Abstract

With the rapid growth of the Internet, IP-lookup becomes the bottle-neck in network traffic management. Therefore, the design of high speed IP routers has been a major area of research. The focus of this paper is on achieving significant reduction in memory requirements for the longest prefix-match operation needed in IPv4/v6 lookups. The Longest Prefix Matching (LPM) is one of the problems in the uni-bit trie representation, in which the number of nodes and the memory requirement is high for IP lookup. To solve this problem we propose a classic trie-based approach in IP lookup. We propose an algorithm to compress the uni-bit-trie representation of a given routing table by using single-prefix distance bounded path compression algorithm. This algorithm determines the optimal maximum skip distance at each node of the trie to minimize the total memory requirement.
References


Index Terms

Computer Science Emerging Trends in Technology

Keywords

Ip-lookup Longest Prefix Matching Skip Distance Routing Tables