

INTERNET2

2022  
TECHNOLOGY  
exchange

GIdLab: Experimentation Lab for Trust and Identity RD&I Projects

Michelle Wingham

RD&I Advisor at RNP





*“When you need to innovate you need collaboration”* - Marissa Mayer

# —● Agenda



Introduction



GldLab Infrastructure



Experimental Projects



Challenges and Opportunities

# Brazilian NREN

~800 Institutions  
45 metropolitan  
networks  
27 PoPs  
+ 4 million users

# RINIP

ORGANIZAÇÃO SOCIAL DO MCTI

Research,  
Development  
& Innovation

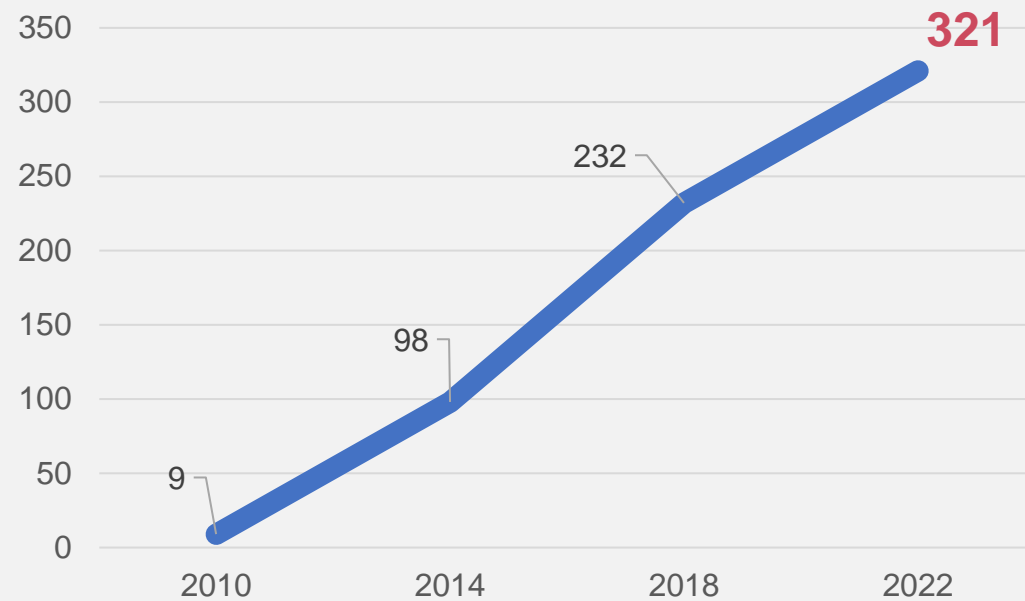
GidLab Service

Services  
&  
Solutions

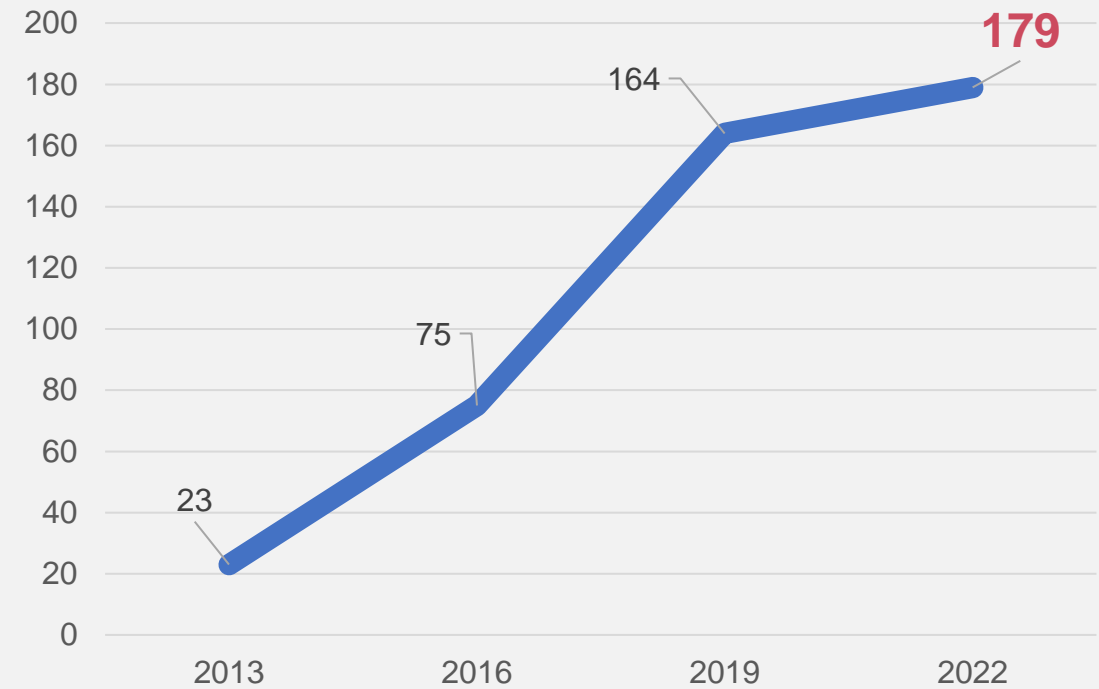


# IdM Services

## NUMBER OF SHIBBOLETH IDPs



## NUMBER OF INSTITUTIONS





# Brazil now has one of the largest eduroam networks in the world

This year, for the first time, Brazil became the country with the largest eduroam network in the world in terms of number of different locations. This means that more than 3,000 spaces spread across the country offer secure Wi-Fi to



Community

Also present in around 100 other countries, eduroam has been managed and operated in Brazil by the National Education and Research Network (RNP) since 2012.

