5GINFIRE

5GinFIRE

Introducing NFV-based experimental facilities

A. Eisenmann, University of Bristol

IETF101

nfvrg - Network Function Virtualization

Objective

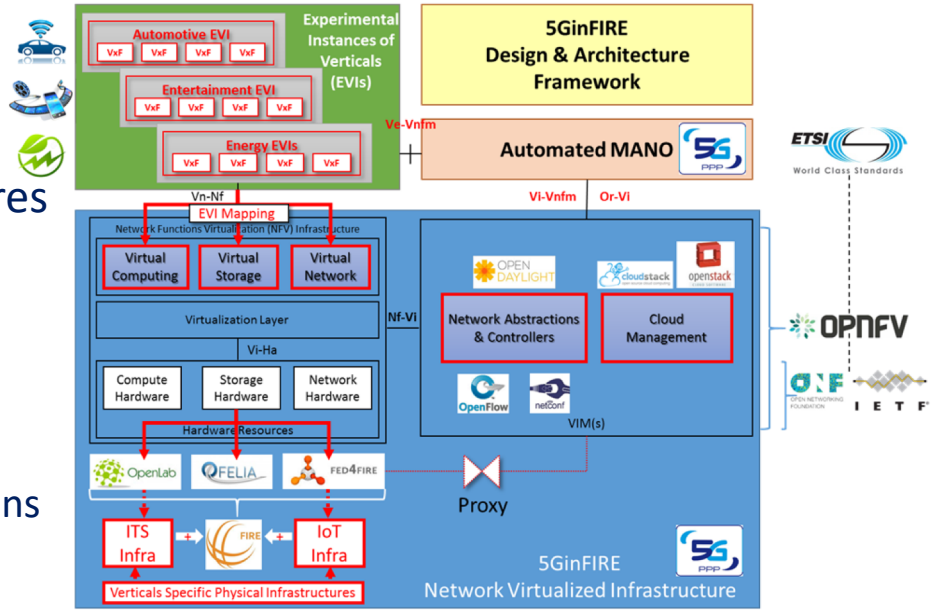
To build and operate an open, and extensible 5G NFV-based reference ecosystem of experimental facilities to foster experimentation with various vertical industries

- *Driven by architectural (standards) and technological (open source) convergence principle*
- *Initial focus on Automotive & Smart Cities verticals*

