registrants in any of the sponsoring organizations may participate in selected events of the other groups. Yet, to preserve the traditional congeniality of ICC, we have our own headquarters hotel, social program, and meeting space for ICC technical sessions. All are close enough to the exhibit hall and other seminar venues for you to take advantage of the scope offered by this exciting "convergence."

Which leads to our theme: "Converging Technologies for Tomorrow's Applications." You'll hear all about it in an especially productive technical program. And keynote addresses by industry leaders at the plenary session, awards luncheon, and conference banquet bring an added perspective to this issue.

We encourage your families or guests to Dallas to enjoy the ICC '96 social program. Excellent tours of Dallas and Fort Worth are among the options. The highlight of the social program is an evening at Southfork Ranch, the home of the legendary J.R. Ewing of *Dallas*. Put on your boots and blue jeans for an evening of barbecue, rodeo, and two-step dancing at the ranch!

You can see why, on behalf of the Executive Committee, I am pleased to welcome you to ICC '96. There will never be another five days like these for professional advancement and southwestern hospitality.

Rod McPherson
General Chair
ICC '96 Executive Committee



Rod McPherson
Northern Telecom (Nortel)



The Technical Program Committee of ICC '96 extends to you a warm Texas welcome and our thanks for your participation.

We have structured an outstanding and diverse technical program that includes 351 papers in 59 technical sessions, 21 tutorials and workshops, and 34 application sessions. All sessions address important growth areas of telecommunications and are tailored to the diverse backgrounds of our members and their varied interests.

In response to our call for papers for the technical sessions, more than 625 submissions were received from all over the world. After extensive peer review, 351 were chosen to be presented at ICC '96. All sessions were formed from the accepted papers which were selected based on their quality and relevance to the theme of our conference: "Converging Technologies for Tomorrow's Applications." The sessions will cover topics from nuts-and-bolts solutions for present day challenges to the purely theoretical.



Vasant K. Prabhu
University of Texas at Austin

For the first time, the agenda of technical sessions as well as abstracts of the papers are available on the World Wide Web, making it easier for you to select sessions of particular interest. Also for the first time, the Conference Record containing all presented technical papers, has been produced on CD-ROM as well as in the standard bound version.

I am grateful to all the authors, reviewers and other members of the Technical Program Committee who helped put together such a world-class conference. I also thank the Chairs of all the Technical Committees of the Communications Society for their cooperation and for nominating outstanding members to our program committee.

We are happy to welcome you to Dallas and to ICC '96.

Vasant K. Prabhu
Technical Program Chair
ICC '96 Executive Committee

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Members of the Technical Program Committee (TPC) for ICC '96 spent several months reviewing more than 625 technical papers for this year's conference in Dallas. After considerable deliberation and discussion, the committee selected approximately 350 of the best papers and organized them into 59 technical sessions. Present at the review meeting in Dallas on November 9, 1995, were from left to right (Back Row): Chien-Yu Kuo, Harmonic Lightwaves; Ash Trivedi, Northern Telecom; Jeff Derby, IBM; Gary Evans, Southern Methodist University (Vice Chair, TPC); Wes Wang, The Mathworks; Michael Devetskiotis, Carleton University; Hal Sobel, University of Texas at Arlington (IEEE Advisor); Martin Meyers, AT&T Laboratories; Rod McPherson, Northern Telecom (General Chair, ICC '96); and Stone Tseng, Northern Telecom. Front Row: Karl Rauscher, Bellcore; Arshad Sgha, Intelligent Object Solutions; Mary Sander, US West Communications; Tom McDermott, Alcatel Network Systems (secretary, TPC); Aslam Prabhu, University of Texas at Arlington (Chair, TPC); Norman Beaulieu, Queens University; and Thomas Chutinda, AT&T Bell Labs. Several other reviewers were linked into the meeting via teleconferencing.

SUNDAY, JUNE 23**8:00 A.M. - 5:00 P.M.**

- T01 Signal Separation in Multi-User Systems
- T02 Wireless Mobility Management
- T03 GSM and DCS 1900: Evolution to PCS
- T04 Neural Networks in Communications
- T05 Multimedia Compression
- T06 Wavelets in Communication Systems
- W1 WDM Network Management

8:00 A.M. - 12:00 P.M.

- T07 Smart Antennas for Cellular Base Stations
- T08 ATM Traffic Control

1:00 P.M. - 5:00 P.M.