- In 2014, Porto Alegre became the first city in Latin America to offer access to eduroam in public places. There are now 15 connection points distributed
- RNP is also implementing eduroam at public Wi-Fi points in 40 squares across 20 cities in the northeast region of the country through the Nordeste Conectado project, with support from the

“Since the launch of eduroam in Brazil in 2012, we have sought partnerships that would enable its expansion, both in Higher Education Institutions and in public environments that would allow access to secure Wi-Fi service for the academic community. In recent years, we have expanded its reach, and with the establishment of new partnerships more recently, we are taking eduroam outside institutional walls, and expanding to other public places with wide access. The recognition as the largest eduroam network in

ARTICLE IN CONNECT MAGAZINE

## — Motivation

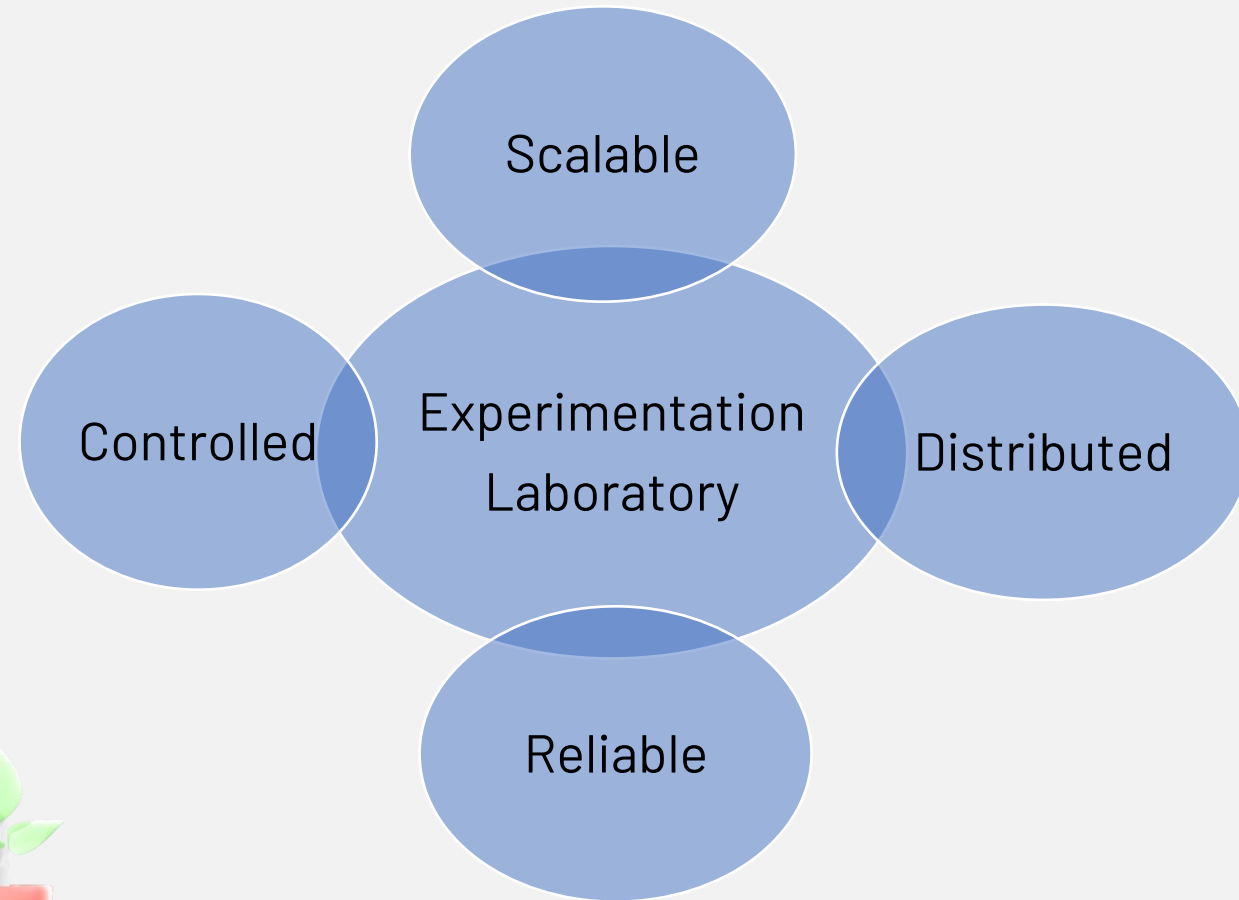
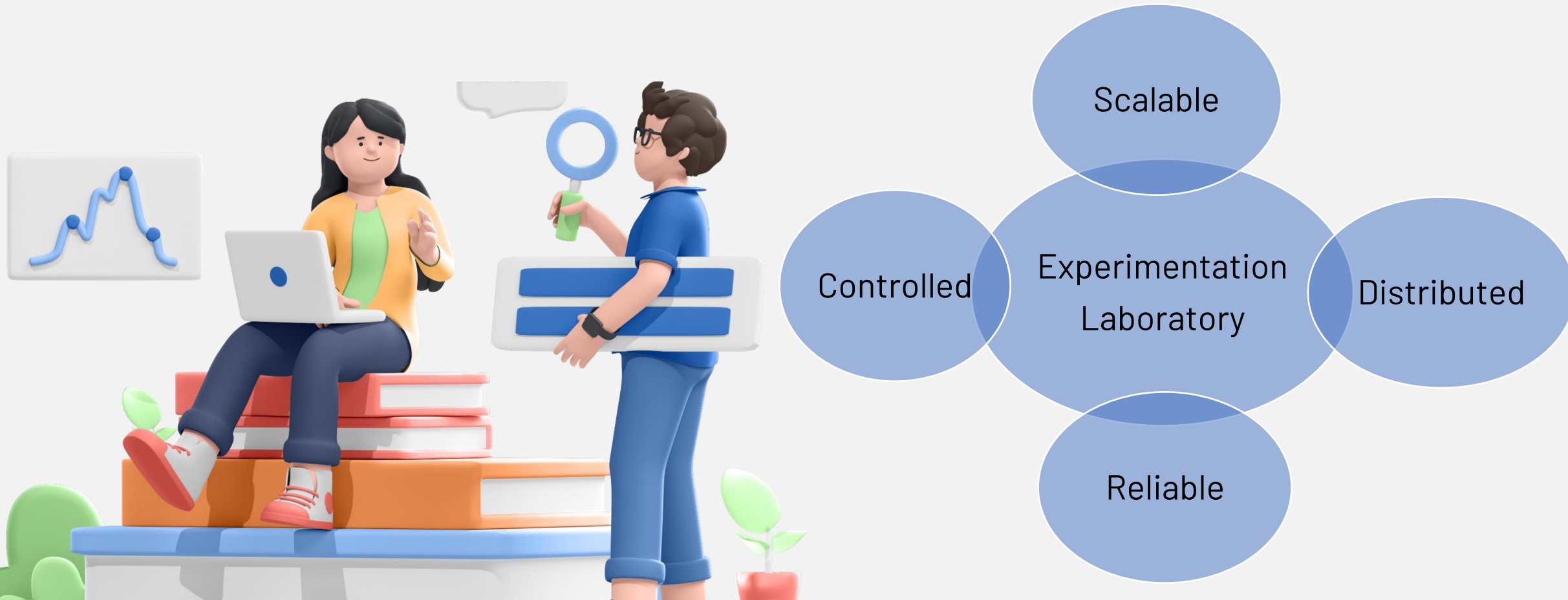


