

IBBT Ghent University Belgium

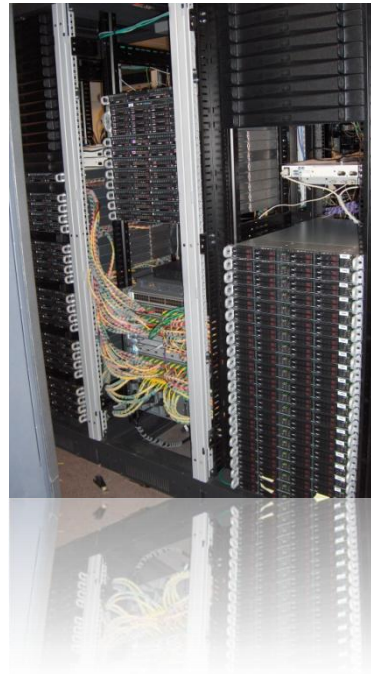
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Brecht.vermeulen@ibbt.be

3x Virtual wall = 3x emulab instances

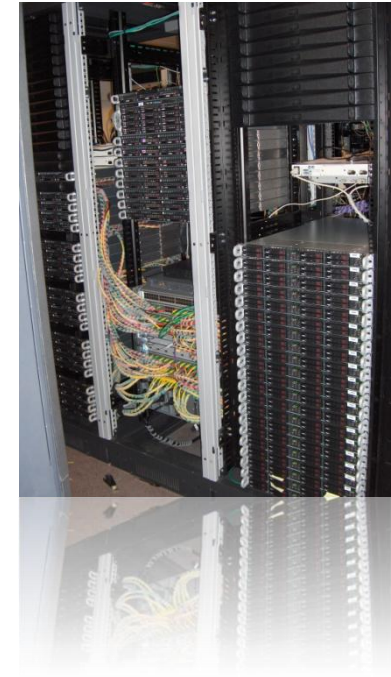
1



2