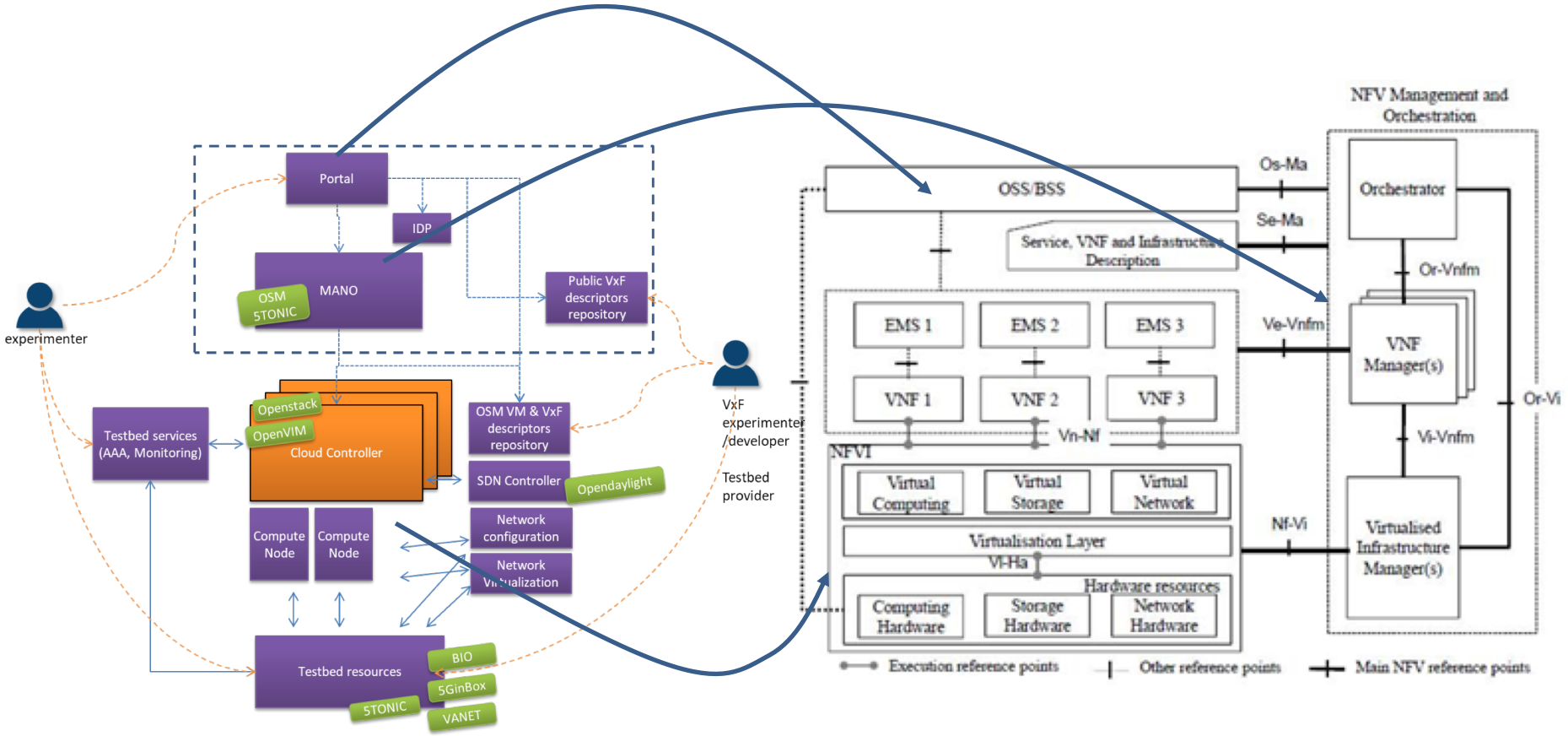
- As of today the 5GinFIRE ecosystem is already in operation ready to accept the first wave of experiments and get enhanced with additional functionality and testbeds

5GinFIRE Reference Model Architecture

- Based on existing open-source projects
  - OpenStack, OpenDaylight
- Based on ETSI reference architecture of MANO functionality
  - Open Source MANO
- Introducing and integrating infrastructures from verticals
- Generalizing the concept of VNFs to account for functionalities other than network, namely, for verticals, aka VxFs
  - Universal management of virtual functions
- Automated deployment of VxFs and creation of VxF stores