Setting up a proper IdM infrastructure

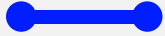
Arduous and time-consuming

Discard their exploratory environments

# — Developing applied research







RD&I consultancy with a tailor-made lab

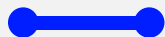


Set of AAI ready to be used



Open infrastructure





Researchers from RNP projects



RNP's developers



Other HEI researchers from Brazil and Latin America





# Our brief history...



# GldLab Team

## Scholarship students



Airton Ribeiro (UFV)



Lucas Couto (UFF)

## System Analyst



Fiterlinge Sousa (RNP)

## Academic coord.



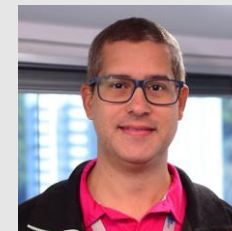
Michelle Wingham  
(UNIVALI/RNP)

## R&D coord.



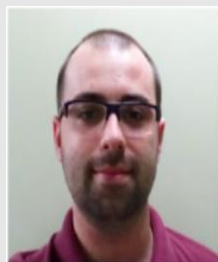
Carolina Felicissimo  
(RNP)

## Service Manager



Gustavo Dias (RNP)

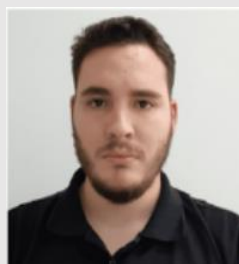
## Collaborating researchers



Felipe Cardoso (IFSC)



Sarom Torres (BrainyIT)



Allex Magno (Adyen)



Edelberto Franco (UFJF)



Emerson Mello (IFSC)

## Roles and responsibilities

Service Manager

manages the resources needed to offer the service

R&D coordinator

acts as the owner of the service, keeping academic execution in line with the RNP strategy

Academic coordinator

guides the activities of students in carrying out the experiments

System Analyst

operation aid, acquiring and structuring knowledge from projects.

