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Federation or How to build an Internet of testbeds

Abstract

Experimentally driven research is an important approach to assess original design for the Internet. Many initiatives have emerged to better organize the various contributions, testbeds and tools (GENI, FIRE). The solutions developed in these contexts have matured and are in a situation where researchers can go beyond sharing best practices, federating diverse technologies and communities. The concept of federation is central to address the complexity of a polymorphic Internet (and associated testbeds) and federation standards and policies should be defined at different layers of the network architecture in order to ensure interoperability and maximum connectivity of users and services. This talk will present the latest development in the context of testbed federation. It will highlight a potential candidate for a federation architecture, its main requirements and tools. We will cover issues related to API, authentication, resource description, reservation and policies. The talk will be illustrated with the OneLab facility that is now available to the community and provide a blended access to IoT, wireless and overlay technologies.

Biographical Sketch

Serge FDIDA is a Professor at University Pierre & Marie Curie since 1995. He is/was leading or involved in many research projects in High Performance Networking in France and Europe, and was/is the coordinator of WIP (IST FP6 - An All Wireless Mobile Network Architecture), ONELAB, ONELAB2 and OPENLAB (IST FP6&7 - An Open Laboratory Supporting Network Research Across Heterogeneous Environments). Currently, he is also leading the Equipex FIT, laureate of a national stimulus funding competition, developing a large-scale testbed on the Future Internet of Things. Serge Fdida has also developed an experience related to innovation and industry transfer. He was the Director of EURONETLAB, a joint laboratory established in 2001, between Academia and Industry, developing collaborative research on the wireless Internet. He is also a co-founder of the Qosmos Company.   From 2000 to December 2005, he was appointed scientific adviser with CNRS-STIC (French National Scientific Research Center / Information Science & Technology). In addition, he was also the Vice-President of the RNRT (French national Research Network in Telecommunications), involving the industrial, academic and government actors in France. He has been Vice-President in charge of International Affairs at UPMC from 9/2011 to 12/2011 and is now VP Europe since 4/2012. Serge Fdida holds the "Palmes Académiques" Award. He is a senior member of IEEE and a Distinguished ACM Member.