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D8.3 Roadmap for the Federation Standardization Task Force

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Abstract	This document describes the way that the Federation Standardization Task Force will be established and of how it will operate. Two phases are considered: a phase of study, discussion, and consensus building followed by the establishment of a Task Force charter. The document describes the planning of the different actions to be taken and concerns to be investigated by the Federation Standardization Task Force.
Keywords	Standardization

Nature of the deliverable	R	Report	X
	P	Prototype	
	D	Demonstrator	
	O	Other	
Dissemination level	PU	Public	X
	PP	Restricted to other programme participants (including the Commission)	
	RE	Restricted to a group specified by the consortium (including the Commission)	
	CO	Confidential, only for members of the consortium (including the Commission)	

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Executive Summary

This document describes the way that the Federation Standardization Task Force will be established and of how it will operate. We have identified three general areas requiring standardization:

1. the Slice-based Facility Architecture, or **SFA**, which is a set of APIs;
2. resource specifications, or **RSpecs**, which we also refer to as ontologies;
3. the Federated Resource Control Protocol, or **FRCP**.

We do not at this point choose to go in the direction of an international standards setting body, despite the advantages that would accrue from associating ourselves with an existing body, with established practices and a reputation for rigour. Our main concern is the overhead. Nor do we choose to simply allow running code to be the de facto standard, despite the advantages this approach has in low overhead. The principal reason to avoid this direction is because the community, while small, has still attained a certain size. Under this roadmap, we will produce documents that resemble the standards of well-established bodies, but we will not, at least in the first year, do this through participation in such a body. Note that the name Federation Standardization Task Force is a place-holder, written at the time of the Fed4FIRE proposal, but clearly not specific enough (federation of *what*?). Therefore we dub the overall environment a *multinet*, and we will use the name Open Multinet for our standardization efforts.

For this purpose we will start with Fed4FIRE partners and build the community outward from there. The first specifications will be produced as part of Fed4FIRE's first development cycle. From the beginning, any individuals from outside the project who wish to participate will be welcome to do so. But we will only actively solicit widespread participation once we have established a first set of documents to serve as a basis for meaningful exchange.

Authors and editors will receive full credit for the documents that they produce. This is to say that the documents will be clearly attributed to them, and the terms under which the documents are licensed will require that this attribution be maintained. Copyright is a separate issue from credit, and authors will assign their copyright that is automatically theirs under the Berne Convention to a small group of institutions that will hold it in trust for the community as a whole. We will follow the W3C model and aim for a small group of institutions from around the world, to hold the copyrights in trust for the community. We start within the Fed4FIRE project with UPMC, author of an SFA specification, for Europe, and with NICTA, author of the FRCP specification, for Australia. We would then look for one partner from North America, one from Asia, and one from South America. We will start by licensing the documents under the liberal Creative Commons Attribution 3.0 Unported license (CC BY 3.0), which requires attribution. We will also study the licensing considerations of standards bodies such as the IETF, to consider whether other licensing provisions might be called for.

To have a relatively lightweight framework for standardization, we seek to reduce (though we cannot necessarily eliminate) the need for face-to-face meetings. So we primarily organize ourselves around websites and mailing lists. To be more concrete, the following infrastructure will be put in place: a public website, mailing list, git repository, wiki, and document editing software based on AsciiDoc.

At first, those who are engaged in the process can proceed by consensus. But over time, especially if the work takes on a larger dimension and importance, some formal governance procedures might be required. During the international workshop on sustainable standardization for facility federation, which we will organize on or about March 2014, governance will be a topic of discussion based upon the experience of the first year of standardization work. Targeting the same workshop as a forum for discussion, Open Multinet will develop the following documents as part of Fed4FIRE's first development cycle by October 2013, leaving enough buffer for a thorough preparation by the workshop's participants:

