

NETWORK SIMULATION EXPERIMENTS MANUAL

Prepared by Professor Emad Aboelela

Computer Networks

FIFTH EDITION

a systems approach

MK
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Network Simulation Experiments Manual 5th

**Thomas Magedanz, Athanasius
Gavras, Huu Thanh Nguyen, Jeffrey S.
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Network Simulation Experiments Manual Emad Aboelela, 2011-04-13 Network Simulation Experiments Manual Third Edition is a practical tool containing detailed simulation based experiments to help students and professionals learn about key concepts in computer networking. It allows the networking professional to visualize how computer networks work with the aid of a software tool called OPNET to simulate network function. OPNET provides a virtual environment for modeling analyzing and predicting the performance of IT infrastructures including applications servers and networking technologies. It can be downloaded free of charge and is easy to install. The book's simulation approach provides a virtual environment for a wide range of desirable features such as modeling a network based on specified criteria and analyzing its performance under different scenarios. The experiments include the basics of using OPNET IT Guru Academic Edition operation of the Ethernet network partitioning of a physical network into separate logical networks using virtual local area networks VLANs and the basics of network design. Also covered are congestion control algorithms implemented by the Transmission Control Protocol TCP the effects of various queuing disciplines on packet delivery and delay for different services and the role of firewalls and virtual private networks VPNs in providing security to shared public networks. Each experiment in this updated edition is accompanied by review questions a lab report and exercises. Networking designers and professionals as well as graduate students will find this manual extremely helpful. Updated and expanded by an instructor who has used OPNET simulation tools in his classroom for numerous demonstrations and real world scenarios. Software download based on an award winning product made by OPNET Technologies Inc whose software is used by thousands of commercial and government organizations worldwide and by over 500 universities. Useful experimentation for professionals in the workplace who are interested in learning and demonstrating the capability of evaluating different commercial networking products i.e. Cisco routers. Covers the core networking topologies and includes assignments on Switched LANs Network Design CSMA RIP TCP Queuing Disciplines Web Caching etc.

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Magedanz, Athanasius Gavras, Huu Thanh Nguyen, Jeffrey S. Chase, 2010-12-15 This book constitutes the proceedings of the 6th International ICST Conference TridentCom 2010 held in Berlin Germany in May 2010 Out of more than 100 submitted contributions the Program Committee finally selected 15 full papers 26 practices papers and 22 posters They focus on topics as Internet testbeds future Internet research wireless sensors media and mobility and monitoring in large scale testbeds

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