**RNP’s interest in FABRIC**

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On behalf of RNP: Brazil’s National Education and Research Network

Since 2011, RNP[[1]](#footnote-1) is engaged in supporting Experimental Research Infrastructures. Firstly, with the design and implementation of FIBRE testbed[[2]](#footnote-2), in cooperation with European partners but also inspired in US research facilities such as GENI. More recently, with the deployment of Cloudlab-BR testbed, inspired in both Cloudlab-US and Chameleon. Additionally, RNP also coordinates project calls on ICT, having also coordinated joint calls with EU and NSF.

Our main expertise regards building experimental research infrastructures in cooperation with academia, following a federation model, and later offering this infrastructure as a service.

Our vision and topics of interest to work on to evolve experimental facilities comprises:

* Offering access to experimental facilities to academia, SMEs, startups and technology parks (what are the user requirements, most suitable tools and interfaces?).
* Providing multidomain slice-based resource provisioning among different research infrastructures.
* Providing resource allocation and programmability of heterogeneous resources (including IoT sensors) using one single control framework.
* Adopting new intelligent self-management practices, with less human intervention.
* Facilitating the integration of experimental results with open research data repositories.
* Federating experimentation facilities.
* Creating and adopting sustainability and costs models for testbeds.

Additionally, RNP also has a long history of supporting data-driven science by helping scientific communities concerning new approaches to advanced network. Some examples of such activities include:

* Supporting the first uncompressed 4K streaming from Brazil to USA and Japan (2009).
* Supporting Astrophysics community to participate in Dark Energy Survey (DSS), Sloan Digital Sky Survey (SDSS) and Large Synoptic Survey Telescope (LSST) projects.
* Supporting HEP community in joining LHCOne network and running demos at Supercomputing conference.
* Supporting Enlighten Your Research program.
* Disseminating the Science DMZ model in several campi in Brazil, following best practices disseminated by ESnet and Pacific Research Platform.

And finally, RNP is engaged with the National Laboratory of Scientific Computing (LNCC) in a proposition of an *eScience Support Center*, with the mission to offer “Cyberinfrastructure-as-a-Service for e-Science projects”.

Participating in the design phase of FABRIC, and eventually hosting a FABRIC node and/or replicating FABRIC model in our national testbed (FIBRE), is also an opportunity to learn and execute R&D projects to evolve our academic network. Also, by having a FABRIC node in Brazil would allow to: interconnect and federate both testbeds; execute experiments among Brazilian and US researchers involving all facilities interconnected by FABRIC; and serve as a hub to interconnect another NRENs in South America and Africa. The main interests of RNP at the moment repose on network programmability and native-cloud applications. However, the large Brazilian computer science community certainly would bring another interesting use cases aligned with the stateful network paradigm supported by FABRIC.

1. <https://www.rnp.br/en/about/who-we-are> [↑](#footnote-ref-1)
2. <https://www.fibre.org.br/infrastructure/resources/> [↑](#footnote-ref-2)