Specification of SFA API's: specification of the APIs needed for the SFA framework, to be decided, but based on current implementations: Aggregate Manager API, Slice Authority API, Identity Provider API, Clearinghouse API.	UPMC and iMinds
Ontology based RSpec: covering several aspects such as a baseline ontology, one or more domain specific ontologies and the applied mechanisms for serialisation in XML.	Fed4FIRE taskforce led by TUB and iMinds
FRCP specification	NICTA

At this point in time, we believe it is only prudent to plan in detail these first steps, extending one year into the future. We hope to generate community and involvement in the creation and maintenance of these specifications. We hope to extend that community worldwide. But we cannot predict at this point in time how the process will unfold, as it depends upon acceptance and involvement of those outside the project. We will assess advancement at the March 2014 international workshop on sustainable standardization for facility federation. Our conclusions and plans for further development will be delivered in the first report on the Federation Standardization Task Force (deliverable D8.6 at Month 18). The ultimate goal will remain to have a functioning system for community agreement on specifications that endures beyond the end of Fed4FIRE.

Acronyms and Abbreviations

ACM	Association for Computing Machinery
API	Application Programming Interface
CC0 1.0	Creative Commons Public Domain Dedication license
CC BY 3.0	Creative Commons Attribution 3.0 Unported license
CMS	Content Management System
CVS	Concurrent Versions System
ERCIM	European Research Consortium for Informatics and Mathematics
FIRE	Future Internet Research and Experimentation
FRCP	Federated Resource Control Protocol
GENI	Global Environment for Network Innovations
IEEE	Institute of Electrical and Electronics Engineers
IETF	Internet Engineering Task Force
INRIA	Institut National de Recherche en Informatique et en Automatique
IRTF	Internet Research Task Force
ITU	International Telecommunication Union
MIT	Massachusetts Institute of Technology
NDL	Network Description Language
NICTA	National ICT Australia
PLJ	PlanetLab Japan
PPK	Private PlanetLab Korea
RDF	Resource Description Framework
RFC	Request For Comments
RSpec	Resource Specification
SFA	Slice-based Facility Architecture
TUB	Technische Universität Berlin
UPMC	Université Pierre et Marie Curie
W3C	World Wide Web Consortium
XML	Extensible Markup Language

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1 Introduction

Fed4FIRE is putting in place a federation of testbeds for experimentation in networked computing environments. To enter into this federation, an individual testbed exposes a set of common APIs for running experiments. Users employ software programs, or "tools", to manage part or all of the experiment lifecycle, which includes browsing and reserving available resources, configuring those resources, running experiments, collecting data, and releasing the resources. These client-side tools are written to interact with the APIs exposed by the testbeds. Since all testbed owners and all tool developers need to work from a common set of specifications, there is a need for standardization, meaning that the community needs clear documents to serve as common points of reference.

The community in question extends well beyond the partners in the Fed4FIRE project, to others in Europe and across the world. It is a community that is not simply waiting to receive standards from Fed4FIRE. It consists of actors who, in some cases, have themselves authored significant specification documents. Other parties wish to have an active role in shaping these specifications as they move forward. So it is not sufficient to produce these standards simply as project deliverables. There needs to be a forum in which all those concerned can participate. Our goal, in Fed4FIRE Task 8.3 "Sustainable standardization", is to create this forum.

This Roadmap for a Federation Standardization Task Force describes our plans for proceeding step by step, in dialogue and coordination with those outside of the project, seeking consensus at each point, as we move forward to create the standards that we need. Section 2 examines the points that we must take into consideration when defining our plans, and Section 3 lays out the roadmap. Since much depends upon people outside of the project, we can set goals but we cannot predict too far in advance how the process will unfold. At this point, we detail our plans going forward one year, to an international workshop that we will organize around the standardization effort. The workshop is Fed4FIRE milestone MS81, to be held on or about March 2014. At that time, we will produce a report, Fed4FIRE deliverable D8.6, in which we will describe the lessons learned from the first year and the workshop, and make plans going forward. These plans will be further updated in deliverables D8.10, D8.13, and D8.16, taking us through the end of the project, by which time our goal is to have a process that endures beyond the project's lifetime.

