

Tracking down the CPU consumption for Linux Traffic Control

Motivation

Traffic shaping is a common technique for traffic management. To limit the bandwidth for certain traffic classes packets get delayed according to a desired traffic profile. Traffic shaping is used to optimize or guarantee performance, improve latency, and/or increase usable bandwidth for some packets on the cost of others. Linux can do traffic shaping via TC, but TC comes with a price that we end up paying in CPU cycles.

Insights into the performance of Linux TC are a requirement for comparison with own, more advanced future implementations of a Traffic Shapers at the Chair of Network Architectures and Services. During the thesis interesting insights into the research project called SENDATE can be gathered if the student is interested.



Your task

This thesis shall provide a performance characterization of Linux traffic shaping and derive methodology to measure performance of traffic shaping on x86 hardware. Different measurements, mainly the counting of throughput and latencies, will be made in the Baltikum testbed für device performance measurements.

The thesis contains the following work packages:

- Familiarization with Linux traffic shaping
- Capturing the state of the art for benchmarking of middleboxes with traffic shaping
- Get to know the Baltikum testbed and perform initial tests to see the base line performance
- Evaluate Linux TC in the Baltikum Testbed, under different configurations.
- Write your thesis

It may be beneficial (but not mandatory) to have done the iLab practical course, master course computer networks, experience in server administration, software profiling, etc.

In case you are interested do not hesitate and contact

Paul Maximilian Emmerich	emmericp@net.in.tum.de
Dominik Scholz	scholz@net.in.tum.de
Daniel Raumer	raumer@net.in.tum.de

Contact