Aligned with ETSI ref architecture

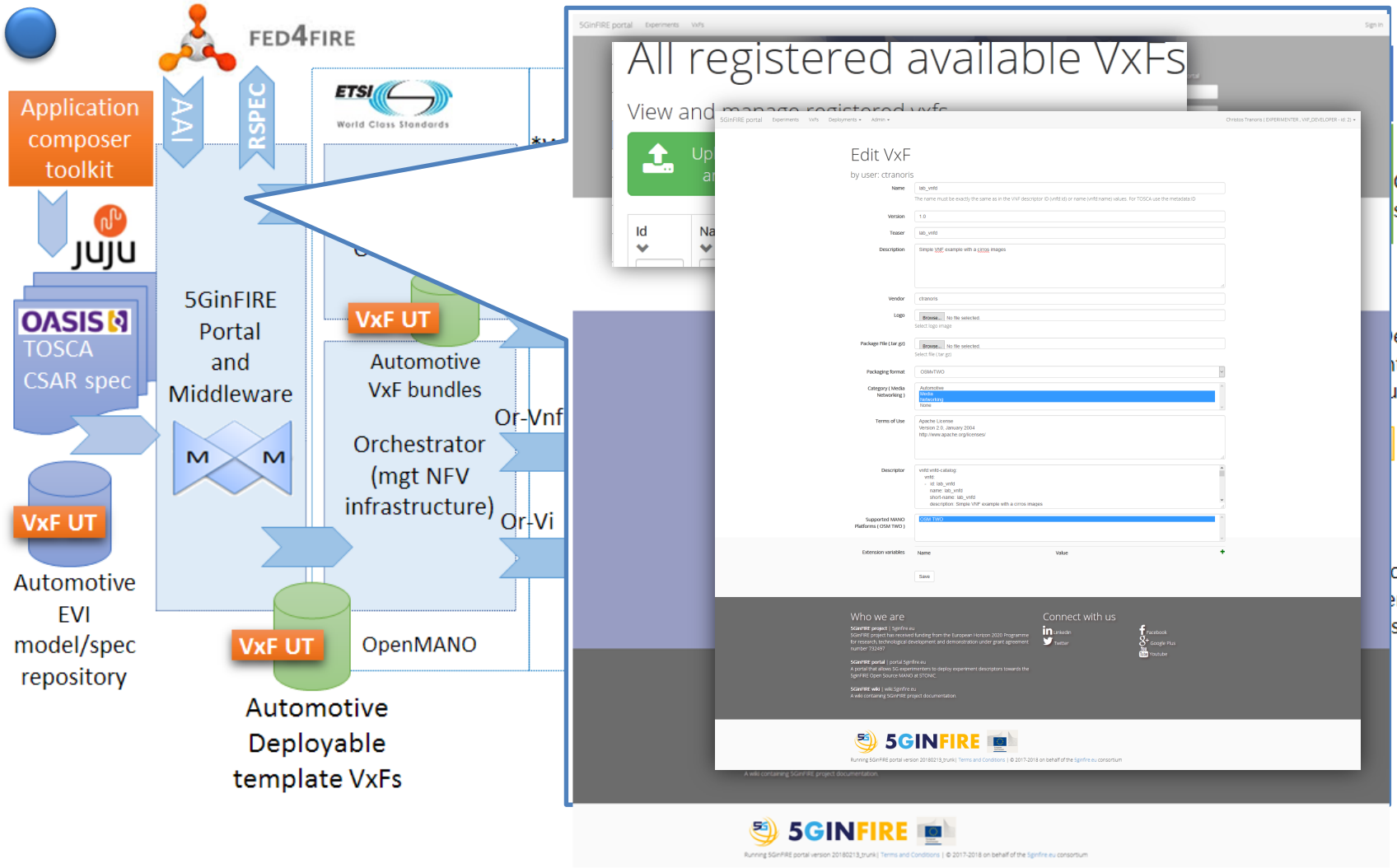


(Internal) Use Cases → Verticals

- Automotive
  - Assisted overtaking
- Smart Cities
  - Safety
- Generic Use Cases
  - Basic validation service (Pingpong ~ ”Hello World!”)
  - Unifier Gateway
    - How to deploy a softwarised 5G cell (eNodeB + Core)
- The aim of the use cases has been to instantiate the abstract experimentation workflow, i.e.
  - a. To act as blueprints for testing 5GinFIRE ecosystem functionality and operation
  - b. Create the first set of VxFs
  - c. Use it for tutorial and best practices purposes to third parties
- A Wiki has been implemented to guide third parties in carrying out experimentation using 5GinFIRE

