

Extreme Value Analysis of Teletraffic Data

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Abstract

An empirically verified characteristic of the expanding area of Internet is the long-tailness of phenomena such as cpu time to complete a job, call holding times, files lengths requested, inter-arrival times and so on. Extreme values of the above quantities are liable to cause problems to the efficient operation of the network and call for effective design and management. Extreme-value analysis is an area of statistical analysis particularly concerned with the systematic study of extremes, providing useful insight to fields where extreme values are probable to occur and have detrimental effects, as is the case of teletraffics. In this paper we illustrate the main elements of this analysis and proceed to a detailed application of extreme-value analysis concepts to a specific teletraffic data set. This analysis verifies, too, the existence of long tails in the data.

Keywords: Teletraffic engineering; Long tails; extreme-value index; smoothing procedures.