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| ETSI_logo_Office_Colour_Small | ToR STF 583 (ISG NFV / TST) |
| Version: 0.7 |
| Author: Pierre Lynch – Date: 31 July 2019 |
| Last updated by: Youssouf Sakho – Date: 08 Oct 2019 |
| page 1 of |

Terms of Reference - Specialist Task Force

STF 583 (ISG NFV/TST)

NFV API Conformance test specification

maintenance and development

Summary information

|  |  |
| --- | --- |
| Approval status | Approved by ISG NFV by remote consensus (doc ref: NFV(19)000211r1)  Approved by Board#124 (Sept 2019) |
| Funding | **Maximum budget: 87 000 € ETSI FWP** |
| Time scale | December 2019 to January 2021 |
| Work Items | * RGS/NFV-TST010ed261 * RGS/NFV-TST010ed271 * RGS/NFV-TST010ed311 |
| Board priority | Standards enablers/facilitators (e.g. conformance test/interoperability/methodology)  Recommendations: CTI supervision |

Part I – Reason for proposing the STF

# Rationale

ETSI ISG NFV is continuously updating the specifications of a set of critically important APIs as part of the stage 3 work defining the NFV architecture. This is the culmination of thousands of person hours of work by countless participating individuals, companies and is highly anticipated by the industry as a major step forward towards interoperability. It is an actionable result that will impact the community because building NFV components that comply with this work can now begin.

In an effort to support the industry with this endeavor, and to allow companies to accurately measure their progress towards support of the ISG NFV standards, the ISG has constructed a comprehensive compliance test plan (via NFV work item TST010). The test plan allows designers and consumers alike to accurately demonstrate their compliance to the APIs as defined by the ISG. It is vital that the industry has such a standard test plan that is agreed to by the NFV community, and subsequently referred to by the industry at large in order to validate their designs in commercial situations.

The test plan is unique in the sense that it is an immediately usable work item because it also incorporates executable test scripts in addition to the TST010 document. It is agreed to by community consensus, as it greatly helps the adoption of the ISG NFV specifications by allowing a uniform way to prove compliance.

However, since the start of the TST010 test plan work item, the NFV-SOL specifications have not been static. New versions have been developed or are under development (namely 2.5.1, 2.6.1, 2.7.1, 3.3.1), with bug fixes and enhancements. Likewise, the test plan, and associated test scripts, can not stay static. In order to stay relevant, they must also be enhanced in order to reflect the current status of the NFV SOL documents.

In order to facilitate and accelerate the completion of this work item, we find that the addition of expert(s) from an STF would be critical. The work item requires some specific expertise to complement the existing expertise of the ISG NFV TST and SOL working groups. In addition, time to completion is of vital importance for this valuable test plan. The faster it is available to the industry after updates of the APIs themselves, the faster the adoption of the API specifications will be.

# Objective

The objective of this present STF proposal is to enhance and update the TST010 conformance test plan (with associated test cases) for the updated APIs exposed by the following reference points of the NFV architectural framework:

* Os-Ma-nfvo (with associated APIs specified in ETSI GS NFV-SOL 005)
* Or-Vnfm (with associated APIs specified in ETSI GS NFV-SOL 003)
* Ve-Vnfm (with associated APIs specified in ETSI GS NFV-SOL 002)

New functionality will also be developed, based on the following documents:

* NFV MANO management (with associated APIs specified in ETSI GS NFV-SOL 009)
* Or-Or reference point (with associated APIs specified in ETSI GS NFV-SOL 011)
* Policy management (with associated APIs specified in ETSI GS NFV-SOL 012)

It is the intent that the STF will update the existing test descriptions in machine readable language where necessary, and add new test descriptions when new requirements are introduced in the base specifications. The summary test descriptions, embedded into the machine readable language, will then be imported into the TST010 document where they will either update existing test descriptions, or add new ones as a result of new functionality.

