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FUTURE INTERNET TESTBEDS EXPERIMENTATION BETWEEN BRAZIL AND EUROPE

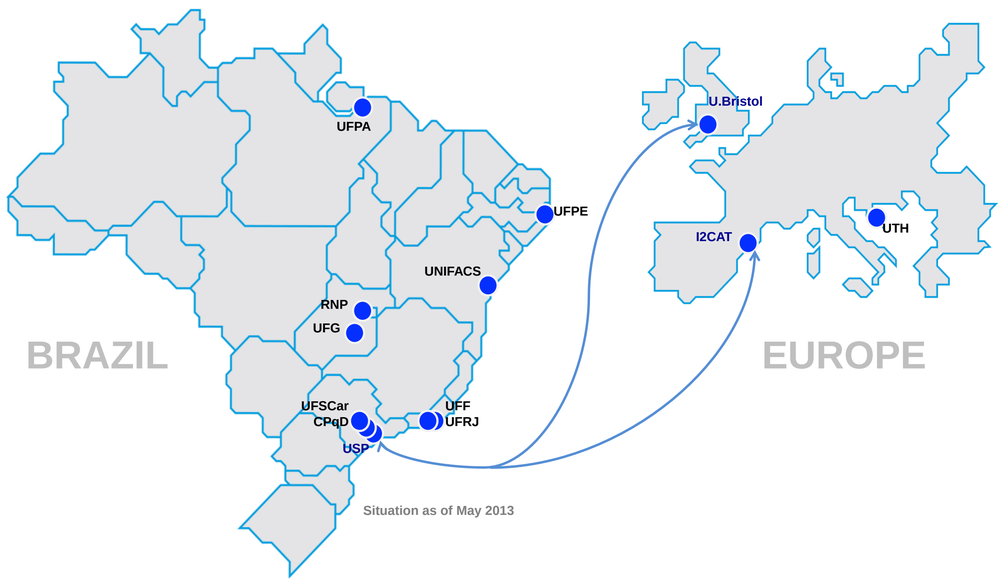
FIBRE - Intercontinental Testbed for Future Internet Experimentation

Sebastia Sallent[1], Antonio Abelém[2], Iara Machado[3], Leonardo Bergesio[1], Serge Fdida[4], José Rezende[5], Dimitra Simeonidou[6], Marcos Salvador[7], Leandro Ciuffo[3], Leandros Tassiulas[8] and Carlos Bermudo[1]

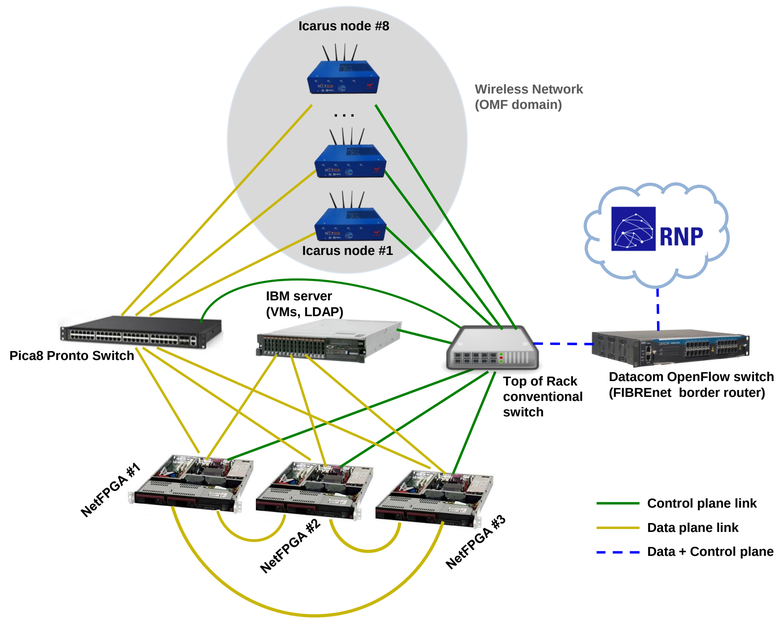
[1] {sebastia.sallent, leonardo.bergesio, carlos.bermudo}@i2cat.net | [2] abelem@ufpa.br | [3] {iara, leandro.ciuffo}@rnp.br | [4] serge.fdida@lip6.fr | [5] rezende@land.ufrj.br | [6] dsimeo@essex.ac.uk | [7] marcosrs@cpqd.com.br | [8] leandros@uth.br

EXPERIMENTAL ISLANDS

With the globalization of experimental FI research, there has been considerable interest in the federation of distinct testbed facilities, in order to permit carrying out experiments that span multiple testbeds. Federation is a key issue in the design of the FIBRE testbed, which is being deployed as a federation of 13 local experimental facilities (a.k.a. “islands”).



