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| ToR TTF T016 (Ref. Body TC INT) |
| Version: 0.6 |
| Author: Giulio Maggiore – Date: 2019-09-09 |
| Last updated by: Giulio Maggiore – Date: 2021-07-07 |
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Terms of Reference –Testing Task Force Proposal

TTF T016 (Ref. Body TC INT)

“Conformance Test Specifications for the SCC-AS Services”

Summary information

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| --- | --- | --- |
| Approval status | Approved by Ref. Body TC INT#49 | **YES** |
| Reference Body | Ref. Body INT |
| ETSI Funding | **Maximum budget: 80 000€ manpower cost 4 000€ travel cost** |
| Minimum of 4 ETSI Members Support | **YES** |
| Time scale | **From** | **2022-01-01** |
| **To** | **2022-11-30** |
| Work Items  | DTS/INT-00182 Conformance Test Specifications for the SCC-AS Services; Part 1: Protocol Implementation Conformance Statement (PICS)DTS/INT-00183 Conformance Test Specifications for the SCC-AS Services; Part 2: Test Suite Structure (TSS) and Test Purposes (TP) DTS/INT-00184 Conformance Test Specifications for the SCC-AS Services; Part 3: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification |
| TTF Roadmap reference | TTF2020 |

Part I –TTF Technical Proposal

# Rationale & Objectives

## Rationale

The Service centralization and continuity application server (SCC AS) is the entity in the IMS domain that handles the management of the access transfer of active sessions. The SCC AS coordinates the proper media and signalling exchange to the access network in which the UE is present.

The following figure shows the location of the SCC AS in the network architecture.



**Figure 1: SCC-AS in relation to CS and IMS core network**

IMS centralized services (ICS) allow for centralizing IMS services regardless of whether the mode of the mobile network is circuit‐switched (CS) or packet‐switched (PS). The ICS function introduces a new entity in the IMS network, the service centralization and continuity application server (SCC AS). The SCC AS entity combines the SIP signalling and acts as a back‐to‐back user agent (B2BUA), providing an anchor point for incoming and outgoing calls. The enhanced single radio voice call continuity (e‐SRVCC) ensures continuity of service when the mobile moves from one network in PS mode to a network in CS mode. To ensure continuity of service, e‐SRVCC function introduces two anchor points in the IMS network: access transfer control function (ATCF) which provides the anchor point for session initiation protocol (SIP) signalling; and access gateway transfer (ATGW) that provides the anchor point for the RTP stream.



**Figure 2: SCC-AS within the overall architecture**

## Objectives of the work to be executed

Conformance test specifications for most interfaces and protocols of the 4G mobile network architecture are available. It seems reasonable to extend the INT set of test specifications to cover also the new functional entities, interfaces and protocols introduced through the specification of the 5G mobile architecture.

Following the methodologies developed and used by ETSI this means the production of three-part documents covering the static conformance review (PICS) and the dynamic conformance review (Test Purposes and Abstract Test Suite).

In the particular case of the SCC AS, the test specification will cover the protocols implemented on the interfaces through which the SCC AS connects.

## Previous funded activities in the same domain

STF394

Revision of TS 186 011-1/-2 to 3GPP Rel.8 and production of TS 102 901 for RCS Rel.2

Resource: 75 remunerated and 30 voluntary effort days, 45 000€

STF414

Revision of TS 186 011-1/-2 to 3GPP Rel.9 and of TS 102 901 to RCS-e and production TS 103 029 (IMS-EPC interworking)

Resource: 80 remunerated and 15 voluntary effort days, 48 000€

STF453 - update of IMS NNI Test Specifications for 3GPP R9 RCS 5.1 and IMS&EPC

STF574 Phase I – Test specifications for VoLTE/ViLTE interoperability test description over 4G/early 5G (3GPP Rel15) in physical/virtual environments

Resource: 159 000€

## Consequences if not agreed

5G networks are currently being deployed in telecoms networks during the progression towards fully VoLTE/ViLTE compliant network architectures. Thorough conformance and interoperability testing will fill the gap between various suppliers to be able to interwork. This in turn will reduce implementation and rollout times. Not providing timely test specifications, would ultimately delay the deployment of 5G solutions.

