FIBRE 1st Partial review

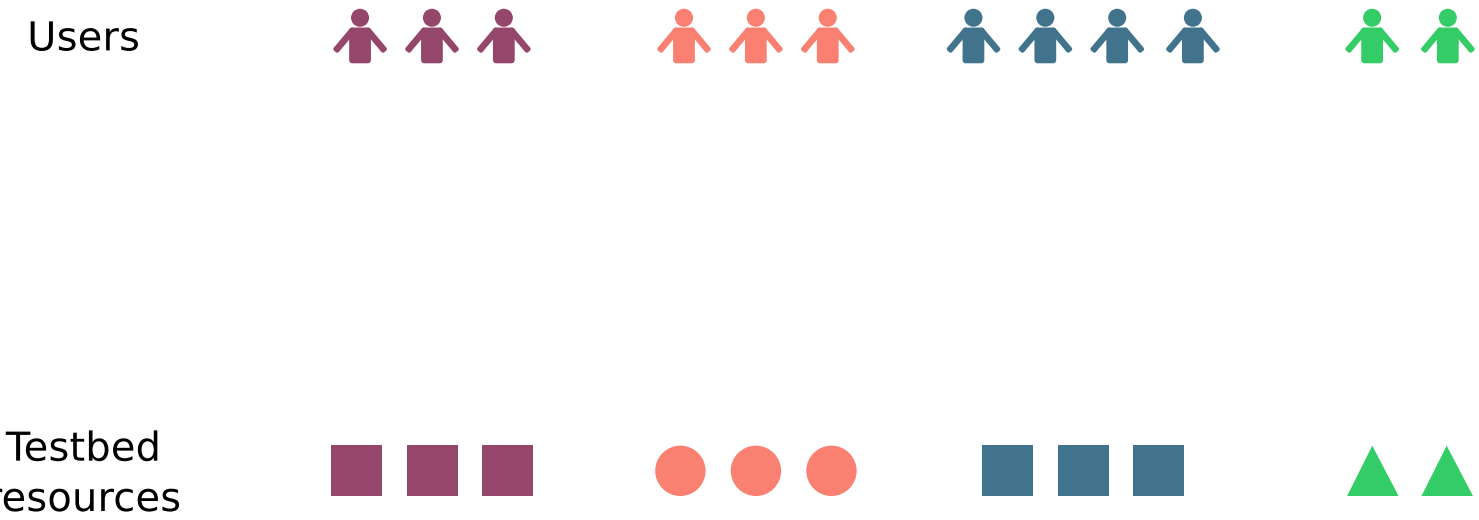
WP4: Federation of facilities

WP4 objectives

Objective is to federate the Brazilian and European sides of the FIBRE testbeds.

- This means federating across countries and also across technologies, as the NITOS (wireless/OMF) and OFELIA (OpenFlow) islands will initially operate independently
- In addition, issues related to the physical interconnection of the various islands will be managed in this work package

What researchers want



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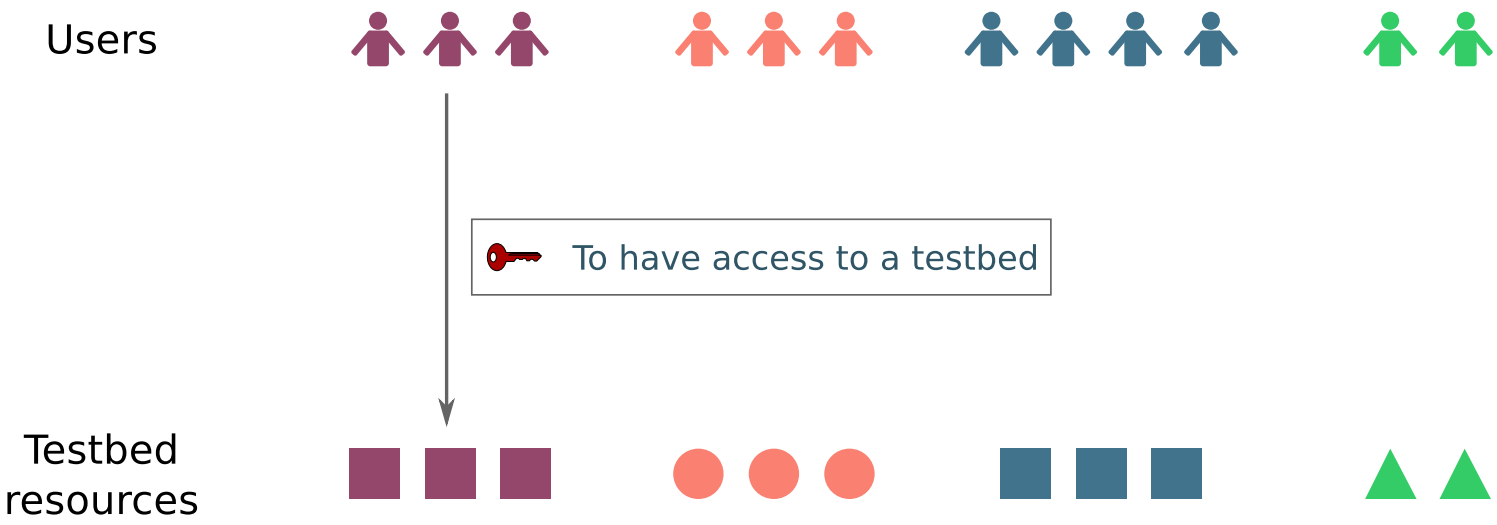

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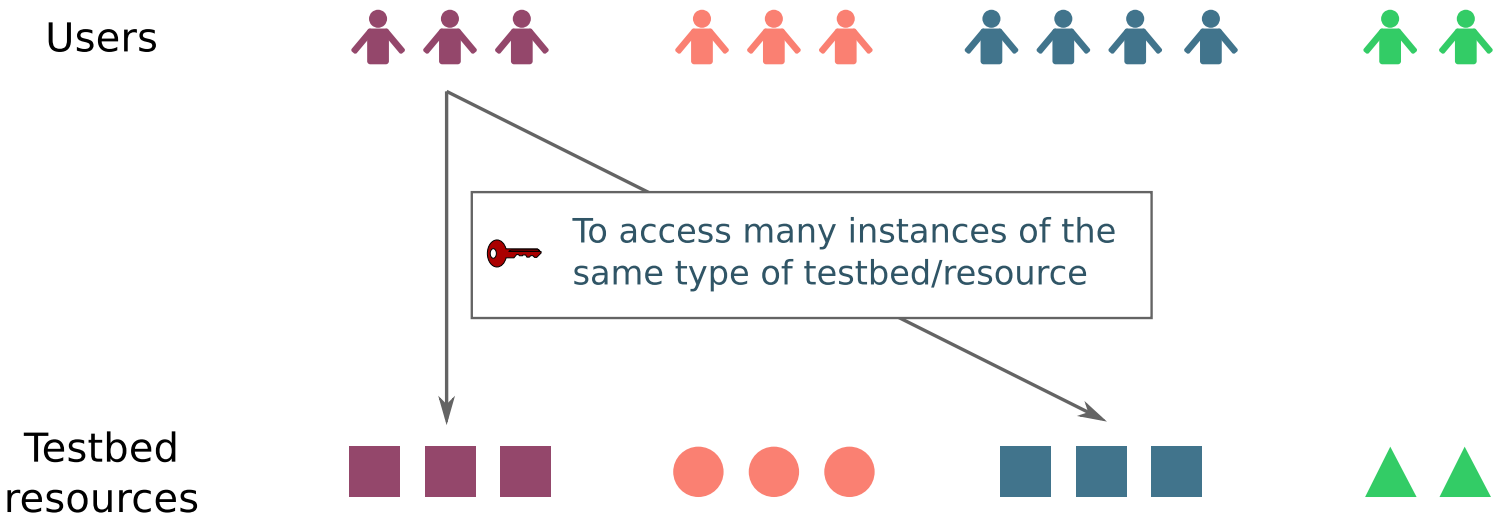

