Fed4FIRE
Federation of testbeds

Brecht Vermeulen

imec

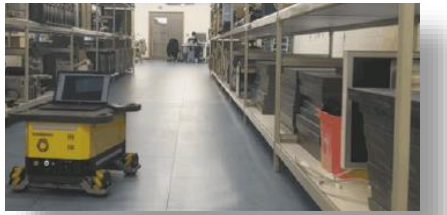
NGI Comm Task Force

27 October 2020

Introduction

“Digital Society” is supported by a wide range of technologies

- Wide range of technologies (wireless, wired, cloud, Big Data, 5G, IoT, …)
- Linking & interaction between heterogenous technologies



Fed4FIRE and Fed4FIRE+

EU Funded projects (2012 – 2021)

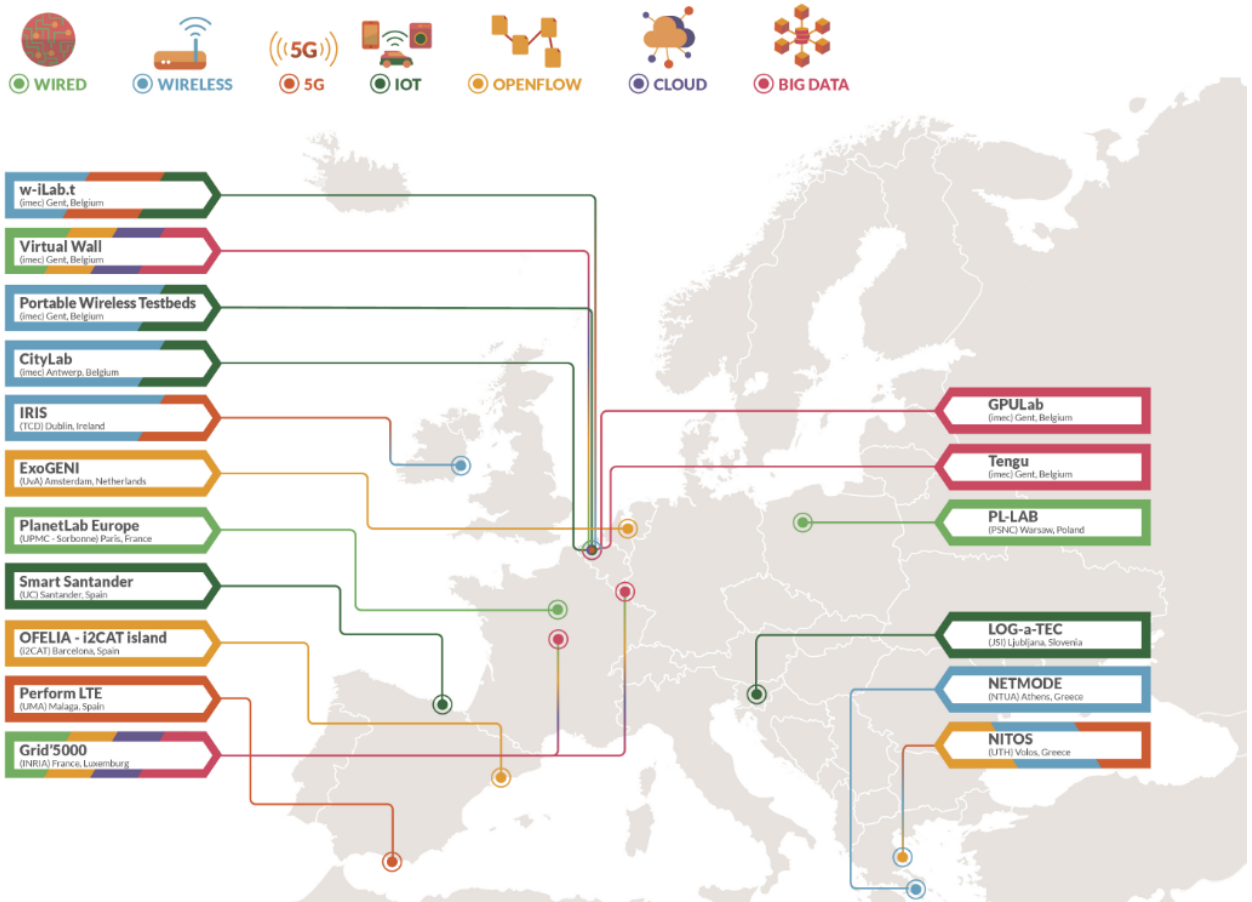
has the objective to

- serve the **community** and to
- support **digital transformation**

by

- offering **low threshold** access to
- a **top-quality** Research Infrastructure
- for a **broad spectrum** of activities in the IT domain
- covering a **wide range of technologies**
- and supporting application across **multi-technology** networks