Scholarship students

carry out academic activities (experimentations)

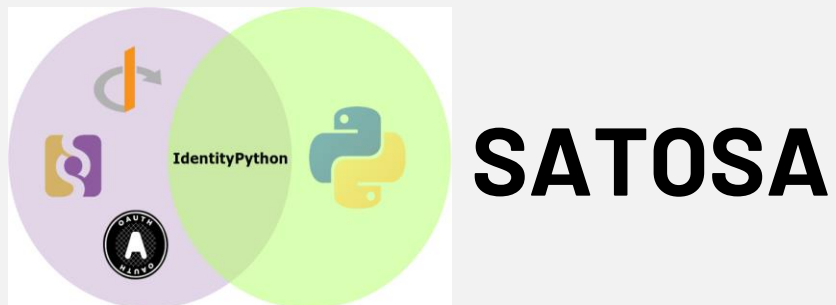
Collaborating researchers

act as volunteers in project orientation and technology transfer activities

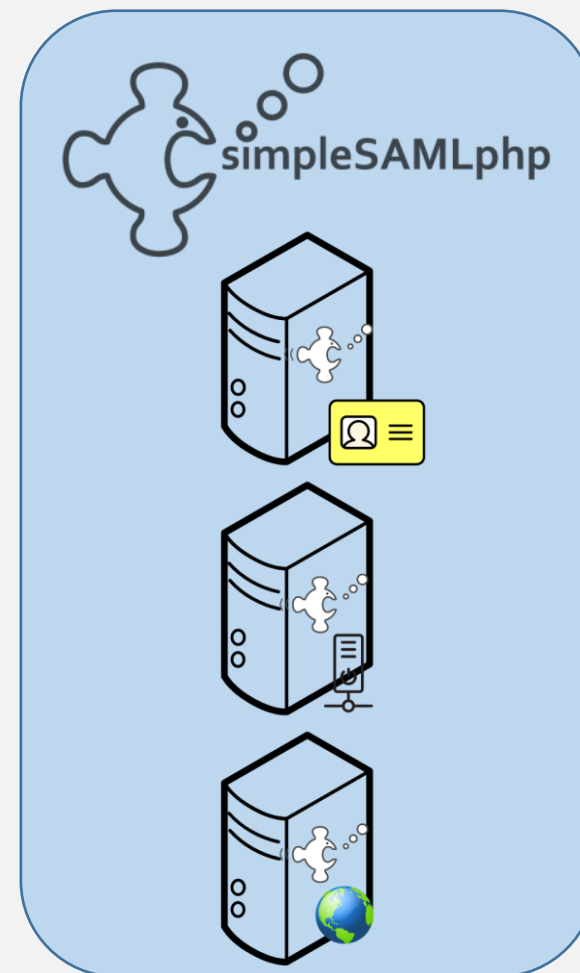
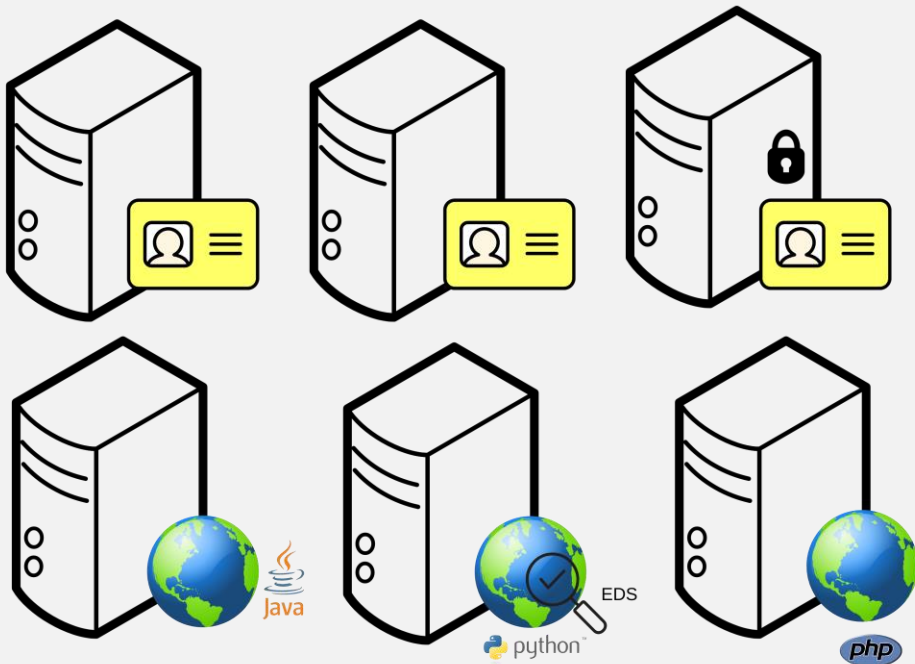