# ETSI Members Support

|  |  |  |
| --- | --- | --- |
| **#** | **ETSI Member** | **Supporting delegate** |
| 1 | Telecom Italia | Giulio Maggiore |
| 2 | Orange France | Tayeb Benmeriem |
| 3 | Iskratel | Tadej Dragaš |
| 4 | Fraunhofer Fokus | Axel Rennoch/Marius Corici |
| 5 | University of Gottingen | Dieter Hogrefe |
| 6 | Spirent Communications  | Dirk Tepelmann |
| 7 | Huawei | Fabio Faoro |
| 9 | Vodafone Gmbh | Ranganai Chaparadza, Muslim Elkotob |

# Deliverables

## Base documents

|  |  |  |
| --- | --- | --- |
| **Document** | **Title** | **Status** |
| ETSI TS 124 237(V15.6.0) | Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia (IM) Core Network (CN) subsystem IP Multimedia Subsystem (IMS) service continuity; Stage 3 | Published |
| ETSI TS 124 292(V15.1.0) | Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia (IM) Core Network (CN) subsystem Centralized Services (ICS); Stage 3 | Published |

## New deliverables

*Working titles sufficient for part I. Complete with full WI reference when final ToR are submitted*

|  |  |  |  |
| --- | --- | --- | --- |
| **Deliv.** | **Work Item code****Standard number** | **Working title** | **Expected date for publication** |
| D1 | DTS/INT-00182 | Conformance Test Specifications for the SCC-AS Services; Part 1: Protocol Implementation Conformance Statement (PICS) | Jan.2023 |
| D2 | DTS/INT-00183 | Conformance Test Specifications for the SCC-AS Services; Part 2: Test Suite Structure (TSS) and Test Purposes (TP) | Jan.2023 |
| D3 | DTS/INT-00184 | Conformance Test Specifications for the SCC-AS Services; Part 3: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification | Jan.2023 |

# Maximum budget

## Task summary/Manpower Budget

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| --- | --- |
| **Task short description** | Budget (EUR) |
|
| Project Management | 5 000€ |
| PICS | 10 000€ |
| TSS/TP | 38 000€ |
| ATS&PIXITS | 27 000€ |
| **TOTAL** | 80 000€ |

## Travel budget

Travel to four INT meetings 4000,00€

Part II – Details on TTF Technical Proposal

# Tasks, Technical Bodies and other stakeholders

## Organization of the work

The work of the TTF starts with the analysis of the SIP/IMS protocol over ISC interface defined in ETSI TS 124 237 and ETSI TS 124 292 on the SCC AS and S/I-CSCF. The work will follow the three step methodology defined in the ISO/IEC 9646 series on conformance test specifications.

1. Static aspects of the requirements will be converted into PICS items, i.e. into questions demanding whether a requirement is supported or not. One set of PICS items will be created for SCC AS and one for the S/I-CSCF.
2. Requirements on the dynamic behaviour will lead to test purposes, i.e. textual descriptions of the expected behaviour of the IUT (SCC AS or S/I-CSCF). Here also, two sets of test purposes for SCC AS and S/CSCF will be the resulting output of the TTF.
3. The bulk of the work will lie in the coding of the dynamic behaviour into test cases using the formal notation TTCN-3 and the production of the PIXIT proforma, which contains questions related to the practical aspects of testing.

A feedback loop will be installed to process findings of the later steps into the outputs of the earlier steps. Once the TTCN-3 code and the related PIXIT proforma have been completed, TC INT may request to proceed with the logical subsequent phases of the project (conformance testing of the protocol, validation).

TC INT will act as the steering committee for all TTF activities and will inform all identified interested bodies via liaison statements at regular intervals.