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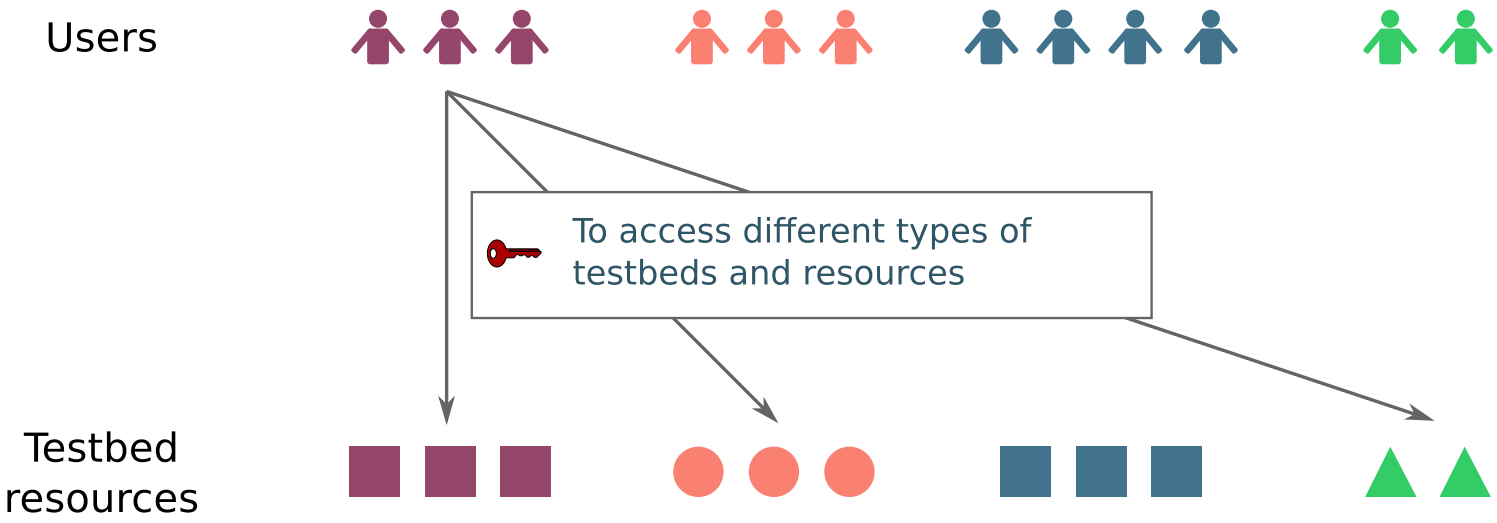

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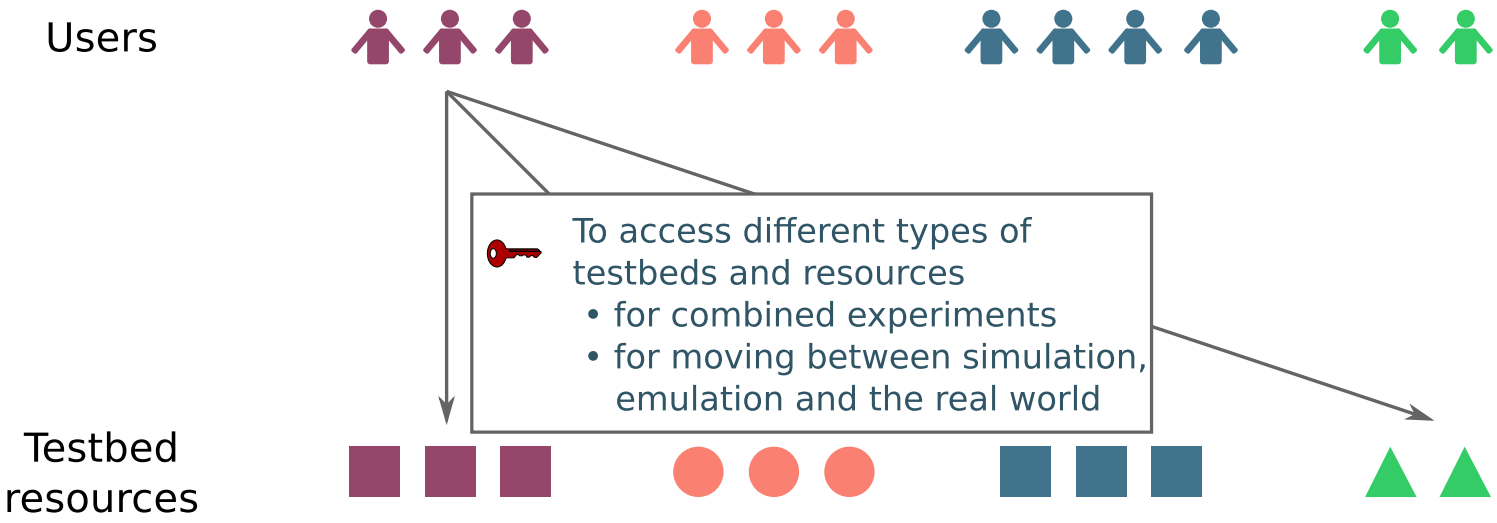

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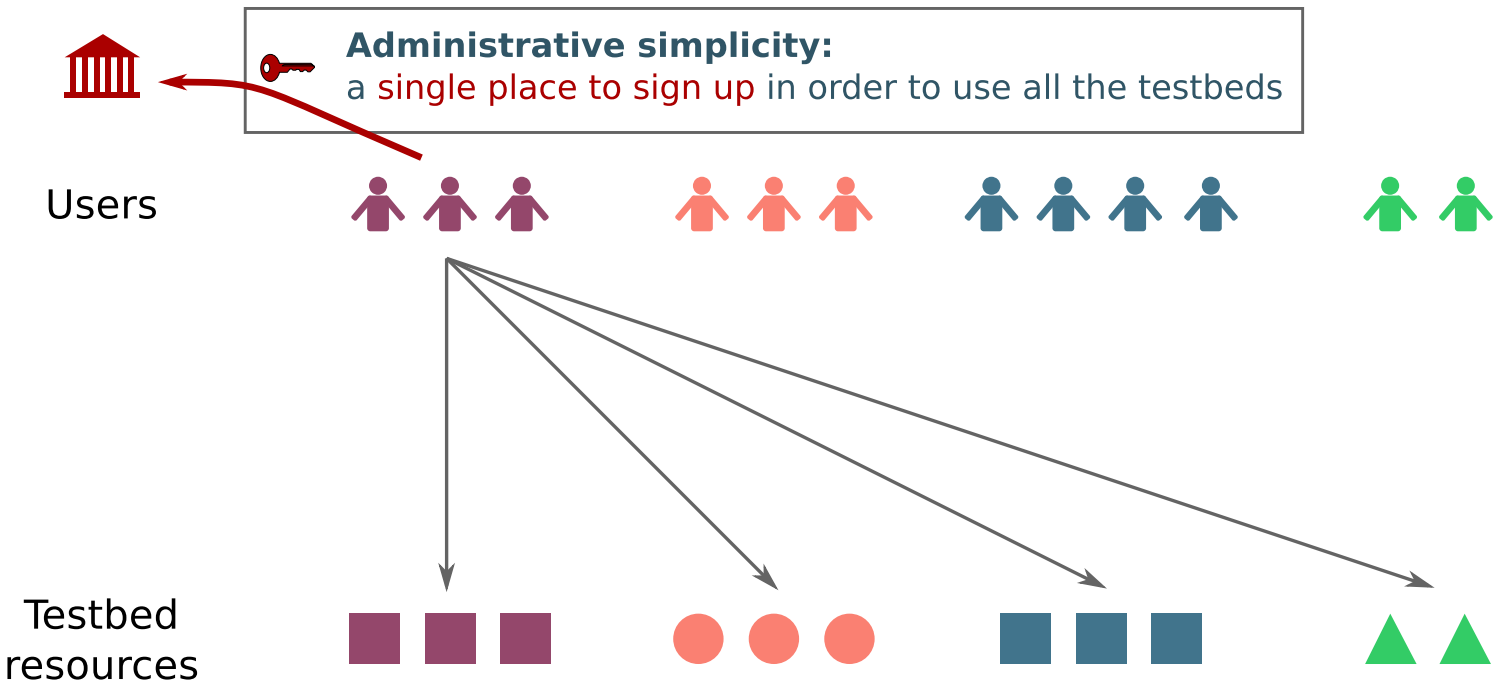