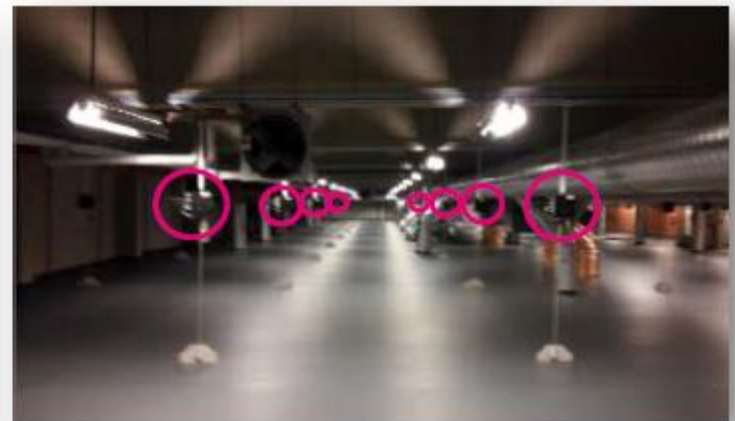
3



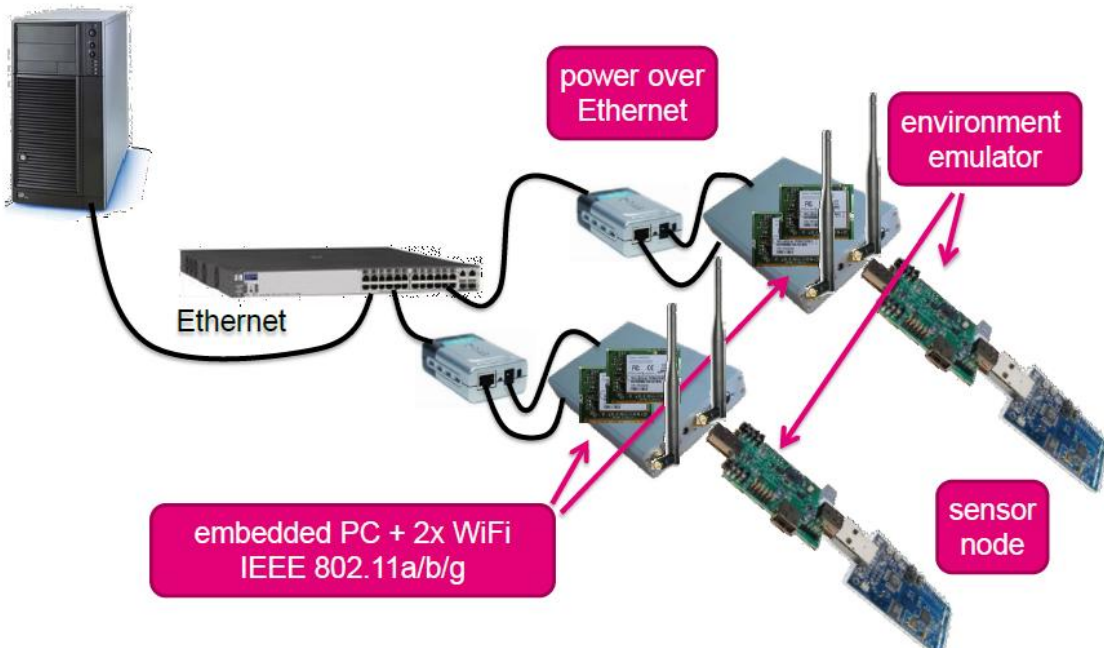
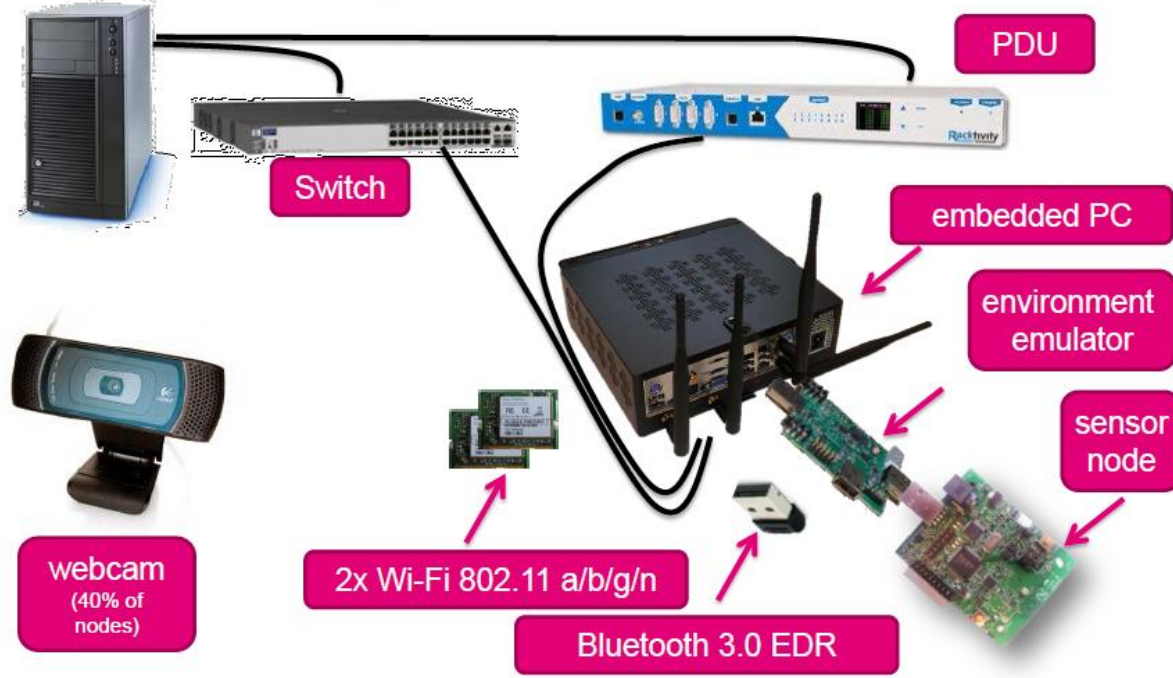
- 3x 100 machines
- Force 10 networks switches (E1200, C300)
- 1 instance has public boss and ops
- Scarce public IPv4 addresses in Europe...

