5GINFIRE: Core MANO Service Management and Orchestration

Status of the MANO platform
8 March 2019

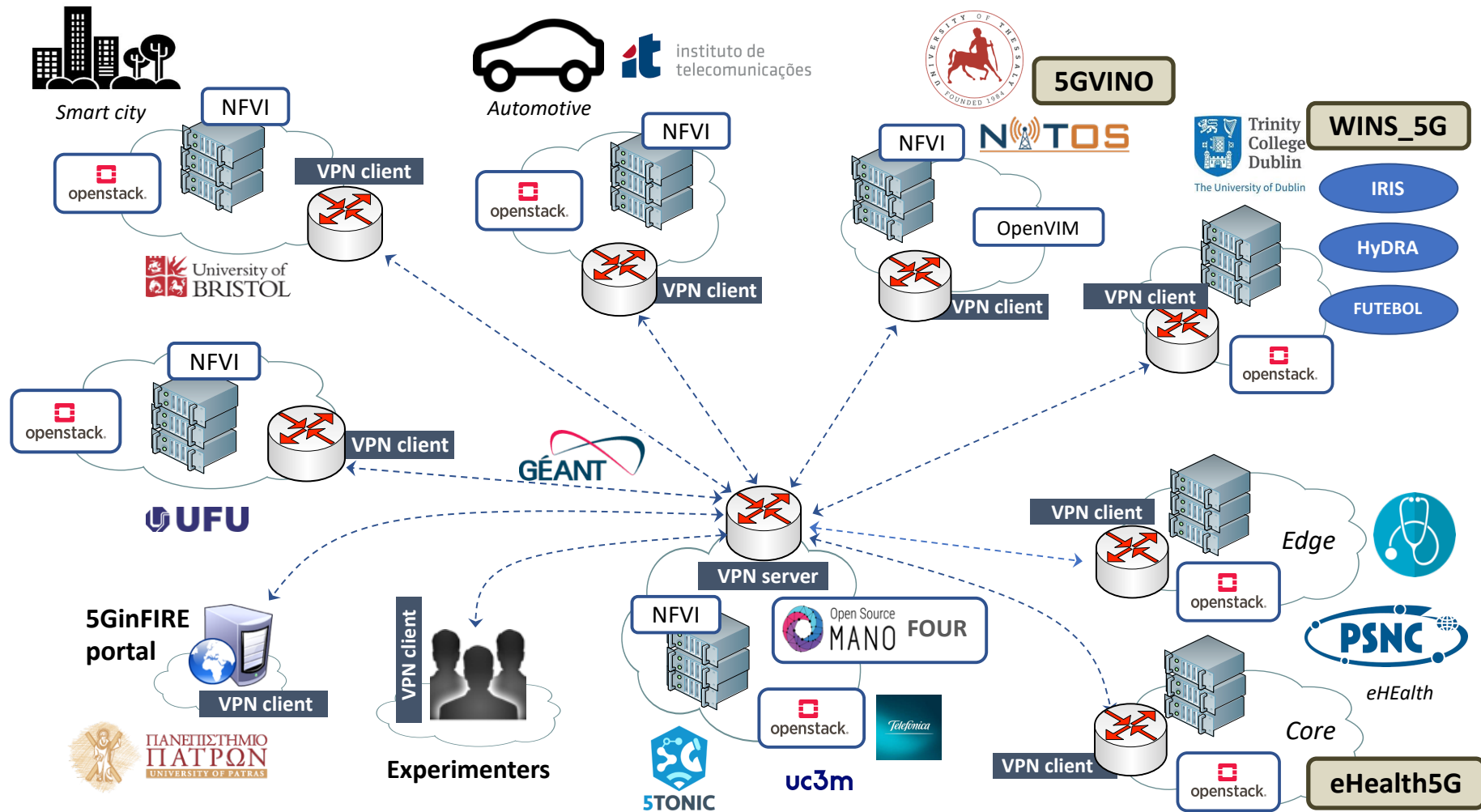