# Relation with ETSI strategy and priorities

This action supports the ETSI Long Term Strategy item(s) to:

* create high quality standards for global use and with low time-to-market.
* establish leadership in key areas impacting members’ future activities

This action has a priority category of:

* Standards enablers/facilitators (conformance testing, interoperability, methodology)

# Context of the proposal

## ETSI Members support

|  |  |  |
| --- | --- | --- |
| **ETSI Member** | **Supporting delegate** | **Motivation** |
| Orange | Bruno Chatras | The publication of a set of API specifications for NFV management and orchestration was a major step towards interoperability between the components of an NFV system. Developing conformance test suites for these APIs is an additional step that ETSI must perform as soon as possible to make interoperability a reality and facilitate the procurement of NFV components from different providers. |
| DOCOMO Communications Lab | Joan Triay | ETSI NFV standards are regarded by NTT DOCOMO as a key instrument to facilitate the introduction of virtualization in operators’ network. The completion of a set of API specifications among different components of the NFV management and orchestration framework is a major step forward towards ensuring interoperability. The continuous development of the conformance test suites for these APIs will further facilitate the implementation and test of the implemented APIs, and ease the tasks of integration, testing and verification of NFV components delivered by different suppliers. |
| Keysight Technologies | Pierre Lynch | The ability to provide the industry automated tests for the very important APIs defined by ETSI NFV ISG is critical. It provides the industry a standard, uniform and agreed upon method to measure compliance. This will certainly foster adoption to a higher degree. |
| Telefonica | Diego Lopez | The availability of conformance testing for the NFV management and orchestration APIs is a key issue for fostering the adoption of NFV ISG specifications, by providing the means for guaranteeing interoperability among different implementations in the fast growing and highly dynamic market of NFV frameworks. |

## Market impact

One of the multiple goals for the NFV architecture is to allow operators to build systems with best of breed components. This is the objective of standardizing APIs between NFV components: it allows this goal to be met.

However, experience in standards has shown us that even with specifications for interfaces, implementations will often differ enough to make interoperability a challenge. This can lead to inflated integration cycles between implementations in the NFV system for operators, and a lack of confidence in the ecosystem itself. The lack of standardized compliance testing in the industry would contribute to this situation.

The presence of a uniform compliance test plan and solution would help NFV component suppliers to validate their interpretation of the standards, and at the same time, give confidence to the operators that implementations that they are looking at are conformant. It would also help to reduce costly integration and verification cycles when purchasing components to build or enhance their system. A tested, compliant component has a far greater chance of being interoperable with other components.

## Tasks for which the STF support is necessary

Experience with the development of other standards has shown that involvement of expertise on conformance testing of APIs with high number of operations requires highly specialised knowledge in testing methodology and testing languages.

The development of conformance testing specifications requires significant, concentrated effort that should preferably be done by expertise provided on a funded basis. In particular, the involvement of STF resources is needed in order to assure the timely completion and high quality of the Test Specifications (collections of requirements, review of API testing methodology, development of test descriptions, validation). The ISG NFV TST working group cannot develop such specifications in a reasonable timeframe on the sole basis of voluntary resources.

## Related voluntary activities in the TB

Delegates within the ISG NFV TST working group will periodically review the STF deliverable and will deal with any Change Requests to the base specifications that this action may produce. Delegates will also guide the construction of the test descriptions by the STF in order to maintain compatibility with the defined methodology and intent of the work item.

## Previous funded activities in the same domain

NFV ISG STF557

## Consequences if not agreed

The production of test specifications as described in the present document is key to the testing and potential certification activities that should assure the conformance (and thus interoperability) of NFV implementations. The production of conformance test specifications will not be possible or will be significantly delayed, at the risk of making them irrelevant to the industry. Without a standard test plan to demonstrate API compliance in a uniform way, there is a risk that implementations will not be interoperable. This can lead to much longer integration times for operators as they look to piece together an NFV system, and a general loss of confidence in the industry of the NFV system itself.

Part II - Execution of the work

# Technical Bodies and other stakeholders

## Reference ISG

The leading body is ISG NFV.

The TST WG within the ISG NFV will be the lead working group for the Work Item and will approve the work before submission to ISG NFV.

## Other interested ETSI Technical Bodies

ISG MEC, ISG ZSM.