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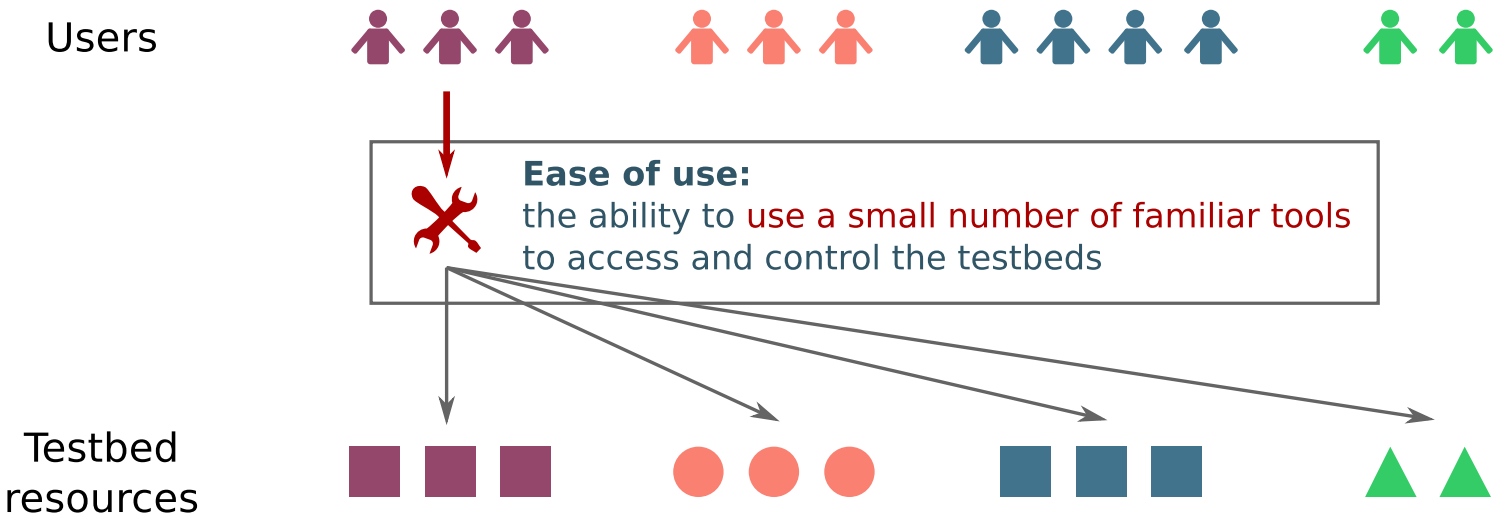
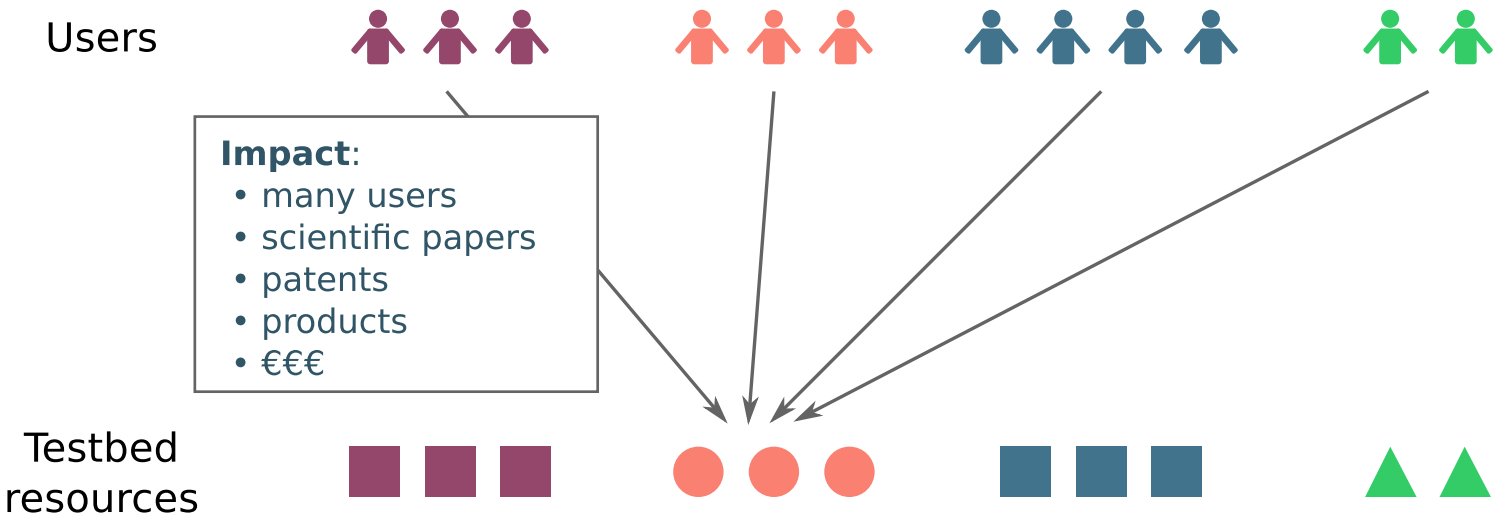
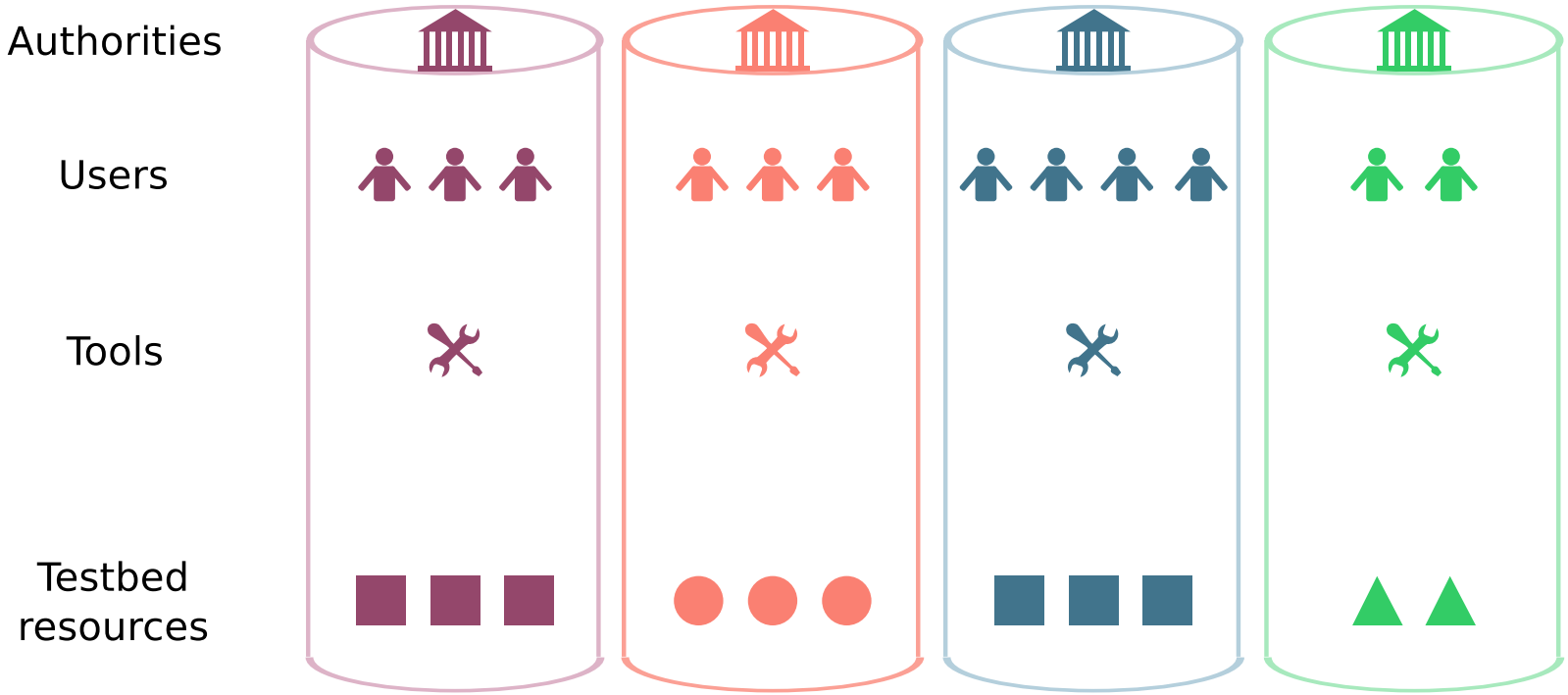


