



Evolving FIRE into a 5G-Oriented Experimental Playground for Vertical Industries

Spyros Denazis

University of Patras, Greece



5GinFIRE.eu



contact@5GinFIRE.eu



5GinFIRE

5GinFIRE Fact Sheet

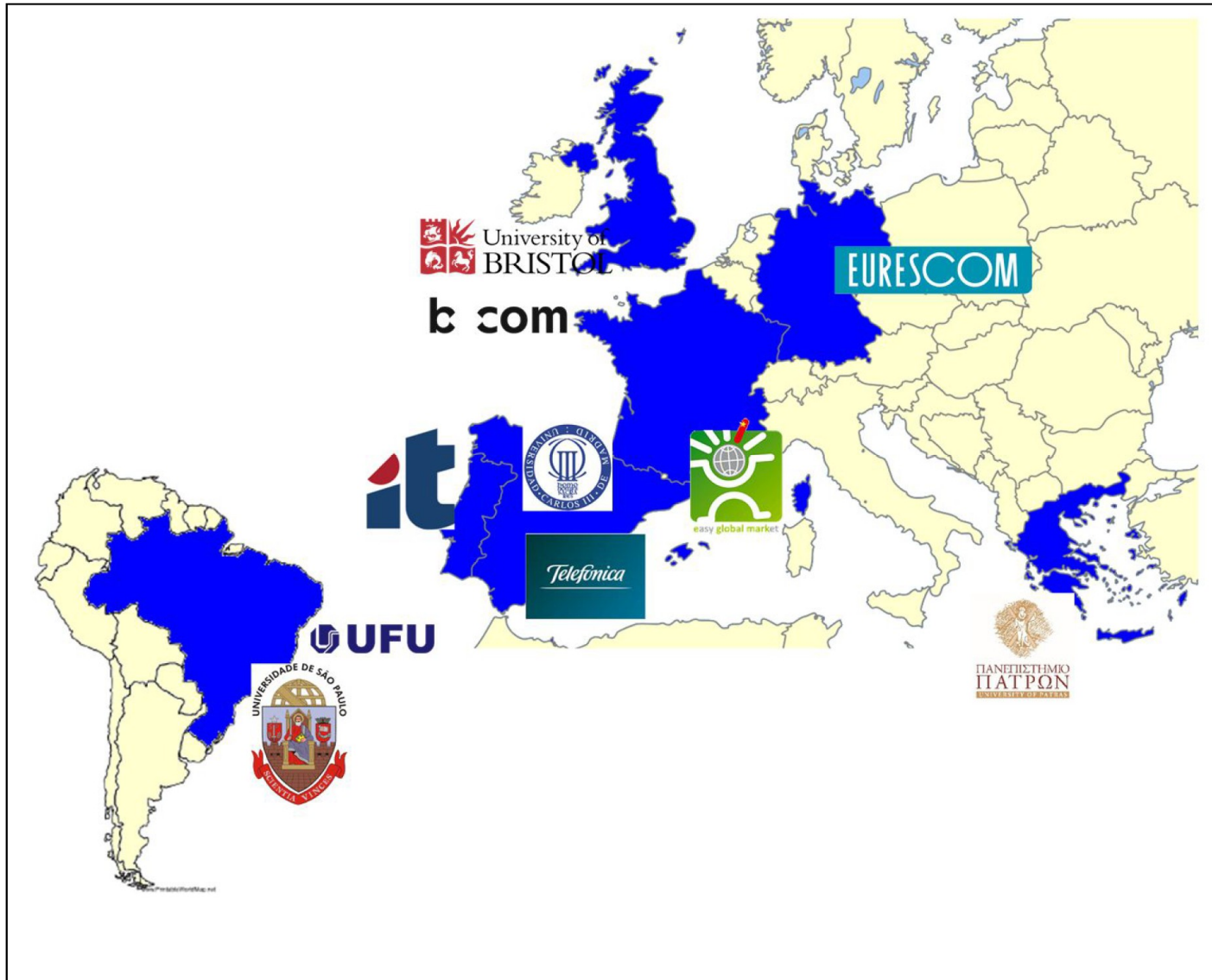
- Full Title:
 - Evolving FIRE into a 5G-Oriented Experimental Playground for Vertical Industries
- Call
 - Future Internet Experimentation - Building a European experimental Infrastructure
 - ICT-13-2016, RIA
- Budget
 - €5 M (2,5 M reserved for experiments)
- Starting Date
 - 1/1/2017
- Duration
 - 36 M

