

论文

信源定位方案中基于Bloom Filter存储的概率日志记录方法研究

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摘要

该文在信源定位方案中提出了一种基于Bloom filter存储的概率采样日志记录方法。该方法对经过路由器的所有数据实现概率采样, 存储采用了高效的Bloom filter存储结构, 使得采样信息能够在一定时间内存储在内存中便于查找。基于此方法该文提出信源定位服务器的概念, 从而使得核心网络路由器除了路由转发功能之外, 只需要完成对数据包的概率采样即可。文中还对相关参数的选择进行了理论分析, 从理论上分析了信源定位服务的存储开销以及信源定位有效性, 方案具有存储开销小、效率高的特点, 从而为进一步的实际网络部署提供了理论依据。

关键词 [信源定位](#) [日志记录](#) [Bloom filter](#) [概率采样](#)

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Study of Probabilistic Logging Based on Bloom Filter for Source Tracing

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Abstract

This paper presents a probabilistic logging scheme based on Bloom filter for source tracing. The scheme makes probabilistic sampling of all packets through each router, and uses efficient Bloom filter for storage. The sampling information can be stored in memory, which makes it easier to find. This paper introduces first the concept of source locating server. Besides forwarding packets, the routers in the core network only need probabilistic sampling of packets. In addition, this paper gives theoretical analysis of the choice of the relevant parameters. In theory, this paper analyzes the cost of storage in probabilistic logging scheme and the validity of source location. The proposed scheme has the characteristics of small storage costs and high efficiency, which provides a theoretical basis for further actual deployment.

Key words [Source tracing](#) [Logging](#) [Bloom filter](#) [Probabilistic sampling](#)

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