Time Series Forecasting Models for Performance Problem Prediction

Description

Time series data is a sequence of data points collected periodically at equally-spaced intervals. Time series data collected from software systems may include CPU utilization, memory usage, disk I/O, network I/O, and many other metrics. Analyzing these data can help the developers or system administrators in detecting, diagnosing and predicting the problems at runtime. For example, a gradual increase of memory usage of a node in the system may indicate a memory leak problem. Without a detection or prediction mechanism, the memory usage may reach the physical memory limit and cause the system to fail.

There are many techniques for time series analysis, such as, linear regression, moving average, or autoregressive integrated moving average. This paper shall investigate the techniques that can be used for time series forecasting to detect and predict performance problems in software systems.

References


Contacts

Teerat Pitakrat (pitakrat@informatik.uni-stuttgart.de)
Reliable Software Systems (RSS) Group
Institute for Software Technology (ISTE)
University of Stuttgart