

Performance Analysis in High-Speed Wide Area IP over ATM Networks: Top-to-Bottom End-to-End Monitoring

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Abstract

We describe an approach to the analysis of the performance of distributed applications in high-speed wide-area networks. The approach is designed to identify all of the issues that impact performance, and isolate the causes due to the related hardware and software components. We also describe the use of a distributed parallel data server as a network load generator that can be used in conjunction with this approach to probe various aspects of high-speed distributed systems from top-to-bottom of the protocol stack and from end-to-end in the network. To demonstrate the utility of this approach we present the analysis of a TCP over ATM problem that was uncovered while developing this methodology. This work was done in conjunction with the ARPA-funded MAGIC gigabit testbed.

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Performance Analysis Of Atm Networks

Ulf Körner, Arne Nilsson



Performance Analysis Of Atm Networks:

Performance Analysis of ATM Networks Demetres D. Kouvatsos, 2014-01-15 **Performance Analysis of ATM Networks** Demetres D. Kouvatsos, 2013-06-05 Over recent years a considerable amount of effort has been devoted both in industry and academia towards the performance modelling evaluation and prediction of Asynchronous Transfer Mode ATM networks This book describes recent advances in ATM networks reflecting the state of the art technology and research achievements worldwide In addition it provides a fundamental source of reference in the ATM field Research topics discussed in detail include Traffic Modelling and Characterisation Routing Switch and Multiplexer Models Call Admission Control CAC Congestion Control Resource Allocation Quality of Service QoS Tools and Techniques This volume contains recently extended refereed papers of the 5th International Workshop on Performance Modelling and Evaluation of ATM Networks which was sponsored by the International Federation for Information Processing IFIP and held in Ilkley UK in July 1997 Performance Analysis of ATM Networks continues the tradition established by the first three IFIP volumes on the subject and it is ideal for personnel in computer communication industries as well as academic and research staff in computer science and electrical engineering

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Performance Analysis of ATM Networks Demetres D. Kouvatsos, 2000

Performance Analysis of Network Architectures Dietmar Tutsch, 2007-05-17 Three approaches can be applied to determine the performance of parallel and distributed computer systems measurement simulation and mathematical methods This book introduces various network architectures for parallel and distributed systems as well as for systems on chips and presents a strategy for developing a generator for automatic model derivation It will appeal to researchers and students in network architecture design and performance analysis

Per-session

Performance Analysis of ATM Networks with Heterogeneous Speed Links Rajesh Ishwariah Balay,1995 *Computer Performance Evaluation* Günter Haring,Gabriele Kotsis,1994-04-20 Performance evaluation reliability and performability are key factors in the development and improvement of computer systems and computer networks This volume contains the 25 accepted and invited papers presented at the 7th International Conference on Modelling Techniques and Tools for Computer Performance Evaluation The papers focus on new techniques and the extension of existing techniques for performance and reliability analysis Tools to support performance and reliability modelling and measurement in all kinds of applications and environments are presented and the practicability and generality of the approaches are emphasized The volume summarizes the state of the art and points out future demands and challenges and will interest both scientists and practitioners

Performance of Information and Communication Systems Ulf Körner,Arne Nilsson,2013-11-27 During the last two decades we have seen a tremendous development within the computer and communication industry The ever increasing density on silicon the increasing transmission speeds on fiber based systems as well as twisted pairs the revolutionary development in the wireless area and of course the Internet have all led to many opportunities for new service developments It is interesting to note that the last time this conference was held three years ago the Web really did not fully exist We are now ready to face new interesting challenges It is an utmost importance for the performance community to focus on the modeling and analysis of the Internet the multimedia applications and the untethered applications that are coming to the forefront There will be a need for new and better simulation methods new analytical tools and a much better understanding of measurement techniques Performance of Information and Communication Systems PICS 98 which takes place in Lund Sweden May 25 28 1998 is the seventh conference in a series on performance of communication systems organized by IFIP TC 6 WG 6.3 In response to our call for papers we have received nearly fifty submissions **Performance Analysis of**

Complex Networks and Systems Piet Van Mieghem,2014-04-24 Provides the mathematical stochastic and graph theoretic methods to analyse the performance and robustness of complex networks and systems *System Performance Evaluation* Erol Gelenbe,2000-03-24 Throughout successive generations of information technology the importance of the performance evaluation of software computer architectures and computer networks endures For example the performance issues of transaction processing systems and redundant arrays of independent disks replace the virtual memory and input output problems of the 70s ATM performance issues supercede those associated with electronic telephony of the 70s As performance issues evolve with the technologies so must our approach to evaluation In System Performance Evaluation Methodologies and Applications top academic and industrial experts review the major issues now faced in this arena In a series of structured focused chapters they present the state of the art in performance methodologies and applications They address developments in analytical modeling and its interaction with detailed analysis of measurement data They also discuss performance evaluation methodologies for large scale software systems in general and in the context of critical applications

such as nuclear reactor control and air transportation systems With its particular emphasis on network performance for wireless networks the Internet and ATM networking System Performance Evaluation becomes the ideal vehicle for professionals in computer architecture networking and software engineering to stay up to date and proficient in this essential aspect of information technology