- T09 Turbo Codes
- T10 TMN Standards and Applications

MONDAY, JUNE 24**9:00 A.M. - 12:00 P.M.**

- S01 Telecommunications Network Management Systems - Architecture and Performance
- S02 Service Enabling Technologies
- S03 Spread Spectrum
- S04 Turbo Codes
- S05 Video and Image Coding for Multimedia Applications *
- S06 Protocols for Multimedia Applications **
- S07 Advanced Digital Lightwave
- S08 Advanced Technologies for Software Quality
- S09 Management and Access Control in ATM Networks
- S10 Radio and PCS Channel Characterization

9:00 A.M. - 10:15 A.M.

- A01 PCS Standardization: Process, Status and Future
- A02 Entrepreneurial Telecommunications Activities in Newly Industrialized Countries (NICs) - Part I

10:45 A.M. - 12:00 P.M.

- A03 28 GHz Multipoint Distribution: A Wireless Solution for the Last Mile for Broadband Networks
- A04 Entrepreneurial Telecommunications Activities in Newly Industrialized Countries (NICs) - Part II

MONDAY, JUNE 24**2:00 P.M. - 5:00 P.M.**

- S11 Advances in B-ISDN System Modeling and Simulation
- S12 Modulation and Coding
- S13 Operations Management in ATM Networks
- S14 Neurocomputing in High Speed Networks
- S15 Wireless ATM
- S16 Performance and Congestion Control in ATM Networks
- S17 Adaptive Antennas and Interference Cancelers
- S18 Signal Processing for Storage Information Systems
- S19 Space-Time Processing for Wireless Systems *
- S20 Multiple Access Techniques for Wireless **

2:00 P.M. - 3:15 P.M.

- A05 Network Management for Evolving Technologies
- A06 Electromagnetic Compatibility of Wireless Devices

3:45 P.M. - 5:00 P.M.

- A07 Network Management and Reengineered Process
- A08 Wireless Access Technologies for Emerging Services

TUESDAY, JUNE 25**9:00 A.M. - 12:00 P.M.**

- S21 ATM Traffic and Performance Management
- S22 Advances in Broadband Switching
- S23 Algorithmic Techniques for the Design and Analysis of Telecommunication Systems
- S24 Wireless ATM Networks *
- S25 Resource Management in ATM Networks
- S26 Flow Control in Packet Networks **
- S27 Wireless Network Architecture & Protocols I
- S28 Blind Techniques for Radio Channel Equalization and Identification
- S29 Radio Receiver Techniques for Wireless PCS
- S30 Advanced Satellite and Space Communications

9:00 A.M. - 10:15 A.M.

- A09 High Definition Television: Technology, Production and Deployment
- A10 Technology Insertion for Wireless Communication

10:45 A.M. - 12:00 P.M.

- A11 Video Distribution Models - Residential, MMTS, Special Events
- A12 Quality and Reliability Impacts of Computer Convergence into Telecommunications

SPECIAL EVENTS**SUNDAY, JUNE 23**3:00 p.m. - 5:00 p.m.
International Orientation6:00 p.m. - 9:00 p.m.
Chairman's Welcome Reception**MONDAY, JUNE 24**8:00 a.m. - 8:45 a.m.
Plenary Session12:15 p.m. - 1:45 p.m.
Awards Luncheon**TUESDAY, JUNE 25**12:15 p.m. - 1:45 p.m.
Luncheon Panel Session:
*Telecommunications Challenges for the Next Century***SOCIAL PROGRAMS****MONDAY, JUNE 24**9:00 a.m. - 1:00 p.m.
Swiss Avenue Dallas Historical Home Tour**MONDAY, JUNE 24**6:00 p.m. - 11:00 p.m.
An Evening at Southfork Ranch**TUESDAY, JUNE 25**9:00 a.m. - 4:00 p.m.
Fort Worth Tour

* Half Session - Morning 9:00 a.m. - 10:30 a.m. - Half Session - Afternoon 2:00 p.m. - 3:30 p.m.

** Half Session - Morning 10:30 a.m. - 12:00 p.m. - Half Session - Afternoon 3:30 p.m. - 5:00 p.m.

TUESDAY, JUNE 25**10 P.M. - 5:00 P.M.**

- 1 Issues in ATM Communication over Satellites *
- 2 Broadband Intelligent Networks **
- 3 Coding
- 4 Channel Equalization
- 5 Traffic Control in ATM Networks
- 6 High Speed Local Area Networks
- 7 Services for Multimedia Networking
- 8 Wireless Network Architecture & Protocols II
- 9 Equalization and Diversity for Wireless Channels
- 40 Infrared and Millimeter Wave Channels

11:00 P.M. - 3:15 P.M.