5GinFIRE.eu   contact@5GinFIRE.eu   5GinFIRE
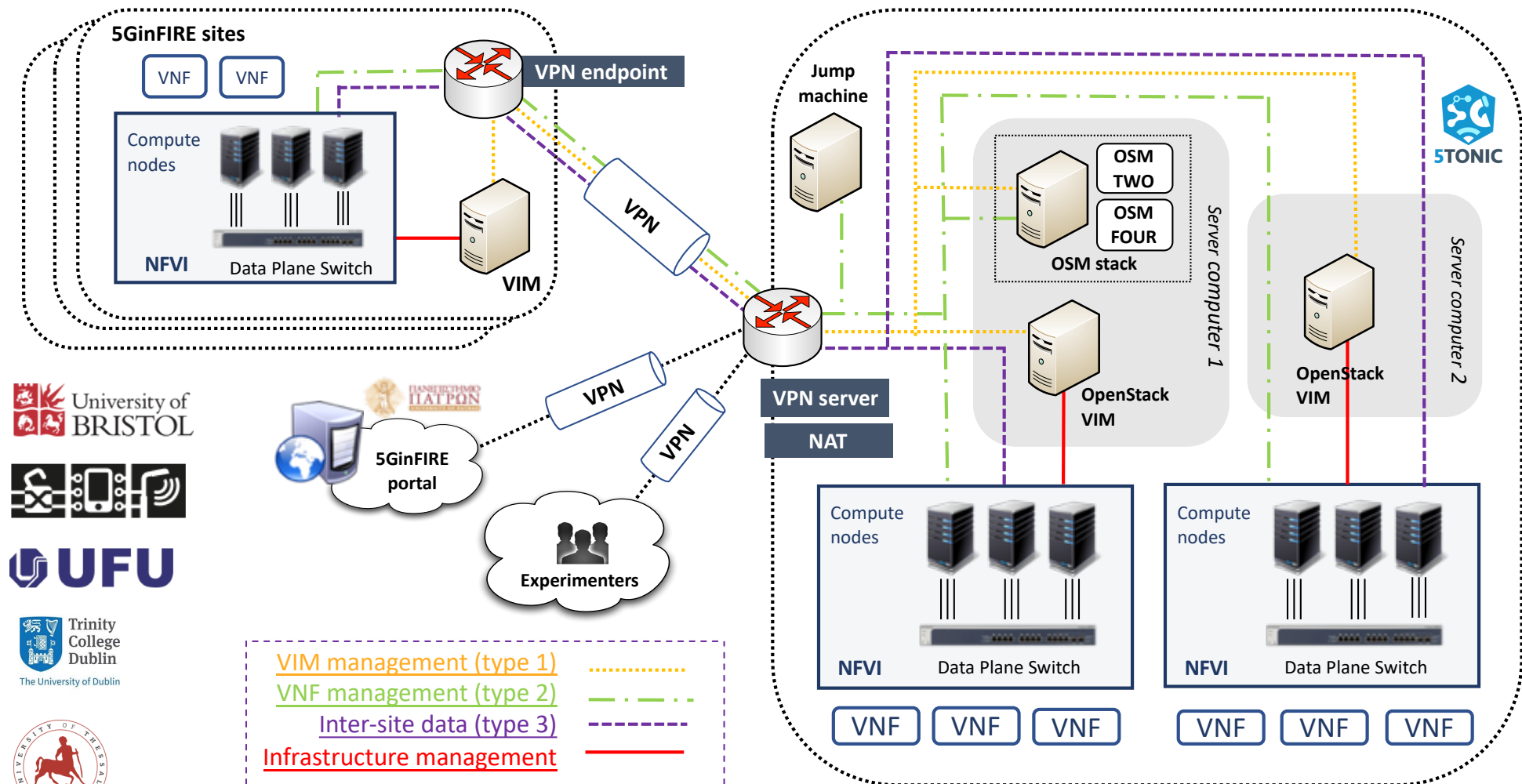
The 5GinFIRE MANO Platform