Wireless lab

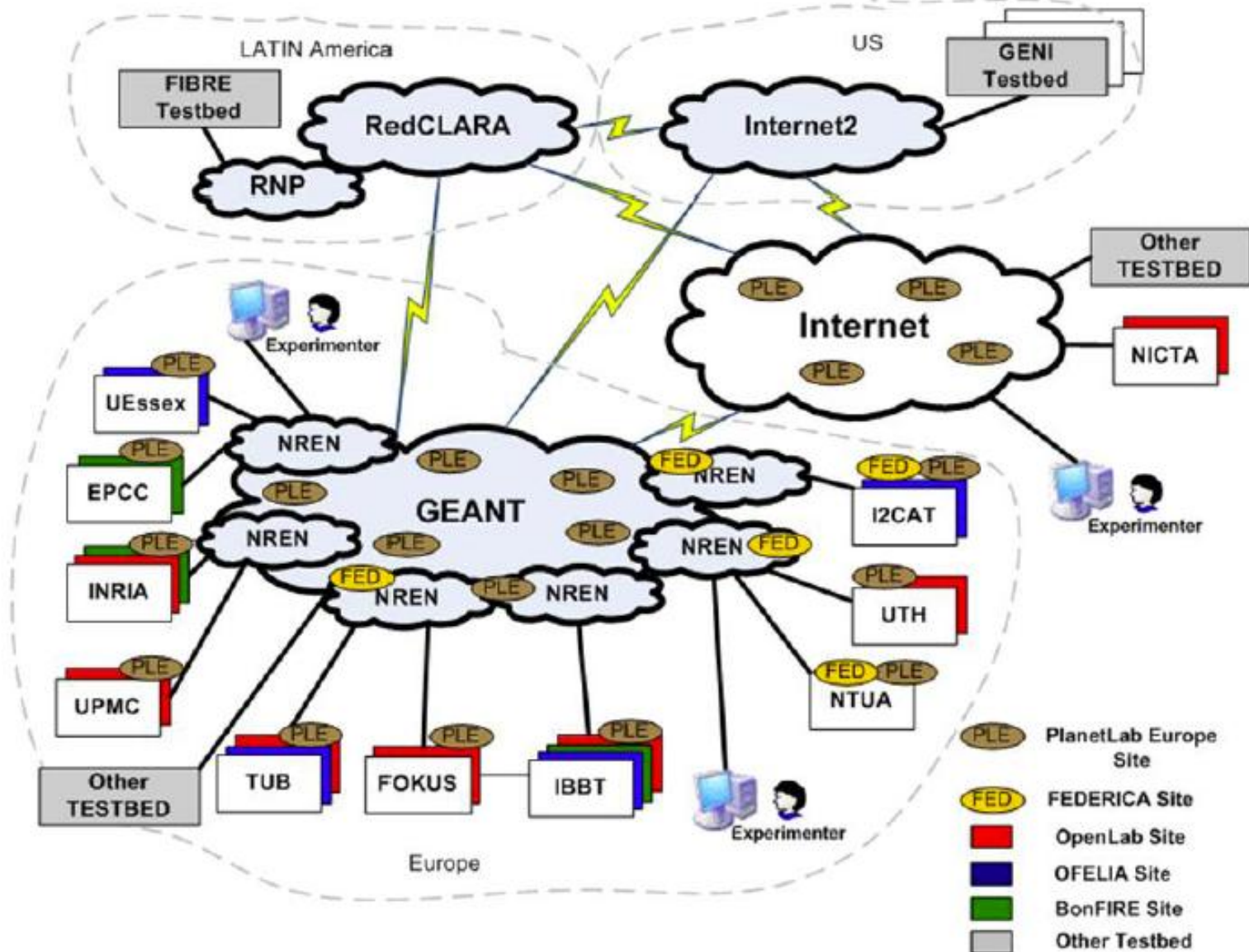
- generic testbed for wireless networks
 - sensor networks (ZigBee 802.15.4)
 - Ad-Hoc, mesh (Wi-Fi 802.11a/b/g/n)
 - Bluetooth
- 2 testbed locations
 - IBBT office: three office floors of 90m x 18m [200 nodes]
 - “pseudo-shielded” environment [80 nodes + roombas]



