PhD researcher – Programming frameworks for the control of data centers and telecommunication networks

Job offer

Telecommunication networks have become a technological necessity in the core of everyday social, business, and cultural processes, turning them into a critical infrastructure for economic growth and social prosperity. The services rendered by these networks are relied upon by millions of people every day. The need to support the increase in traffic growth and the diversification of supported services to be realized by year 2020, is pushing the evolution of network technologies towards systems that provide higher degrees of programmability and flexibility, while reducing the overall costs related to the network operations. In effect, we are witnessing a shift towards software driven networks, which includes the efforts in Software-Defined Networking (SDN), Cloud technologies as well as Network Function Virtualization (NFV). These efforts represent complementary facets of an overall technological and economic transformation trend that is deeply impacting Telecom and IT industries.
Telecommunication services compared to typical cloud services rely on high-speed processing Network Functions with high requirements on availability, reliability and scalability. Many challenges therefore still need further research in order to make instantaneous on-demand telecommunication service deployment of telecommunication services in software a reality. This PhD research will focus on the design, implementation and evaluation of novel service control and programming mechanisms for telecommunication services which are fully virtualized in software, enabling similar reliability, speed as dedicated hardware appliances (e.g., firewalls, VPN servers, etc.), while offering unseen scale-in and scale-out possibilities, similar to cloud services relying on Amazon EC, or Google Elastic Cloud.

Job Description

You perform research in the domain of Future Internet Technologies:
- You are conducting research on the design and evaluation of novel service control and programming mechanisms for softwarized telecommunication services
- You are performing scientific evaluation of control and orchestration mechanisms through simulation and proof-of-concept prototypes
- You will be part of a stimulating international environment of researchers
- You publish and present results both at International conferences and in scientific journals
- The research leads to a PhD degree. Throughout the complete PhD period, you receive a full-time, attractive salary.

Profile

- You have a Master's degree in Computer Science, Informatics, ICT or Electronics.
- You are acquainted with procedural/OOP (C/C++, Java, Python) and/or functional programming techniques (Haskell, OCaml, etc.).
- You have (initial) experience with modern software development tools such as version control (e.g., Git, Mercurial, SVN), Integrated Development environments (e.g., Eclipse, Netbeans,etc.) and test methodologies (e.g., build server, unit testing, integration testing, etc.), and/or automation frameworks such as Maven, Puppet, Chef, etc.
- Experience or strong interest in Software-Defined Network platforms is a strong plus.
- You have interest in the design of novel algorithms for controlling communication networks and data center services (e.g., virtualization technologies such as Xen, KVM, Docker, etc.)
- You are able to plan and carry out your tasks in an independent way.
- You have strong analytical skills to interpret the obtained research results.
- You are a responsible, communicative and flexible person.
- You are a team player.
- You respect the predetermined milestones in research projects.
- Your English is fluent, both speaking and writing.

Our offer

We offer a challenging, stimulating and pleasant research environment, where you can contribute to the worldwide research for the Future Internet. The work is done in close collaboration with key European ICT and telecom industry players.

Interested ?

Send your motivation letter and CV to martine.buysse@intec.ugent.be, indicating "Application: PhD Research - Programming frameworks for the control of data centers and telecom networks" in the subject.