

Masterthesis: ZOOM Elephant Detection

1 Introduction

ZOOM is an SDN based approach for elephant detection in SDN enabled networks. The idea is to split the IP address space into sections that are iteratively refined until only the largest flows remain. These are then returned as elephant flows.

A proof-of-concept implementation and basic evaluation has already been performed in the paper *ZOOM: Lightweight SDN-based Elephant Detection*.

2 Content

The following points are to be delivered in the context of this work.

- Analysis of datacenter and backbone network traffic behaviour with regard to elephants
- Evaluation of available technologies/frameworks based on which ZOOM can be implemented (ODL, ONOS, VPP, ...)
- Implementation of the ZOOM algorithm as a module/plugin for the selected platform (Java, C, ...)
- Execution of the ZOOM algorithm by deploying the implementation in a testbed (Virtual, Native)
- Evaluation of ZOOM results with regard to accuracy, reliability, stability, reproducibility, etc (Matlab, R, ...)

3 Requirements

The following points list requirements that are needed (or to be learned) in order to successfully complete this work.

- Theoretical knowledge of computer networking (IP addressing, subnets, routing and switching, ...)
- Usage of networking tools (tcpdump, tpreplay, wireshark, nc, ...)
- Knowledge of the selected programming language
- Usage of Linux systems
- Knowledge of the selected evaluation language

4 Modus

This work is supervised by one (or more) of the members of the chair for communication networks (LSIII). The student will get personal supervision during the duration of the thesis. Present and future progress are to be presented and discussed in weekly (or biweekly) meetings between the student and the responsible supervisor. The total duration of the thesis may not exceed 6 months. At the end of the work, a talk presenting the results of the thesis is to be held at the chair.

5 Contact

If you are interested in this topic or would like to learn more please contact Stefan Geissler stefan.geissler@informatik.uni-wuerzburg.de;