An administration task will be maintained handling the progress reports of the TTF and the representation at the TC INT meetings during the lifetime of the TTF.

## Other interested ETSI Technical Bodies

3GPP CT1

3GPP CT3

3GPP SA3

ETSI TC MTS

## Other stakeholders

GSMA NG

Part III: Execution of Work

# Work plan, time scale and resources

## Task description

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| --- | --- |
| **Task #1** | **Project Management** |
| **Objectives** | Provision of progress reports for the TC INT meetings #51 through to #53 Presentation of reports and TTF outputs during said meetings. Scheduling of common sessions, administration of TTF resources.Processing of feedback comments received from the stakeholders.The TTF leader will perform all actions required by this task. |
| **Input** | None |
| **Output** | Two TTF progress reports and one final report. |
| **Interactions** | Presence at all TC INT meetings during the TTF’s lifetime. |
| **Resources required** | Costs: 5 000 EUR |

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| **Task #2** | **PICS** |
| **Objectives** | Creation of a PICS document for the SCC-AS Services based on ETSI TS 124 237 and ETSI TS 124 292 containing two PICS proforma, one for SCC-AS and one for S/I-CSCF static conformance review. |
| **Input** | ETSI TS 124 237ETSI TS 124 292 |
| **Output** | DTS/INT-00182 |
| **Interactions** | Presentation of a early draft at INT#51 (Mar 2022), an stable draft at INT#52 (Jun 2022), a final draft for approval at INT#53 (Nov 2022). |
| **Resources required** | Costs: 10 000 EUR |

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| **Task #3** | **Test purposes** |
| **Objectives** | Creation of the Test Purpose (TP) document for SCC-AS Services based on ETSI TS 124 237 and ETSI TS 124 292.Following subtasks will be done during the task T3:2.1. Definition of TPs in TDL-TO2.2. Definition of Test Suite Structure (TSS)2.3. Definition generic test configurations |
| **Input** | ETSI TS 124 237ETSI TS 124 292DTS/INT-00128 |
| **Output** | DTS/INT-00183 |
| **Interactions** | Presentation of a early draft at INT#51 (Mar 2022), an early stable at INT#52 (Jun 2022), a stable final draft for approval at INT#53 (Nov 2022. |
| **Resources required** | Costs: 38 000 EUR |

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| **Task #4** | **ATS&PIXIT** |
| **Objectives** | Implementation of all TP defined in DTS/INT-00183 into an Abstract Test Suite (ATS) in TTCN-3 code and production of a PIXIT proforma for each observation point. Following subtasks will be done during the task T4:4.1. Definition of specific test configurations a) Schematic b) In TTCN-34.2. Development of templates and end-to-end test functions4.3. Implementation of test cases based on Task 2 and 34.4. Production of PIXIT tables |
| **Input** | ETSI DTS 00182 (PICS)ETSI DTS 00183 (Test purpose) |
| **Output** | DTS/INT-00184 |
| **Interactions** | Presentation of a early draft at INT#52 (Jun 2022), an final draft for approval at INT#53 (Nov 2022). |
| **Resources required** | Costs: 27 000 EUR |

## Milestones

Milestone A – Approval of progress report A

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| --- | --- | --- |
| **Milestone** | **Description** | **Cut-Off Date** |
| **A** | Approval of progress report A | *2022-03-30* |
| *Reference Body Deliverable* | Presentation of early drafts of D1 and D2. |
| *ETSI Deliverable* | Presentation of progress report A for approval at INT#51 *(Mar 2022).* |

**Milestone B – Approval of progress report B**

|  |  |  |
| --- | --- | --- |
| **Milestone** | **Description** | **Cut-Off Date** |
| **B** | Approval of progress report B | *2022-06* |
| *Reference Body Deliverable* | Presentation of stable drafts of D1 and D2 and a early draft of D3. |
| *ETSI Deliverable* | Presentation of progress report B for approval at INT#52 (Jun 2022).  |