# GIDLab Infrastructure

## — GIDLab Infrastructure



# CAFe Espresso

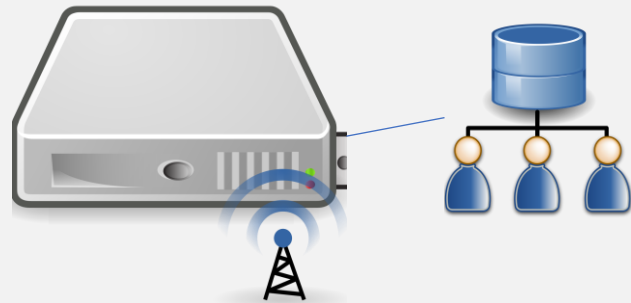




# — Eduroam Testbed

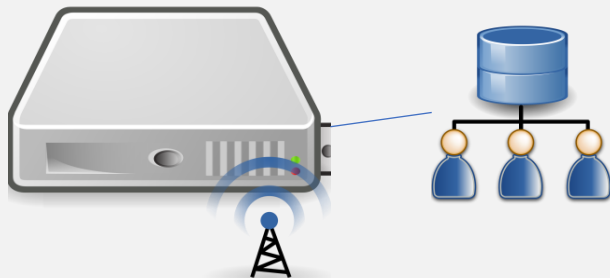


*IdP-local1 RADIUS Server*



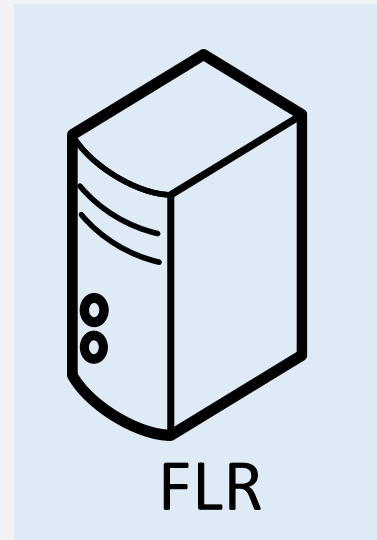
eduroam-local1.gidlab.rnp.br

*IdP-local2 RADIUS Server*



