Caching strategy for Web application - a systematic literature review

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Abstract	Purpose Internet users and Web-based applications continue to grow every day. The response time on a Web application really determines the convenience of its users. Caching Web content is one strategy that can be used to speed up response time. This strategy is divided into three main techniques, namely, Web caching, Web prefetching and application-level caching. The purpose of this paper is to put forward a literature review of caching strategy research that can be used in Web-based applications. Design/methodology/approach The methods used in this paper were as follows: determined the review method, conducted a review process, pros and cons analysis and explained conclusions. The review method is carried out by searching literature from leading journals and conferences. The first search process starts by determining keywords related to caching strategies. To limit the latest literature in accordance with current developments in website technology, search results are limited to the past 10 years, in English only and related to computer science only. Findings Note in advance that Web caching and Web prefetching are slightly overlapping techniques because they have the same goal of reducing latency on the user's side. But actually, the two techniques are motivated by different basic mechanisms. Web caching uses the basic mechanism of cache replacement or the algorithm to change cache objects in memory when the cache capacity is full, whereas Web prefetching uses the basic mechanism of predicting cache objects that can be accessed in the future. This paper also contributes practical guidelines for choosing the appropriate caching strategy for Web-based applications. Originality/value This paper conducts a state-of-the art review of caching strategies that can be used in Web applications. Exclusively, this paper presents taxonomy, pros and cons of selected research and discusses data sets that are often used in caching strategy research. This paper also provides another contribution, namely, practical instructions for Web developers to decide the caching strategy.
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