**Milestone C – Approval of Deliverables D1, D2 and D3, and Final Report**

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| **Milestone** | **Description** | **Cut-Off Date** |
| **C** | Approval of final progress report D. | *2022-11* |
| *Reference Body Deliverable* | Final drafts for approval of D1, D2 and D3. Final Drafts will be made available at least two weeks before the start of INT#53. |
| *ETSI Deliverable* | Presentation of the final report D for approval at INT#53 (Nov 2022).  |

**Milestone D – Deliverables published, TTF closed**

|  |  |  |
| --- | --- | --- |
| **Milestone** | **Description** | **Cut-Off Date** |
| **D** | Deliverables D1, D2 and D3 published, TTF closed. | *2023-01* |
| *Reference Body Deliverable* | Approval drafts of D1, D2 and D3. |
| *ETSI Deliverable* | None |

## Task summary

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| --- | --- | --- | --- |
| **Code** | **Task / Milestone**  | Target Date | Estimated Cost (EUR) |
| From | To |
|  | Start of work | Jan 2022 |  |  |
| T1 | Project Management | Jan 2022 | Nov 2022 | 5 000 |
| T2 | Conformance Test Specifications for the SCC-AS Services; Part 1: PICS | Jan 2022 | Nov 2022 | 10 000 |
| T3 | Conformance Test Specifications for the SCC-AS Services; Part 2: TSS/TP | Jan 2022 | Nov 2022 | 38 000 |
| MA | D1 and D2 early draft availableProgress Report A to be approved at TC INT#51 |  | Mar 2022 |  |
| MB | D1 and D2 stable draft available, D3 early draft availableProgress Report B to be approved at TC INT#52 |  | Jun 2022 |  |
| T4 | Conformance Test Specifications for the SCC-AS Services; Part 3: ATS/PIXIT | May 2022 | Nov 2022 | 27 000 |
| MC | Final Report, D1, D2 and D3 approved at TC INT#53 |  | Nov 2022 |  |
| MD | Deliverables published, TTF closed |  | Jan 2023 |  |
|  | **80 000** |

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| **Year** | **2022** |  | **2023** |
| **Task/ Mil.** | **J** | **F** | **M** | **A** | **M** | **J** | **J** | **A** | **S** | **O** | **N** | **D** |  | **J** | **F** | **M** | **A** | **M** | **J** | **J** | **A** | **S** | **O** | **N** | **D** |
| T1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MA |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MB |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MC |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ME |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |

# Expertise required

## Team structure

The following experts are required to perform the work. The actual number of experts and mix of skills may depend on the actual applications received and will be decided when setting up the TTF.

Number of experts required: 2 – 3

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| --- | --- |
| **Priority** | **Qualifications and competences** |
| High | Knowledge of SCC-AS Services |
| High | Knowledge of LTE, EPC and IMS architecture |
| High | Expertise of SIP protocols |
| High | Experience in analysing of protocols and writing of test purposes in TDL-TO |
| High | Experience in writing of PICS and test purposes |
| High | Expertise in conformance testing |
| High | Knowledge in implementing Abstract Test Suites in TTCN-3 |

Part IV: TTF performance evaluation criteria

# Performance Indicators

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| --- |
| **Performance indicators** |
| Contribution from ETSI Members to TTF work |
| Steering Group meetings (number of meetings / participants / duration) | X |
| Number of delegates directly involved in the review of the deliverables | X |
| Contributions/comments received from the Reference Bodies | X |
|  |  |
| **Contribution from the TTF to ETSI work** |
| Contributions to Reference Body meetings (number of documents / meetings / participants) | X |
|  |  |
| **Quality of deliverables** |
| Approval of deliverables according to schedule | X |
| Respect of time scale, with reference to start/end dates in the approved ToR | X |
| Comments from Quality review by Reference Body | X |
| Comments from Quality review by ETSI Secretariat | X |
|  |  |

# Document history

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Date** | **Author** | **Status** | **Comments** |
| 0.0 | 20YY-mm-dd |  |  |  |