5GinFIRE Consortium

Participant No.	Participant organisation name	Part. short name	Country
1(*) (Coordinator)	Eurescom – European Institute for Research and Strategic Studies in Telecommunications - GmbH	EURESCOM	Germany
2	B-COM	B-COM	France
3	Easy Global Market SAS	EGM	France
4	Instituto de Telecomunicacoes	ITAv	Portugal
5	Telefonica Investigacion y Desarrollo SA	TID	Spain
6	Universidad Carlos III de Madrid	UC3M	Spain
7	University of Bristol	UNIVBRIS	UK
8	University of Patras	UoP	Greece
9	Universidade Federal de Uberlandia	UFU	Brazil
10	Universidade de Sao Paulo	USP	Brazil

5GinFIRE Consortium

Participant No.
1(*) (Coordinator)
2
3
4
5
6
7
8
9
10



Country
Germany
France
France
Portugal
Greece
Greece
Greece
Brazil
Brazil

Mind the Gap

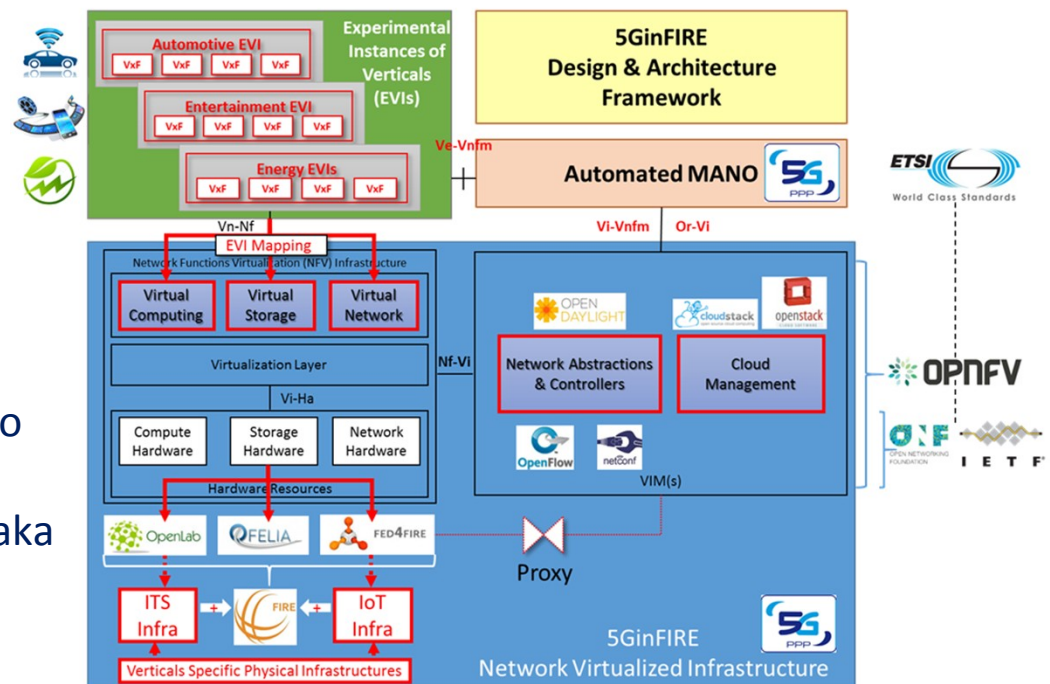
- ❑ Experimental testbed activities in FIRE instrumental in driving standardization and related ICT technologies but ...
- ❑ Too much fragmentation around experimental facilities
 - ❑ Different models, APIs etc
 - ❑ Different implementations
 - ❑ Lack of a reference architecture
 - ❑ Federation is not panacea ... some of the homogeneity must be pushed inside the testbeds (through standardization)
 - ❑ (This statement may be arguable but the next one is not)
- ❑ No real impact on standardization
 - ❑ ... although there are results that they could have
- ❑ Difficulties in sustainability due to gap between industry-led efforts and experimental efforts

Closing the Gap

- ❑ 5G creates new opportunity to close this gap
- ❑ NFV technology as an enabler for deploying experimentation testbed instances on top of common physical infrastructure
- ❑ Service Lifecycle (XaaS) bears a lot of similarities in testbed experimentation
- ❑ Similarly, common key architectural components and APIs may also be suitable for experimental facilities
- ❑ Resource Models and representation could be identical
- ❑ Open source components from established Open Source Project Initiatives widely available
- ❑ ...