Computer Performance Evaluation Ramon Puigjaner, Nunzio N. Savino, Bartomeu Serra, 2003-06-26 The need to evaluate computer and communication systems performance and dependability is continuously growing as a consequence of both the increasing complexity of systems and the user requirements in terms of timing behaviour The 10th International Conference on Modelling Techniques and Tools for Computer Performance Evaluation held in Palma in September 1998 was organised with the aim of creating a forum in which both theoreticians and practitioners could interchange recent techniques tools and experiences in these areas This meeting follows the predecessor conferences of this series 1984 Paris 1988 Palma 1994 Wien 1985 Sophia Antipolis 1991 Torino 1995 Heidelberg 1987 Paris 1992 Edinburgh 1997 Saint Malo The tradition of this conference series continued this year where many high quality papers were submitted The Programme Committee had a difficult task in selecting the best papers Many new papers could not be included in the program due to space constraints All accepted papers are included in this volume Also a set of submissions describing performance modelling tools was transformed into tool presentations and demonstrations A brief description of these tools is included in this volume The following table gives the overall statistics for the submissions

New Solution Techniques for Performance Analysis of ATM Networks Qinglin Wang, 1992

Principles of Secure Network Systems Design Sumit Ghosh, 2012-12-06 As e commerce becomes the norm of business transactions and information becomes an essential commodity it is vital that extensive efforts be made to examine and rectify the problems with the underlying architectures processes methods that are involved in providing and tools as well as organizational structures utilizing services relating to information technology Such a holistic view of the relevant structures is required in order to identify all of the key aspects that can affect network security Unfortunately today's systems and practices although they have proved to be useful and become widespread contain significant unnecessary complexity This complexity provides many loopholes that make systems and practices vulnerable to malicious attacks by hackers as well as by individual and organized criminals Further there are enormous risks due to malfunction of the systems The holes in the network system cannot simply be plugged up by the use of cryptography and firewalls While many changes need to be made in operating systems and system software with respect to security this alone does not solve the problem The problems cannot be solved by addressing only a single key aspect of network security A holistic approach is required Sumit Ghosh has provided in this book such a holistic view of the area of network security Thus it is a most welcome contribution

Performance Evaluation of Computer and Communication Systems Lorenzo Donatiello, Randolph Nelson, 1993-09-15 This volume contains the complete set of tutorial papers presented at the 16th IFIP International Federation for Information Processing Working Group 7.3 International Symposium on

Computer Performance Modelling Measurement and Evaluation and a number of tutorial papers presented at the 1993 ACM Association for Computing Machinery Special Interest Group METRICS Conference on Measurement and Modeling of Computer Systems The principal goal of the volume is to present an overview of recent results in the field of modeling and performance evaluation of computer and communication systems The wide diversity of applications and methodologies included in the tutorials attests to the breadth and richness of current research in the area of performance modeling The tutorials may serve to introduce a reader to an unfamiliar research area to unify material already known or simply to illustrate the diversity of research in the field The extensive bibliographies guide readers to additional sources for further reading

Fundamentals of Performance Evaluation of Computer and Telecommunication Systems Mohammed S. Obaidat, Nouredine A. Boudriga, 2010-01-26 The only singular all encompassing textbook on state of the art technical performance evaluation Fundamentals of Performance Evaluation of Computer and Telecommunication Systems uniquely presents all techniques of performance evaluation of computers systems communication networks and telecommunications in a balanced manner Written by the renowned Professor Mohammad S Obaidat and his coauthor Professor Nouredine Boudriga it is also the only resource to treat computer and telecommunication systems as inseparable issues The authors explain the basic concepts of performance evaluation applications performance evaluation metrics workload types benchmarking and characterization of workload This is followed by a review of the basics of probability theory and then the main techniques for performance evaluation namely measurement simulation and analytic modeling with case studies and examples Contains the practical and applicable knowledge necessary for a successful performance evaluation in a balanced approach Reviews measurement tools benchmark programs design of experiments traffic models basics of queueing theory and operational and mean value analysis Covers the techniques for validation and verification of simulation as well as random number generation random variate generation and testing with examples Features numerous examples and case studies as well as exercises and problems for use as homework or programming assignments Fundamentals of Performance Evaluation of Computer and Telecommunication Systems is an ideal textbook for graduate students in computer science electrical engineering computer engineering and information sciences technology and systems It is also an excellent reference for practicing engineers and scientists

High-Performance Backbone Network Technology Naoaki Yamanaka, 2020-04-01 Compiling the most influential papers from the IEICE Transactions in Communications High Performance Backbone Network Technology examines critical breakthroughs in the design and provision of effective public service networks in areas including traffic control telephone service real time video transfer voice and image transmission for a content delivery network CDN and Internet access The contributors explore system structures experimental prototypes and field trials that herald the development of new IP networks that offer quality of service QoS as well as enhanced security reliability and function Offers many hints and guidelines for future research in IP and photonic backbone network technologies Network

Performance Engineering Demetres D. Kouvatsos, 2011-04-12 During recent years a great deal of progress has been made in performance modelling and evaluation of the Internet towards the convergence of multi service networks of diverging technologies supported by internetworking and the evolution of diverse access and switching technologies The 44 chapters presented in this handbook are revised invited works drawn from PhD courses held at recent HETNETs International Working Conferences on Performance Modelling and Evaluation of Heterogeneous Networks They constitute essential introductory material preparing the reader for further research and development in the field of performance modelling analysis and engineering of heterogeneous networks and of next and future generation Internets The handbook aims to unify relevant material already known but dispersed in the literature introduce the readers to unfamiliar and unexposed research areas and generally illustrate the diversity of research found in the high growth field of convergent heterogeneous networks and the Internet The chapters have been broadly classified into 12 parts covering the following topics Measurement Techniques Traffic Modelling and Engineering Queueing Systems and Networks Analytic Methodologies Simulation Techniques Performance Evaluation Studies Mobile Wireless and Ad Hoc Networks Optical Networks QoS Metrics and Algorithms All IP Convergence and Networking Network Management and Services and Overlay Networks

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