

A framework for an application based mobile cache consistency method.

ABSTRACT

In a mobile environment, maintaining cache consistency is challenging. Applying one type of consistency levels either strict or weak is not suitable all the time, as the consistency requirements mainly depend on the mobile application system and differ from one to another. Also forcing the mobile client to use its cache data for the purpose of reading only limits the functionality of the caching. The stateful scheme Multi-level Mobile Cache Consistency Protocol that works in client-server architecture supports different levels of consistency. The Mobile client is able to issue updates transactions, and determine the consistency requirements upon its interest. Based on the Multi-Level Mobile Cache Consistency Protocol this paper presents a framework of stateful strategy; Application Based Multi-level Mobile Cache Consistency Method (ABMMCCM) that preserves the advantages of multi-level mobile cache consistency protocol and enhances its drawbacks. In ABMMCCM the consistency requirements are designed at the server side based on the application requirements, and each data item has a single consistency requirement entry. The proposed framework is initially compared to Multi-level Mobile Cache Consistency Protocol, and it appears that ABMMCCM reduces the number of messages transfer between the base server and the mobile client, which helps in better utilizing the wireless network, and reduces the overhead from the mobile client and the base server.

Keyword: Mobile Cache Consistency, Stateful Approach, Multi-level Consistency Method