2 Considerations

This section examines the issues that need to be taken into account when designing a standardization roadmap, and the following section describes the roadmap.

2.1 Areas requiring standardization

The first few months of the Fed4FIRE project have been devoted to preparing an architecture for the federation of experimental facilities in networked computing environments. As a result of this process, we have identified three general areas requiring standardization:

1. the Slice-based Facility Architecture, or **SFA**, which is a set of APIs;
2. resource specifications, or **RSpecs**, which we also refer to as ontologies;
3. the Federated Resource Control Protocol, or **FRCP**.

These are amply described in the project's architecture documents (Vermeulen, et al. 2012), so we just briefly recap here.

In the testbed context, SFA and FRCP are used in different parts of the experiment control lifecycle. SFA is concerned with the authentication of users and allowing them to browse, reserve, and release the resources that they require for their experiments. Through FRCP, a user can control these resources to run his or her experiment and to collect the data relating to that experiment. The RSpecs are documents that describe the resources.

At present, there are a few reference documents, notably the GENI Aggregate Manager API documentation (GENI 2013), the OpenSFA documentation (Augé 2012), and the FRCP documentation (Rakotoarivelo 2013). But none of these documents has yet been adopted community-wide. Nor is there a process for international discussion and update of the documents. Under this roadmap, we will start from existing documents and aim to bring about the widest possible consensus around their content as it evolves.

2.2 The community

The community that is being built around SFA, RSpecs, and FRCP is, today, largely confined to European institutions participating in the FIRE initiative and American ones in GENI. There are a few exceptions. Notably, NICTA, in Australia, has created FRCP. In Brazil, there are partners in the EU-Brazil FIBRE project that are applying some of these specifications. In Asia, the PlanetLab Japan (PLJ) and Private PlanetLab Korea (PPK) testbeds both use parts of these specifications, and NIA in Korea which will be adopting them for a testbed as part of its role in Fed4FIRE.

In attempting to bring about worldwide collaboration, working with participants in Australia will be the easiest part of our task, as NICTA is a Fed4FIRE partner and a co-author of this document. The challenge in finding South American and Asian participants will be one of identifying those people who have a sufficient interest in a standardization effort, as none to date have, to the best of our knowledge, authored SFA, RSpec, or FRCP specifications. The challenge with North America is the opposite, there being several people in the United States who are co-authors of specifications, who are fully engaged in the processes that GENI has established. They may well find it cumbersome and of limited use to engage in another process.

Under this roadmap, we will start with Fed4FIRE partners and build the community outward from there. The first specifications will be produced as part of Fed4FIRE's first development cycle.

From the beginning, any individuals from outside the project who wish to participate will be welcome to do so. But we will only actively solicit widespread participation once we have established a first set of documents to serve as a basis for meaningful exchange.

2.3 Degree of standardization

But the term "standardization" can mean various things, and so we should clarify what we mean by the term here. There is a strong approach to standardization, which involves the issuance of written standards by an official, internationally recognized, standards body, such as the IETF, IRTF, W3C, IEEE, or the ITU. There is also a less formal approach, which is to let running code be the de facto standard, without writing down the specifications in a separate document.

We do not at this point choose to go in the direction of an international standards setting body, despite the advantages that would accrue from associating ourselves with an existing body, with established practices and a reputation for rigour. Our main concern is the overhead. Those who have participated in the process can testify to the considerable investment of time and energy required. Nor is it at all clear that such standards setting bodies (with the possible exception of the IRTF) would have an interest at this time in standardizing APIs for experimentation in networked computing environments. The community is not large enough, the APIs are not mature enough, and there is not yet a commercial interest of any significance. As the situation is evolving, we leave open the possibility of moving in this direction at some time in the future.