Fed4FIRE assets – facilities (https://doc.fed4fire.eu)



Multiple technologies

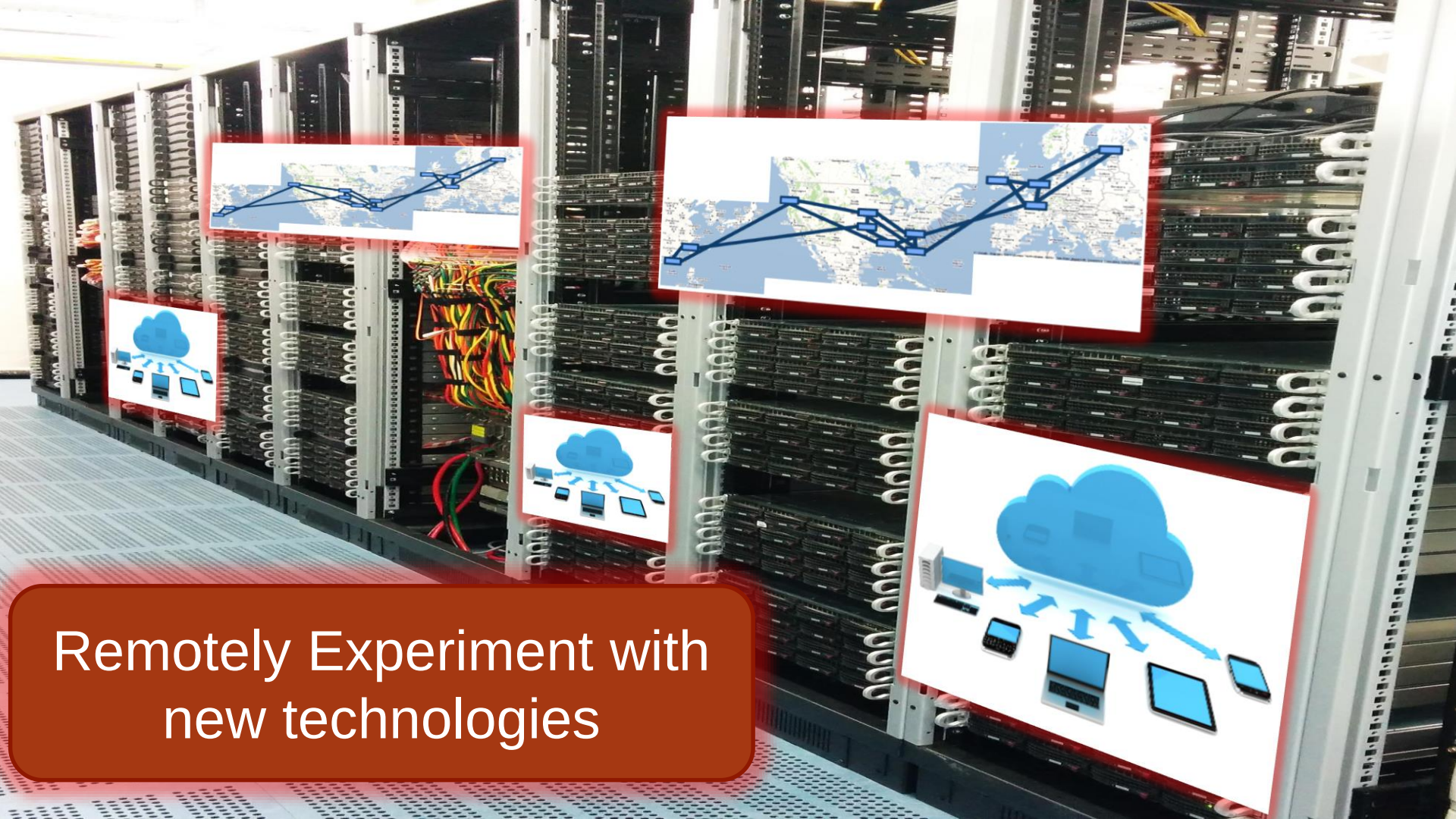
Goals of federation of testbeds

Make it easy for experimenters to use multiple testbeds

- Single account
- Single (or small number) of tools, choice of tools

Multiple testbeds

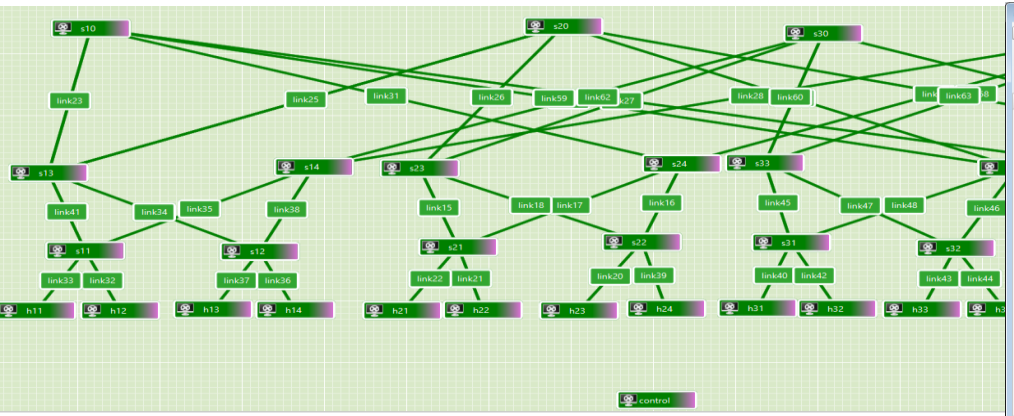
- To scale up
