

Obtaining the Knowledge of a Server Performance from Non-Intrusively Measurable Metrics

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Abstract

Most network services are provided by server computers. To provide these services with good quality, the server performance must be managed adequately. For the server management, the performance information is commonly obtained from the operating system (OS) and hardware of the managed computer. However, this method has a disadvantage. If the performance is degraded by excessive load or hardware faults, it becomes difficult to collect and transmit information. Thus, it is necessary to obtain the information without interfering with the server's OS and hardware. This paper investigates a technique that utilizes non-intrusively measurable metrics that are obtained through passive traffic monitoring and electric currents monitored by the sensors attached to the power supply. However, these metrics do not directly represent the performance experienced by users. Hence, it is necessary to discover the complicated function that maps the metrics to the true performance information. To discover this function from the measured samples, a machine learning technique based on a decision tree is examined. The technique is important because it is applicable to the power management of server clusters and the immigration control of virtual servers.

Keywords: machine learning, network servers, performance management, traffic measurement

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