Quality Engineering ›

Volume 16, 2003 - Issue 2

Original Articles

Performance Evaluation of Dynamic Monitoring Systems: The Waterfall Chart

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Pages 183-191 | Published online: 23 Aug 2006

Cite this article https://doi.org/10.1081/QEN-120024006

Abstract

Computers are increasingly employed to monitor the performance of complex systems. An important issue is how to evaluate the performance of such monitors. In this article we introduce a three-dimensional representation that we call a “waterfall chart” of the probability of an alarm as a function of time and the condition of the system. It combines and shows the conceptual relationship between the cumulative distribution function of the run length and the power function. The value of this tool is illustrated with an application to Page's one-sided Cusum algorithm. However, it can be applied in general for any monitoring system.

Keywords:

Run length distribution of a monitor | Power | Cumulative sum chart | Cusum

Acknowledgments

This article is based on research supported by the Low Emissions Technologies Research and Development Partnership (LEP) of Daimler-Chrysler, Ford, and General Motors. Professor Box's research received additional funding from National Science Foundation Grant DMI-981239.

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