Nor do we choose to simply allow running code to be the de facto standard, despite the advantages this approach has in low overhead. The principal reason to avoid this direction is because the community, while small, has still attained a certain size. There are not just a few testbeds, but dozens, and the same is true of tools. Negotiations among a small, tightly-knit group of developers works well in the smaller environment, but does not scale easily to the larger one. Beyond the testbed developers and tool developers, actors include people who are not developers, who might be scientists, users, managers, or others, whose voices are important when coming to agreement on how to proceed.

Under this roadmap, we will produce documents that resemble the standards of well-established bodies, but we will not, at least in the first year, do this through participation in such a body.

2.4 Credit, copyright, and licensing

Authors and editors will receive full credit for the documents that they produce. This is to say that the documents will be clearly attributed to them, and the terms under which the documents are licensed will require that this attribution be maintained. Copyright is a separate issue from credit, and authors will assign their copyright that is automatically theirs under the Berne Convention (WIPO 1979) to a small group of institutions that will hold it in trust for the community as a whole.

Assigning copyright is the norm. For instance, authors of IETF RFCs used to assign their copyright to the Internet Society, and since 2009 they assign it to the IETF Trust (IETF 2009). Similarly, authors of W3C standards used to assign their copyright to three institutions, one each from the United States, Europe, and Asia: MIT, INRIA, and Keio University; more recently, ERCIM, a pan-European institution, has taken the place of INRIA (W3C 2002). Authors of scientific papers assign their copyright to the learned society (e.g., IEEE or ACM) or publisher (e.g., Elsevier or Springer) who publishes the article.

One great advantage of vesting copyright in a small group of institutions is to ease the management of the documents. We cannot now anticipate the future directions that the community will wish to take. Some changes, such as a hypothetical decision to continue the standardization effort within the IRTF, might require the transfer of copyright, just as the changes at the IETF and the W3C did. This would be unworkable if all authors and/or their institutions were copyright owners, but possible to do with a small group.

Under this roadmap, in the absence of a unitary standards body, we will follow the W3C model and aim for a small group of institutions from around the world, to hold the copyrights in trust for the community. We start within the Fed4FIRE project with UPMC, author of an SFA specification (Augé 2012), for Europe, and with NICTA, author of the FRCP specification (Rakotoarivelo 2013), for Australia. We would then look for one partner from North America, one from Asia, and one from South America.

The FED4FIRE Consortium Agreement (Article 8.2 "Transfer of Foreground") and the FED4FIRE Grant Agreement (Article II.27.3) impose a procedure for the transfer of foreground to third parties. An important action still to be taken is that all Parties to the Consortium Agreement accept that he transfer intended hereunder will be considered to be similar to a transfer to a party listed in Attachment 5 to the Consortium Agreement and no Party to the Consortium Agreement will therefore oppose such transfer. This might result is some refinement of the transfer intended hereunder.

The terms under which the copyrighted documents are licensed is yet another issue. If the documents are freely available and reproducible, including reproducing an entire document or extracts of any length from the document, people will be more likely to adopt the standards than if the documents must be purchased or if there are cumbersome licensing restrictions on the documents. The most liberal form of licensing is to release a work into the public domain, which could be done, for instance, through a Creative Commons Public Domain Dedication license (CC0 1.0) (Creative Commons s.d.). However, this might be demotivating to potential document authors, who could potentially see their work released without attribution.

Under this roadmap, we will start by licensing the documents under the liberal Creative Commons Attribution 3.0 Unported license (CC BY 3.0), which requires attribution. We will also study the licensing considerations of standards bodies such as the IETF (Halpern 2008), to consider whether other licensing provisions might be called for.

As the FED4FIRE Consortium Agreement and the FED4FIRE Grant Agreement impose that for any transfer to a third party the rights of the other Parties to these Agreement are safeguarded, these rights of the other Parties will be explicitly included in the license agreements.

