



**Software Defined Networks and Network Function
Virtualization Testbed within FIRE+**

Grant Agreement N° 687860

SoftFIRE Second Open Call
(Call for Experiments, Guidelines and Rules for Participation)



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1 About SoftFire

SoftFIRE integrates European independent testbeds that are made available with a set of basic functionalities related to Network Function Virtualization and Software Defined Networking. The project is aiming at assessing three major characteristics that an NFV/SDN platform should support: interoperability with various functional elements, programmability of the offered functions and security of the entire framework. The federated infrastructure is devoted to experimentation / development of services and applications. Services and applications are chosen in a competitive way by means of Open Calls. The SoftFIRE Project will support three waves of Open Calls. The different waves will benefit from the incremental empowerment and consolidation of the single testbeds and the federated one.

More information about SoftFIRE can be found here: www.softfire.eu

The current document is about the Second Open Call.

2 Second Call Objectives

The SoftFIRE Consortium invites applications to its Second Open Call for experiments to be carried out on the Federated Testbed.

This Second Open Call of the SoftFIRE project focuses on interworking and interoperability to assess the capabilities of the federated testbeds in providing a single environment for programmable experimentation. Based on the lesson learned of the first open call, the SoftFIRE consortium decided to further enhance the capabilities of its infrastructure, firstly increasing capacity provided by individual testbeds, second re-designing the architecture of the federated testbed exposed to experimenters via the SoftFIRE Middleware. This decision has been taken in order to better support experimenters' requirements. At the moment the testbed is composed by five heterogeneous hardware infrastructures managed by the following partners: University of Surrey, Fraunhofer FOKUS, Ericsson, Deutsche Telekom. All of them are going to provide an OpenStack installation (\geq Newton), and the total capacity of the testbed is not less than 258 vCPUs, 765 GB of RAM, and 3 TB of storage. 5G capabilities will be offered on demand, like mobile core networks and IP multimedia subsystem. However, it is important to clarify that access to the individual OpenStack instances will be granted only via the SoftFIRE middleware, and in most of the cases OpenStack APIs won't be available to be directly consumed by experimenters.

For this reason, the testbed will be aligned with industry-oriented standardisation efforts: TOSCA is going to be exposed to experimenters for deploying and provisioning resources on the federated infrastructure. For this reason, some of the FIRE tools (JFed and FITeagle) and interfaces (SFA APIs) will be most probably depreciated and not available for the second open call. Experimenters could already start to get familiar with the TOSCA APIs and functionalities offered by the Open Baton framework (<http://openbaton.github.io/documentation/>). Although the final ones, which will be exposed by the SoftFIRE middleware will be slightly different, the SoftFIRE consortium will try to maintain compatibility with the functionalities provided by the Open Baton APIs. SoftFIRE will make use of the Open Baton 4th release which will be launched by the end of April. The Open Baton installation in SoftFIRE will provide the following components: NFVO, Generic VNFM, Autoscaling Engine, Zabbix Plugin, and OpenStack driver. Experimenters could also consider to extend the set of components



provided by the Open Baton framework. For this they could make use of the Open Baton SDK and build either a new VIM driver, Monitoring driver, VNF Manager, or external component (using the event mechanism, please refer to the documentation). In this case, the experimenter should host the additional developed components on their own premises and interconnect them to the Open Baton framework via the RabbitMQ message bus.

Monitoring functionalities will be implemented by the Zabbix monitoring system, and will be provided as a service to experimenters. Additional Security features will be added in order to further enrich the potential number of use cases to be developed on the federated testbeds.

In addition to the changes on the SoftFIRE Middleware, the SoftFIRE consortium is working to provide SDN technologies either as virtualised or physical entities available in some of the testbeds provided. Currently, some of the individual testbeds already integrated OpenDaylight controller (ODL Boron SR-2) under OpenStack Neutron to manage the network flows on the compute nodes via the OVSDB 2.7.0 south-bound plug-in. Network programmability could be realised via a set of OpenDaylight RESTCONF APIs exposed by the ODL controller. However, the access to the ODL API will be subject to mechanisms to lower the risk of interfering among virtual object user data configuration. Therefore, access to the SDN technologies may be granted in such a way that each experiment could work independently without interferences from other running experiments.

Please note that these specifications may change according to the progress and the enrichment of the Testbeds.