Wireless nodes



European federation project: Fed4fire



Fed4fire Consortium

Runs Oct. 2012 till Oct 2015

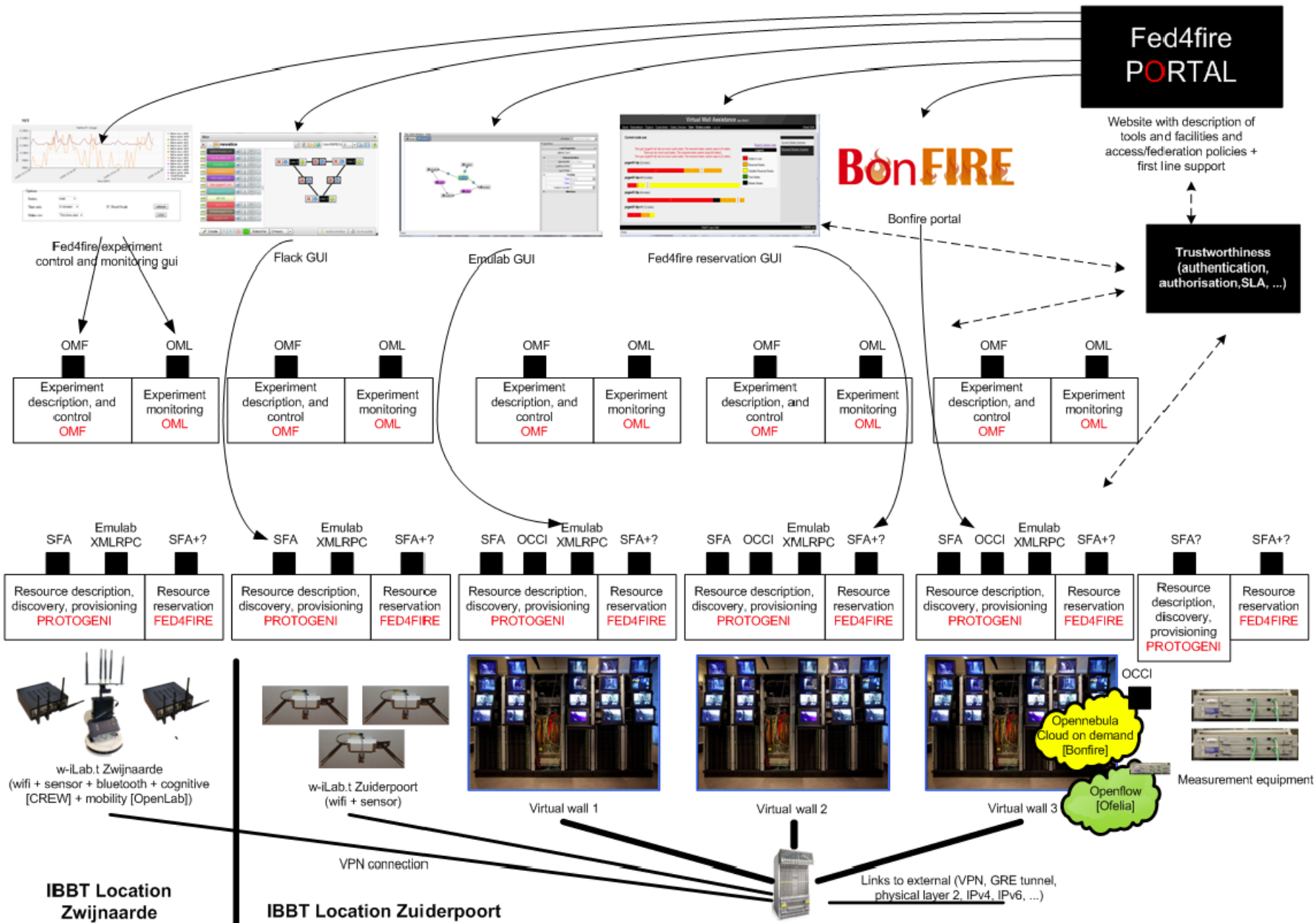
Part. no.	Participant organisation name	Part. short name	Country
1	INTERDISCIPLINARY INSTITUTE FOR BROADBAND TECHNOLOGY	IBBT	Belgium
2	UNIVERSITY OF SOUTHAMPTON IT INNOVATION CENTRE	IT Innovation	United Kingdom
3	UNIVERSITE PIERRE ET MARIE CURIE - PARIS 6	UPMC	France
4	FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V	Fraunhofer	Germany
5	TECHNISCHE UNIVERSITAET BERLIN	TUB	Germany
6	EPCC, THE UNIVERSITY OF EDINBURGH	EPCC	United Kingdom