2.5 Naming

We require a name to serve as an umbrella for the standardization efforts. Federation Standardization Task Force is a place-holder, written at the time of the Fed4FIRE proposal, but clearly not specific enough (federation of *what*?). Although Fed4FIRE is working in the area of testbeds for experimentation in networked computing environments, choosing a name specifically related to testbeds and/or experimentation would be too narrow. SFA, the RSpecs, and FRCP will, when mature, be perfectly suitable for use in production environments unrelated to any experimentation purpose.

SFA, the RSpecs, and FRCP, together enable a user to control an entire network, with all of the resources in that network. Simultaneously, other users can control other networks. This comes about either through virtualization or by division of available resources among users. We dub the overall environment a *multinet*, and we will use the name Open Multinet for our standardization efforts.

2.6 Infrastructure

To have a relatively lightweight framework for standardization, we seek to reduce (though we cannot necessarily eliminate) the need for face-to-face meetings. So we primarily organize ourselves around websites and mailing lists.

We could use a commercially-provided free group management service, such as Yahoo Groups or Google Groups, but this might present an obstacle to some industrial participants, who, in our experience, have indicated their objections in the past based upon intellectual property concerns. We could also consider services such as SourceForge or Redmine, but these are primarily oriented towards code development. We will therefore set up and maintain a number of servers.

To start with, the infrastructure will consist of the following:

- A **public website** built around a content management system (CMS). The purpose of this website is to communicate about the standardization efforts, and direct interested people to where they can participate. This website will be managed by a person at UPMC who has scientific communication skills, and who is not necessarily involved in the standardization process itself. The CMS should be a commonly used one, such as Wordpress, Joomla, or Drupal, to allow ease of design and editing for someone who is not specialized in code development.
- One or more **mailing lists** for discussion, enabling easy subscription management and archiving of conversations. A forum or bulletin board system could also be considered, if it seems that the mailing list approach is not adequate, but we will start with mailing lists. To start with, we will the Mailman software to run the mailing lists, as this is widely used in our community and people are familiar with how to manage their e-mail subscriptions using it. UPMC has experience running Mailman and accompanying spam protection mechanisms.
- A **repository** for documents. These will be kept in open repositories that can be freely examined via the web and that can handle multiple contributors. Standard version control systems such as CVS and git are appropriate for this, and we plan to use git.
- Possibly, a **wiki**. It might be that a collaborative workspace beyond the one provided by the git repository would be needed. If this is found to be the case, UPMC could install a trac, MediaWiki, TWiki, or other wiki instance. At this time, no wiki has been created.
- **Document editing software**. We will be producing specifications that people will wish to view either as paper documents or as web pages, so we seek a document editing system that produces both. The pure text RFC format employed by the IETF (in which documents are typically generated using nroff) was no doubt right for its time in terms of ensuring the ability of people to read the documents years later, but other solutions are no doubt acceptable today. We have considered LaTeX and DocBook, both of which create both (paper-oriented) PDF and HTML, and both of which have facilities for rendering code, which is important for API specifications.

At the present time, we have opted for the AsciiDoc format, because it is a fairly lightweight wiki-style markup that reads reasonably clearly as text in its raw form. This is as opposed to LaTeX or DocBook formats, in which markup tags dominate. AsciiDoc source documents are in text format, and they can be compiled using free command-line tools into a number of formats, including PDF and HTML. If one wishes to use the additional control over document style afforded by LaTeX or DocBook, AsciiDoc can be compiled into either of these formats, and then further compiled into PDF and HTML.

2.7 Governance

We envisage, at least to start, a mode of functioning that is much like in open source software projects. There is a group of committers, and division of effort among those committers. To bootstrap the process, UPMC will guide the work. But the aim is to hand over control over individual documents to different participants as quickly as possible.