What testbed owners want



Where we were recently



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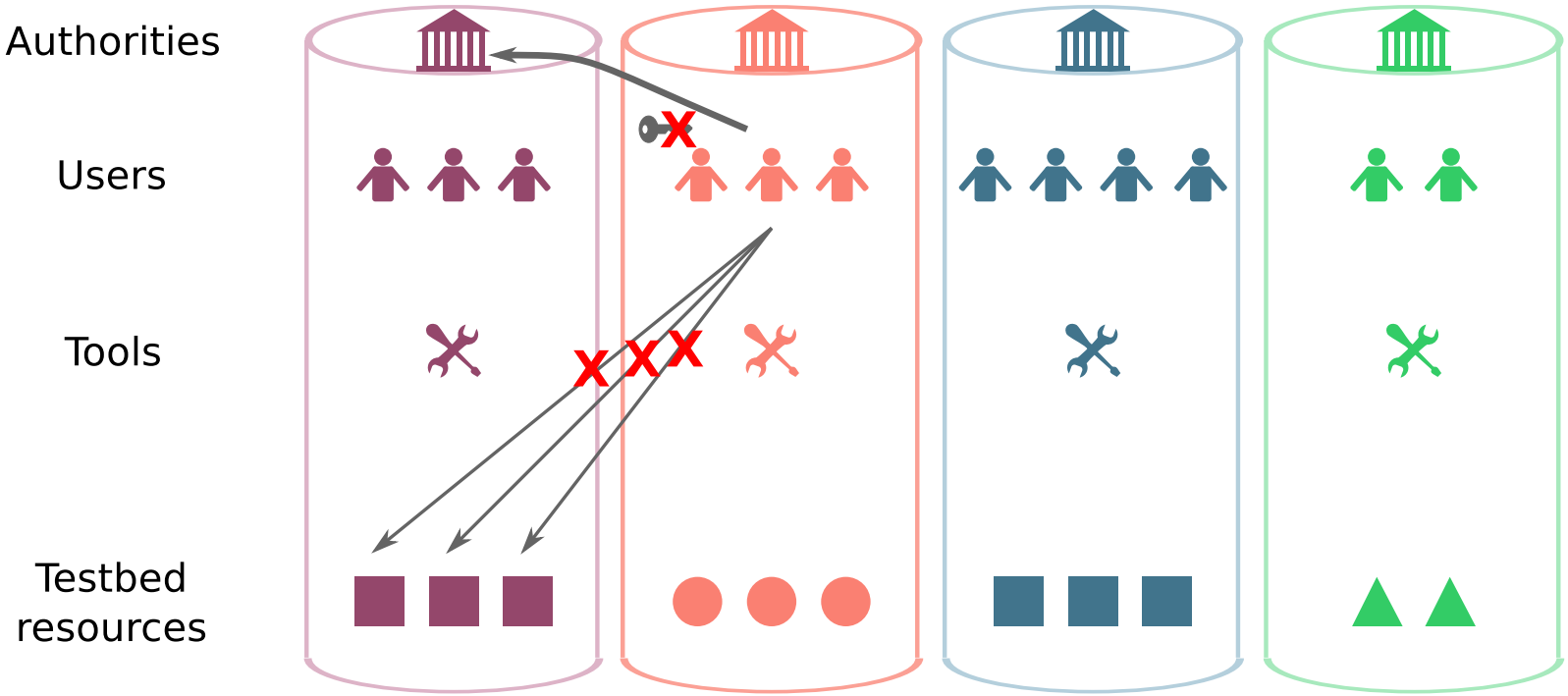

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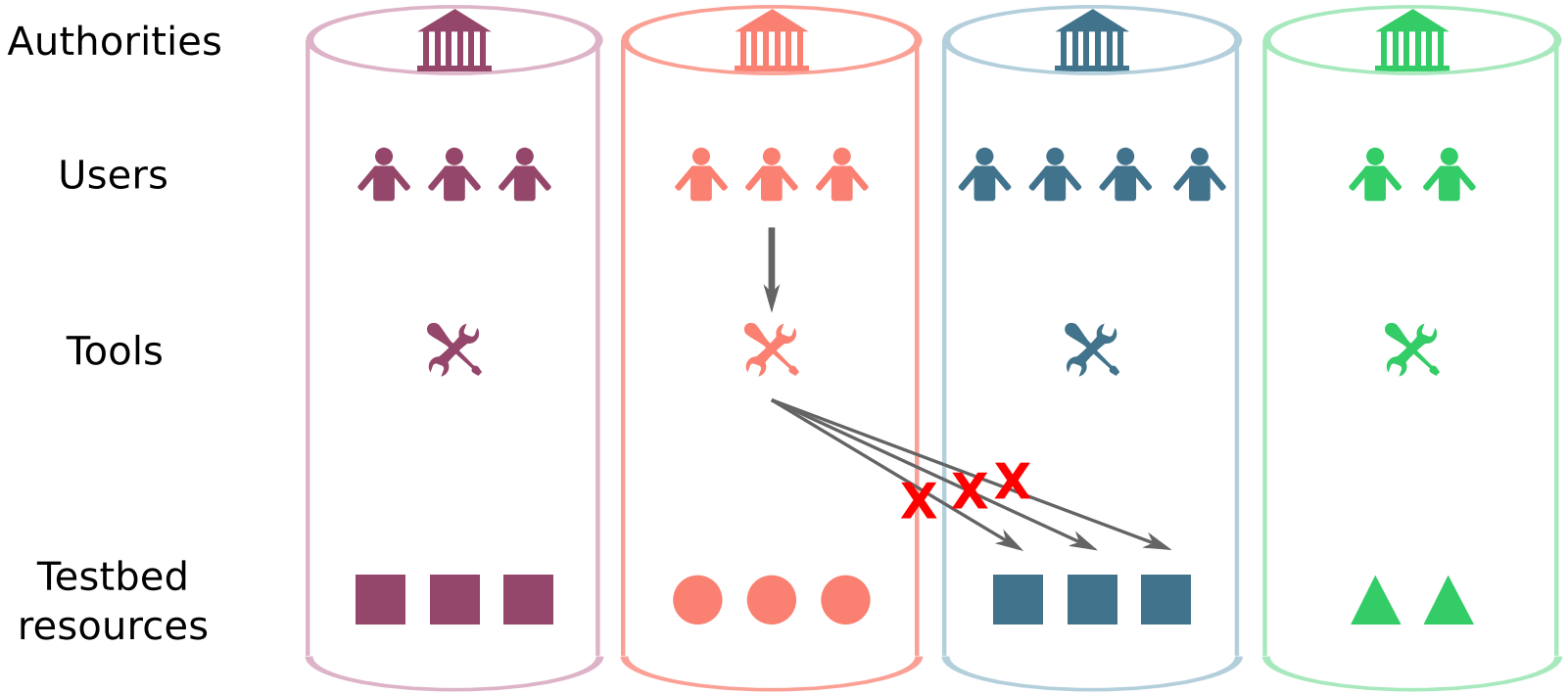