A TYPICAL BRAZILIAN ISLAND

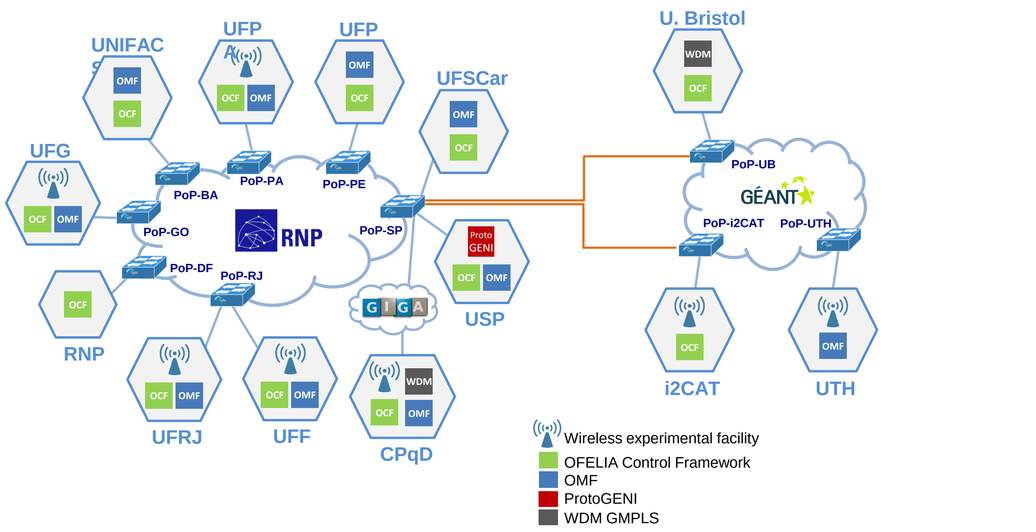


CONTROL FRAMEWORKS

OFELIA Control Framework (OCF) was originally created in the context of the OFELIA testbed project [www.fp7-ofelia.eu] but today it is supported by a larger community where FIBRE and GEANT are present. OCF is synchronized with other initiatives in USA (GENI) and follows an SFA-oriented architecture (Slice-based Facility Architecture).

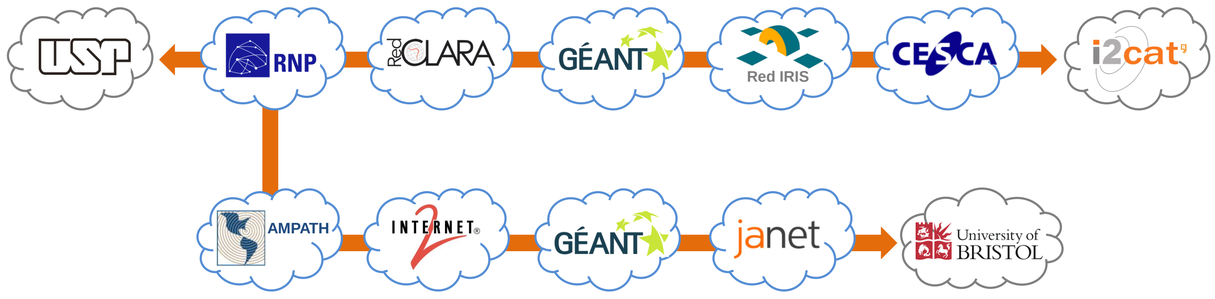
OMF is a framework with the focus on controlling and managing network devices. It was developed based on XMPP in the Ruby language. The OMF suite also provides OML (OMF Monitoring Library), which allows instrumentation of applications for collecting measurements.