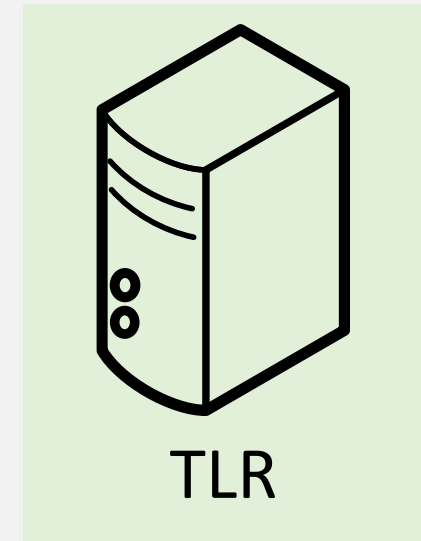
eduroam-local1.gidlab.rnp.br

*Federation Level RADIUS Server*



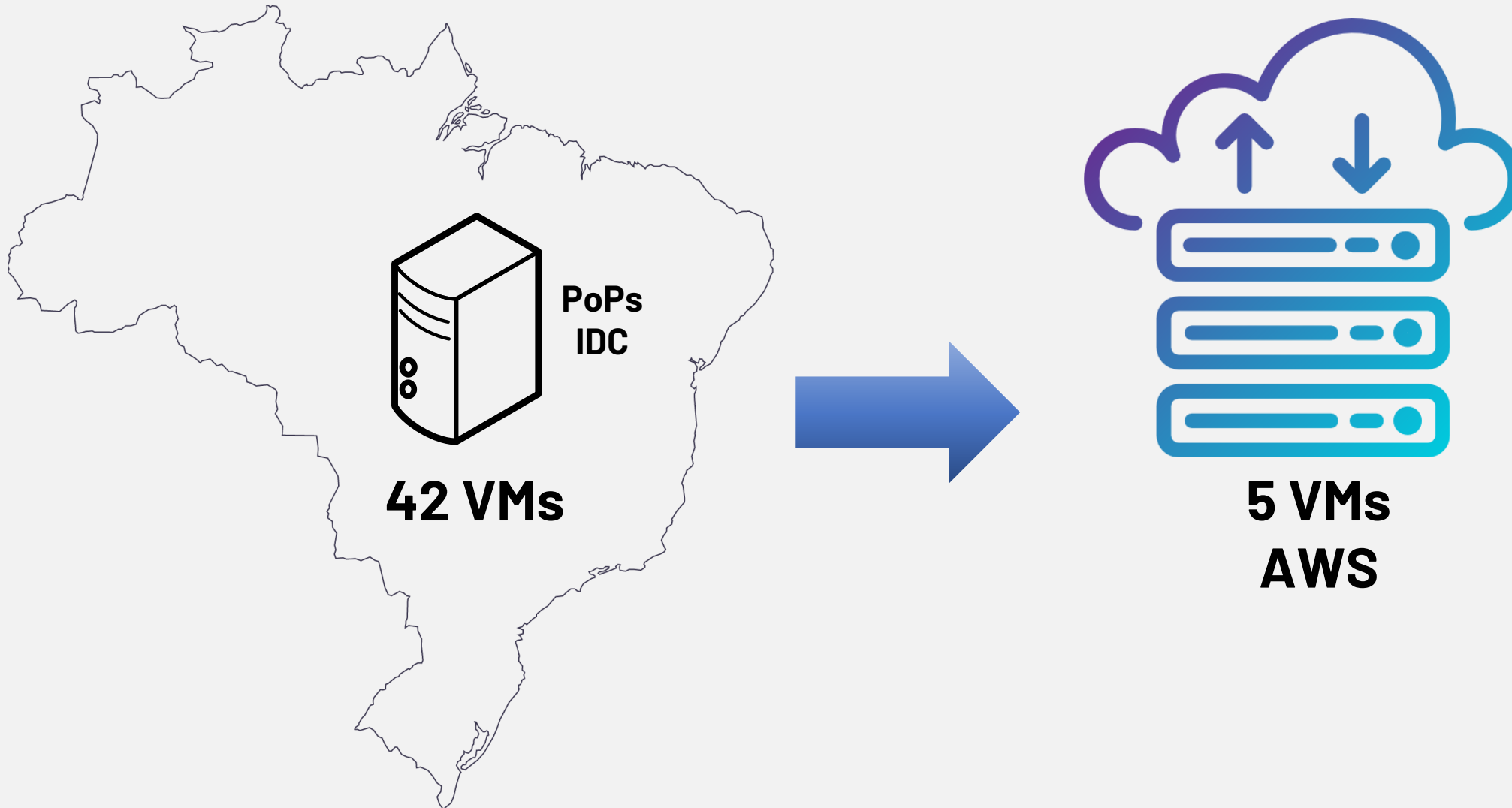
eduroam-flr.gidlab.rnp.br

*Top-level RADIUS Server*



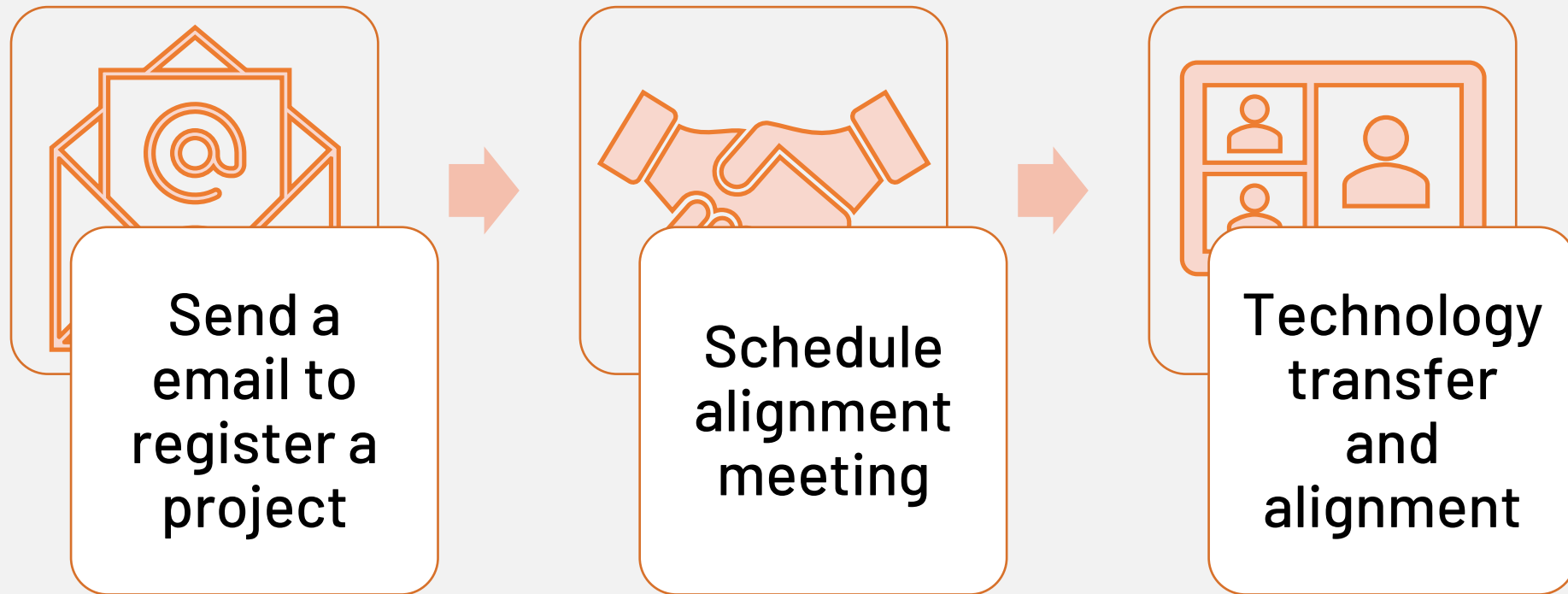
eduroam-trl.gidlab.rnp.br

# — GIDLab:Virtual Machines



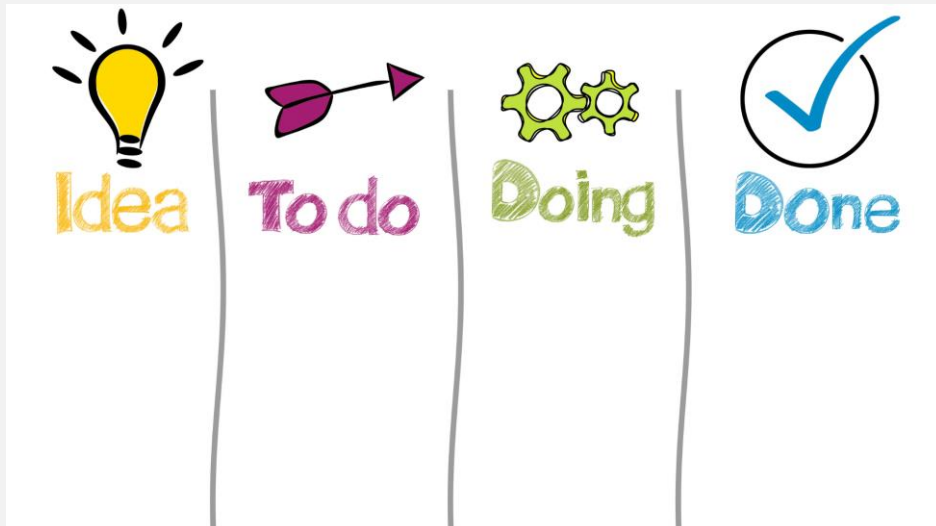


