The paper proposes an idea for how to leverage the benefits of caching in the context of network measurement software systems. They construct a data structure that improves the efficiency of network traffic monitoring in software, and propose a low-level mechanism to improve the efficiency of a variety of schemes, including hash-based and heap-based mechanisms. The premise is that current network cards process packets in batches that depend on packet arrival, which is not necessarily efficient. Their scheme, Agg-Evict, aggregates packets in virtual queues, which can use application-level flow semantics to maximize cache efficiency. This approach provides benefits for count-based network measurements such as flow size count or heavy hitter detection. The authors use Agg-Evict as a pre-processing module for popular count-based algorithms, and show consistent performance improvements in a variety of scenarios. The authors are releasing their tools as open source in the interest of reproducibility.

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