- To use/combine special resources (e.g. wireless robots)
- Redundancy (e.g. testbed in maintenance)
- To re-use experiments (class exercises, scientifically, …)
- To compare environments (e.g. wireless, openflow hardware, …)

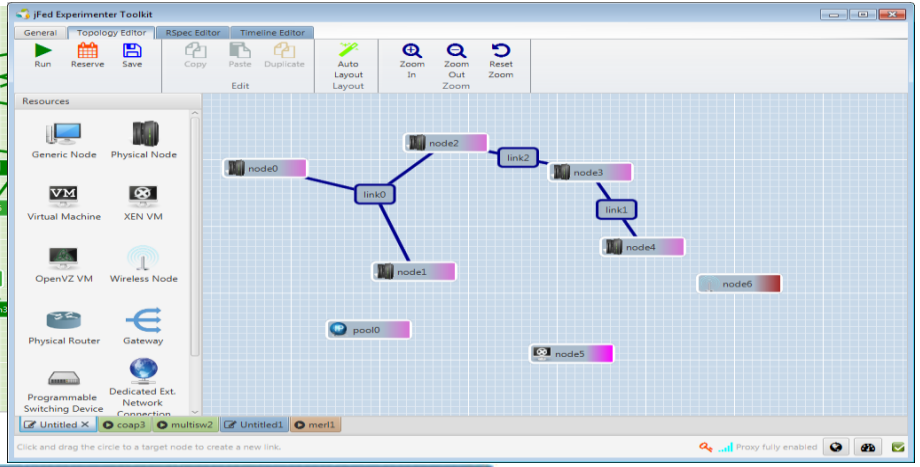

Remotely Experiment with
new technologies

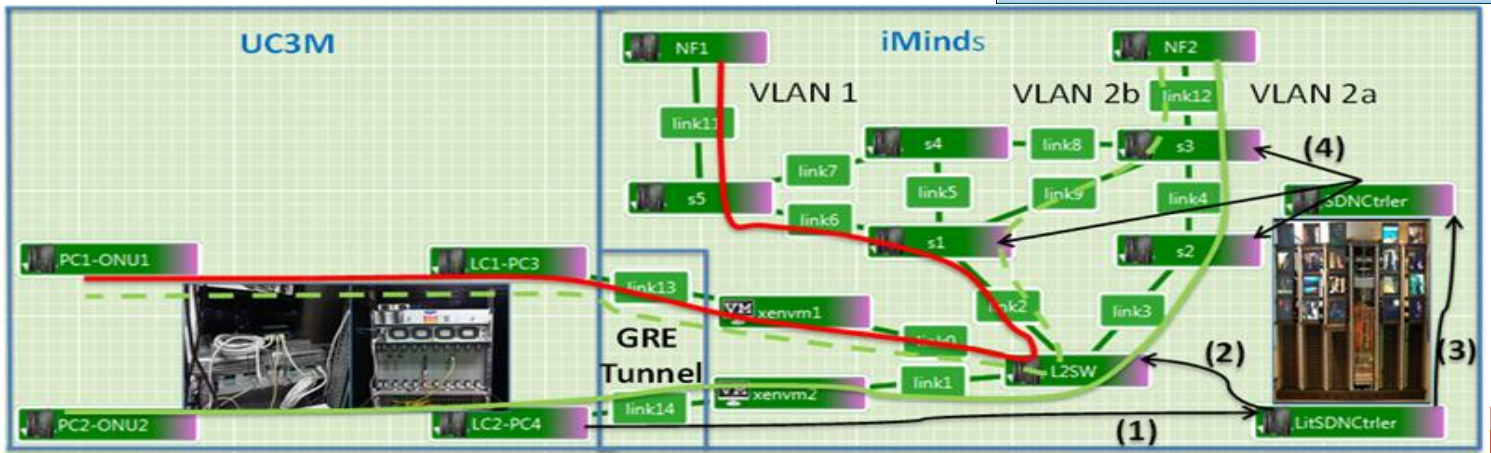
#Testbeds usable with Fed4FIRE account: +65