## Other stakeholders

Potentially 3GPP and multiple Open Source projects such as ETSI OSM and ONAP (Linux Foundation)

# Base documents and deliverables

## Base documents

|  |  |  |  |
| --- | --- | --- | --- |
| **Document** | **Title** | **Current Status** | **Expected date for stable document** |
| GS NFV-SOL 002 v2.6.1 | Network Functions Virtualisation (NFV) Release 2;  Protocols and Data Models;  RESTful protocols specification for the Ve-Vnfm Reference Point | Published | n/a |
| GS NFV-SOL 003 v2.6.1 | Network Functions Virtualisation (NFV) Release 2;  Protocols and Data Models;  RESTful protocols specification for the Or-Vnfm Reference Point | Published | n/a |
| GS NFV-SOL 005 v2.6.1 | Network Functions Virtualisation (NFV) Release 2;  Protocols and Data Models;  RESTful protocols specification for the Os-Ma-nfvo Reference Point | Published | n/a |
| GS NFV-SOL 002 v2.7.1 | Network Functions Virtualisation (NFV) Release 2;  Protocols and Data Models;  RESTful protocols specification for the Ve-Vnfm Reference Point | Stable | n/a |
| GS NFV-SOL 003 v2.7.1 | Network Functions Virtualisation (NFV) Release 2;  Protocols and Data Models;  RESTful protocols specification for the Or-Vnfm Reference Point | Stable | n/a |
| GS NFV-SOL 005 v2.7.1 | Network Functions Virtualisation (NFV) Release 2;  Protocols and Data Models;  RESTful protocols specification for the Os-Ma-nfvo Reference Point | Stable | n/a |
| GS NFV-SOL 002 v3.3.1 | Network Functions Virtualisation (NFV) Release 3;  Protocols and Data Models;  RESTful protocols specification for the Ve-Vnfm Reference Point | Work item created | End of 2019 |
| GS NFV-SOL 003 v3.3.1 | Network Functions Virtualisation (NFV) Release 3;  Protocols and Data Models;  RESTful protocols specification for the Or-Vnfm Reference Point | Work item created | End of 2019 |
| GS NFV-SOL 005 v3.3.1 | Network Functions Virtualisation (NFV) Release 3;  Protocols and Data Models;  RESTful protocols specification for the Os-Ma-nfvo Reference Point | Work item created | End of 2019 |
| GS NFV-SOL 009 v3.3.1 | Network Functions Virtualisation (NFV) Release 3;  Protocols and Data Models:  RESTful protocols specification for the management of NFV-MANO | Stable Draft | n/a |
| GS NFV-SOL 011 v3.3.1 | Network Functions Virtualisation (NFV) Release 3;  Protocols and Data Models;  RESTful protocols specification for the Or-Or Reference Point | Early Draft | 2019-10-31 |
| GS NFV-SOL 012 v3.3.1 | Network Functions Virtualisation (NFV) Release 3;  Protocols and Data Models;  RESTful protocols specification for the Policy Management Interface | Early Draft | 2019-10-31 |
| GS NFV-SOL 013 v3.3.1 | Network Functions Virtualisation (NFV) Release 3;  Protocols and Data Models;  Specification of common aspects for RESTful NFV MANO APIs | Work Item Created | End of 2019 |
| GS NFV-SOL 013 v2.6.1 | Network Functions Virtualisation (NFV) Release 2;  Protocols and Data Models;  Specification of common aspects for RESTful NFV MANO APIs | Published | n/a |
| GS NFV-SOL 013 v2.7.1 | Network Functions Virtualisation (NFV) Release 2;  Protocols and Data Models;  Specification of common aspects for RESTful NFV MANO APIs | Stable | n/a |
| GS NFV-SOL 015 v1.1.1 | Network Functions Virtualisation (NFV);  Protocols and Data Models;  Specification of Patterns and Conventions for RESTful NFV-MANO APIs | Stable draft | n/a |
| GS NFV-TST 010 v2.1.1 | Network Function Virtualisation (NFV) Release 3;  Testing;  API Conformance Testing Specification | Early draft | 2020-01-22 |
| GS NFV-SOL 001 v2.6.1 | Network Functions Virtualisation (NFV) Release 2;  Protocols and Data Models;  NFV descriptors based on TOSCA specification | Published | n/a |
| GS NFV-SOL 001 v2.7.1 | Network Functions Virtualisation (NFV) Release 2;  Protocols and Data Models;  NFV descriptors based on TOSCA specification | Early draft | End of 2019 |
| GS NFV-SOL 004 v2.6.1 | Network Functions Virtualisation (NFV) Release 2;  Protocols and Data Models;  VNF Package Stage 3 - spec | Published | n/a |
| GS NFV-SOL 004 v2.7.1 | Network Functions Virtualisation (NFV) Release 2;  Protocols and Data Models;  Package Stage 3 - spec | Early draft | End of 2019 |
| GS NFV-SOL 004 v3.3.1 | Network Functions Virtualisation (NFV) Release 3; Protocols and Data Models; VNF Package specification  VNF Package Stage 3 - spec | TB Adoption of WI | End of 2019 |
| GS NFV-SOL 006 v2.6.1 | Network Functions Virtualisation (NFV) Release 2;  Protocols and Data Models;  NFV descriptors based on YANG Specification | Published | n/a |
| GS NFV-SOL 006 v2.7.1 | Network Functions Virtualisation (NFV) Release 2;  Protocols and Data Models;  NFV descriptors based on YANG Specification | Start of work | End of 2019 |
| GS NFV-SOL 006 v3.3.1 | Network Functions Virtualisation (NFV) Release 3;  Protocols and Data Models;  NFV descriptors based on YANG Specification | Start of work | 2020-03-13 |

