Technische Universität München
Lehrstuhl für
Netzarchitekturen & Netzdienste
Prof. Dr. Georg Carle

Thesis
(MA/BA/IDP)

Large-scale Flow Collection

Motivation

Flow data are an important source for various tasks such as network monitoring, accounting, attack detection and mitigation. NetFlow, IPFIX and sFlow are protocols which are used to provide flow information.

We developed a software toolkit for the creation and processing of network flow data called Vermont (Versatile Monitoring Toolkit).

Vermont was successfully used to handle flow data from our own Autonomous System as well as networks which provide more flow data. However, Vermont is not yet capable to fully process thousands of flow records and write them to a database. Since it is to be expected that the amount of flow data will only increase in the future, a multi-threaded approach for flow processing is needed.

Flow Exporter

Flow data

Flow Collector
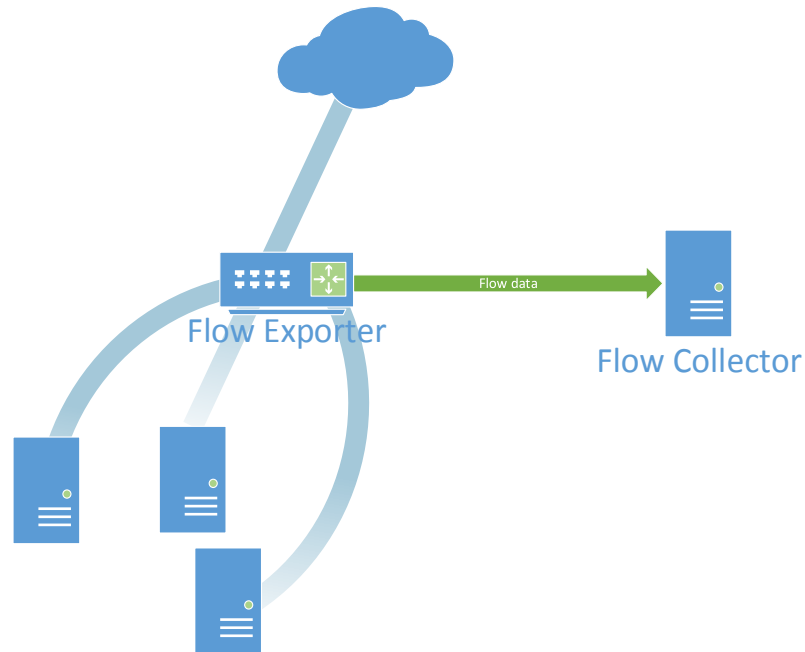
Additionally, Vermont will be deployed on a machine handling large amounts of flow data. Your work will be part of the BMBF project Peeroskop, whose goal it is to get a better understanding of routing in the Internet, thus making it more secure and resilient. Another important part of your thesis/IDP is to process and analyze flow data in a privacy-preserving manner.

Your Task

Your task is to enhance Vermont to make the flow processing module multi-threaded. Since Vermont is written in C++ you need to be very proficient in C++ and also be comfortable in using 'advanced features' such as templates. In a second step you will analyze flow data using privacy-preserving methods and finally evaluate your results.

Contact

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