Web Caching System by Using Lowest Correlation Rate (LCR) Replacement Algorithm

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Abstract

The World-Wide-Web ("The Web") has grown exponentially in the past few years. Consequently, there is an ever increasing demand for network bandwidth. One way to optimize network bandwidth usage is to implement a caching system which stores previously fetched files at a location close to the web user, thereby allowing the user to experience reduced response time, and also potentially allowing network bandwidth to be conserved. In this caching system, different replacement policies play a crucial part for adding another web site when the space is not enough in the cache. A new replacement policy known as LCR replacement policy is proposed in this paper.This policy evicts the web site or web sites from the cache based on frequency (in minimum) and user access time (least recent time) in making replacement decision.Then, the impacts of this LCR are studied by comparing with Least Recently Used (LRU) and Least Frequently Used (LFU).Both LRU and LFU policies have their own advantages and disadvantages. This paper aims to provide solutions for eliminating their disadvantages in both policies retaining their advantages. Applying this LCR policy, caching system reduces network traffic and user latency.