Title (en)

BANDWIDTH SAVINGS AND QoS IMPROVEMENT FOR WWW SITES BY CATCHING STATIC AND DYNAMIC CONTENT ON A DISTRIBUTED NETWORK OF CACHES

Title (de)

BANDBREITENEINSPARUNGEN UND QoS-VERBESSERUNG FÜR WWW-SITES DURCH ABFANGEN VON STATISCHEM UND DYNAMISCHEM INHALT IN EINEM VERTEILTEN NETZWERK VON CACHE-SPEICHERN

Title (fr)

ECONOMIE DE BANDE PASSANTE ET AMELIORATION DE LA QUALITE DE SERVICE POUR DES SITES WWW PAR MISE EN ANTEMEMOIRE DE CONTENU STATIQUE ET DYNAMIQUE DANS UN RESEAU REPARTI D'ANTEMEMOIRES

Publication

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Application

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Priority

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- US 21855900 P 20000717

Abstract (en)

[origin: WO0207364A2] Caches are disposed in the Internet for storing and updating copies of objects having dynamic content. Update characteristics of the objects are determined, and a time to live (TTL) parameter for the objects is adjusted based upon the update characteristics. Generally, the object is updated if its TTL is less than its age. The TTL for an object may be adjusted to (i) maintain its probability of error below a predetermined error probability threshold; (ii) maintain its error rate below a predetermined error probability threshold; or (iii) maintain its delay time below a predetermined delay threshold. Preferably, the caches are dedicated machines and are placed so that Web browsing passes through the cache instead of going all the way to the original sites, in many different locations, ideally within the network of ISPs providing the Internet connectivity to the highest number of users in those locations. In this manner, the users of those ISPs and, to a lesser extend, neighboring ISPs, will enjoy a huge QoS and speed improvement, for most of the traffic will stay within or close to the ISPs' internal networks and not need to go through the highly-loaded Internet backbone; and the original web-sites will no longer need as much bandwidth, since the caches will absorb most of the load. The system can adapt, in real time, according to the number of requests to each page and the actual update frequency of the page. [origin: WO0207364A2] Caches (108) are disposed in the Internet for storing and updating copies of objects having dynamic content. Update characteristics of the objects are determined, and a time to live (TTL) parameter for the objects is adjusted based upon the update characteristics. Generally, the object is updated if its TTL is less than its age. The TTL for an object may be adjusted to (I) maintain its probability of error below a predetermined error probability threshold; (ii) maintain its error rate below a predetermined error probability threshold; or (iii) maintain its delay time below a predetermined delay threshold. Preferably, the caches (108) are dedicated machines and are placed so that Web browsing passes through the cache instead of going all the way to the original sites (104), in many different locations, ideally within the network of ISPs (106) providing the Internet connectivity to the highest number of users (102) in those locations. In this manner, the users (104) of those ISPs (106) and, to a lesser extend, neighboring ISPs, will enjoy a huge QoS and speed improvement, for most of the traffic will stay within or close to the ISPs' (106) internal networks and not need to go through the highly-loaded Internet backbone; and the original web-sites (104) will no longer need as much bandwidth, since the caches (108) will absorb most of the load. The system can adapt, in real time, according to the number of requests to each page and the actual update frequency of the page.

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