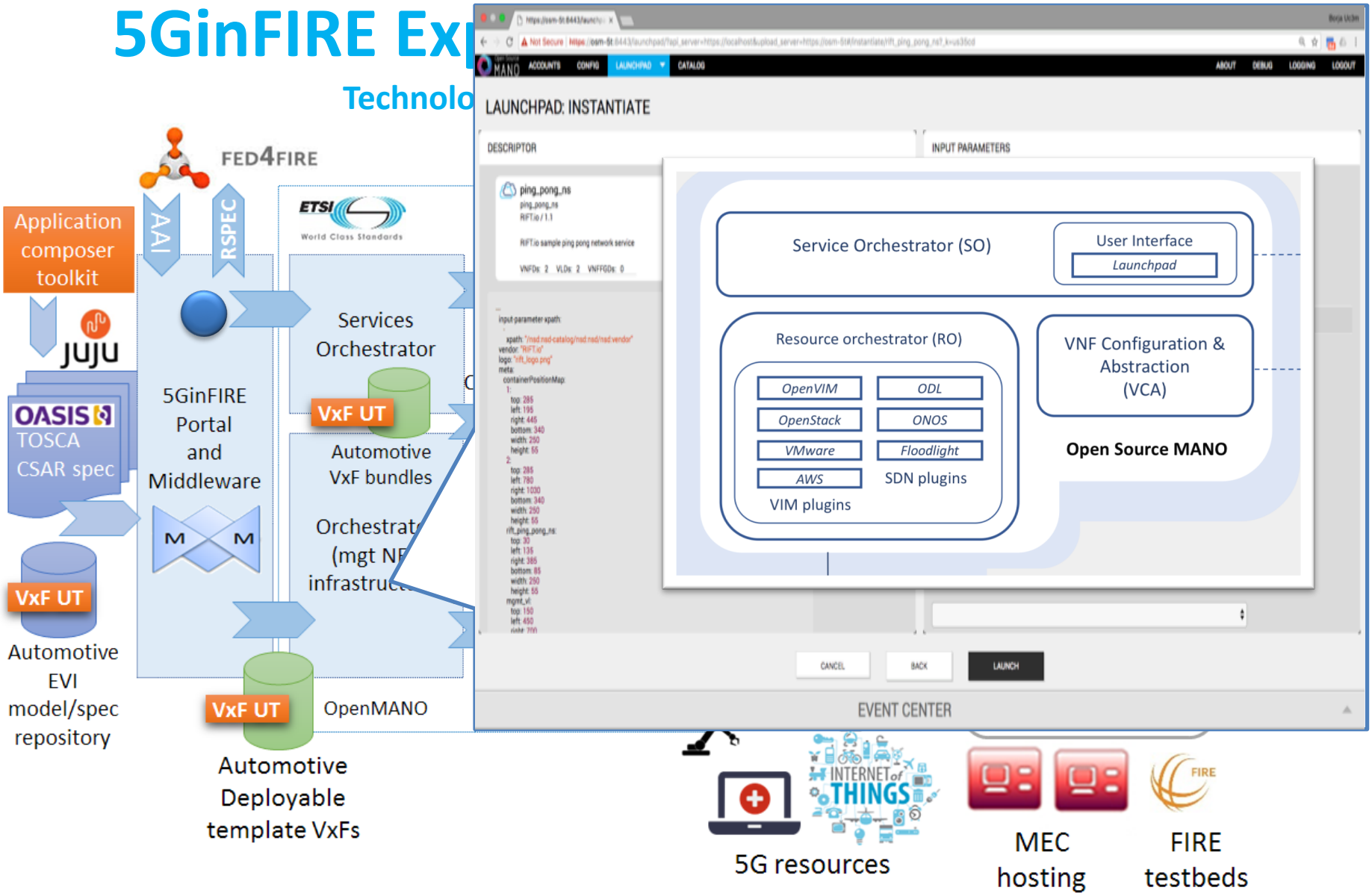
5GinFIRE Experimentation Workflow

Technologies, Infrastructures and Verticals



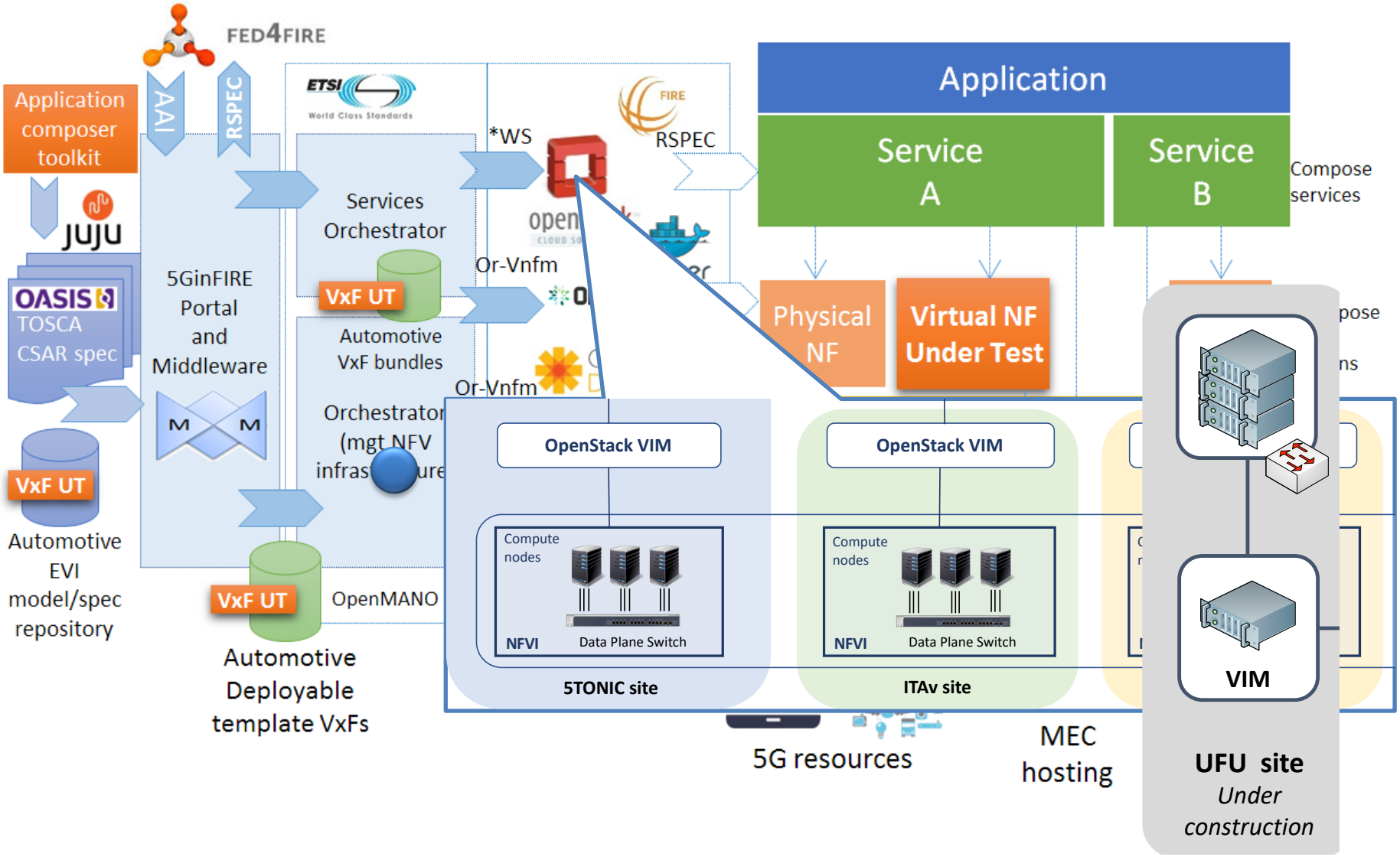
5GinFIRE Exp

Technolo

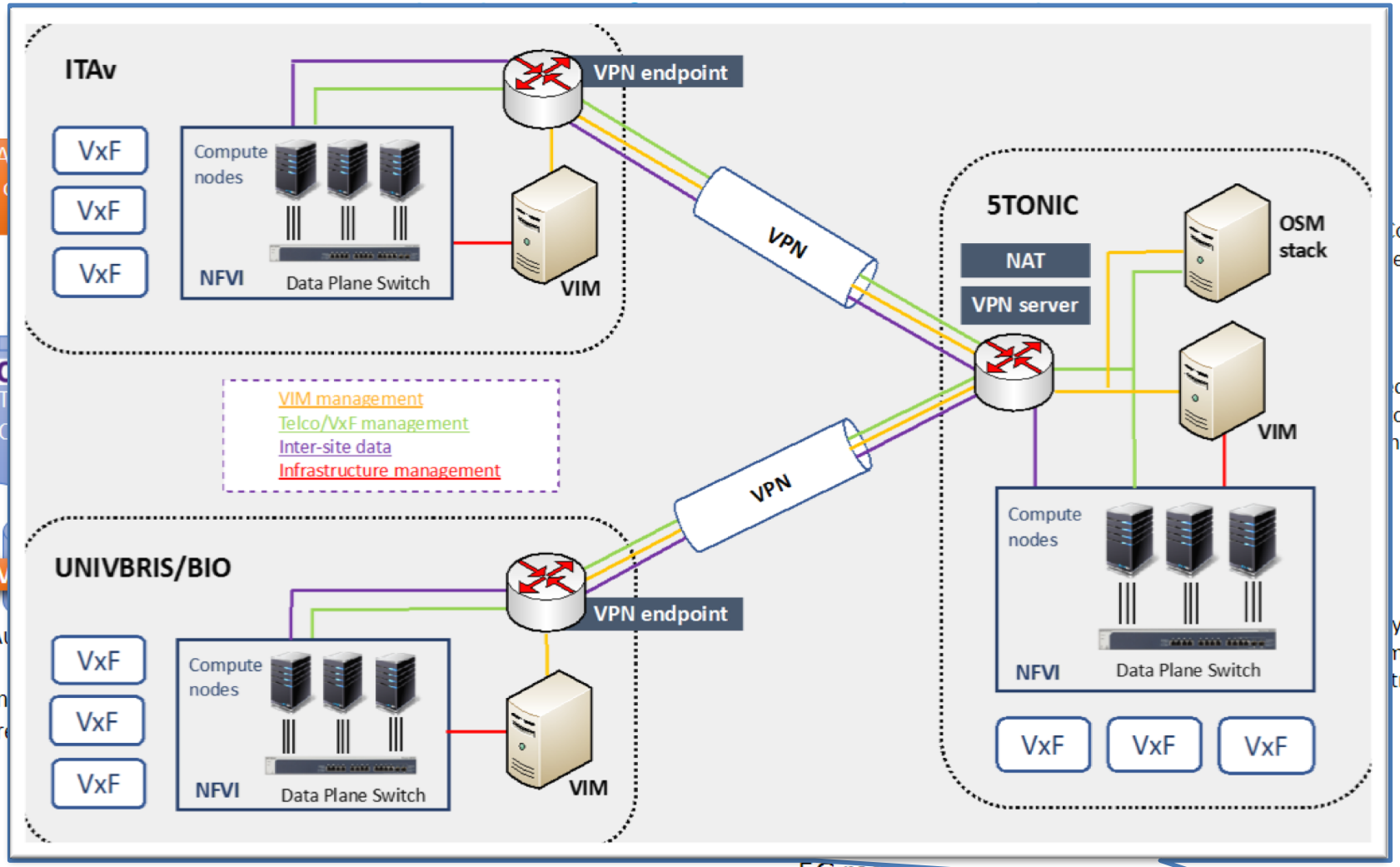


5GinFIRE Experimentation Workflow

Technologies, Infrastructures and Verticals



5GinFIRE Experimentation Workflow



Open Calls

- To allow/enable experimentation in 5GINFIRE
  - By using its experimental facilities
- To improve and enlarge 5GINFIRE experimental facilities
  - New functionalities, new infrastructures
- Two Open Calls are planned
  - Year 1/2 – experiments and infrastructures/functions
  - Year 2/3 – experiments and maybe infrastructures
- ~2,500,000€ available for funding Third Parties

1st Open Call – phase 1

- Opened 1 December 2017