## Deliverables

|  |  |  |
| --- | --- | --- |
| **Deliv.** | **Work Item code**  **Standard number** | **Working title**  **Scope** |
| D1 | DGS/NFV-TST010ed261 | **Working title**: Network Function Virtualisation (NFV) Release 2; Testing; API Conformance Testing Specification.  **Scope**: Test descriptions, procedures, methods and test configurations, along with precise expected outcomes that will comprise a conformance test plan for the APIs exposed on the following reference points: Os-Ma-Nfvo, Or-Vnfm, and Ve-Vnfm, defined in ETSI GS NFV-SOL 005, ETSI GS NFV-SOL 003, and ETSI GS NFV-SOL 002, respectively. Where possible, the tests will be specified using means to facilitate automation of the testing. |
| D1.5 | RGS/NFV-TST010ed271 | **Working title**: Network Function Virtualisation (NFV) Release 2; Testing; API Conformance Testing Specification.  **Scope**: Test descriptions, procedures, methods and test configurations, along with precise expected outcomes that will comprise a conformance test plan for the APIs exposed on the following reference points: Os-Ma-nfvo, Or-Vnfm, and Ve-Vnfm, defined in ETSI GS NFV-SOL 005, ETSI GS NFV-SOL 003, and ETSI GS NFV-SOL 002, respectively. Where possible, the tests will be specified using means to facilitate automation of the testing.  See note. |
| D2 | RGS/NFV-TST010ed331 | **Working title**: Network Function Virtualisation (NFV) Release 3; Testing; API Conformance Testing Specification.  **Scope**: Test descriptions, procedures, methods and test configurations, along with precise expected outcomes that will comprise a conformance test plan for the APIs exposed on the following reference points: Os-Ma-nfvo, Or-Vnfm, and Ve-Vnfm, defined in ETSI GS NFV-SOL 012, ETSI GS NFV-SOL 011, ETSI GS NFV-SOL 009, ETSI GS NFV-SOL 005, ETSI GS NFV-SOL 003, and ETSI GS NFV-SOL 002, respectively. Where possible, the tests will be specified using means to facilitate automation of the testing. |
| NOTE: The work item for this deliverable is currently not yet available, as it is planned to be opened when a revision of the NFV-TST v2.6.1 starts to align with the NFV-SOL v2.7.1 specifications. | | |

## Deliverables schedule:

D1 RGS /NFV-TST010ed261 NFV; Testing; API Conformance Testing Specification

* Start of work December-2019
* Early draft December-2019
* Stable draft March-2020
* WG+TB approval June-2020
* Publication July-2020

D1.5 RGS/NFV-TST010ed271 NFV; Testing; API Conformance Testing Specification

* Start of work June-2020
* Early draft June-2020
* Stable draft September-2020
* WG+TB approval December-2020
* Publication January-2021

D2 **RGS/NFV-TST010ed331 NFV; Testing; API Conformance Testing Specification**

* Start of work December-2019
* Early draft June-2020
* Stable draft September-2020
* WG+TB approval December-2020
* Publication January-2021

# Work plan, time scale and resources

## Organization of the work

As defined in the following sub clauses.

Service providers with the necessary competence will be selected to perform the work under the control of a steering committee comprising selected ISG officials and experts.

## Task description

Test descriptions, procedures, methods test configurations and Robot Test Description implementations, along with precise expected outcomes that will enhance an existing conformance test plan for the APIs exposed on the following reference points: Os-Ma-nfvo, Or-Vnfm, and Ve-Vnfm, defined in ETSI GS NFV-SOL 005, ETS GS NFV-SOL 003, and ETSI GS NFV-SOL 002, respectively. Also as the basis for new Test Descriptions will be ETSI GS NFV-SOL 009, ETSI GS NFV-SOL 011 and ETSI GS NFV-SOL 012.