## How to use the GldLab service?



# Project/service management

Agile project management  
with Kanban

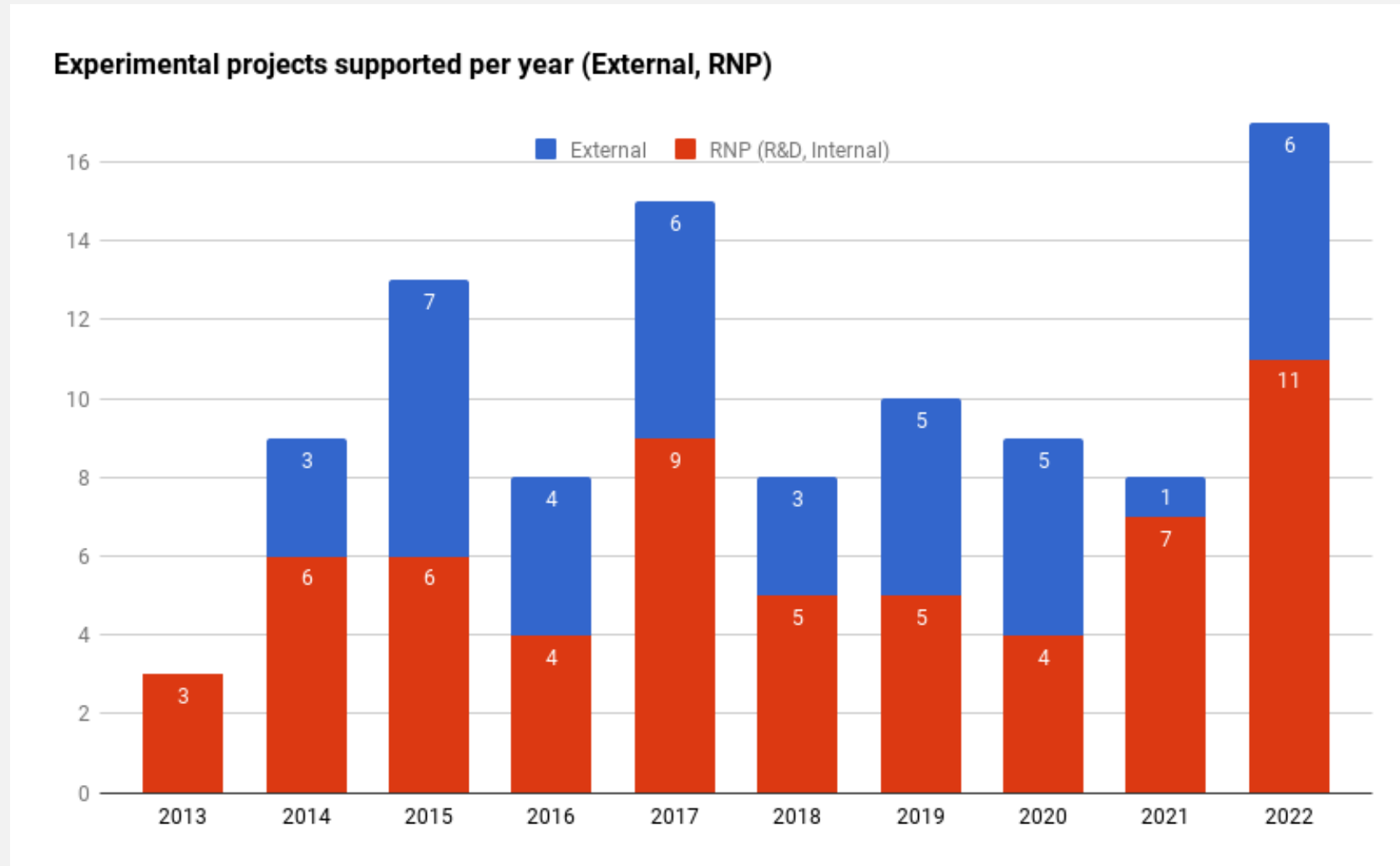


- TopDesk
- Trello
- Slack (GidLab team)
- Google slides, GoogleDocs
- GitLab (public and private)
- Wiki (internal documentation)
- RNP WebConference (recordings)



