



Date: July 26, 2016

Working Plan: #8

WP Period: July 26, 2016 - September 04, 2016

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Working Plan Document

From the last Working Plan(WP #7), the summary is presented at table 1.

Table 1: Working Plan #7 results

Task	Status
Define proof of concept set	done
Define usage cases	done
Finish the body of Qualification	done
Implementation: trace analyzer	done
Implementation: Flow generator	done
First Results	done
MOOC Internet Measurements: a Hands-on Introduction	done

Now, the main goals of this working plan will be:

- Finish the revision of qualification text.
- Write an essay for EADCA workshop.
- Qualification presentation.
- Make a revision on the class diagram, to improve extensibility. This is a quite simple task.
- Tests scrips: implement octave scripts for Wavelet-based multi-resolution analysis[1].
- Expand the number of supported stochastic models, and automatically choose the best.
- Implement the next release of the components.

The next release should have the follow features:

1. The Sniffer should be able to execute live analysis of the Ethernet traffic (not just analyze *pcap* files). For this matter, the most promising options are Libtins¹ and Libwireshark² (C++) and pypcap³ and dpkt⁴ (Python). The language is not a matter, since this is an independent component. The more efficient and with less losses should be the chosen.
2. The trace-analyzer should be able to identify ON/OFF periods of each flow, and execute each flow as it is an ON/OFF source, in an platform agnostic manner. That means, the ON/OFF behavior should be controlled by the component, not by the API used to craft the packets.
3. The Flow-generator should use IP addresses provided on a text file, for connection-based generator.
4. The Flow-generator should be expanded to, at least, one more traffic generator, using the factory design pattern.

This plan is in conformity with the proposal of Monthly Working Plan of the qualification text (presented at table 2), where the main goal is the improvement of statistical modelling and optimization of the project. Once this is done, as a guideline, for the next WP the goals will be:

- * Create an light-weight neural-network to add responsiveness.
- * Extend the workload generator to others platforms.
- * Study of DPDK modules examples, especially the KNI module. ⁵, that is close related to what is wanted. Actually, it is expected to be required just a modification of the code.
- * Study NFV environment installation

References

- [1] K. V. Vishwanath and A. Vahdat, "Swing: Realistic and responsive network traffic generation," *IEEE/ACM Transactions on Networking*, vol. 17, pp. 712–725, June 2009.

¹<http://libtins.github.io/>

²<http://www.thegeekstuff.com/2014/12/libwireshark-library-c-example/>

³<https://github.com/pynetwork/pypcap>

⁴<https://github.com/kbandla/dpkt>

⁵ http://dpdk.org/doc/guides-16.04/sample_app Ug/kernel_nic_interface.html

Table 2: Monthly Working Plan

Activities		Status	15	16							17
			1 st 2 nd Sem	1 st Sem	07	08	09	10	11	12	01
1	Master Courses	done									
2	Networking state of the art studing	done									
3	Proposal definition	done									
4	Study of traffic generators, DPDK, NFPA, and packet traces and Machine Learning	done									
5	Bibliography review	done									
6	Qualification Writing	done									
7	Realistic workload generator alpha version	done									
8	Finish the workload generator implementation	done									
9	Optimizations and improvement of statistical modeling	doing									
10	Machine Learning for responsiveness	to do									
11	Extend the workload to another platforforms: Ostinato, Seagull, PackETH, TG, ...	to do									
12	DPDK module	to do									
13	NFV usage case	to do									
14	Integration with NFPA	to do									
15	Benchmark usage case	to do									
16	Paper Writing	to do									
17	Dissertation writing	to do									



Week Work Plan

			Week					
Tasks		Sts	25/07	01/08	08/08	15/08	22/08	29/08
Practical tasks								
t 1	Revision of qualification text	doing						
t 2	Essay for EADCA workshop	to do						
t 3	Qualification presentation	to do						
t 4	Revision of Classes structure	to do						
t 5	Tests: scripts for Multiresolution Wavelet analysis	to do						
t 6	Smart stochastic modelling	to do						
t 7	New release features	to do						
t 8	Presentation of partial results	to do						
t 9	Define the next WP	to do						