More details about the status of the development and full documentation will be progressively published by Mid May on the web portal of the project (www.softfire.eu). Proponents and experimenters are advised to check the website in order to receive updates.

SoftFIRE is putting in place a production environment supporting the provided functionalities and will go operational by end of June 2017.

Right before the start of the second wave of experiments, the project will provide a Tutorial describing the novelties and explaining how to properly use the new SoftFIRE production federated testbed. In this way, all the experimenters will be able to start experiments conveniently and in due time.

The proposed experiments and related work plans may address platform enhancements, services offered by the platform or applications running on the platform.

Applicants are suggested to read carefully this document and to refer also to the website of the project for timely information. Applicants can also refer to opencall@softfire.eu to get in contact with the project in case they need to clarify any issues with the Open Call.

Selected applicants will be granted access to the SoftFIRE federated testbed and will receive support from the consortium on how to access to the production Federated Testbed and will receive full documentation.

3 Second Open Call information

Project full name: SoftFIRE - Software Defined Networks and Network Function Virtualization

Testbed within FIRE+

Project number: 687860



Call identifier: SoftFIRE-OC2

Call title: Second SoftFIRE Open Call for Experiments

Total Budget: € 750,000

Maximum Funding per proposal: € 50,000

Type of participants: The typical profile of participants is academics, industrial or SMEs active in the domain of NFV/SDN and 5G research and applications that need to run experiments to test, evaluate and optimize their solutions and applications. The rules of participation are indicated in SoftFIRE Second Open Call: <http://www.softfire.eu/open-calls/>

Duration of the experiment: The maximum allowed duration of each experiment is 3 Months

Language of the proposal: English

Proposal submission: online submission through the [portal](#)

Feasibility Check deadline: 19 May 2017 at 17:00 CET (Brussels time)

Call deadline: 31 May 2017 at 17:00h CET (Brussels time)

Proposal Template: Proposals must use the provided [template](#) (in Word format)

Detailed Call Information: SoftFIRE [Second Open Call](#)

Notification of Acceptance: 21 June 2017

Contact: opencall@softfire.eu

Web address for further information: <http://www.softfire.eu/open-calls/>

For the feasibility check, it is essential that proposers get in contact with the SoftFIRE partners for the proposed experiment to discuss its feasibility within the SoftFIRE federated testbed and the related specific requirements. Each proposer must submit his draft proposal through the submission portal latest by **19 May 2017, at 17.00 CEST** (Brussels time). The draft proposal must contain at least sections A, B and C fully completed. Feedback by the SoftFIRE consortium will be provided latest by 26 May 2017 and has to be indicated in Section D of the proposal template.



4 How to Submit a Proposal

Organisations willing to submit a proposal must do so by using the Proposal Template available on the website.

Proposals are submitted in a two steps phase: first a complete technical proposal (containing Sections A, B and C of the proposal template) has to be submitted for a feasibility check and after the feedback the final version of the proposal that encompasses the suggestions and hints resulting from the feasibility check has to be submitted formally before the deadline.

All detailed Information about the SoftFIRE Second Open Call can be found also on the project's website <http://www.softfire.eu/open-calls/> giving indications on how to structure a proposal, how the proposal should be submitted and the criteria for evaluation.

4.1 Eligibility criteria

Applicants:

- must be eligible for participation in the EC H2020 projects:
http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-a-countries-rules_en.pdf
- can only be selected for funding for one proposal (even if the proposer submitted multiple proposals that are ranked high enough to be selected for funding).

SoftFIRE consortium members cannot apply to this call.

4.2 Results and Deliverables

Applicants must clearly indicate in their proposal the results they intend to achieve and how to measure them providing a set of measurable Key Performance Indicators (KPIs) to be validated during the contract negotiation phase.

Selected applicants will also be requested to produce a final report in which achieved results are clearly reported and documented against the original objectives. They will also be requested to report about their experience with the federated tesbeds and provide hints and suggestions on the NFV/SDN technologies made available by SoftFIRE.

4.3 Proposal template

Applicants must use the proposal template available at www.softfire.eu/open-calls/. In the document, applicants will find instructions specifying the type of information expected per section.

Each section has indicated a limited number of pages. The applicants are sole responsible for completing all required fields in the template according to the instructions.

4.4 Proposal participants



The proposal can be submitted by one legal entity. In case the proposal will be successfully selected, these legal entities will become Subgrantees of SoftFIRE as described in section 6.