At first, those who are engaged in the process can proceed by consensus. But over time, especially if the work takes on a larger dimension and importance, some formal governance procedures might be required. During the international workshop on sustainable standardization for facility federation, on or about March 2014, governance will be a topic of discussion based upon the experience of the first year of standardization work.

3 Timing

Our roadmap to developing community-wide standardization starts within the Fed4FIRE project, and then extends outwards. As part of Fed4FIRE's first development cycle, we will develop the following documents:

- an SFA specification covering the different relevant SFA API's;
- a specification of a common ontology-based RSpec. This will cover several aspects such as a baseline ontology, one or more domain specific ontologies and the applied mechanisms for serialisation in XML (based on NDL (Van der Ham, et al. 2007), itself based on RDF (W3C Semantic Web 2004));
- and an FRCP specification.

Although this work will be performed in the context of the project, we will already use the public infrastructure described above. Even at this early stage, if we are aware of outside partners who wish to participate, we will welcome them.

It is only once we have first versions of these documents that it will make sense to approach outside partners in a concerted manner in order to suggest collaboration on their further evolution. Our goal is to have a first face-to-face meeting with people outside Fed4FIRE to discuss standardization on our about March 2014, which is one year from the publication of this deliverable. (This will be Milestone M81 at Month 18: International workshop on sustainable standardization for facility federation.) A first version of the documents needs to be prepared by roughly six months before that date, or October 2013 (Month 12 of Fed4FIRE). This will give us sufficient time to share these documents and generate interest in participation in the meeting, and for people to plan their travel.

The following partners commit to producing the documents by this date:

Specification of SFA API's: specification of the APIs needed for the SFA framework, to be decided, but based on current implementations: Aggregate Manager API, Slice Authority API, Identity Provider API, Clearinghouse API.	UPMC and iMinds
Ontology based RSpec: covering several aspects such as a baseline ontology, one or more domain specific ontologies and the applied mechanisms for serialisation in XML.	Fed4FIRE taskforce led by TUB and iMinds
FRCP specification	NICTA

At this point in time, we believe it is only prudent to plan in detail these first steps, extending one year into the future. We hope to generate community and involvement in the creation and maintenance of these specifications. We hope to extend that community worldwide. But we cannot predict at this point in time how the process will unfold, as it depends upon acceptance and involvement of those outside the project. We will assess advancement at the international workshop on sustainable standardization for facility federation. Our conclusions and plans for further

development will be delivered in the first report on the Federation Standardization Task Force (deliverable D8.6 at Month 18). The ultimate goal will remain to have a functioning system for community agreement on specifications that endures beyond the end of Fed4FIRE.

The following is a summary of the timeline:

March 2013 [M6]

- date of this deliverable

October 2013 [M12]

- publication of first versions of all documents

March 2014 [M18]

- milestone MS81: International workshop on sustainable standardization for facility federation
- deliverable D8.6: First report on the Federation Standardization Task Force (including an updated roadmap)

January 2015 [M28]

- deliverable D8.10: Second report on the Federation Standardization Task Force

September 2015 [M36]

- project enters “sustainability mode” (end of new development within the project)

November 2015 [M38]

- deliverable D8.13: Third report on the Federation Standardization Task Force

September 2016 [M48]

- deliverable D8.16: Final report on the Federation Standardization Task Force

References

Augé, Jordan and Friedman, Timur. “The Open Slice-based Facility Architecture (Open SFA).” 03 12 2012. http://opensfa.info/index.php/documentation.

Creative Commons. “Creative Commons CC0 1.0 Universal Public Domain Dedication.” http://creativecommons.org/publicdomain/zero/1.0/ (accessed 03 22, 2013).

GENI. *GENI Aggregate Manager API.* 2013. http://groups.geni.net/geni/wiki/GAPI_AM_API (accessed 3 29, 2013).

Halpern, J. “RFC 5377.” *Advice to the Trustees of the IETF Trust on Rights to Be Granted in IETF Documents.* 11 2008. http://www.rfc-editor.org/rfc/rfc5377.txt.