# Experimental Projects

# — 98 Experimental Projects (10 Years)



# — Statistics



75% CAFe Expresso (Shibboleth)

27 SPs (PoCs) – Python, Java and PHP

5 IdPs

11 SimpleSAMLPHP

3 eduroam testbed

9 OpenID Connect

5 Proxies

## —• 10 top research topics in GIdLab

1. Interoperability between IdM Systems
2. Implicit authentication
3. Non-Web Authentication
4. IoT Device Authentication
5. Virtual Organizations – VO
6. Integration with cloud solutions
7. Federation and eduroam monitoring
8. Self Sovereign Identity
9. Attribute-based access control mechanisms
10. Federated application development





A close-up photograph of a person's hand holding a stack of five wooden blocks. The blocks are stacked vertically, with the top block being yellow and the others alternating in color (yellow, red, yellow, yellow). The words on the blocks are: INSPIRATION (top, yellow), TEAMWORK (second, yellow), COLLABORATION (third, red), SUCCESS (fourth, yellow), and TRUST (bottom, yellow). The hand is positioned on the left side of the frame, with the thumb and index finger gripping the side of the stack. The background is a plain, light-colored surface.

**INSPIRATION**

**TEAMWORK**

**COLLABORATION**

**SUCCESS**

**TRUST**



What is the value proposition of  
GidLab for experimenters?

## Value proposition of GidLab



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Reduce the learning curve  
in using and integrating  
Gid technologies

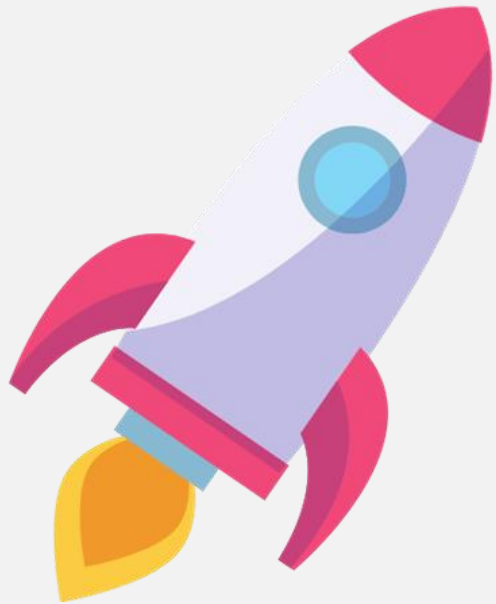
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Cost reduction for  
developing solutions that  
require authentication  
and authorization



# Challenges and Opportunities

## — RD&I Project – Evolution of GldLab (6 months)



*Ongoing project*

### **Experimentation with Decentralized Identity**

experimentation LAB for SSI with  
blockchain, based on the  
Hyperledger INDY

### **Eduroam and 5G**

literature review and for mapping  
the requirements on the  
integration of the eduroam  
service with 5G mobile networks.

# — How to evolve GidLab?

Scale team with greater predictability of resources

More academic partners or IAM experts

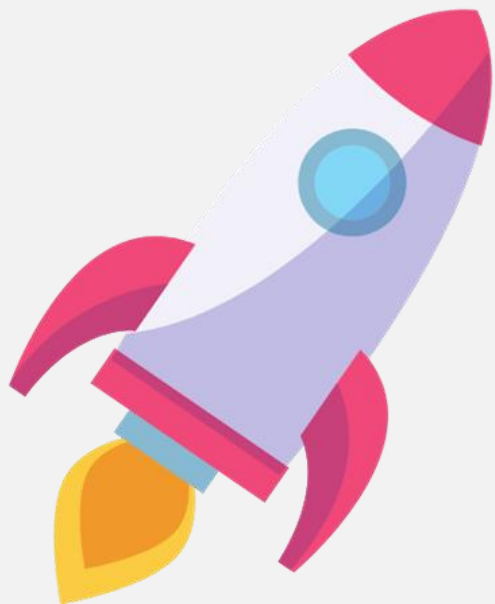
RNP's business areas help in the sustainability of the service

More scholarship students



Where do we want to go in the coming years?

## GldLab Future



Have a good quality service that helps RNP in decision-making in IAM



Increase the human capital that knows and develops IAM solutions



Longer evolution projects to address more complex problems



International partners to collaborate and use the GldLab



# Thanks! Q&A

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DEFESA

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CIÊNCIA, TECNOLOGIA  
E INOVAÇÕES





*When spiders weave together,  
they can kill a lion*

- African proverb