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Quantitative
Modeling
In
Parallel
Systems

The Extra Deliverable

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The QMIPS Project: The QMIPS project is a collaborative research project supported by the CEC as ESPRIT-BRA project no 7269. It is being carried out by the following organisations: CWI (Amsterdam), EHEI (University of Paris V), Imperial College (London), INRIA (Sophia-Antipolis), University of Erlangen, University of Newcastle, University of Torino and University of Zaragoza.

Introduction to Deliverable 23

This deliverable groups papers that have been realized on topics covered by QMIPS, but corresponding to deliverables already formally delivered.

Most of these papers turn out to be the outcome of successful exchanges of personnel, problems and methods between QMIPS groups.

For instance, papers D6-5 and D6-6 shows how the analytical techniques mastered at CWI can be applied to the analysis of G-networks, developed at EHE.

Likewise, paper D14-5 shows the mutual impact of the "Petri Net" point of view and "Process Algebra" point of view on the representation and analysis of some parallel systems.

Contents of the Deliverable

Complements to D5: Analysis of 2-dimensional Markov Chains and Random Walks

D5-6 "On the role of Rouché's theorem in queueing analysis", J.W. Cohen and D.G. Down. CWI Report BS-R9523, August 1995, Amsterdam. Report included.

D5-7 "On the symmetrical shortest queue and the compensation approach", J.W. Cohen. CWI Report BS-R9519, July 1995, Amsterdam. Report included.

D5-8 "Two-dimensional nearest-neighbour queueing models, a review and an example", J.W. Cohen. *In Quantitative Methods in Parallel Systems*, eds. F. Baccelli, A. Jean-Marie and I. Mitrani, Springer, Berlin, 1995.

Complements to D6: State-of-the-Art in the Theory and Application of Queueing Networks with Negative and Positive Customers

D6-4 "G-Networks with Multiple Classes of Positive Customers, Negative Customers and Triggers", Erol Gelenbe and Ali Labed. Technical Report EHE, October 1995. Report included.

D6-5 "On the identification of Wiener-Hopf factors", N. Bayer. CWI Note BS-N950x, September 1995. Report included.

D6-6 "Wiener-Hopf analysis of an M/G/1 queue with negative customers and of a related class of random walks", N. Bayer and O.J. Boxma. CWI Report BS-R952y, September 1995, Amsterdam. Report included.

D6-7 "The workload in the M/G/1 queue with work removal", R.J. Boucherie and O.J. Boxma. CWI Report BS-R9505, February 1995, Amsterdam; accepted for publication in *Probability in the Engineering and Informational Sciences*. Report included.

D6-8 "G-networks: A Survey of Results, Applications and Solutions", S. Chabridon, E. Gelenbe, M. Hernández and A. Labed. *In Quantitative Methods in Parallel Systems*, eds. F. Baccelli, A. Jean-Marie and I. Mitrani, Springer, Berlin, 1995.

Complements to D14: Approximation Techniques in Stochastic Petri Nets

D14-5 "Response Time Approximation for Decision-Free TIPP Specifications", V. Mertsiotakis and M. Silva. Report included.