IETF. “Trust Legal Provisions (TLP) Documents.” 28 12 2009. http://trustee.ietf.org/license-info/ (accessed 03 22, 2013).

Rakotoarivelo, Thierry. *Protocol and Interactions.* 2013. http://mytestbed.net/projects/omf6/wiki/ArchitecturalFoundation2ProtocolInteractions (accessed 03 22, 2013).

Van der Ham, Jeroen, Paola Grosso, Ronald Van der Pol, Andree Toonk, and Cees De Laat. “Using the Network Description Language in Optical Networks.” *10th IFIP/IEEE International Symposium on Integrated Network Management, 2007. IM '07.* Munich: IFIP/IEEE, 2007. 199-205.

Vermeulen, Brecht, Wim Vandenberghe, Thomas Leonard, Florian Schreiner, Kostas Kavoussanakis, and et al. *D2.1 – First federation architecture.* Fed4FIRE, 2012.

W3C Semantic Web. *Resource Description Framework (RDF).* 10 02 2004. http://www.w3.org/RDF/ (accessed 3 29, 2013).

W3C. “W3C Document License.” 31 12 2002. http://www.w3.org/Consortium/Legal/2002/copyright-documents-20021231 (accessed 03 22, 2013).

WIPO. “Berne Convention for the Protection of Literary and Artistic Works.” 28 09 1979. http://www.wipo.int/treaties/en/ip/berne/index.html.

Appendix A: Descriptions of related tasks, milestone, and deliverables

This deliverable D8.3 is a Task 8.3 deliverable, and it relates to milestone MS81, and deliverables D8.6, D8.10, D8.13, and D8.16. For reference, we replicate from the latest version of the Description of Work the descriptions of this task, milestone, and deliverables below.

Task description

Task 8.3 Sustainable standardization
Lead partner: UPMC
Involved partners:
Start month: M1 End month: M48
Linked deliverable(s): D8.3, D8.6, D8.10, D8.13, D8.16

Description:
Individual facilities come and go. A facility is created around cutting edge technology that is a particular focus for experimenters at a given point in time. Later, unless it upgrades so as to remain relevant to its community, the facility is shut down. This is natural, and should not pose a problem to the FIRE federation as a whole; so long as the federation is able to offer a set of facilities that interest experimenters, it will continue to thrive. Sustainability in this context means continuously being able to attract new facilities to the federation. As the success of the Internet Protocol has shown, a set of simple and open standards fosters a willingness to interconnect. The goal of this task is to establish an on-going body, a Federation Standardization Task Force (to assign a provisional working title), to exist beyond the end of Fed4FIRE, and that will foster such standards.

• The Task Force will provide a setting in which FIRE stakeholders meet to advance the evolving standards for federation of facilities. To be successful over the long term, the Task Force must be both lean and open. Leanness means that the Task Force requires as little outside funding as possible for its core activities, which include: (1) scientific and technical coordination; (2) the actual scientific and technical work; (3) management; and (4) dissemination of results. To the extent possible, the Task Force should rely upon either the in-kind contributions of stakeholders or financial sponsorship. For example, and without prejudging the decisions of this task: scientific and technical coordination can potentially be contributed in the same way that the organizing of scientific conferences or the editing of academic journals is achieved through the contributed efforts of programme committee and editorial board members; participation in the work can be contributed in much the same way as institutions support the participation of their employees in standards bodies; management and dissemination might rely upon willing sponsor institutions that contribute the time of personnel and resources such as web hosting.

• Openness means both that all stakeholders are free to join in the deliberations of the Task Force and that all the work of the Task Force is freely and publicly made available. The stakeholder community extends well beyond the Fed4FIRE consortium. It includes all participants in FIRE projects, notably experimenters and facility owners. Beyond that, it includes all those in Europe who might

wish to run experiments on the FIRE federation or to federate their facilities with it. Further, it includes the participants in efforts similar to FIRE around the world (e.g., GENI); if we can develop standards that are acceptable globally then the FIRE federation and its experimenters stand to reap much greater benefits.