jFed tool: easy access for testbeds (jfed.ilabt.imec.be)

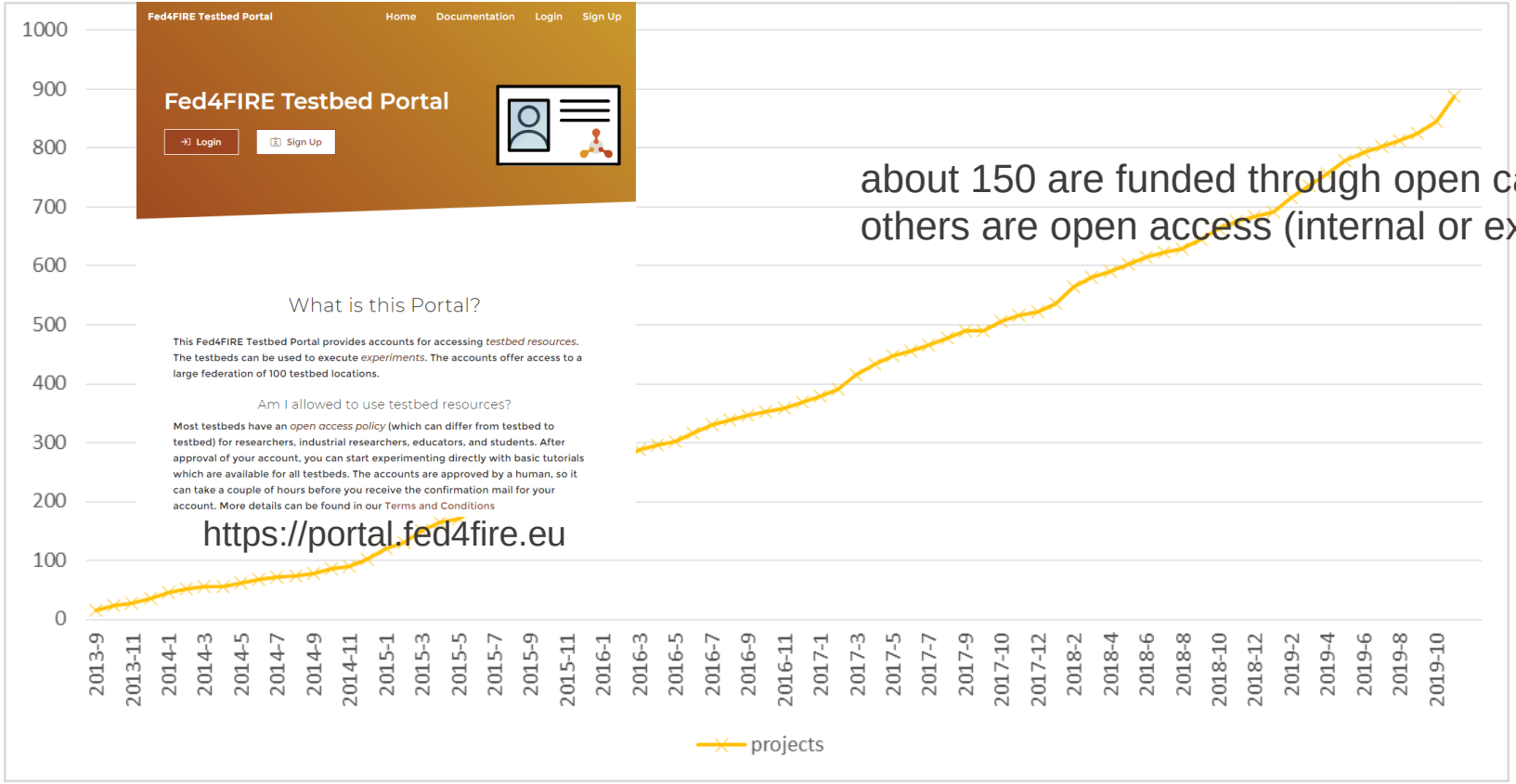
FED4FIRE







Projects that used Fed4FIRE for experimentation
(1 project = set of experiment runs, e.g. PhD, open call exp)



about 150 are funded through open calls
others are open access (internal or external)

Example problem that Fed4FIRE+ helped to solve

Televic Rail (Belgium SME) wants to introduce New & Scalable on-board Passenger Information Systems (PIS) for trains