Fed4fire Consortium

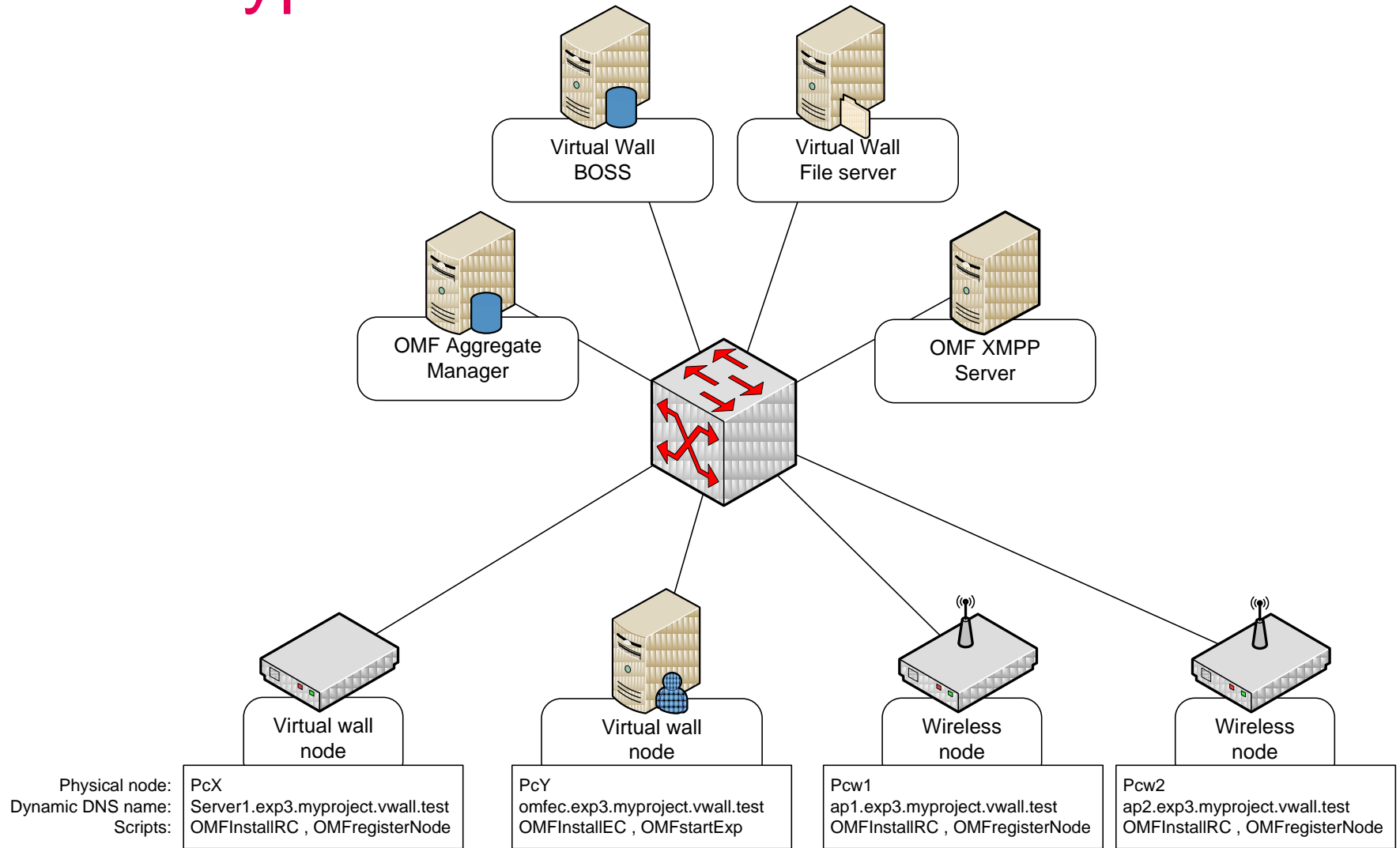
Part. no.	Participant organisation name	Part. short name	Country
7	INSTITUT NATIONAL DE RECHERCHE EN INFORMATIQUE ET EN AUTOMATIQUE	INRIA	France
8	NATIONAL ICT AUSTRALIA LIMITED	NICTA	Australia
9	ATOS SPAIN	ATOS	Spain
10	PANEPISTIMIO THESSALIAS (UNIVERSITY OF THESSALY)	UTH	Greece
11	NATIONAL TECHNICAL UNIVERSITY OF ATHENS	NTUA	Greece
12	UNIVERSITY OF ESSEX	UEssex	Kingdom
13	FUNDACIO PRIVADA i2CAT, INTERNET I INNOVACIO DIGITAL A CATALUNYA	i2CAT	Spain
14	EURESCOM – EUROPEAN INSTITUTE FOR RESEARCH AND STRATEGIC STUDIES IN TELECOMMUNICATIONS GMBH	EUR	Germany
15	DELIVERY OF ADVANCED NETWORK TECHNOLOGY TO EUROPE	DANTE	United Kingdom
16	UNIVERSIDAD DE CANTABRIA	UC	Spain
17	NATIONAL INFORMATION SOCIETY AGENCY	NIA	Korea



