

NEC Laboratories Europe has an opening for an

Internship Student

“Network Functions Virtualization with specialized VMs”

[ref: 2014-08-36-NSDA]

Software Defined Networks (SDNs) and virtualized network functions (NFV) are currently being deployed by major operators with the aim of turning network processing into a virtualized, software-based process. However, the potential benefits of such NFV deployments are hindered by the general purpose nature of the underlying OSES and hypervisors. As a result, conventional wisdom states that a single commodity server can run at most in the order of tens of VMs and only achieve 10Gb/s and higher rates for certain packet sizes.

In our research at NLE [<http://cnp.neclab.eu>], we overcome these barriers with tiny, specialized VMs and streamlined hypervisors. These VMs have low memory footprints (a few MBs), fast boot times (milliseconds), and are able to operate at 10Gb/s and higher rates. Towards the goal of improving this work and running tens of thousands such VMs on a single server, we are currently looking for students who would like to join this research by carrying out an internship or master thesis at our premises in Heidelberg, Germany.

The NEC Laboratories Europe in Heidelberg provides an excellent working environment supporting individual creativity as well as strong teamwork. English is the working language in the labs. All applications must be submitted via the following webpage <https://recruitment.nw.neclab.eu/> with reference to **[2014-08-36-NSDA]**.

Dr. Saverio Niccolini
Email: saverio.niccolini@neclab.eu
Phone +49 6221 4342-0
www.neclab.eu/jobs

The internship includes the following work items:

- Studying and exploring specialized VMs with KVM
- deploying, implementing NFV appliances on KVM
- Evaluating these NFV appliances

Required skills:

- Good knowledge in networking, operating systems, and virtualization principles
- Good knowledge of Linux, KVM internals
- Good knowledge in systems programming in C, ideally additional experiences with C++
- Team working spirit
- Good communication skills in English

Benefits:

- Excellent opportunities to obtain experience in an industrial working environment and to publish papers in international conferences
- Students receive common indemnification

Preferred starting date & duration:

Any time, early start preferred; 6 months.