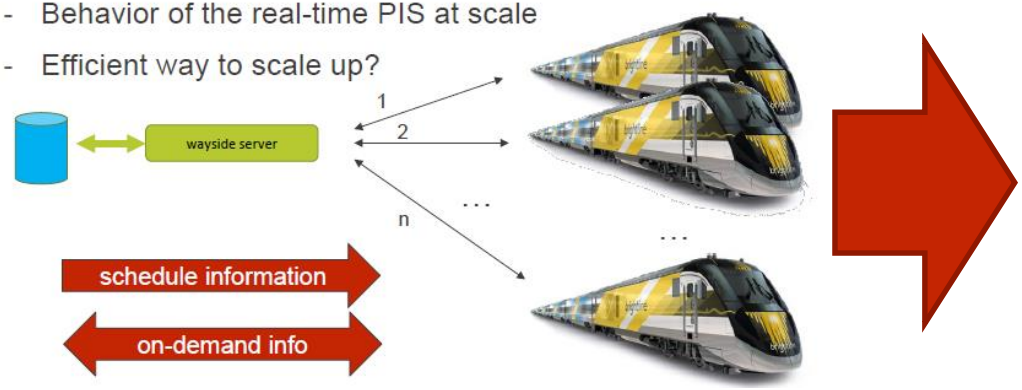
1. New system must be scalable (is software stable for multiple countries / 10 000 cars?)

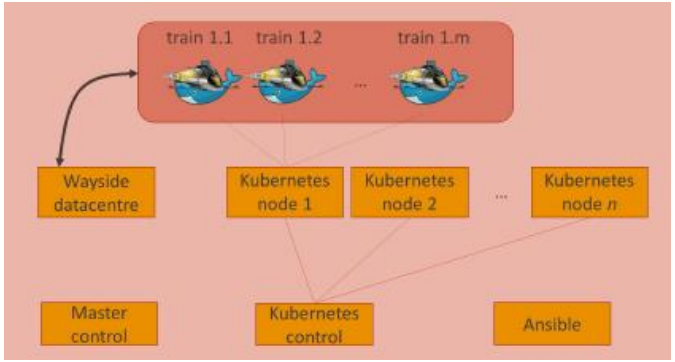
2. Network changes (WiFi in stations / 4G on tracks)

Example problem that Fed4FIRE+ helped to solve

Scaling up to n systems in a single/multiple countries – how does the software behave ?

- Behavior of the real-time PIS at scale
- Efficient way to scale up?