Task 0 (T0) - Project management

Objectives

1. Technical lead of the STF
2. Manage the resources assigned to this project
3. Chair periodic meetings of the STF
4. Ensure that the project stays on track and meets all milestone delivery dates
5. Identify if/when there are impediments that may affect the delivery of the project at an early stage so that stakeholders can help mitigate potential risks

Input

Periodic meetings of this STF, reflecting interactions (as shown below).

The tasks and schedule in this STF.

Output

* Progress reports, including report to the TST WG after each Steering Committee meeting summarizing the current status of this STF.
* Intermediate reports to the STF Steering Committee
* Final report

Interactions

The Steering Committee for this STF will be consulted for guidance throughout the STF. There will be regular interactions between the experts and the STF Steering Committee.

The TST WG will review the progress of the tasks.

Resources required

One of the resources required for this STF which is charged with the responsibility to manage the delivery of the tasks according to the milestone table (see clause 7.4), in addition to contributing to other tasks.

Task 1 – Update existing TST010 Test Descriptions to NFV-SOL 2.6.1 versions

Objectives

* Collect and document requirements from the base specifications.
* Update existing Robot Test Description implementations to match version 2.6.1 of the applicable SOL specifications from section 6.1 of the present document.
* Make available the Robot Test Description implementations to the ETSI Forge.
* Validate modified Robot Test Description implementations.

Input

* Deliverables of GS NFV-SOL specifications indicated in Sect. 6.1., version 2.6.1
* OpenAPI definitions of the NFV APIs in scope
* Existing TST010 Test Descriptions and Robot implementations

Output

* Updated and validated Robot implementations of the Test Descriptions and test cases
* Updated Robot documentation of the changed Test Descriptions on ETSI Forge.

Interactions

* Regular interaction between the experts and the STF Steering Committee.

Resources required

NA

Task 1.5 – Update existing TST010 Test Descriptions to NFV-SOL 2.7.1 versions

Objectives

* Collect and document requirements from the base specifications.
* Update existing Robot Test Description implementations to match version 2.7.1 of the applicable SOL specifications from section 6.1 of the present document.
* Make available the Robot Test Description implementations to the ETSI Forge.
* Validate modified Robot Test Description implementations.

Input

* Deliverables of GS NFV-SOL specifications indicated in Sect. 6.1., version 2.7.1
* OpenAPI definitions of the NFV APIs in scope
* Existing TST010 Test Descriptions and Robot implementations

Output

* Updated and validated Robot implementations of the Test Descriptions and test cases
* Updated Robot documentation of the changed Test Descriptions on ETSI Forge.

Interactions

* Regular interaction between the experts and the STF Steering Committee.

Resources required

NA

Task 2 – Development of packages and descriptors samples

Objectives

Extend scope of the testing to include samples of VNF Packages and Descriptors to be used in the test procedures.

Input

* Deliverables of GS NFV-SOL specifications in scope
* OpenAPIs definitions of the NFV APIs in scope
* Existing Robot implementations of Test Descriptions

Output

* Enhanced and validated Robot implementations of Test Descriptions

Interactions

* Peer-review
* Regular interaction between the experts and the STF Steering Committee

Resources required

NA

Task 3 – Enhance workflow tests

Objectives

* Enhance tests that include multi-step workflows in the interaction with the System Under Test such that the user does not need to provide any MANO components as part of the test environment
* Validate the enhanced Robot Test Description implementations

Input

* Deliverables of GS NFV-SOL specifications in scope.
* OpenAPIs definitions of the NFV APIs in scope.
* Existing Robot implementations of Test Descriptions

Output

* Updated and validated Robot Test Description implementations
* Updated test setup diagrams for TST010

Interactions

* Regular interaction between the experts and the STF Steering Committee.
* Approval of new test setup and test architecture by the TST working group

Resources required

NA

Task 4 – Platform instrumentation hooks development

Objectives

* Work with applicable open source groups to modify Robot Test Description implementations where platform instrumentation will help automate
* Enhance and validate Robot Test Description implementations to leverage platform instrumentation provided by the open source community
* Update documentation to illustrate test setups, operation and requirements

