

NESSI-GRID

Scope

Over the next decade, every electronic device will incorporate interaction capabilities supporting the provision of services to both devices and people within continuously changing scenarios, addressing specific business needs and situations in a continuum which de-facto defines a new global system. This new system is no longer purely computer-based, nor is it focused mainly on exchanging information. On the contrary, ICT will increasingly play a role to dynamically support the operations of businesses and the everyday life of citizens in a seamless and natural fashion.

Key properties underlying this evolution include openness, scalability, dynamicity and proactiveness, uncoordinated governance and the absence of central control, limited predictability. This evolution is mirrored by the move to distribute solutions not as single software environments but as services – an evolution in which Europe aims to play a major role to evolve towards an Internet of Services.

It is with this shared vision that European Technology Platform NESSI was launched in September 2005. Three years later, NESSI is promoted by 22 industrial and academic partners and a community of 500 members from 300 organisations.

From its initial vision, NESSI has achieved major results:

- the elaboration of the NESSI Strategic Research Agenda (SRA);
- the concept of NEXOF, the NESSI Open Service Framework;
- the identification of Strategic projects and the design of the NEXOF contribution process to gather the widest possible support towards its delivery;
- the elaboration of application scenarios;
- the organisation of working groups on services adoption, technology or applications.

NESSI-Grid played a major role in supporting NESSI during its foundation years from April 2006 to November 2008 by contributing to its SRA, by operating the Service Oriented Infrastructure (SOI) Working Group, by creating a community process to foster participation to the NESSI SRA and by interlinking to different communities.

Advances

NESSI represents a major advance; it is the first time ever that industry and academia have united their forces to define a common service oriented strategy and a target delivery – NEXOF, the NESSI Open Service Framework.

NESSI-Grid supports NESSI through the SOI NESSI Working Group in its task of defining a vision and strategic research agenda (NESSI-Grid SRA) for *grid-like infrastructures used in business environments* and in particular in NESSI scenarios. The target audience of the NESSI-Grid SRA includes all stakeholders from researchers and industry to policy makers to get a precise understanding about envisioned scenarios, state-of-the-art, challenges, business impact, roadmaps and recommendations for realizing the vision.

The advances of the NESSI-Grid SRA are based on the fact that businesses in future service-oriented economies need to act in a more agile fashion than ever before. This will be possible only if high-level business requirements can be translated into lower level ICT requirements with a high level of automation, so that ultimately the ICT environment adapts automatically to changing business needs and that Grids evolve towards supporting such changes.

Therefore, from 2006 to 2008, NESSI-Grid supported NESSI's goals and ambitions and contributed to

- *Fostering participation to NESSI* – through the SOI Working Group;
- *Disseminating NESSI* – by creating links to the Grid community;
- *Elaborate the NESSI SRA* – by contributing the Grid SRA;
- *Create business scenarios* – through detailed analysis of the impact of the Grid approach in service oriented scenarios in terms of applicability and of adoption timing.

Positioning in global context

NESSI-Grid envisions **Business Grids as the adaptive service-oriented utility infrastructure for business applications**. They will become the general ICT backbone in future economies, thus achieving a profound economic impact. The adoption of Business Grids is expected to happen in 3 steps: first as the ICT backbone within enterprises, second as a basis for hosting scenarios and ultimately as the general ICT-infrastructure for service-oriented economies. In this way, Business Grids will support the emergence of new types of application.

NESSI-Grid played a key role in establishing collaborations with the European Grid community and working on business scenarios.

Contribution to standardization and interoperability issues

NESSI – enabling the next wave of *interoperable services* through

- existing standards
- extended standards

In an era of services, interoperability is the major goal – ensuring that services elaborated by different parties can seamlessly blend to create the environment that best fit user needs. Interoperability is a major reason why the industrial partners of NESSI teamed up, it is the guiding line that drives NEXOF's elaboration. To achieve interoperability, NESSI relies on standards. NESSI's approach is to adopt existing standards and, when needed, provide adaptation to align them better to their intended use. When, and only when, existing or evolving standards do not fulfill the required needs will NESSI promote a new standard.

NESSI-Grid supports activities of the NESSI Standards committee.

Target users / sectors in business and society

NESSI – enabling the next wave of services for

- Grid infrastructure providers and administrators;
- Service and software developers;
- System integrators;
- End users;
- Private corporations;
- Public administrations.

NESSI's ultimate goal is to enable the next wave of services, providing NEXOF to free service developers and integrators from constraints linked to identification, security, interoperability, quality, privacy etc. Target sectors range from public health, government and educational services to energy, transport, skills and mass services to individual users.

In all these sectors, services will only be delivered if the appropriate infrastructure is provided acting as a backbone that supports a service framework. The approach taken by NESSI-Grid analyses how existing and new Grid infrastructures can evolve into the **adaptive service-oriented utility infrastructure for business applications**. In this aspect, target users range from end users as citizens, private and public corporations to Grid infrastructure providers and managers. Extending Grids utilisation and applicability beyond a mainly computing intensive and scientific context to a commercial and flexible solution backbone – taking advantage not only from the increased computing power but also from the potential increase in resilience and spread of services. Therefore, stakeholders currently managing Grid infrastructures stand to benefit from the clear positioning of Grids as service-oriented utility infrastructures.

Overall benefits for business and society

NESSI – enabling the next wave of services to ensure

- Faster time to market
- Protection of mid and long term investment
- Independence from a single provider
- Increased competitiveness of the Software and Services European economy Service providers, whether SMEs or large organisations, will benefit from *faster time to market* of new services through service infrastructures that offer industrial grade quality.

For public and private corporate users, the availability of NEXOF compliant infrastructures will provide a guarantee of current and future interoperability, independence from a single provider with backing of the industrial community as a whole. In other words *protecting their investments*.

NESSI-Grid's approach to infrastructures does not only analyse the extension in terms of technology; it also bases its approach on which areas stand to benefit the most from this approach, as evidenced by the business scenarios introduced in the next section. Ensuring that the infrastructure advances hand-in-hand with the services oriented goals identified at the level of NESSI.

Examples of use

The industry-driven approach of the Grid-SRA is evident in its identification of the most relevant core business scenarios and associated requirements. The scenarios cover short-term perspectives (basic enterprise, hierarchical enterprise, hosting) but also mid- to long-term setups (extended enterprise, merger & acquisition, virtual organizations, dynamic outsourcing, value chains and mega services). The NESSI-Grid SRA includes a roadmap of business scenarios, with the Enterprise scenario set as the basis out of which other scenarios can be developed according to three dimensions: organizational complexity, technical reach and degree of service enablement.

More information about these scenarios is available on-line in the NESSI Grid-SRA.

Achievements

NESSI-Grid has

- **At content level**
 - delivered the NESSI Grid SRA;
 - defined business scenarios and their associated roadmap;
- **At community level**
 - managed the Service Oriented Infrastructure Working Group;
 - created and sustained a community process to structure contributions to the NESSI Grid SRA;
- set up links with research projects active in the Grid area
- **At visibility level**
 - provided dedicated Wiki support at www.soi-nwg.org
 - contributed to the NESSI newsletters
 - contributed to NESSI and Grid events.



title

Networked european software and services initiative-grid

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project website and partner list

<http://www.nessi-europe.eu>

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30