  - Submission deadline: 28 February 2018
- 60% of OC-1 budget offered in phase 1
  - **Phase 2 to be launched in spring 2018**
- **OC2 – autumn 2018**
- Open Call categories
  - Category 1: Invite experimenters to use existing 5GINFIRE facilities (375,000€, max. 75,000€ per proposal)
  - Category 2 (375,000€):
    - Invite open source developers to provide functionalities for 5GINFIRE processes (max. 60,000€ per proposal)
    - Invite designers and facilities providers (from vertical industries) to join 5GINFIRE and offer their facilities for experimentation (max. 125,000€ per proposal)

5GinFIRE Open Source

- 5GinFIRE organization
  - https://github.com/5GinFIRE/
- Portal API
  - https://github.com/5GinFIRE/eu.5ginfire.portal.api
  - https://github.com/5GinFIRE/eu.5ginFIRE.riftioyangschema2java
  - https://github.com/5GinFIRE/nfv-requirements-extractor
- Portal web frontend
  - https://github.com/5GinFIRE/eu.5ginfire.portal.web
  - https://github.com/5GinFIRE/eu.5ginfire.portal.web/wiki (development)
- Sample descriptors
  - https://github.com/5GinFIRE/mano
  - https://github.com/5GinFIRE/ffmpeg_transcoder_vnf
  - https://github.com/5GinFIRE/opencv_transcoder_vnf
- Support Wiki and documentation
  - https://github.com/5GinFIRE/wiki
- Towards OSM THREE support
  - https://github.com/5GinFIRE/eu.5ginfire.osm3im2java

5GINFIRE

EURESCOM

b com

easy global market

Telefonica

ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ

uc3m | Universidad Carlos III de Madrid

Thank You!

University of BRISTOL

UFU

University of São Paulo
Brazil

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.