**Beyond the Clouds:  How Should Next Generation Utility Computing Infrastructures Be Designed to Solve sustainability and efficiency challenges?**

To accommodate the ever-increasing demand for Utility Computing (UC) resources, while taking into account both energy and economical issues, the current trend consists in building larger and larger data centers (DCs) in a few strategic locations. Although such an approach enables to cope with the actual demand, it is far from delivering sustainable and efficient UC infrastructures.  In addition to requiring the construction of important structures (energy sources, buildings and all the materials that come with) and the deployment of the corresponding network infrastructure to reach each facility, offshore mega DCs  (i.e. DCs composed of tens of thousands resources) exacerbates the inherent limitations of the Cloud Computing model in terms of legality/jurisdiction concerns, reliability issues, and network overheads.

**In this talk, we will present the Beyond the Clouds action, a research initiative that proposes to leverage any facilities available through the Internet backbones in order to deliver widely distributed UC platforms that can solve most of the current cloud computing challenges by better matching the geographical dispersal of users as well as the unending demand.**

Although it involves radical changes in the way resources are managed, leveraging computing resources close to the end-users will enable to deliver a new generation of highly efficient and sustainable UC platforms, thus providing a strong alternative to the actual UC model based on mega DCs (i.e. DCs composed of tens of thousands resources).

*-- THIS PART CAN BE REMOVED IF NEED BE --*

Critical to the emergence of such Locality-based UC platforms is the availability of appropriate operating mechanisms. Some protagonists of

Cloud federations would argue that it might be possible to federate a significant number of micro-Clouds hosted on each PoP. However, federated approaches aim at delivering a brokering service in charge of interacting with several Cloud management systems, each of them being already deployed and operated independently by at least one administrator. In other words, current federated approaches do not target to operate, remotely, a significant amount of UC resources geographically distributed but only to use them.

*-- END OF OPTIONAL PART --*

The main objective of the ``Beyond the Clouds’' action is to design, implement, demonstrate and promote the LUC Operating System (OS), a unified system in charge of turning a complex, extremely large-scale and widely distributed infrastructure into a collection of abstracted computing which is efficient, reliable, secure and friendly to operate and use.

Further information is available on the ``Beyond the Clouds’’ action:

http://beyondtheclouds.github.io