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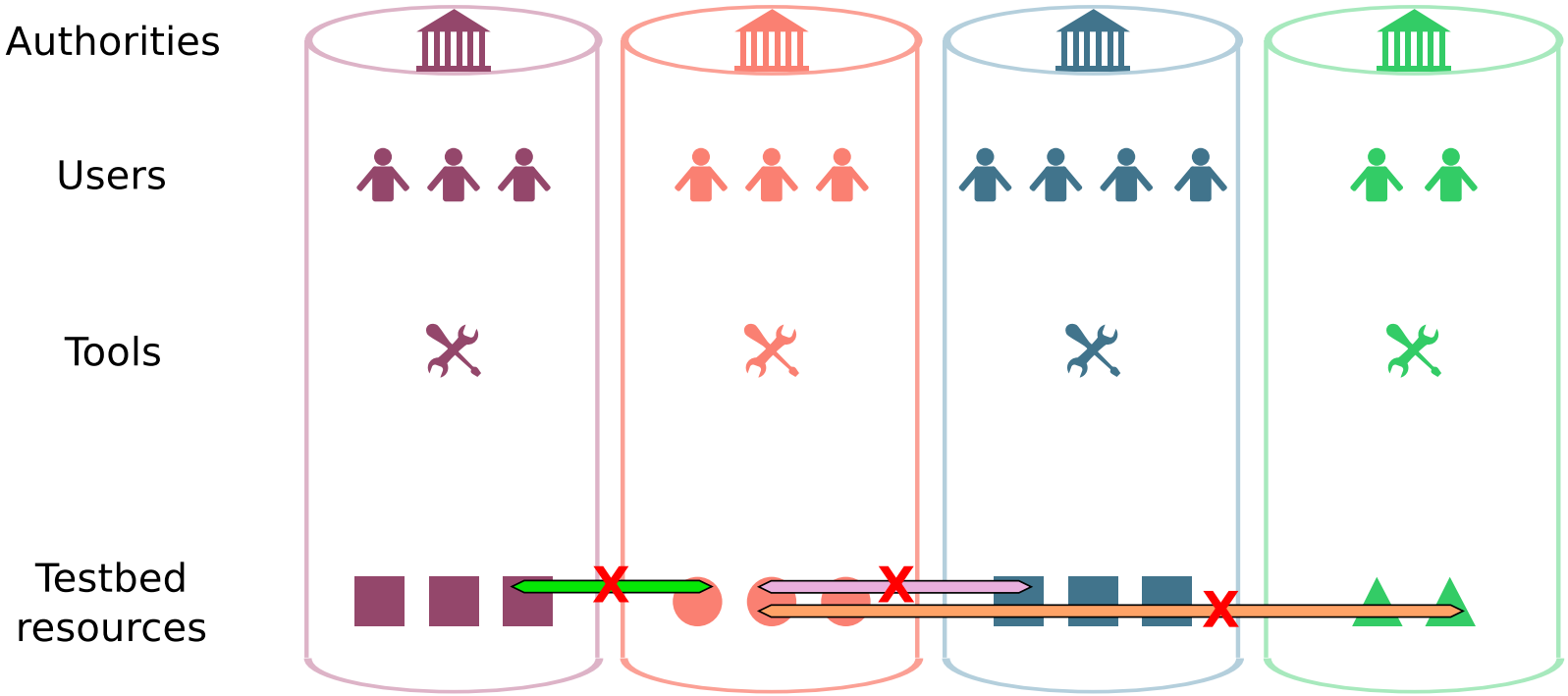
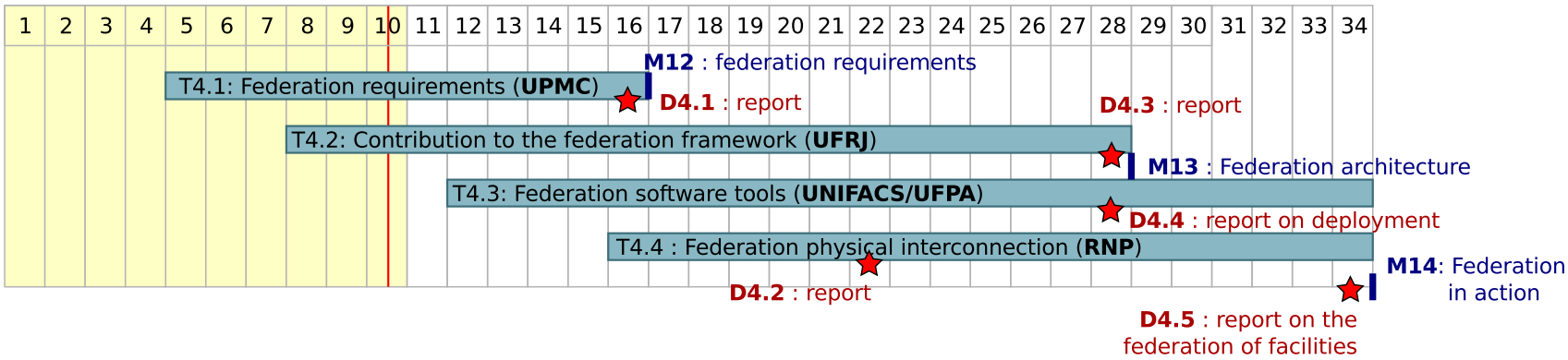


Workpackage overview



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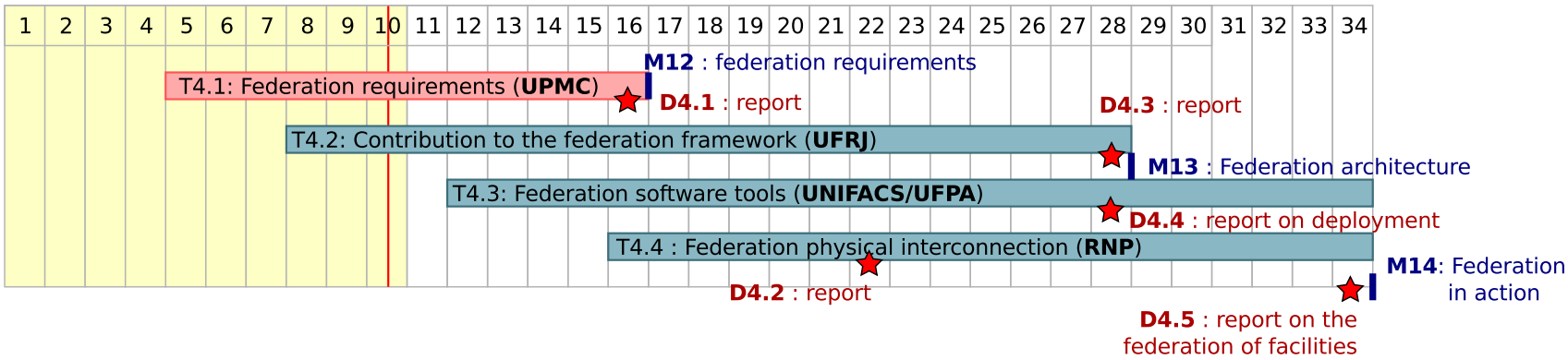


Task 4.1 progress report

T4.1: analysis of the federation requirements (M5-M16) - **UPMC**

- collect and analyze the requirements concerning the federation of the experimental facility

D4.1: Report on the federation requirements analysis **[M16, UPMC]**

- public report with the listing and explanation of the different requirements that FIBRE federation has to support

M4.1: Federation requirements (M16)

- First version of the federation requirements after a thorough identification of the various needs from the testbeds involved
- Means of verification: practical list of testbeds, software solutions in use and issues for federation