4.5 Proposal language

The proposal must be prepared in English.

4.6 Feasibility check

In order to check the feasibility of the proposed experiment, the SoftFIRE project requests to have draft proposal (with Sections A, B and C of the proposal template fully completed) by 9 May 2017, 17.00 CET Brussels Time to be submitted via the submission portal. The draft proposal will be evaluated for its real implementability on the current version of the SoftFIRE Federated Testbed. By 19 May 2017, proposing parties will receive a feedback on the feasibility. They will have time up to the call deadline, 23 May 2017, 17.00 CET (Brussels time), to adapt their proposal accordingly in order to make it aligned with the capabilities of the platform indicating in Section D of the proposal template the feedback received in the feasibility check..

4.7 Submission of proposals

Proposals must be submitted electronically in PDF format ONLY at www.softfire.eu/open-calls/.

If you discover an error in your proposal, and provided that the call deadline has not passed, you may submit a new version. Only the last version received before the call deadline will be considered in the evaluation.

Proposals must be received by the closing time and date of the call. Late proposals, or proposals submitted in any other way than through the online submission form, will not be evaluated.

4.8 Acknowledgement of receipt

As soon as possible after the close of call, an Acknowledgment of receipt will be emailed to you by SoftFIRE. The sending of an Acknowledgement of receipt does not imply that your proposal has been accepted as eligible for evaluation.

5 Evaluation Process

The evaluation will be performed by mixed “internal / external” expert panel. “Internal” experts are from members of the SoftFIRE consortium having the technical knowhow, special knowledge of SoftFIRE testbeds and/or relevant business expertise; external experts are selected according to their specific knowledge of the SDN/NFV and 5G domains.

Please refer to the website for Open Call Calendar at www.softfire.eu.



The evaluation will go through three steps, summarized in Figure 1:

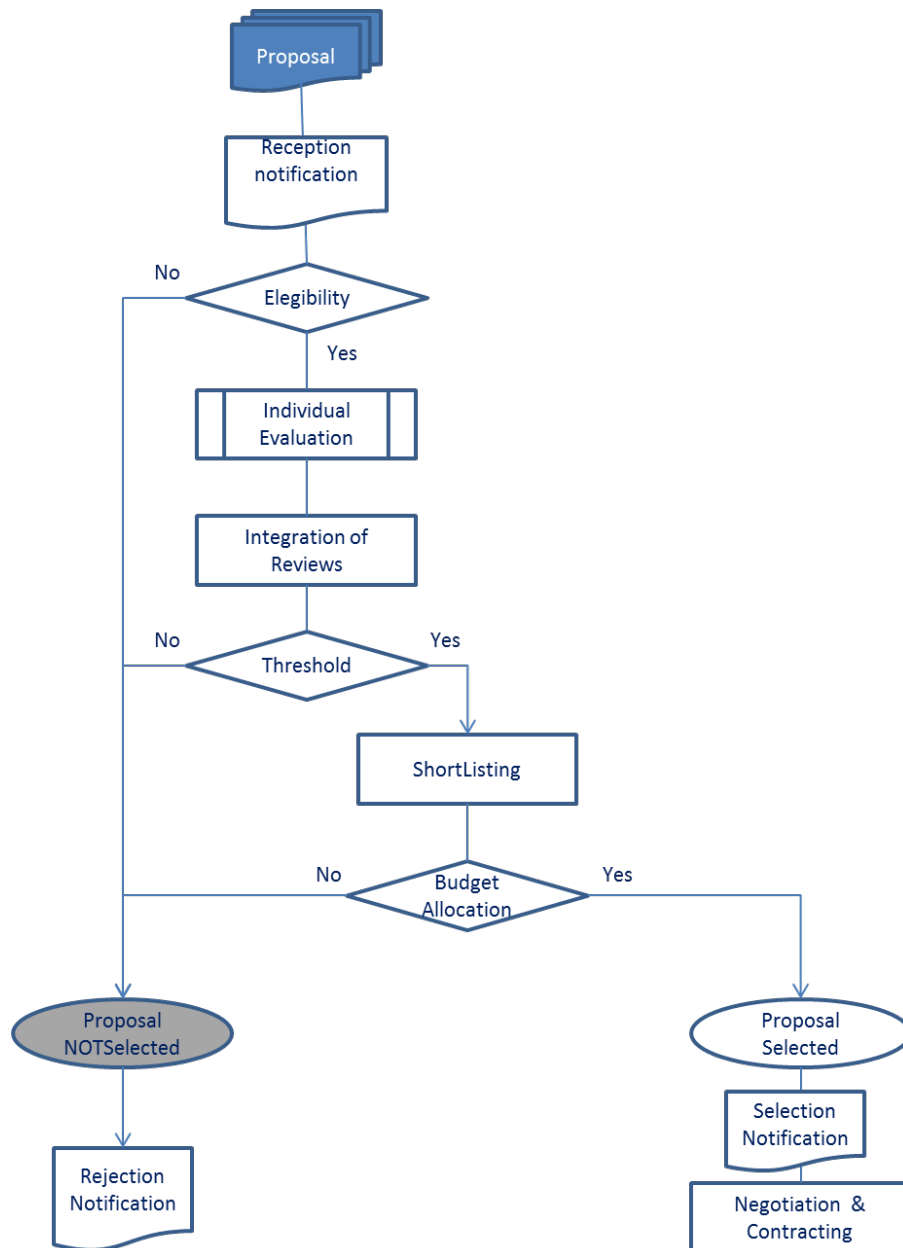


Figure 1: Evaluation Process

5.1.1. Proposal Evaluation Criteria

As a general rule, the level of innovation and novelty, the quality of the proposed experiment and of the executing team will play a major role in the selection process.

All proposals will be ranked based on general criteria:

- Excellence
- Impact
- Implementation

Those general criteria are further elaborated in Table 1.



	Excellence	Impact		Implementation	
Criteria	Technical and Innovation Merit	Contribution to the creation of a SoftFIRE-based Ecosystem	Business Impact and considerations	Practical Feasibility on SoftFIRE testbeds	Technical Soundness
Threshold	7	6	6	Y N (*)	7
Weight	0,35	0,15	0,20		0,30
P r o p o s i t i v e	Relevance of the proposal for SoftFire federated testbeds	Potential to increase knowledge at the European level and differentiate the proposition	Desirability/need of the proposed service/function and market perspective	Implementability on the SoftFIRE infrastructure	Clarity and quality of the proposal
	Appropriateness of technical and methodological approach (interoperability, programmability and security)	Clarity and Quality of the Technological benefits for an European Ecosystem		Alignment of the Project with respect to SoftFIRE constraints	Quality of the proposing group
	Originality and innovative value of the proposed features/tests and their relation to the status of the art	Contribution to standards or open interfaces		Compliance to the feasibility check suggestions	Quality of the workplan
	Potential of exploitation/inclusion in SoftFire of [proposed functionalities and features (including legal/admin aspects)]				Quality of the team
(*) This is a binary criteria: the proposal is feasible or not on SoftFIRE platform					

Table 1: evaluation Criteria

The proposals submitted by parties who have not yet been or are not participating in FIRE-projects or Open Calls from FIRE-projects will receive an extra 1 point on top on the criteria “Contribution to the creation of a SoftFIRE- based Ecosystem”. This measure is introduced to positively discriminate such new players and open the SoftFIRE federated testbed to a wider community.

Based on the received scores, proposals will be ranked and shortlisted. Shortlisted proposals will be invited to negotiate the final terms of the agreement, including the workplan, budget and relevant results/achievements.

6 Relationships with SoftFIRE consortium and funding scheme

6.1 Administrative Duties

Selected organizations will become a Third Party of the consortium using Cascade Funding (also known as sub-granting). In the remainder of this document a 'Third Party using Cascade



Funding' is referred to as Subgrantee.

Contracts with the Subgrantee will be done by SoftFIRE's coordinator, EIT Digital IVZW.

Any legally binding commitment from the side of EIT Digital IVZW shall be subject to the entering into a written contractual agreement between EIT Digital IVZW and the Subgrantee

The administrative tasks for the Subgrantee, including cost and activity reporting obligations and related documents will be provided during the negotiation and contracting phase.

At the end of the project the Subgrantee will submit a "Final Report" consisting of:

- An Activity Report containing an analysis of the achieved results against those negotiated in the contract. The Subgrantee shall also report about its experience with the federated tesbeds and provide hints and suggestions on the NFV/SDN technologies made available by SoftFIRE .
- cost report detailing all eligible costs incurred.

