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Performance Evaluation of Dynamic Monitoring Systems: The Waterfall Chart

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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

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