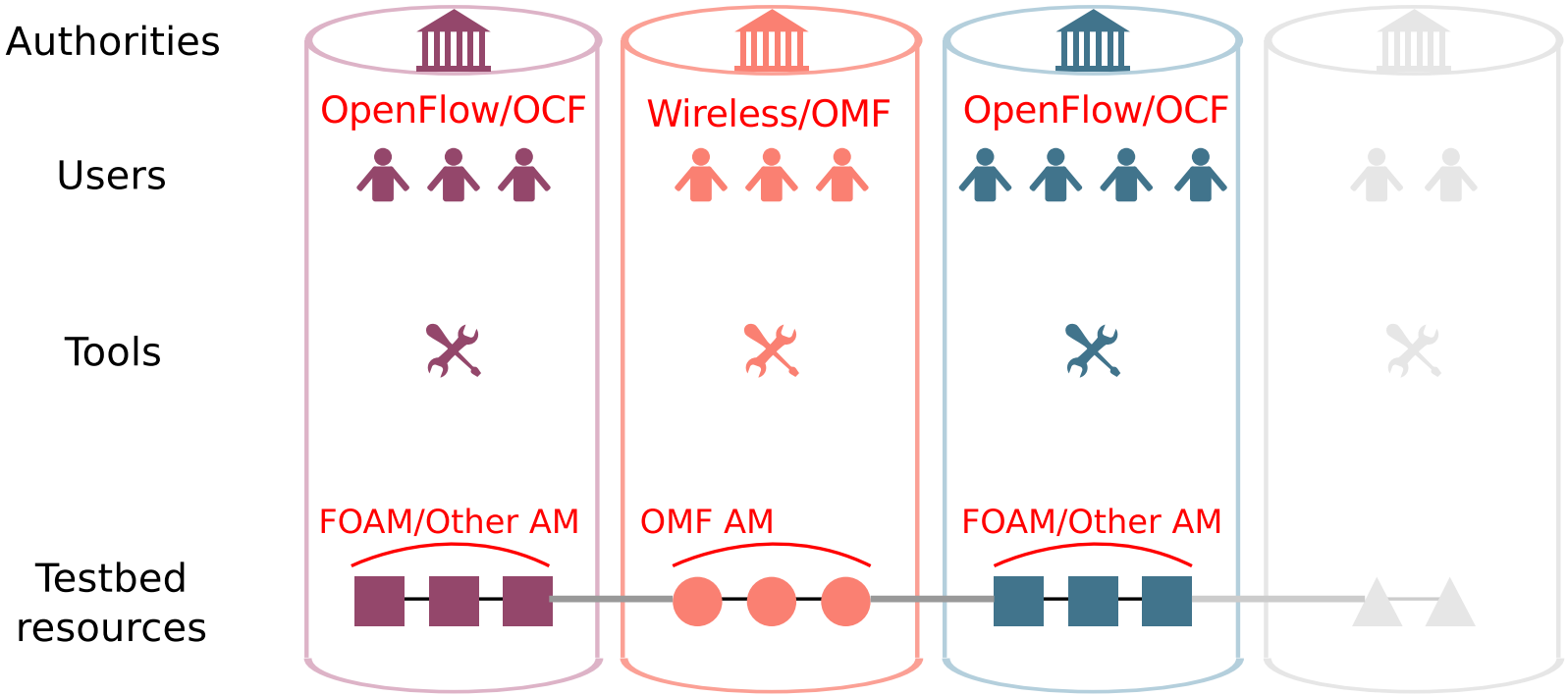
Federation requirements: current status

State-of-the-art document due soon

- getting familiar with partner's technologies
- requirements for the federation
- available components in use in major projects/frameworks
  - control plane
  - experimental plane
  - monitoring
- challenges, solutions and best practices

To guide discussion about the architecture

Federation requirements



Federation requirements: current status and next steps

EU/BR open discussion about FIBRE architecture

- Based on working document
- working groups: WP2, WP3 and WP4 leaders

D4.1 well on track: next months dedicated to going more into details

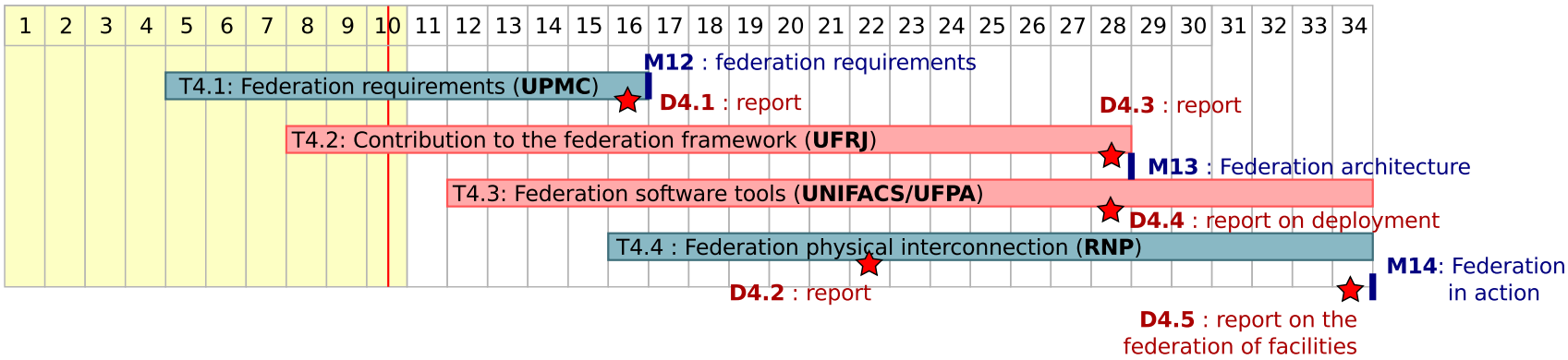
Position FIBRE into the broader FIRE and GENI contexts

OpenLab workshop: "Federation architecture and tools"

- central services for federation
- RSpecs, reservation, policies
- Monitoring tools and other topics

active participation of FIBRE EU and BR partners

Workpackage overview



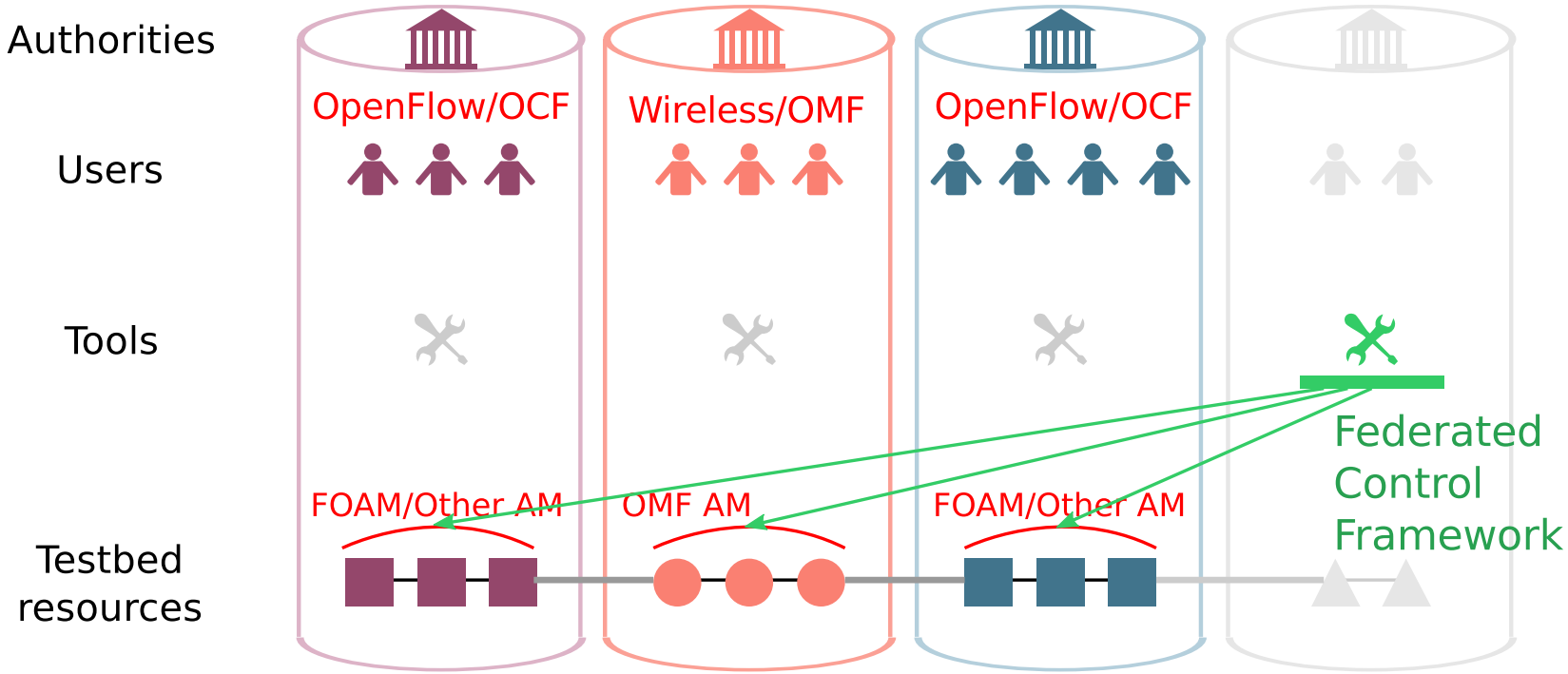
Our vision towards the federation of facilities