Future federation IBBT testbeds



Prototype of Emulab/OMF federation



Contacts

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For more information about Fed4FIRE project,
please contact piet.demeester@ibbt.be (project lead)

More information about Fed4fire

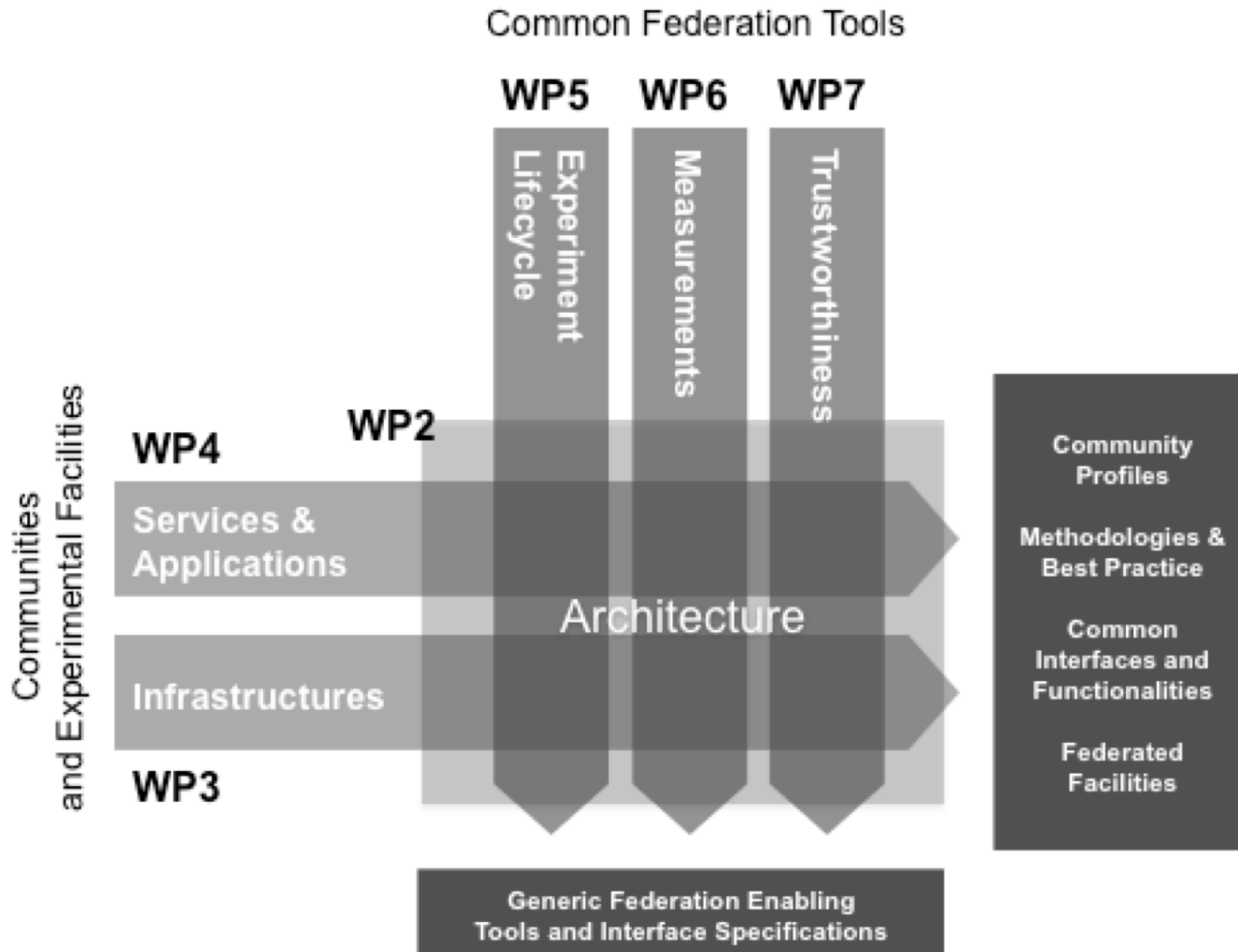
Problem

- No FI federated experimentation facility supports a broad range of experimenter communities covering Internet infrastructures and service & application platforms.
- A plethora of experimentation facilities are available but with limited overall convergence as they often use different and proprietary tools and interfaces.
- Many (overlapping) tools are available to support (parts of) the experiment lifecycle but there is no structured offering towards the experimenters.
- There is no clear and uniform view on key aspects of trust with most experimentation facilities only supporting minimal trust functionalities. This may be acceptable in academic environments but it restricts industrial use.
- There is only a fragmented view on the sustainability of the experimentation facilities, both from a financial as well as technical point of view.

Innovations

- Open, accessible and available facilities from representative and inter-related Future Internet communities supporting experiments that use resource from within and across communities.
- Simple, efficient and cost effective experimental processes considering requirements and constraints of both experimenters and facility owners.
- A common federation framework that will be widely adopted by different experimentation facilities, used by different experimenter communities and serves the need of industry as well as academia.
- A configurable and measurable Future Internet that delivers insight into the interplay between technical and socio-economic metrics, and how these are influenced by new technologies introduced into the ecosystem.
- Increased trustworthiness of facilities and FIRE as a whole through a sustainability approach that significantly reduces the level of EC funding.