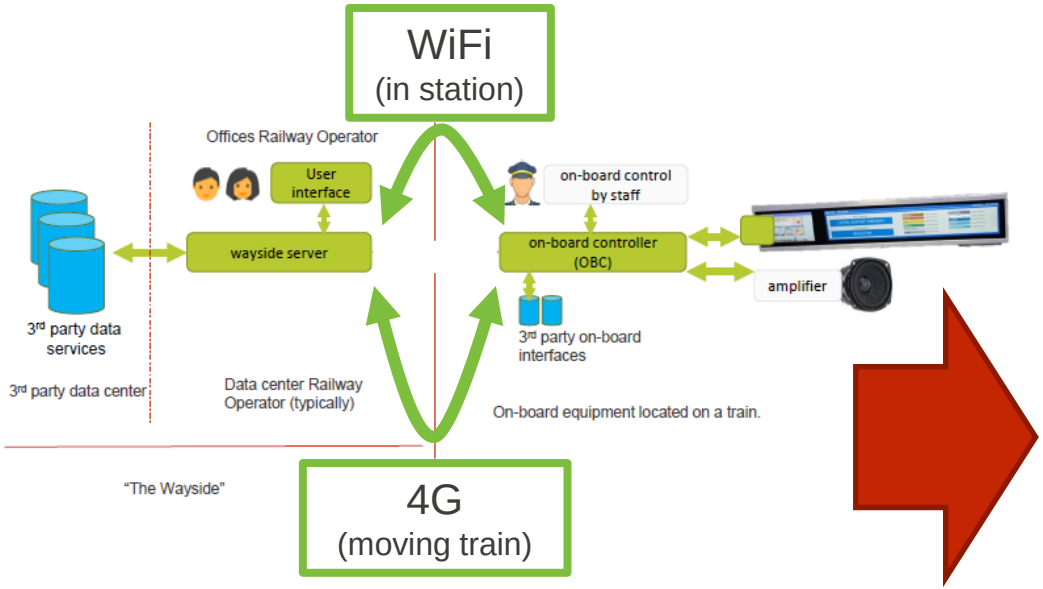


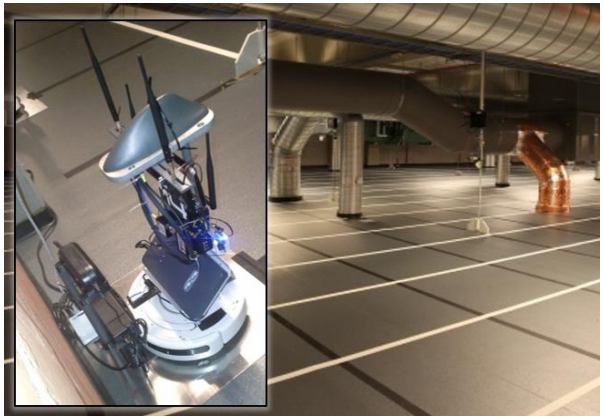


Virtual Wall testbed allows emulation and scalability testing in near-real life / realistic environment

Example problem that Fed4FIRE+ helped to solve

Wireless handover between wifi (station) and 4G (moving)





Reproducible experimentation on
w-iLab testbed with mobile robots

Fed4FIRE+ Open Calls – overview (https://www.fed4fire.eu/opencalls)

- *OC-1: Large and small experiments (deadline: 15 February 2017)*
- *OC-2: Stage 1 – Extra small experiments (18 September 2017)*
- *OC-2: Stage 2 – Medium experiments (15 December 2017)*
- *OC-3: Large and medium experiments (15 January 2018)*
- OC-4: Medium experiments (18 September 2018)
- OC-5: Medium & Large Experiments (26 March 2019)
- OC-6: Medium Experiments, incl. SME Stage 2 (10 Sep. 2019)
- *OC-7: Large Experiments, incl. SME Stage 2 (25 February 2020)*
- OC-8: Medium Experiments, incl. SME Stage 2 (22 Sep 2020)
- OC-9: Medium Experiments (Q1 2021)
- OC for testbeds joining the federation (Q4 2020)
- Continuous OC for SMEs (stage 1)

Webinars

- Fed4FIRE+ launches a series of webinars
- This replaces the physical Fed4FIRE engineering conferences (2x year): https://fec.fed4fire.eu/

- More information about the next Fed4FIRE+ webinars, subscribe to our newsletter here: https://www.fed4fire.eu/newsletter/
- Or follow us on twitter: https://twitter.com/Fed4Fire

Fed4FIRE+ is an expanding federation of real-hardware testbeds and is used for

- Testing of concept / Upscaling of product / tool
- Move from emulation- and lab-based evaluation to field testing
- Near-real life / realistic environment testing
- Validation / quality-label / creating trust / demo to customers
- Comparison / benchmarking of equipment / techniques
- Access to real devices
- Vender-neutral
- Show / exhibit expertise / visibility


Co-funded by the European Union


Co-funded by the Swiss Confederation

This project has received funding from the European Union's Horizon 2020 research and innovation programme, which is co-funded by the European Commission and the Swiss State Secretariat for Education, Research and Innovation, under grant agreement No 732638.

THANKS FOR YOUR ATTENTION

BRECHT.VERMEULEN@IMEC.BE

HTTPS://DOC.FED4FIRE.EU

WWW.FED4FIRE.EU