- outcome of the current discussion with partners
- previous experience in operating testbeds
- evolution and work done in similar projects

Two highlights:

- many possible policies: the federation scheme should be flexible enough to accomodate this
- tight integration of monitoring along the experimental lifetime

Our vision towards the federation of facilities



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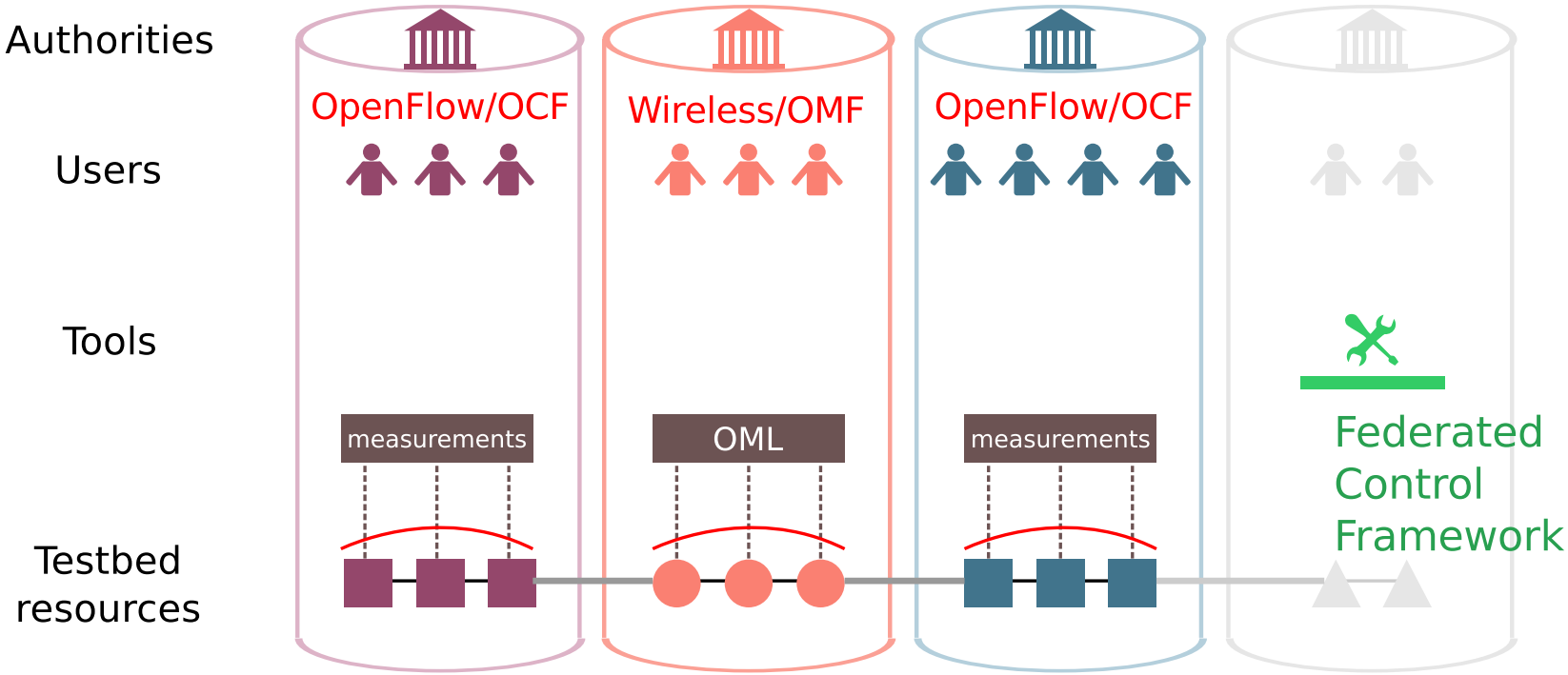

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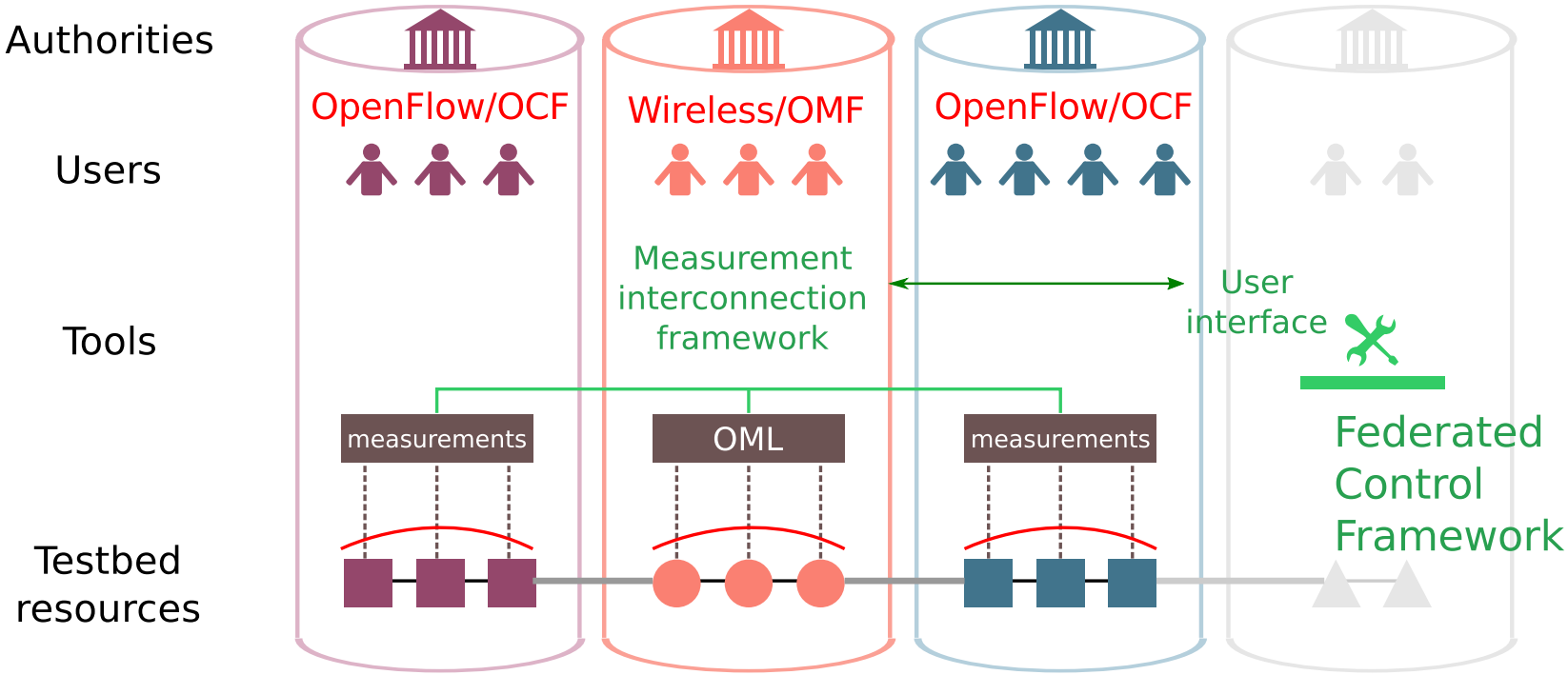

