Postdoctoral / Research engineer call for application
Subject 1: "Mobile Computation offloading in Mobile Edge Clouds"

Context and Job description:

The computer science laboratory of Paris 6 (LIP6), France, invites applications for a Postdoc/Research Engineer position in the area of mobile computation offloading in edge clouds. This position is funded by the FUI Podium project led by THALES.

The project aims at developing a platform for secure computation offloading in edge clouds deployed locally on-demand for emergency situations. Mobile cloud computing has emerged as a new paradigm of cloud computing. It offers great opportunities for mobile service industry, allowing mobile devices to access the applications and utilize the elastic resources offered by the cloud. When cloud meets mobile, there are many interesting applications and challenging issues to address, such as mobile computation offloading. In this context, we will investigate efficient mechanisms for partitioning resource-intensive applications (i.e., image/video processing and cartography) and seamlessly offloading to the cloud for further processing. The quality of the application depends on the decisions made during partitioning and the delay introduced while offloading and receiving back the cloud-processed images, both of which are key components for assessing the efficiency of the entire process.

The focus of the Postdoc/Research Engineer position will be on both algorithmic and practical issues. From the algorithmic point of view, the candidate will design, model, and analyze efficient partitioning algorithms for mobile computation offloading, based on an estimation of the energy and CPU consumptions in both local and remote sides. A decision engine will be developed to decide whether offloading parts of the application should be performed or not in order to optimize the battery usage of the devices and improve the responsiveness of the application. From a practical point of view, the candidate will implement the proposed algorithms on Android terminals, and evaluate their operational efficiency in a real test-bed available at LIP6.

The selected candidate will work closely with Prof. Rami Langar (rami.langar@lip6.fr) and Prof. Stefano Secci (stefano.secci@lip6.fr).

Candidate profile:

The candidate must hold a Ph.D. or Master in computer science or computer engineering with advanced knowledge of cloud architectures and virtualization techniques.
Advanced programming skills in C++/Java, knowledge of smartphone programming.
Knowledge of French is not required.

Conditions:

- Place: LIP6, Univ. Pierre and Marie Curie, 4 Place Jussieu, Paris, France.
- Duration: 18 months
- Salary: 2400€/month (after taxes)
- Expected starting date: April/May 2016

Application material:

Interested candidates should send the following documents to the two contacts listed above:
- Detailed CV including publications. Please, provide a link to the documents to download rather than attach them to your application email.
- Names and contact details of at least two referees, who are willing to provide detailed recommendation letters about the candidate.

Send your application material via e-mail with the subject line "Mobile Computation Offloading Postdoc" to rami.langar@lip6.fr and stefano.secci@lip6.fr

<h1 style="text-align:center">Postdoctoral / Research engineer call for application
Subject 2: "SDN-based Virtual RAN"</h1>

Context and Job description:
The computer science laboratory of Paris 6 (LIP6), France, invites applications for a Postdoc/Research Engineer position in the area of Software-defined Virtual RAN. This position is funded by the FUI "Elastic networks" project led by ERCOM.

The project deals with future 5G mobile networks, using the Software Defined Networks (SDN) and Virtual Radio Access Network (VRAN) concepts. SDN is a new networking paradigm facilitating network programmability and network management. It decouples the control plane from the data plane in network equipment, transforming switches and routers into simple forwarding devices that apply rules sent by a remote controller using a standard protocol. On the other hand, VRAN offers the capability of creating multiple instances of RANs upon the same physical equipment and calibrating their capacities on demand. Each instance of VRAN will be associated to one Mobile Virtual Operator (MVO), this way offering the RAN as a Service (RANaaS). Accordingly, available physical resources are exploited by different MVOs, which enhance the revenue of the VRAN provider. Thanks to the virtualization technology, the isolation between VRANs is guaranteed and hence performance and security interferences are minimized.

Each VRAN instance can host a traditional cellular network, in which the eNodeB is virtualized. In this project, the cellular network will be based on the Cloud-RAN architecture in which the entire control plane is centralized in the Base Band Unit (BBU) and manages the Remote Radio Heads (RRHs).

In this context, the focus of the Postdoc/Research Engineer position will be on designing, implementing and deploying the VRAN infrastructure leveraging the SDN concept. Specifically, the candidate will:

1. Perform an in-depth related work-study on virtualization technologies, which can be used to deploy virtual BBUs. Then, choose the best environment working with the project partners.
2. Collaborate with researchers from LIP6 to design and analyze efficient resource allocation algorithms for the VRAN provider, in order to maximize its revenue and satisfy the QoS.
3. Implement the proposed algorithms on the SDN controller, leveraging open source technologies, such as OpenFlow, Floodlight, and OpenStack, and evaluate their operational efficiency in a real test-bed in collaboration with the different partners of the project.

The selected candidate will work closely with Prof. Rami Langar (rami.langar@lip6.fr), Dr. Nadjib Aitsaadi (nadjib.aitsaadi@u-pec.fr) and a new Ph.D. student to be hired within this project.

Candidate profile:
The candidate must hold a Ph.D. or Master in computer science or computer engineering with advanced knowledge of cellular networks, cloud architectures and virtualization techniques.
Advanced programming skills in C++/Java, knowledge of SDN controllers is a plus.
Knowledge of French is not required.

Conditions:
- Place: LIP6, Univ. Pierre and Marie Curie, 4 Place Jussieu, Paris, France.
- Duration: 18 months
- Salary: 2400€/month (after taxes)
- Expected starting date: April/May 2016

Application material:
Interested candidates should send the following documents to the two contacts listed above:
- Detailed CV including publications. Please, provide a link to the documents to download rather than attach them to your application email.
- Names and contact details of at least two referees, who are willing to provide detailed recommendation letters about the candidate.

Send your application material via e-mail with the subject line "SDN-based Virtual RAN Postdoc" to rami.langar@lip6.fr and nadjib.aitsaadi@u-pec.fr