Abstract

To conceive the full potential of ubiquitous mobile computing, mobile nodes must be able to roam seamlessly across different networks. However, the location i.e. IP address, of a called mobile node must be determined within a certain amount of time, before the services are blocked. With the upcoming 3G, 4G and wireless LAN technologies, it is necessary to have an efficient location management system that adapts to such dynamic environments, and augment problems like center point of failure, delay and lack of reliability. One approach is to provide decentralized location management, using CHORD, whose key value mapping can efficiently determine the required name to IP mapping. However, a major issue concerning this technique is the presence of unstable chord nodes, which brings instability to the framework. Nodes with minimum computation capabilities can slow down the lookup mechanism, and hence terminates the ongoing session. This paper provides a solution to this problems using well-known two-tier CHORD architecture. Nodes with high computation power and stability will act as Location Servers, which will be responsible for storing and distributing temporary locators i.e. IP addresses of the called mobile node. Suitability of the proposed framework is tested using analytical analysis in comparison with the existing chord mobility framework. Such an approach can bring stability to the framework, with its decentralization feature still intact.

Index Terms

Computer Science

Communication Systems

Keywords
Two-Tier Model   CHORD   Location Management