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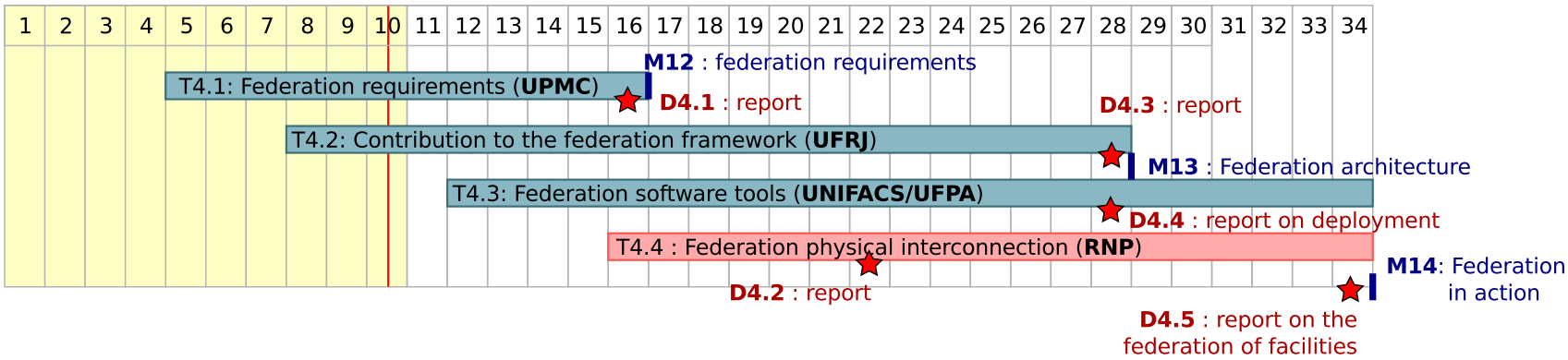
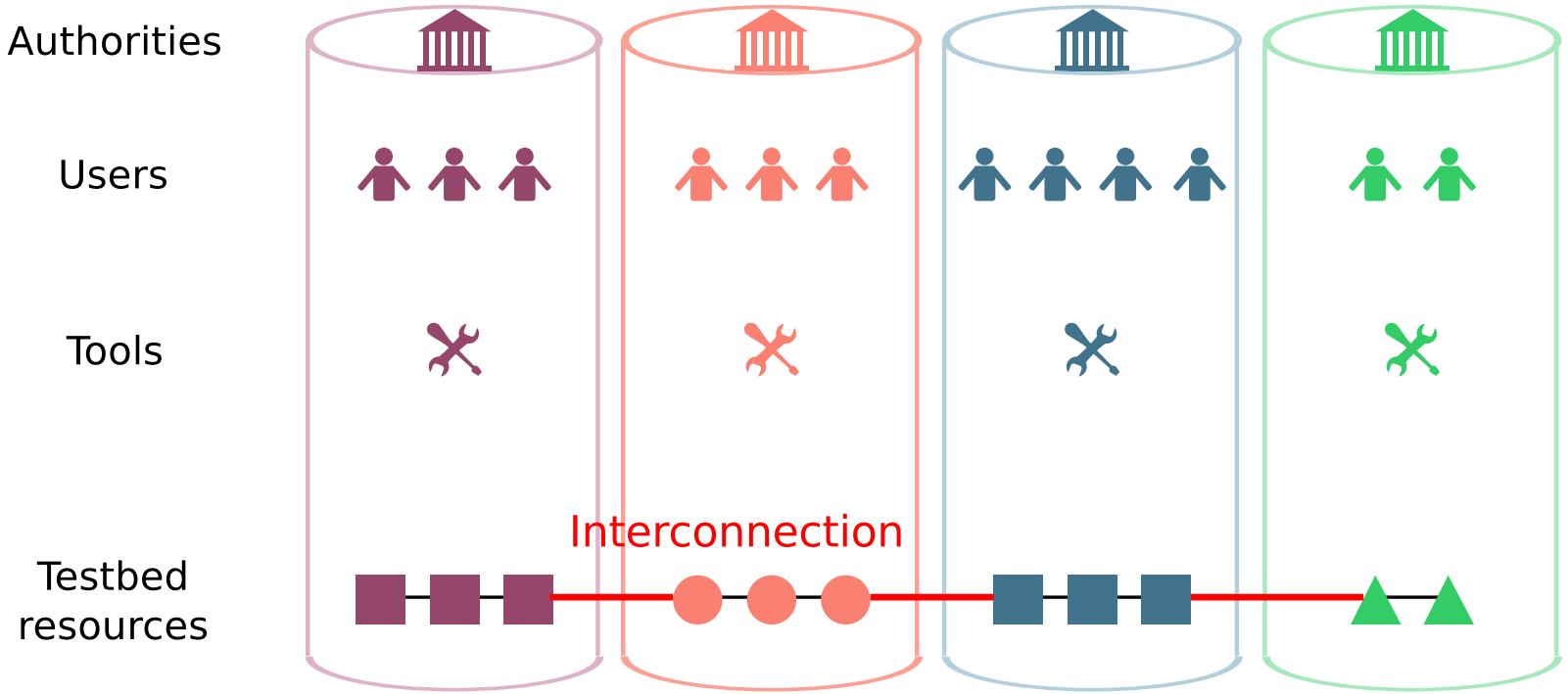


Connectivity



Connectivity

Links between EU and BR clouds:

1. _____

UEssex-USP
via GEANT (UK)
MANLAN (NYC)
Atlantic Wave
AMPATH (Miami)
AmLight
SouthernLight
(S.Paulo)

2. _____

i2CAT-RNP,
via RedIris (ES)
GEANT (ES)
RedCLARA
RNP (BR)

WP4 methodology

Bring the various communities into the same framework:

- OFELIA, OpenLab/OMF, EU, BRAZIL
- Integration of the communities
- Share best practices
- Deploy similar testbeds
- Identify key components
- Decide upon a consensus architecture
- International exposure (GENI, FIRE, Asia)

Backup slides

WP4 Tasks

T4.1: analysis of the federation requirements (M5-M16) - **UPMC**

- collect and analyze the requirements concerning the federation of the experimental facility

T4.2: contribution to the federation framework (M8-M28) - **UFRJ**

- select the right solutions for federation and customize them to the EU/Brazil facility

T4.3: federation software tools (M12-M34) - **UNIFACS**

- identify the various tools needed to allow experiments across the federation

T4.4: federation physical infrastructure (M16-M34) - **RNP**

- physically interconnect the European and Brazilian testbeds

WP4 deliverables

D4.1: Report on the federation requirements analysis **[M16, UPMC]**

- public report with the listing and explanation of the different requirements that FIBRE federation has to support

D4.2: Report on the federation physical interconnection **[M22, RNP]**

- confidential report on the evaluation and identification of suitable physical interconnectivity of the FIBRE sites, the setup of the EU and Brazilian hubs and intercontinental links

D4.3: Report on the contributions to the Federation framework **[M28, UFRJ]**

- confidential report on the selected solution and the implemented/customized software for the federation of the facility

WP4 deliverables (cont'd)

D4.4: Report on the federation software tools deployment **[M28, UNIFACS/UFPA]**

- confidential report on the monitoring and diagnosis tools to be used on the facility

D4.5: Report on the federation of the facilities **[M34, UPMC/UFRJ]**

- public report on the federated architecture, management and operation issues

WP4 milestones

M4.1: Federation requirements (M16)

- First version of the federation requirements after a thorough identification of the various needs from the testbeds involved
- Means of verification: practical list of testbeds, software solutions in use and issues for federation

M4.2: Federation architecture (M28)

- Software components for the federation of the various testbeds
- Means of verification: practical list of software solutions and their interactions. Partial deployment in some of the testbeds in operation enforcing the global share of their resources

M4.3: Federation in action (M34)

- Deployment of the solution to federate the various testbeds in a single facility
- Means of verification: Experiments can run across the testbeds