Improving the Network of Search Engine Services Through Application-Driven Routing

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Abstract

We studied a search engine service in order to evaluate the impact of the traffic pattern on network performance. This paper focuses on how the routing algorithm can improve the query latency of a search engine. The architecture of the service includes three main components: Front Service, Cache Service and Index Service. This service receives queries from users, and after a process of seeking in a cluster, a set of results are returned to users. This workload produces unbalanced traffic throughout the network. As a result, this behavior impacts the network performance in terms of latency and throughput and increases the user timeout. This paper proposes an application-driven routing policy based on the application architecture which merges a set of criteria and prioritizes the Cache Service messages. We evaluated the performance using real traces and simulation techniques. The experiment results show a reduction of network latency and throughput when we apply the application-driven routing policy.

Keywords

Routing Application-driven network Search engine services

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