- 13 Telecommunications Quality I
- 14 Video Measurements for Current and Future Systems

1:45 P.M. - 5:00 P.M.

- 15 Applications of Video Transport
- 16 Telecommunications Quality II

WEDNESDAY, JUNE 26**9:00 A.M. - 12:00 P.M.**

- S41 Current Trends Over Wireless Multimedia Information Systems
- S42 Synchronization
- S43 Multi-Carrier Modulation *
- S44 Synchronization in Multimedia Systems
- S45 Wireless Network Architecture & Protocols III **
- S46 Video Performance in ATM Networks
- S47 Digital Delivery Systems
- S48 Arriving at Quality Requirements for Advanced and Emerging Technologies - Part I
- S49 Performance of CDMA Radio Systems I
- S50 Channel Characterization and Coding for Storage

9:00 A.M. - 10:15 A.M.

- A17 The Future Browser Technology and the World Wide Web
- A18 Broadband Access Technologies

10:45 A.M. - 12:00 P.M.

- A19 Future of Internet Access Methods
- A20 Broadband Field Trials

WEDNESDAY, JUNE 26**2:00 P.M. - 5:00 P.M.**

- S51 Strategies for Network Robustness
- S52 Traffic Modeling and Implications of Self-Similarity for B-ISDN Networks
- S53 Reliable Scalable Networks
- S54 Performance of ATM Switching Architectures
- S55 Congestion Control in ATM Networks
- S56 Performance Analysis of Wireless Networks
- S57 Wave Division Multiplexing (WDM)
- S58 Arriving at Quality Requirements for Advanced and Emerging Technologies - Part II
- S59 Performance of CDMA Radio Systems II

2:00 P.M. - 3:15 P.M.

- A21 Future of Messaging in the Internet
- A22 Voice Dialing: What Customers Are Saying

3:45 P.M. - 5:00 P.M.

- A23 All-Optical Networks
- A24 Future Directions of Intelligent Networks

THURSDAY, JUNE 27**8:00 A.M. - 5:00 P.M.**

- T11 CDMA for Wireless
- T12 Video/Audio Coding
- W2 Enterprise Networking

8:00 A.M. - 12:00 P.M.

- T13 Enterprise Network Management
- T14 Tetherless Optical Networks
- T15 Mobile and Multimedia Satellites
- T16 Broadband Fiber Systems
- T17 ATM Architecture and Performance
- T18 PCS Antennas

9:00 A.M. - 10:15 A.M.

- A25 Internet Business Development
- A26 Tools for Software Reliability Modeling
- A27 Putting the Intelligent Peripheral to Work in the Network

10:45 A.M. - 12:00 P.M.

- A28 Global Wireless Economic and Market Trends
- A29 WDM vs. TDM
- A30 Design Solutions Using Systems Level Simulation of Wireless Communication Systems

1:00 P.M. - 5:00 P.M.

- T19 Low Power PCS

2:00 P.M. - 3:15 P.M.

- A31 Broadband Applications: Impact on Public Networks
- A32 A Methodology for PCS Network Planning and Topology Optimization

3:45 P.M. - 5:00 P.M.

- A33 The Application of Speech Recognition Technology in Telecommunications Networks: Opportunities and Challenges
- A34 Broadband Product Line Management - Access

TUESDAY, JUNE 25**7:00 p.m. - 10:00 p.m.**
Conference Banquet**WEDNESDAY, JUNE 26****12:15 a.m. - 1:45 p.m.**
International Panel Session:
*The Impact of the High Speed Network***WEDNESDAY, JUNE 26****10:00 a.m. - 2:00 p.m.**
Discount Shopping Tour

Table of Contents

VOLUME 1

Session 1

Telecommunications Network Management Systems - Architecture and Performance

1.1	An Integrated Network Management System for the AIN and B-ISDN B. C. Kim, H. Fujikawa and T. Tanaka	1
1.2	A Case of Integration of Different Telecommunication Management Systems J. Zamanillo, R. Lopez and C. S. Martin	7
1.3	MOVI: Managed Object View Interface for Hierarchical Distributed Network Management Systems K.-H. Lee	12
1.4	Developing a Managed System in a Telecommunication Management Network Y.-C. Shim	17
1.5	Performance Evaluation for Proactive Network Management A. S. M. De Franceschi, L. F. Kormann and C. B. Westphall	22
1.6	Group Cooperation in Network Operations and Management P. Ray, I. Hawryszkiewicz and M. Fry	27