Input

* Existing Robot Test Description implementations

Output

* Updated and validated Robot Test Description implementations.
* Updated documentation illustrating test setups

Interactions

* Regular interaction with participants from the applicable open source community.
* Regular interaction between the experts and the STF Steering Committee

Resources required

* NA

Task 5 – Update existing TST010 Test Descriptions to NFV-SOL 3.3.1 versions

Objectives

* Collect and document requirements from the base specifications.
* Update existing Robot Test Description implementations to match version 3.3.1 of the applicable NFV-SOL specifications from section 6.1.
* Make available the Robot Test Description implementations to the ETSI Forge.
* Validate modified Robot Test Description implementations.

Input

* Deliverables of GS NFV-SOL specifications indicated in Sect. 6.1., version 3.3.1
* OpenAPI definitions of the NFV APIs in scope
* Existing TST010 Test Descriptions and Robot implementations

Output

* Updated and validated Robot implementations of the Test Descriptions and test cases
* Updated Robot documentation of the changed Test Descriptions on ETSI Forge.

Interactions

* Regular interaction between the experts and the STF Steering Committee.

Resources required

* NA

Task 6 – Development of Test Descriptions for new APIs introduced in NFV-SOL Release 3

Objectives

* Develop Robot Test Descriptions for newly introduced deliverables as per section 6.1 (SOL009, SOL011, SOL012).
* Make available the Robot Test Description implementations to the ETSI Forge.
* Validate modified Robot Test Description implementations.

Input

* Deliverables of GS NFV-SOL specifications indicated in Sect. 6.1., version 3.3.1
* OpenAPI definitions of the NFV APIs in scope

Output

* Robot implementations of the Test Descriptions and test cases
* Updated Robot documentation of the changed Test Descriptions on ETSI Forge.

Interactions

* Regular interaction between the experts and the STF Steering Committee.

Resources required

* NA

Task 7 – TST contributions

Objectives

* For all modifications of TST010 Test Descriptions resulting from the above tasks, build TST working group contributions to reflect the modifications
* Revise the contributions based on TST working group feedback

Input

* Existing TST010 document

Output

* Approved contributions to TST010 document

Interactions

* Regular interaction between the experts and the STF Steering Committee.

Resources required

NA

## Milestones

Milestone 1 – Stable draft available

Sable draft of D1 including the result of Task 1 and Task 2 available for review.

Progress Report 1 to be approved by STF Steering Committee

Milestone 1.5 – Deliverable approved by ISG NFV/TST

Final draft of D1 to be approved by ISG NFV.

Milestone 2 – Stable draft available and Progress Report approved by ISG NFV/TST

Stable drafts of D1.5 and D2 including the result of Task 3, Task 4, Task 5, Task 6 available for review.

Progress Report 2 to be approved by STF Steering Committee

Milestone 3 – Deliverable and STF Final Report approved by ISG NFV/TST

Final draft of D1.5, and D2 to be approved by ISG NFV, including the result of Task 7 and collection of feedback from previous tasks, available for review.

Final report to be approved by STF Steering Committee.

Milestone 4 – Deliverables published, STF closed

Updates to the final draft arising from comments before publication (if any).

## Task summary

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| --- | --- | --- | --- | --- |
| **N** | **Task / Milestone / Deliverable** | Target date | Estimated cost | |
| EUR |  |
| M0 | Start of work | Dec -2019 |  |  |
| T0 | STF Leadership/Project Management | Jan-Oct 2020 | 3 000 |  |
| T1 | Update existing TST010 Test Descriptions to NFV- SOL 2.6.1 versions | Jan-Mar 2020 | 6 000 |  |
| T1.5 | Update existing TST010 Test Descriptions to NFV- SOL 2.7.1 versions | Jun-Sep 2020 | 5 000 |  |
| T2 | Development of packages and descriptors samples | Jan-Mar 2020 | 15 000 |  |
| M1 | Stable D1 draft available  Progress Report#1 approved by STF Steering Group | 31-Mar-2020 |  |  |
| M1.5 | D1 deliverable approved by ISG NFV  Progress Report#2 approved by STF Steering Group | 30-Jun-2020 |  |  |
| T3 | Enhance workflow tests | Apr-Sep 2020 | 15 000 |  |
| T4 | Platform instrumentation hooks development | Apr-Sep 2020 | 6 000 |  |
| T5 | Update existing TST010 Test Descriptions to NFV-SOL 3.3.1 versions | Apr-Sep 2020 | 9 000 |  |
| T6 | Development of Test Descriptions for new APIs introduced in NFV-SOL Release 3 | Apr-Sep 2020 | 9 000 |  |
| M2 | Stable drafts available for D1.5 and D2  Progress Report#3 approved by ISG NFV/TST | 30-Sep-2020 |  |  |
| T7 | TST contributions | Jan-Nov 2020 | 9 000 |  |
| M3 | D1.5, and D2 deliverables and STF Final Report approved by ISG NFV | 30-Dec-2020 |  |  |
| M4 | All deliverables published, STF closed | 31-Jan-2021 |  |  |
| **Total** | | | **77 000** |  |

