

NEXOF-RA

NESSI Open Framework – Reference Architecture



OPEN ARCHITECTURE SPECIFICATION PROCESS

Call for PoCs and Software Artefacts

Invitation to Contribute

ACTION REQUIRED BY June, 2010

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1. OVERVIEW

ICT-based services will fuel growth and well-being in the future of our society. In order to accelerate this movement, the NEXOF-RA project is building an Open Reference Architecture for service frameworks through a collaborative process. We invite you to contribute to this community effort and, in doing so, give visibility to the results of your research and development. Effective contributors will be recognized as co-authors.

This call is the last of a series initiated by NEXOF-RA project. As such it aims to provide some guidelines to supporting projects (not limited to only NSP and NCPs) to date or to come to continue the work engaged by NEXOF-RA for what concerns validation of architectural patterns through PoCs development. As such is it aims also at contributing to project sustainability.

DEADLINES – to participate, you must:

- ▶ **register your Intent to participate**
- ▶ **submit your contribution by our website or by email**

The topics for which we seek participation are the same as for the previous Investigation Teams:

- Core Service Framework Area
 - Service Description
 - Design Time Service Composition
 - Service Discovery
 - Interoperability of Message-Based Service Interaction
 - Runtime Service Composition
- User Interaction Area
 - Declarative Authoring Language for User Interfaces
 - Context Model and Universal APIs
 - Metadata for Service Front End Resources
 - APIs for Service Front End Resources
- Infrastructure Area
 - Definition of Infrastructure Services
 - Infrastructure Usage and Management Interfaces
- Security Area
 - Dynamic identity management for SOA
 - Privacy Management in SOA
 - Multilevel security for SOA
 - Dynamic security in SOA
- Quality of Service Area
 - Scalable Approaches to Service Oriented Infrastructures
 - Highly Availability for Multi-Tier Architectures
 - Service Level Agreements (SLAs) and Quality of Service (QoS)
 - Federated and Autonomic Management in SOA

This call aims are twofold:

- Before the end of the project, to gain some additional support for what concerns validation of the selected architectural patterns promoted by NEXOF-RA.
- After the end of the project, to provide necessary information for other community project to continue the work and validate through PoC architectural patterns we defined but that we did not manage to assess during the project lifetime.

To obtain further information or check if there is any updated document, please visit the NEXOF-RA website (<http://www.neof-ra.eu>). You can contact the coordinator of the call (francisco.nieto@atosresearch.eu) if you have questions which have not been answered.

2. BACKGROUND AND RATIONALE

Globally, the question is not whether the delivery of software is shifting towards a service-oriented model, but rather how and when can this evolution be achieved. Leading industry and academic institutions have joined forces to provide a practical answer to this question, forming NESSI, the European initiative for software and services, which now counts 300 member organizations of all sizes, from SME to multinationals, including academics, technology providers and users.

Based on these requirements, NESSI has defined NEXOF, a coherent and consistent open service framework designed to guarantee quality of service, ubiquitous operation and continuous availability. NESSI has also identified the strategy and plan to build this framework, starting with its reference architecture (RA). The NEXOF-RA project implements the initial phase of this plan.

The strategy is based on open contribution mechanisms which will ensure that NEXOF meets the requirements of the user community, incorporates the best open technologies, and triggers research with concrete, applicable results. Ultimately, this process is essential in gaining wide acceptance and building a very dynamic community.

Contributors to this project will join forces in an active community, fostering partnerships with significant industrial and academic participants. The framework will be promoted and used in significant industrial deployments; this will give visibility and impact to your contributions. All contributors will gain expertise on NEXOF, which will be a key asset once the framework is deployed. Significant contributors will be recognized as co-authors.

The mission of NEXOF-RA is to address comprehensive service-oriented software system architectures and specifications. The approach of the project is to use patterns, partitioning the domain in a series of distinct problems and identifying reusable solutions for each. The project has a parallel focus on the composition of these patterns to create coherent, consistent and interoperable instances of service-oriented software systems. The reference architecture will incorporate technology-oriented open specifications through patterns.

In this line, NEXOF-RA wants to provide guidance for implementing the proposed patterns and to demonstrate that the statements made by the patterns are true, by validating them through Proof of Concepts (PoCs). For doing so, external contributions are necessary, providing information about software artifacts which can be applied to NEXOF-RA patterns and proposing new PoCs which can be performed for validating the patterns or which can be considered important for demonstrating the validity of the whole NEXOF-RA approach. Additionally, this initiative also can support other projects in the assessment of their architectures, providing some guidelines according to the NEXOF-RA methods and experience, so they can relate their solutions to NEXOF-RA patterns and define their own PoCs with which validate their architectural solutions.

Several patterns have been defined for the Reference Architecture and, although the ideal situation is to get a validation of all the patterns defined, only a set of patterns has already been validated through PoCs (they can be found in the NEXOF-RA web page). The main concerns of the architecture have been covered, but there are a lot of possibilities to validate more patterns in the context of other projects. Even if more PoCs for validated patterns are welcomed, we encourage contributors to send PoCs

ideas for those patterns without a format validation (the list of patterns can be found at the NEXOF-RA web site), according to the process we have defined and agreed (stated in D8.0c).