Session 2

Service Enabling Technologies

2.1	Applicability Evaluation of Feature Enhancement Using the Partial-File "Plug-in" Modification Technique H. Sunaga, T. Yamada, K. Koyanagi and S. Sunaga	32
2.2	Analysis of Reusability of Communication Switching Software Based on C++ Object-Oriented Design M. Furukawa, H. Sunaga, N. Kurihara and M. Tomura	37
2.3	A Development Method for Customized Services with Hierarchical Structures SLPs J. Urata, O. Mizuno and Y. Niitsu	42
2.4	A Service Logic Program Generation Method for Advanced Intelligent Network H. Sakai, K. Takami and Y. Niitsu	47
2.5	A Method for Realizing Rapid Operation Scenario Program Development H. Tohjo, I. Yoda and N. Fujii	52

2.6	A New Generalized Mechanism of Secure Internetworked Information Service Creation for Future Personal Communications Networks - (V) G.-S. Kuo	58
Session 3 Spread Spectrum		
3.1	New Concatenated Sequences for Wireless Indoor Asynchronous DS-CDMA Communications S. Cacopardi, F. Frescura, M. Gambi and G. Reali	63
3.2	Spreading Codes for Wireless Spread Spectrum Communications K. Hetling, G. Saulnier and P. Das	68
3.3	Adaptive Soft Limiter Bootstrap Separator for One-Shot Asynchronous CDMA Channel with Singular Partial Cross-Correlation Matrix N. Sezgin and Y. Bar-Ness	73
3.4	Comparative Study of the Linear Minimum Mean Squared Error (LMMSE) and the Adaptive Bootstrap Multiuser Detectors for CDMA Communications H. Ge and Y. Bar-Ness	78
3.5	Diversity Combining for DS CDMA Systems with Synchronization Errors M. O. Sunay and P. J. McLane	83
3.6	An Algorithm for Joint Detection in Fast Frequency Hopping Systems U.-C. G. Fiebig	90
Session 4 Turbo Codes		
4.1	Iterative Decoding of Generalized Concatenated Blokh-Zyablov-Codes K. Fazel	96
4.2	Improved Decoding with the SOVA in a Parallel Concatenated (Turbo-Code) Scheme L. Papke, P. Robertson and E. Villebrun	102
4.3	Performance of Turbo-Decoded Product Codes Used in Multilevel Coding A. Picart and R. Pyndiah	107
4.4	Soft-Output Decoding Algorithms for Continuous Decoding of Parallel Concatenated Convolutional Codes S. Benedetto, G. Montorsi, D. Divasalar and F. Pollara	112
4.5	Precoding For Convolutional Codes A. S. Khayrallah	118
4.6	Random Parity Coding (RPC) J. Hershey and J. Tiemann	122

Session 5
Video and Image Coding for Multimedia Applications

5.1 Two-Layer Video Coding and Priority Statistical Multiplexing over ATM Networks	
C. Gao and J. S. Meditch	127
5.2 Dynamic Codebook Adaptive Vector Quantization for Image Compression	
K.-T. Lo and S.-M. Cheng	137
5.3 Joint Source-Channel Decoding Using the Residual Redundancy in Compressed Images	
W. Xu, J. Hagenauer and J. Hollmann	142

Session 6
Protocols for Multimedia Applications

6.1 A Protocol Machine Configurator for Highly Flexible Transport Protocol	
D.-S. Park, M.-S. Jang, S.-H. Lee, J.-Y. Lee and S.-B. Lee	149
6.2 Performance Evaluation of Protocols for ATM Transmission of Super High Definition Images	
T. Fujii, T. Fujii and K. Ishimaru	155
6.3 New Protocol Stack for Multimedia Communication	
L. Wei and I. Ismail	160

