

## Link-Based Markov Model Prefetching Algorithm on Web Cache

Wang Zhao, Guo Cheng-cheng , Yan Pu-liu  
School of Electronics Information, Wuhan University  
Wuhan, Hubei, 430079, China  
Email: wangzahao1212@yahoo.com.cn Tel: 13071288242

### ABSTRACT

Reducing the web latency is one of the primary concerns of Internet research. Web caching and web prefetching are two effective techniques to reduce latency. However, most previous research has addressed these two techniques separately. In this paper, we put forward a new proxy scheme which integrates web caching and web prefetching. This scheme is based on a site-oriented cache storage structure. Compared with the traditional document-oriented structure, it uses less memory, improves the manageability of local cache storage, and supports intelligent prefetching better. On the basis of this structure, we bring about a Link-based Markov (LBM) prediction algorithm. Our prediction algorithm use access sequences obtained from server logs to create and maintain the 1-order Markov models, then use these models to predict the subsequent possible requests. At last we use trace-driven simulations to prove the feasibility of site-oriented cache storage scheme and test the performance of LBM prediction algorithm.

**Keywords:** Proxy, Cache, Prefetch, Site-Oriented, Link-Based