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| **Task Milest.** | **Description** | **2019** | **2020** | | | | | | | | | | | | **2021** |
| **D** | **J** | **F** | **M** | **A** | **M** | **J** | **J** | **A** | **S** | **O** | **N** | **D** | **J** |
| M0 | Start of work |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T0 | STF Leadership |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T1 | Update existing TST010 Test Descriptions to SOL 2.6.1 versions |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T1.5 | Update existing TST010 Test Descriptions to SOL 2.7.1 versions |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T2 | Usage of packages and descriptors |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M1 | Stable D1 draft available |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M1.5 | D1 deliverable approved by ISG NFV/TST |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T3 | Enhance workflow tests |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T4 | Platform instrumentation hooks |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T5 | Update existing TST010 Test Descriptions to NFV-SOL 3.3.1 versions |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T6 | Development of Test Descriptions for new APIs introduced in NFV-SOL Release 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M2 | Stable D1.5 & D2 drafts and Progress Report |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T7 | TST contributions |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M3 | D1.5, and D2 deliverable and STF Final Report accepted |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M4 | All Deliverables published, STF closed |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## Working methods and travel cost

Travel will be required to attend at least one NFV plenary for one team member.

# Expertise required

## Team structure

Up to 2-3 participants to ensure the following mix of competences:

* expert knowledge of ETSI NFV Group Specifications listed in clause 6.1 of the present document;
* expert knowledge in REST API design and their testing;
* expert knowledge in REST API formal specifications methods;
* familiarity with the Robot Framework tool;
* expert knowledge of ETSI Standardization processes;

Part III: Financial conditions

# Maximum budget

## Manpower cost

77 000 EUR

## Travel cost

10 000 EUR to travel to up to 3 NFV ISG meetings: 2 in Europe + 1 overseas (US or Asia) during 2Q2020, 3Q2020 and 4Q2020.

## Other Costs

N/A

Part IV: STF performance evaluation criteria

# Key Performance Indicators

Contribution from ETSI Members to STF work

* Contributions/comments received from the STF steering committee.

Contribution from the STF to ETSI work

* Contributions to ISG/TST meetings (number of documents / meetings / participants).
* Usage of deliverable in the Plugtests™ events.

Quality of deliverables

* Approval of deliverables according to schedule.
* Respect of time scale, with reference to start/end dates in the approved ToR.
* Comments from Quality review by STF steering committee.
* Comments from Quality review by ETSI Secretariat.

Time recording

For reporting purposes the STF experts shall fill in the time sheet provided by ETSI with the days spent for the performance of the services.

In the course of the activity, the STF Leader will collect the relevant information, as necessary to measure the performance indicators. The result will be presented in the Final Report.

# Document history

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| --- | --- | --- | --- | --- |
|  | **Date** | **Author** | **Status** | **Comments** |
| 0.1 | 31-July-2019 | Pierre Lynch | Draft |  |
| 0.2 | 07-Aug-2019 | ETSI (MCA) | Ready for RC |  |
| 0.3 | 09-Aug-2019 | ETSI (MCA) | Ready for RC |  |
| 0.4 | 30-Aug-2019 | Laurent Vreck |  | Consistency check with Youssouf + updates requested by Youssouf were addressed by Laurent |
| 0.5 | 04-Sep-2019 | Pierre Lynch | Under review | Multiple changes based on RC and email comments |
| 0.6 | 05-Sep-2019 | Pierre Lynch | Under review | Additional changes based on RC and email comments |
| 0.7 | 08-Oct-2019 | Youssouf Sakho | Board Approved | Update before CL publication |