Session 7
Advanced Digital Lightwave

7.1 STM-64 Multiplexer and Regenerator for 10Gbit/s Fiber Optic Transmission	
K. Asahi, M. Araki, D. Uehara, T. Masuta, C. Konishi and S. Fujita	165
7.2 Realisation and Implementation of an Optimised Post-Detection Filter for a 10 Gbit/s Dispersive Transmission System Using Single-Mode Fiber	
A. Hussain, J. M. H. Elmirghani and R. A. Cryan	170
7.3 Fiber Optic Hybrid Coherence Multiplexed/Subcarrier Multiplexing (CM/SCM) System for Microcellular Mobile Communications	
H. Uehara and I. Sasase	175
7.4 Wireless Infrared Communication Links Using Multi-Beam Transmitters and Imaging Receivers	
A. P. Tang, J. M. Kahn and K.-P. Ho	180
7.5 Channel Interference Cancellation Using Time Division Reference Signal for Direct-Detection Optical Synchronous CDMA Systems	
T. Ohtsuki	187
7.6 Broadcasting in an All-Optical Packet-Switched Network	
T. Gipsier	192

Session 8
Advanced Technologies in Wireless Networks

8.1	Incorporation of Relational Modeling Method into Object-Oriented Analysis C.-H. Lung, Northern Telecom, Canada J. E. Urban and G. T. Mackulak	198
8.2	Analyzing Differences Between Internet Information System Software Architectures G. Abowd, J. Pitkow and R. Kazman	203
8.3	Gray Box Risk Assessment for Telecommunications Software Modifications K. F. Rauscher and D. J. Rak	208
8.4	Predictive Modeling of Software Quality for Very Large Telecommunications Systems T. M. Khoshgoftaar, E. B. Allen, K. S. Kalaichelvan and N. Goel	214
8.5	Switching System Performance Under Software Reuse A. Mishra and J. Kozik	220
8.6	A Test Generation Tool for Specifications in the Form of State Machines Q. M. Tan, A. Petrenko and G. v. Bochmann	225
8.7	Substituting Voas's Testability Measure for Musa's Fault Exposure Ratio J. M. Voas and K. W. Miller	230

Session 9
Management and Access Control in ATM Networks

9.1	Impact of Anchor Re-routing Based Inter-Switch Handoffs in Wireless ATM Access Networks W. Chen	235
9.2	PRMA/DA: A New Media Access Control Protocol for Wireless ATM J. G. Kim and I. Widjaja	240
9.3	Intelligent Networking in Broadband and Mobile Networks V. Raju	245
9.4	Performance Improvement of Integrated Services on CDMA Wireless ANs Using a Novel Protocol S. Jiang	250
9.5	Location-Independent Access in Mobile Systems Z. J. Haas	255
9.6	Simulation Studies of Broadband Wireless Systems Employing Code Combining Techniques R. O. Farley, G. M. Stamatelos and D. D. Falconer	260

Session 10
Radio and PCS Channel Characterization

10.1 Modeling Refractivity Variation in the VHF/UHF Bands M. H. Bataineh and R. C. V. Macario	267
10.2 Propagation Prediction Based on Environmental Classification and Fuzzy Logic Approximation S. Faruque	272
10.3 Wideband Wireless Multipath Channel Modeling with Path Frequency Dependence R. C. Qiu and I-T. Lu	277
10.4 A Block Memory Model for Correlated Rayleigh Fading Channels M. Sajadieh, F. R. Kschischang and A. Leon-Garcia	282
10.5 Fast Determination of Channel Impulse Responses by 3D Wave Propagation Modeling T. C. Becker, M. Döttling and W. Wiesbeck	287
10.6 An Improved Propagation Model for Wireless Communications M. Majeed and S. Tjuatja	292
10.7 Theoretical Bit Error Rate for Uncoded and Coded Data Transmission in Digital Audio Broadcasting G. Zimmermann, M. Rosenberger and S. Dostert	297

Session 11
Advances in B-ISDN System Modeling and Simulation

11.1 Fast Simulation of Tandem Networks Using Importance Sampling and Stochastic Gradient Techniques J. A. Freebersyser, M. Devetskiotis, W. A. Al-Qaf and J. K. Townsend	302
11.2 Using Measurements to Validate Simulation Models of TCP/IP over High Speed ATM Wide Area Networks G. Y. Lazarou, V. S. Frost, J. B. Evans and D. Niehaus	309
11.3 A Rapid Tool to Dimension Broadband Nodes in the Access F. Paque	315
11.4 Efficient Simulation of Cell Loss Probability in ATM Networks with Heterogeneous Connection Traffic Descriptors J. A. Freebersyser and J. K. Townsend	320
11.5 A Method of Delay and Jitter Measurement in an ATM Network Y. F. Jou, F. Gong, D. Winkelstein and N. Hillery	328
11.6 A Simple Approximation of Multimedia Traffic with Long Term Correlation E. T. Sauinier and K.S. Vastola	333