

Real Time Flow Analysis for Network Services.

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Emerging dynamic circuit services are being developed and deployed to facilitate high impact data movement within the research and education communities. These services normally require network awareness in the applications, in order to establish an end-to-end path on-demand programmatically. This approach has significant difficulties because user applications need to be modified to support API of these services. Considering the highly distributed and complex applications in use for data movement within High-Energy Physics community, this can be a challenging task.

In this paper, we present a different approach to establishing and tearing down dynamic circuits. Instead of forcing network awareness in applications, we are working on developing application awareness in the network. Our application awareness within the network is based on collection and analysis of network flow data in near real time. The objective of this project is to develop heuristic algorithms that recognize flow patterns with the specific characteristics for specific applications of interest. Once such flows are recognized, our service can initiate steps to modify offered network services, such as establishing a dynamic circuit to carry the application's traffic. In our paper, we will present up-to-date results and challenges, as well as our practical experiences using such a tool for controlling of production traffic between US CMS Tier 1 facility at Fermilab and various US-CMS Tier2 facilities.

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