General Approach



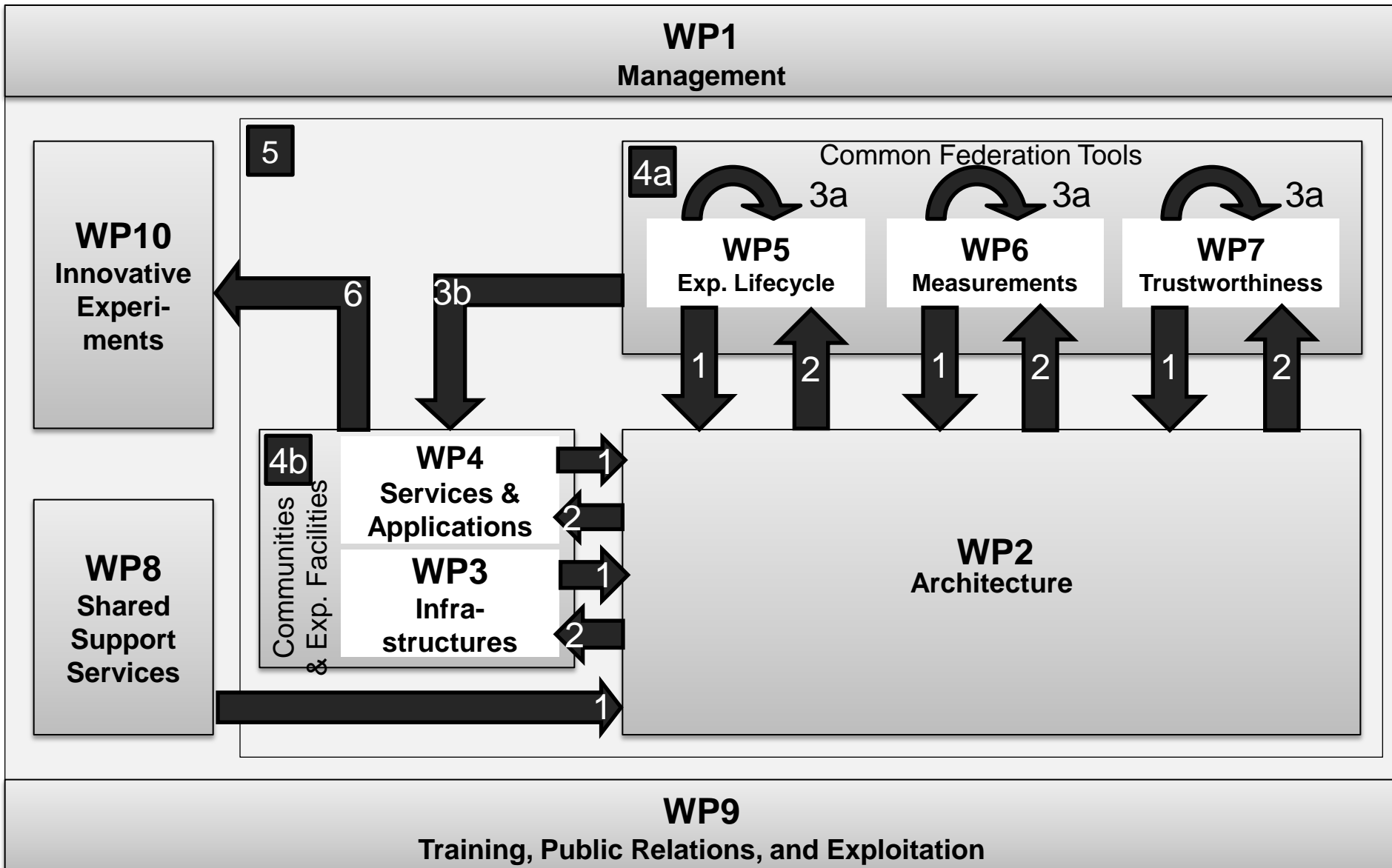
General Approach

- Demand-driven operations that consider the needs of Future Internet researchers and how FIRE experimental facilities need to adapt and evolve over time. The implementation of new requirements will be supported by a 10% unallocated part of the project budget. (WP3-7)
- Common federation architecture and open specifications that are promoted and adopted internationally. (WP2)
- A common federation framework compliant with specifications by adapting or adopting tools supporting the federation, leveraging the state-of-the-art tools available in Europe and the international community. These will include tools and services supporting experiment lifecycle management (discovery, reservation and experiment control), measurement (metrics, instrumentation, data management) and trustworthiness (federated identity management and access control, accountability, SLA management). (WP5,6,7)

General Approach

- Open, federated and supported European facilities made available by adapting existing facility tools and adopting those from the federation framework necessary to add value to different experimenter communities (Infrastructures, service platforms and applications). Experimentation facilities will be added during the course of the project through the use of open calls (10% of the project budget, on average 80 k€/testbed). (WP3,4)
- A series of open calls for experiments (as is the case in Call 5 and Call 7 projects) to evaluate the federation framework and to better understand the evolving requirements. 20% of the project budget will be reserved but there will be a more stringent limitation on funding per experiment: on average there will be 80 k€/experiment (instead of 200 k€/experiment in Call 5 and Call 7 projects). (WP10)
- Operation of supporting services for a FIRE stakeholders covering aspects of describing and promoting the FIRE offer, 1st and 2nd line support to the experimenter and a federation authority responsible for promoting positive policies and partnerships for federation and certification of facilities. (WP5 for the portal development, WP8 for the support of the portal usage)

Detailed Approach



Fed4FIRE: Federation for FIRE

FP7-ICT-2011-8

ICT 2011.1.6 Future Internet Research and Experimentation (FIRE)

Conclusion

Fed4FIRE will deliver open and easily accessible federated facilities to the Future Internet experimentation communities, which focus on fixed and wireless infrastructures, services and applications, and combinations thereof.

For more information about Fed4FIRE,
please contact piet.demeester@ibbt.be