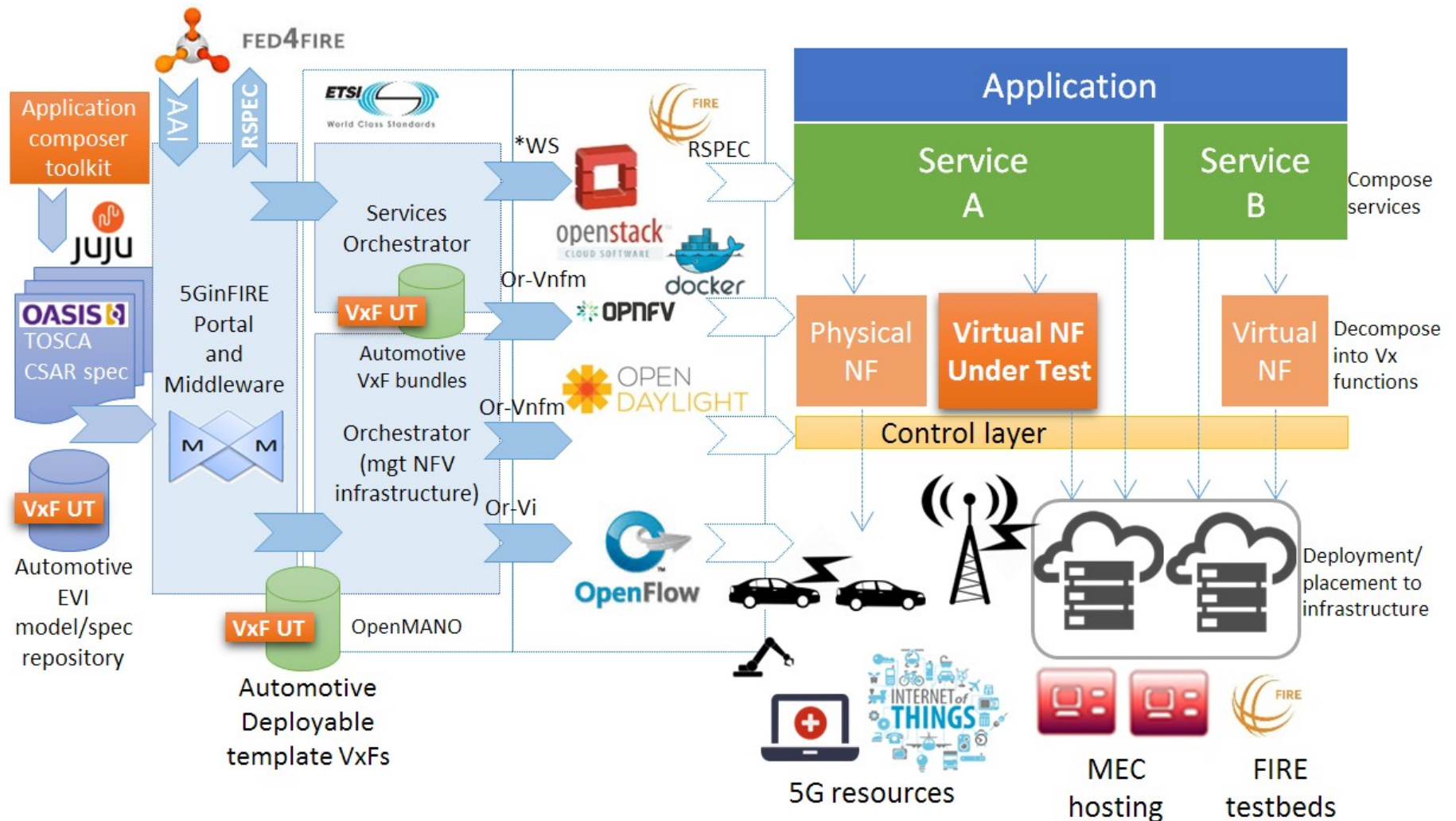
5GinFIRE Reference Model Architecture

- Based on existing Open Source projects
 - e.g. Openstack, Opendaylight
- MANO functionality
 - OpenMANO
- Introducing and integrating infrastructures from verticals
- Integrating FIRE facilities and access methodologies
- Generalizing the concept of VNFs into accounting for functionalities other than network, namely, for verticals, aka VxFs
 - universal management of virtual functions
- Automated deployment of VxFs and creation of VxF stores



5GinFIRE Experimentation Workflow

Technologies, Infrastructures and Verticals



5GinFIRE Workplan & Open Calls

RESEARCH / INTEGRATION

Adopting State of the art
and technology choice

Adopting 5GINFIRE architecture

Initial 5GINFIRE experimental
infrastructure deployed

5GINFIRE infrastructure - 1st upgrade
New testbeds from OC-1 integrated

Final 5GINFIRE infrastructure

January
2017

March
2017

June
2017

March
2018

Sept.
2018

March
2019

Sep.
2019

Dec.
2019

OPERATION / OPEN CALLS

Definition of OC-1:

- Call for experiments
- Call for testbeds

OC-1 opening and evaluation

Execution of OC-1 experiments

Definition of OC-2:

- Call for experiments

OC-2 opening and evaluation

Execution of OC-2 experiments

5GINFIRE ready for full operation



Thank You!



5GinFIRE.eu



contact@5GinFIRE.eu



5GinFIRE

5GINFIRE is a three years Research and Innovation action / project under the EU program Horizon 2020 (Grant Agreement no. 732497) started on 1 January 2017.