The objective of NEXOF-RA is not to replace standards bodies, but rather to leverage their work, and complement it with a strong focus on coherence and interoperability. Results from NEXOF-RA could be used as input for next versions of current standards or for new ones. Further information can be obtained from the NESSI (<http://www.nessi-europe.eu>) and NEXOF-RA (<http://www.nexof-ra.eu>) websites.

3. PARTICIPATION

Participation to our open process is easy:

REGISTER as soon as possible

Register your intent to submit a contribution. A specific web page on the project portal is dedicated to this purpose (http://www.nexof-ra.eu/register_in_poc_call). Once registered, you may be contacted by one of our project members to discuss your participation. Participation is open to all motivated parties, including individuals, organizations and project consortiums.

SUBMIT during 2010

After registration, submit your contribution describing in a few pages your background in the domain as well as a summary of your intended contribution. The contribution must follow the template provided and has to be in line with the NEXOF Reference Architecture. The list of patterns already available can be found at the project portal (divided in E-SOA, IoS and Cloud domains). The contributions submitted must not contain any confidential or proprietary information. Instructions will be available on the dedicated section of the project portal (http://www.nexof-ra.eu/call_for_pocs). All the submissions received during 2010 will be accepted and, at the end of the year, the process status will be reviewed, reporting the result in the website.

PARTICIPATE and report us

We will provide two forms for sending contributions. After reviewing all the contributions, people in charge of the call will contact with contributors for discussing the way to cooperate. Depending on the kind of contribution, authors' participation will be oriented to clarify ideas. If the contribution is oriented to collaboration in the evaluation of not yet validated patterns of NEXOF-RA, the participation will be more intense. You are requested to keep the same representative through the duration of the activity. In that case, the project will provide the means which allow participants to report the evaluation results even after the NEXOF-RA project has finished, following the project sustainability plan.

In the case the contribution is oriented to support set-up of PoCs providing more ideas and components, the contributors will be asked to participate until 28th June, for clarifying their ideas and discuss the way to apply them.

There will be one template for sending contributions about ideas for PoCs, which will contain the basic information about the patterns validated, the scenario and the testing to be done, among other data. The form can be found at http://www.nexof-ra.eu/submit_poc_idea.

There will be another template for submitting results of the PoCs performed. Any PoC result should be related to a submitted PoC idea, and describe the validation done and the conclusions. The form can be found at http://www.nexof-ra.eu/submit_poc_result.

Another way to send the contributions is by email. You can fill in the provided word templates at the call, and send them by email to: francisco.nieto@atosresearch.eu.

The copyright for your contributions must allow the publication of the NEXOF Reference Architecture as an open document with derivative rights (the project is currently using the Creative Commons Attribution 3.0 License). We encourage you to check eligibility as part of one of your funded activities since NEXOF-RA will not be able fund your participation to the project.

4. SCOPE AND SPECIFIC EXPECTATIONS OF THIS CALL

During the last months, the NEXOF-RA team has been working in the set of patterns to be included as part of the Reference Architecture. Most of these patterns have come from the different Investigation Teams launched on previous years, where people has participated and given valuable inputs for constructing a global view of NEXOF.

In order to validate the results achieved, it is necessary to complete the Reference Architecture with both:

- **Software Artefacts proposals:** There are theoretical approaches which are similar and a lot of tools and software components which can be used for implementing concrete patterns. According to the existing patterns, suggestions are welcomed about which software could be used.
- **Proof of Concept ideas:** Even if there is an implementation for the proposed patterns, it is necessary to propose scenarios, metrics and measurements for evaluating correctly whether all the requirements and statements made in the patterns are correct. Ideas are welcomed about possible scenarios, defining even metrics for evaluation and components which can be used, and about proposals for validating patterns in the NEXOF-RA which have not been validated before.
- **Architecture Evaluation:** Some projects will apply their own architecture for building their software artefacts. NEXOF-RA looks for joint actions in which we will look for the way to map the proposed architecture with NEXOF-RA patterns and to support external projects in the assessment of their architecture by giving them guidance in the process for developing a PoC on their own, according to the approach defined in the project. The execution of the PoC and evaluation itself will be carried out by the external projects, although the results can be reported to NEXOF-RA.

Although some patterns already include information about possible implementations and some PoCs have been implemented, we want to increase the knowledge base in NEXOF-RA by increasing the number of available alternatives for patterns implementation, and to demonstrate that the results provided are good by gathering ideas about scenarios which would support the validation of patterns (individually and in conjunction with other patterns). Moreover, we look for a way to increase the sustainability of NEXOF-RA results by supporting other projects and showing that the proposed patterns and their evaluation are useful for other projects. In the same line, we look for external projects which want to validate NEXOF-RA patterns with their own software and PoCs, in order to complete the evaluation of all the proposed patterns in NEXOF-RA.