ProtoGENI is a control and monitoring based on an enhanced version of the Emulab management software. The Emulab testbed is used to perform experimental research on distributed systems. ProtoGENI was created to provide the integration between Emulab and other testbeds in order to build the Cluster C facility of GENI.

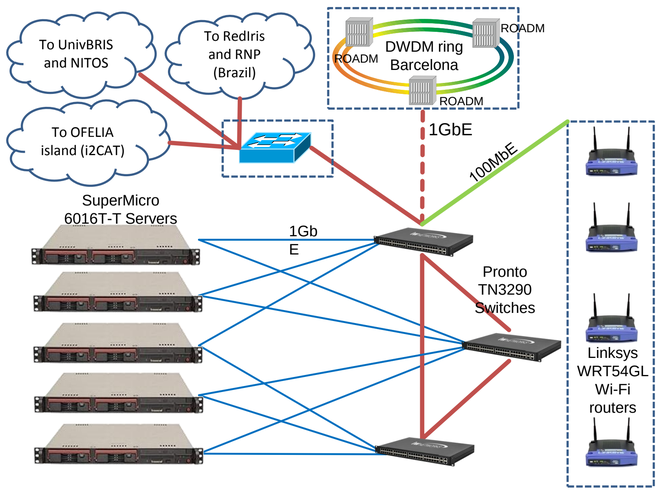


NETWORK LIGHTPATHS

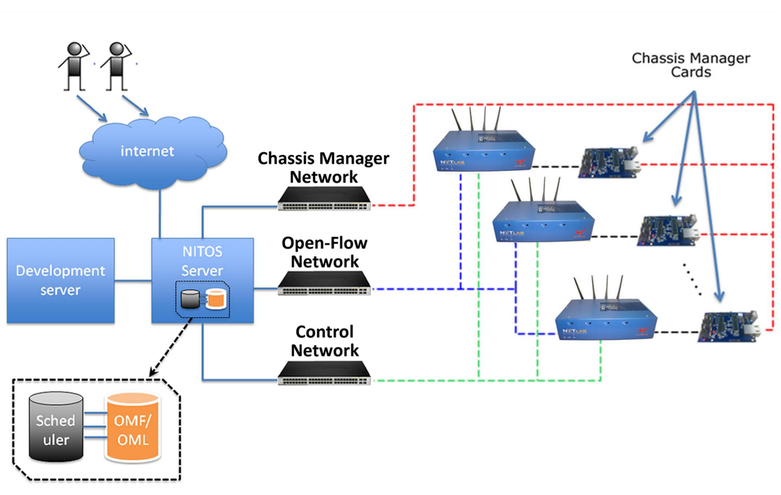
The physical interconnection of Brazilian and European islands is deployed through two point-to-point circuits (a.k.a. *lightpaths*) linking FIBRE´s Brazilian gateway at the University of Sao Paulo (USP, Brazil) to i2CAT (Spain) and University of Bristol (UK), spanning multiple network domains.



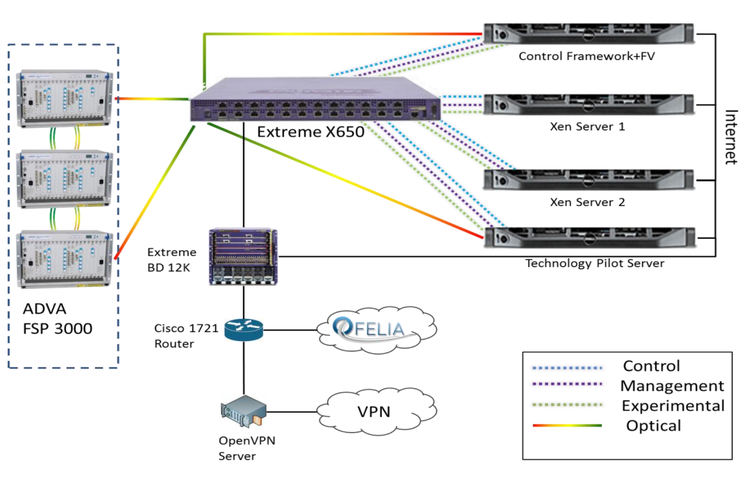
EUROPEAN ISLANDS



i2CAT (Spain)



UTH (Greece)



U. Bristol (UK)

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