

论文

SMART: 基于数据流技术的电信网络流量监控系统

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摘要:

大多数国内电信运营商现有的网络流量监控系统的分析都是基于数据文件的操作模式, 处理速度远跟不上大量数据到达的速度。基于这种情况, 提出了基于数据流技术来实现在线网络流量监控系统SMART。SMART收集多个路由器发送的Netflow V5或者V9格式的数据, 并将其转换成用户定义的监控流; 以滑动窗口的方式查询输出流量构成中Top-k频繁数据信息; 监测网络流量突变; 以可视化的图形和报表形式显示结果。SMART先进的数据流算法技术基础和完整的系统框架设计使得它在上海电信高效稳定的7*24h运行。

关键词: 数据流系统 网络流量监控 电信

SMART: a system for online monitoring large volumes of network traffic

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Abstract:

Monitoring systems deployed in telecom operators are usually too slow because of their disk-based processing approach. To address this problem, an online network traffic monitoring system, named SMART, was designed and developed. The system converts different formats of raw net flow data (Netflow V5 or V9) to user-defined control flows through combination and filtering. It can compute top-k frequent flows with sliding window, detect burst on arbitrary attributes, and present results visually to users. The system could be used to replace the traditional offline monitoring system used in Shanghai Telecom. The basis of advanced streaming algorithms and the design of robust system architecture enable SMART to achieve good performance.

Keywords: data stream system network traffic monitoring telecom

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