We proceed in two phases: a phase of study, discussion, and consensus building followed by the establishment of a Task Force charter, which opens the phase of operations that should continue beyond the lifetime of Fed4FIRE.

• In the first phase, we study existing models for standards setting bodies. These may include the IETF, W3C, the Open Grid Forum, the ITU, or 3GPP, to name a few. Each has arisen in an environment that includes a different mixture of maturity of the underlying technologies, government and industry involvement, community culture, etc., that shapes its organizational choices. We draw what lessons we can learn from them and use these insights to foster discussions about the shape of the Federation Standardization Task Force, starting within Fed4FIRE and extending outwards to the FIRE community, Europe, and worldwide. These discussions, along with participation in Task 2.1 "Federation Framework Architecture" (see below) culminate in a sustainable standardization workshop, milestone MS81 at Month 18, meant to establish initial consensus.

• The second phase begins with the drawing up and agreement to a Task Force charter. Once it has been agreed upon, the remainder of the task consists in participation in the Task Force with an eye towards refinement of the charter and fostering its sustainability over the long term.

This task advances in concert with WP2 "Architecture":

• The task will draw on contributions from Task 2.3 "Sustainability", to help shape its work.
There will be tight coordination with Task 2.1 "Federation Framework Architecture", which is charged with architecture design and specification work within the Fed4FIRE project. Task 2.1 will produce four successive versions of the federation architecture: at Months 3 (D2.1), 14 (D2.4), 24 (D2.7) and 36 (D2.9). Task 8.3 will invite the larger community of stakeholders to participate in the architecture meetings that lead up to the release of the second version. This concrete experience will inform Task 8.3 regarding Task Force design, setting the stage for the sustainable standardization workshop at Month 18 (milestone MS81) and the drawing up of the Task Force charter at Month 24. The plan is that the third version of the federation architecture will then in fact be a product of the Task Force, demonstrating that it is in place and functioning, and this will continue with the fourth version, establishing the Task Force for continuation beyond the end of the project.

Task deliverables consist of a roadmap at Month 6 (D8.3) followed by four reports on the establishment and advancement of the Task Force, at Months 18 (D8.6), 28 (D8.10), 38 (D8.13) and 48 (D8.16).

Milestone description

MS81: International workshop on sustainable standardization for facility federation

Expected date: M18
Lead partner: UPMC
Milestone description: An international workshop on sustainable standardization for facility federation is organized.

Descriptions of related deliverables

D8.3) Roadmap for the Federation Standardization Task Force: Description of the way that the Federation Standardization Task Force will be established and of how it will operate. Two phases will be considered: a phase of study, discussion, and consensus building followed by the establishment of a Task Force charter. Planning of the different actions to be taken and concerns to be investigated by the Federation Standardization Task Force. [month 6]

D8.6) First report on the Federation Standardization Task Force: Reporting on the study, discussion, and consensus building on a Federation Standardization Task Force. Planning of the next steps towards the set-up of the Task Force (including a draft for the charter). Report on the preparation for the international workshop on a sustainable standardization task force [month 18]

D8.10) Second report on the Federation Standardization Task Force: Reporting on the establishment of a charter for the Federation Standardization Task Force and its initial stages of operation. Inputs of international workshop on a sustainable standardization task force will be included. [month 28]

D8.13) Third report on the Federation Standardization Task Force: Reporting on the operation of the Federation Standardization Task Force and any refinements to its initial charter. Planning for the further development towards a sustainable standardization task force. [month 38]

D8.16) Final report on the Federation Standardization Task Force: Final reporting on the operation of the Federation Standardization Task Force and any additional changes to its charter. Reporting on the sustainability. [month 48]