Eligible costs consist of personnel costs, direct costs (such as travel, equipment, etc.) and indirect costs. Subgrantees have to comply with the rules and the principles mentioned in Section I, Article 6 (Eligible and ineligible costs) of the H2020 AGA – Annotated Model Grant Agreement (see http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf), in the same way as the beneficiaries. The rules concerning eligibility of costs, identification of direct and indirect costs and upper funding limits can be found in Section I, Article 22 of the H2020 AGA.

6.2 Funding scheme

The following payment scheme will apply:

- 25% of the agreed upon funding will be provided at the time the contract is signed.
- Based on the evaluation of the final report, a payment of up to 50% of the requested funding will be carried out by the project coordinator.
- The remaining 25% will be paid following the formal approval of the final report and corresponding work by the European Commission (EC).

7 Support to Experimenters

7.1 Call Helpdesk

For further information on the call, contact: opencall@softfire.eu;

For more general information, please refer to info@softfire.eu

7.2 Useful Documents

- SoftFIRE Second Open Call (this document)



- SoftFIRE Handbook (D2.3 SoftFIRE (v2) usage manual for NFV/SDN/MEC and 5G experimenters WP2 Infrastructure Programmability, Security and Experimentation Enablement)
- SoftFIRE Template for Experiment Proposal

Please refer to <http://www.softfire.eu/open-calls/> for the complete documentation.

7.3 Foreground rights

The IP of the experiment's results generated by the Subgrantee will be owned by it if the SoftFIRE consortium and its partners are granted access to it for the pursuance of the project objectives and the exploitation of its results, in accordance to what is specified in the Grant Agreement. Details will be defined during the negotiation phase.

7.4 Federated Testbed Availability

The Platform will be operational during these time frames:

Working hours: 10:00 a.m. to 5:00 p.m. CEST
Monday to Friday GMT

Outside this timeframe: issues/requests will be emailed and managed at best effort.

Please check your local time correspondence (<http://www.worldtimebuddy.com/>).

7.5 Constrains and Limitations during the Experiments

The SoftFIRE infrastructure is composed by loosely integrated platforms under different administrative domains. In addition, the different platforms are built for experimental purposes and they are not yet considered a mass production tool. This means that bugs and issues in the platform behaviour can occur and will occur. Actually, the scope of the experiments is also to support the tune up and the assessment of the platform as a whole.

The Platform is still under development and it has a basic set of functionalities that have to be tuned up and it is missing a number of features that will be progressively added in the future. SoftFIRE is by no means to be considered a product and so the usual support for software development cannot be granted.

Even if SoftFIRE aims at programmers, not all the features to allow for a fast programming approach are provided. This is due to differences in the component testbeds and to security controls imposed by different administrative domains. The programming phases could result cumbersome and not particularly attractive; however, they may improve along the lifetime of the project.

Service level agreement (SLA) agreements do not apply during the experimentation phases. Because this is a period to test and explore SoftFIRE, the experimenters should not run production applications on the infrastructure Platform during the trial.



The SoftFIRE project reserves the right to discontinue at any time the service if the use is not consistent with the purpose of SDN/NFV and/or violate any aspects of infrastructure security or shall conflicts any on-going experimentation.

During the running period of the experiments, the SoftFIRE project will put in place a team that will support the experiments in their work on the platform. It is not offered as a professional service and its operations will be on the basis of best effort. The entire infrastructure is α -test platform. Possible downtime could occur without notice or due to overload caused by parallel experiments.

SoftFIRE will offer expertise available by email (with possible follow-up by phone) and two hours per day during the experimentation phase in order to collect issues and provide responses. We will try to provide most of the answers by 24 hours (typically next morning or afternoon). Some issues could be not solvable due to the short time of the experiment period or due to the need to intervene on the platform. The supporting team will work with experimenters to circumvent the problems.

The project will also issue limits and constraints on the allocation of available resources. This is due to the need to support and allow parallel experimentations. These limitations depend on the total capabilities of the federated platform as well as the number of experimenters and their requests in terms of resources. Typical limitations could be related to the max number of VMs to be instanced, the number of physical resources usable or the max memory usable per experimenters. Other limitations could apply, or be notified during the course of the experimentations.

Additional information for the experimenters will be updated in the SoftFIRE portal at <http://www.softfire.eu>



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