Architectural Details

5GinFIRE sites

VNF · VNF

Compute nodes

NFVI · Data Plane Switch

VIM

VPN endpoint

VPN

5GinFIRE portal

Experimenters

University of BRISTOL

UFU

Trinity College Dublin — The University of Dublin

PSNC · instituto de telecomunicações

Jump machine

VPN server

NAT

OSM TWO · OSM FOUR

OSM stack

OpenStack VIM

Server computer 1

OpenStack VIM

Server computer 2

5TONIC

Compute nodes

NFVI · Data Plane Switch

VNF · VNF · VNF

Compute nodes

NFVI · Data Plane Switch

VNF · VNF · VNF

VIM management (type 1) ....
VNF management (type 2) —·—·—·—
Inter-site data (type 3) — — — —
Infrastructure management ————

3

Addressing Plan

- Agreements:

> ✓ General address space to be used by 5GinFIRE sites: 10.154.0.0/16
> ✓ Address space to be used at 5TONIC: 10.4.0.0/16
> ✓ Address space reserved for the VPN service: 10.154.255.0/24 & 10.154.254.0/24
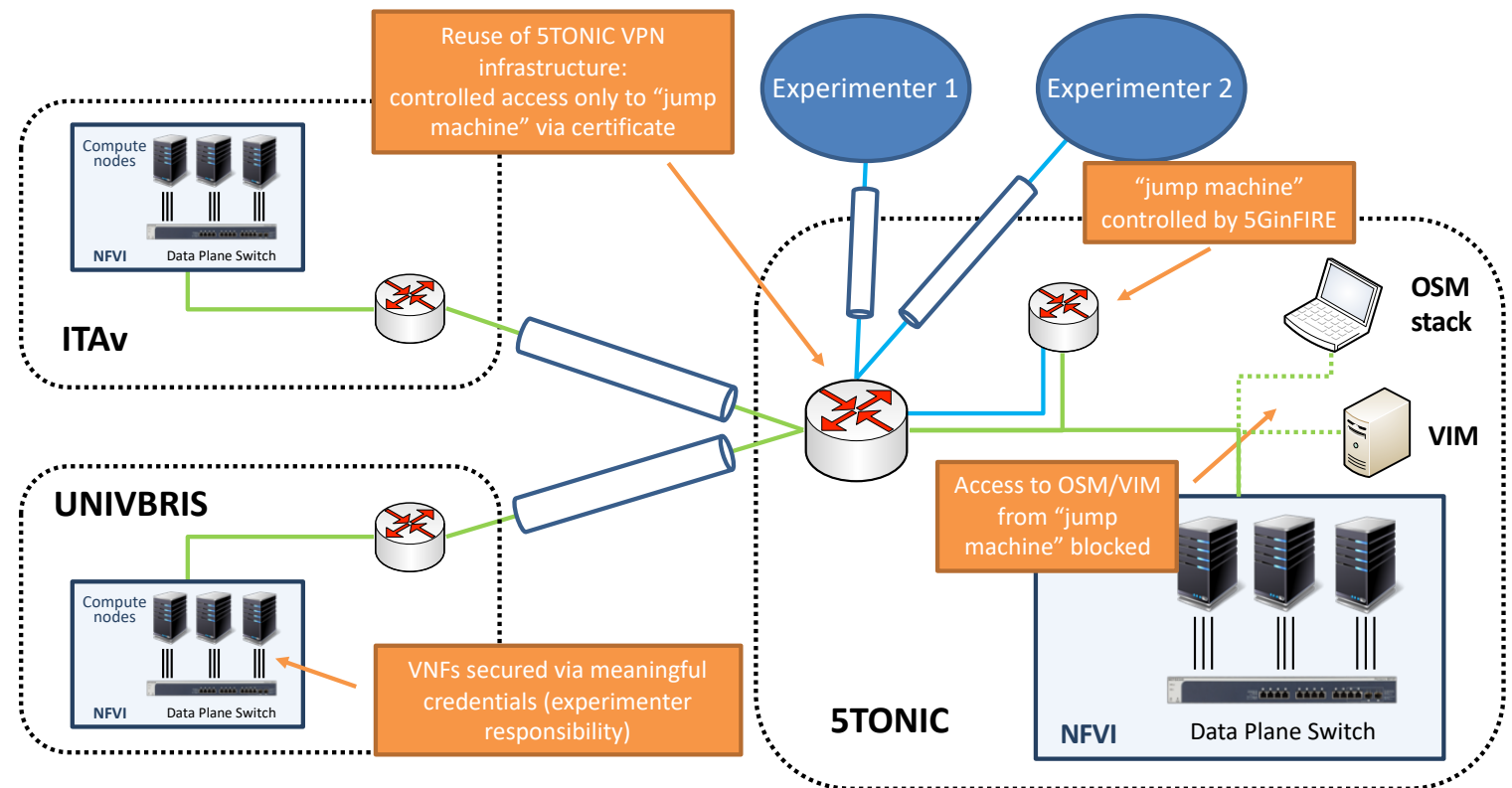
- Current allocation of IP addresses to sites:

Site	IP address space
5TONIC	10.4.0.0/16
ITAv	10.154.0.0/20
UNIVBRIS	10.154.16.0/20
UFU	10.154.32.0/20
WINS_5G	10.154.48.0/20
5G-VINO	10.154.64.0/20
eHealth5G	10.154.80.0/20

Requirements for new sites

1. Utilization of a compliant VIM solution

2. Obtaining an appropriate IP address space, along with VPN credentials, from the *5GinFIRE network operations center*

3. Configuration of the site with the allocated IP address space

4. Configuration of VPN endpoints, to connect the site to the overlay network of 5GinFIRE

5. Configuration of the appropriate VIM networks,
    –   to enable control & data communications with the VNFs deployed at the entity's datacenter,

6. Routing of control & data plane information across the local network segments of the external entity

Accessing the Running VxFs

✓ After deployment, experimenters should be able to access their resources under experimentation (i.e., VNFs)
✓ This is enabled through the VNF management network

Reuse of 5TONIC VPN infrastructure: controlled access only to "jump machine" via certificate

Experimenter 1

Experimenter 2

"jump machine" controlled by 5GinFIRE

OSM stack

VIM

ITAv

Compute nodes

NFVI   Data Plane Switch

UNIVBRIS

Compute nodes

NFVI   Data Plane Switch

VNFs secured via meaningful credentials (experimenter responsibility)

Access to OSM/VIM from "jump machine" blocked

5TONIC

NFVI   Data Plane Switch

✓ Experimenters will be provided a secure access to the 5GinFIRE NFV experimentation environment, through the 5TONIC VPN service
✓ Access rules will be enforced to protect infrastructure resources, blocking undesired flows and enabling the access to VNFs