Performance Engineering Education: A Viewpoint

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ABSTRACT

The successful development and marketing of commercial computer/communication systems requires the ability to quantify their performance and related metrics. Specifically, one should be able to demonstrate that projected customer requirements (QoS, QoE) are met, be able to identify bottlenecks, be able to evaluate and compare different configurations, and be able to evaluate and compare different designs. Performance engineering education should then train students to be able to carry out the above tasks. Exposure to three broad categories of approaches is necessary: Measurements aided by statistical techniques, analytic modeling and simulation. Both, the theory underlying these approaches and software packages that aid such analyses should be exposed. Besides failure-free performance, attention should also be devoted to reliability, availability, performability and survivability. In the current context, power consumption and security have gained importance as well. In this talk, we will take a journey through these issues.

BIOGRAPHY

Kishor S. Trivedi holds the Hudson Chair in the Department of Electrical and Computer Engineering at Duke University, Durham, NC. He has been on the Duke faculty since 1975. He is the author of a well-known text entitled, *Probability and Statistics with Reliability, Queuing and Computer Science Applications*, originally published by Prentice-Hall; a thoroughly revised second edition (including its Indian edition) of this book has been published by John Wiley. He has also published three other books entitled, Performance and *Reliability Analysis of Computer Systems*, published by Kluwer Academic Publishers, *Queueing Networks and Markov Chains*, John Wiley and *Reliability and Availability Modeling* by the Cambridge University Press. He is a Life Fellow of the Institute of Electrical and Electronics Engineers. He is a Golden Core Member of IEEE Computer Society. He has published over 600 articles and has supervised 48 Ph.D. dissertations. He is the recipient of IEEE Computer Society Technical Achievement Award for his research on Software Aging and Rejuvenation. He works closely with industry in carrying out reliability/availability analysis, providing short courses on reliability, availability, performability modeling and in the development and dissemination of software packages such as SHARPE and SPNP.