



GISELA

2ND YEAR ACTIVITY HIGHLIGHTS ON VRCs AND USER SUPPORT

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Abstract: This document reports on the WP3 achievements from M13 to M24 (September 2011 - August 2012), describing the results on promoting knowledge dissemination and supporting VRCs.



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1. INTRODUCTION

1.1. PURPOSE OF THE DOCUMENT

This document aims at reporting the achievements, the current status of the user support activities, as well as the work carried out by WP3 as a whole over the period from 01/09/2011 (M13) to 31/08/2012 (M24).

For a comprehensive view of the Project and of the GISELA Consortium, the Description of Work (DoW)¹ and the Consortium Agreement (CoA)² should be consulted.

1.2. DOCUMENT ORGANISATION

Section 2 gives an Executive Summary of the document. Section 3 presents the achievements of the work carried out by WP3. Overall impact and progress evaluation are shown in Section 4. The current WP3 manpower is provided in Section 5. Section 6 is devoted to conclusions.

1.3. APPLICATION AREA

The target audience for this document is:

- The members of the Project;
- The European Commission Services;
- The Project Reviewers;
- The External Advisory Committee (EAC);
- The general public.

1.4. DOCUMENT AMENDMENT PROCEDURE

Amendments to this document can be requested by any Project Member to the Project Coordinator, via the Project Office (hlp-gisela@hlpdeveloppement.fr).

1.5. GLOSSARY

ACS	Advanced Computing Services
CLARA	Cooperación Latino Americana de Redes Avanzadas
CLARA TT	CLARA Transition Team
CoA	Consortium Agreement
CUDI	Corporación Universitaria para el Desarrollo de Internet, A.C.
DoW	Description of Work
EAC	External Advisory Committee
GOC	Grid Operational Centre

¹ <http://documents.gisela-grid.eu/record/32?ln=en>

² Consortium Agreement (CoA) available upon request to the GISELA Project Office (hlp-gisela@hlpdeveloppement.fr)



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VRCS AND USER SUPPORT**

Document Full Name

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Date: 31/08/2012

GSC	Grid Support Centre
GSG	GISELA Science Gateway
HEP	High Energy Physics
INPA	The Brazilian institute for the Research of the Amazon-region
JSR	Java Specification Request
LA	Latin America (or American)
LA Task Force	Latin American Task Force
MoU	Memorandum of Understanding
NREN	National Research and Education Network
PC	Project Coordinator
PO	Project Office
RC	Resource Centre
RedCONARE	Consejo Nacional de Rectores (Costa Rica NREN)
RENATA	Red Nacional Académica de Tecnología Avanzada (Colombia)
ROC	Regional Operation Centre
SAGA	Simple API for Grid Applications
SG	Science Gateway
TB	Technical Board
TP	Training Plan
UFRJ	Universidade Federal do Rio de Janeiro - Brasil
VM	Virtual Meeting
VO	Virtual Organisation
VRC	Virtual Research Community
WP	Work package
WP2	Dissemination and Outreach
WP3	User Communities Support
WP6	Infrastructure and Applications-oriented Services for User Communities

2. EXECUTIVE SUMMARY

The scope of this deliverable is to summarise the WP3 achievements on VRCs and user support during the 2nd year of the Project.

At the end of the first project-year it was clear that a stronger impact on the Latin American scientific world had to be considered essential to reach the long-term sustainability target. Providing support to research groups working on high social impact scientific fields as, for example, disaster mitigation and prevention and medicine, has been considered fundamental to obtain the NRENs commitment to keep the e-Infrastructure up & running after the project lifetime. Moreover, widening the number of e-Infrastructure users making essential its usage for several well-known scientific communities in Latin American has been assessed as another important step to create the basis for the long-term sustainability.

Starting from these evaluations, WP3 and the CLARA Transition Team (CLARA TT) dedicated a huge effort to identify high impact applications and the scientific communities to be involved.

In addition, to widen the number of users, WP3 followed a common trend adopted in several e-infrastructures to make the e-Infrastructure more attractive. Considering the technical difficulties to use e-Infrastructures as the biggest hindrance towards a larger uptake, we decided to provide users with a so-called Gateway, a user friendly and intuitive environment to profit of the e-Infrastructure resources.

The GISELA Science Gateway - GSG (<https://gisela-gw.ct.infn.it/>) has been deployed at the beginning of the second project-year and has been designed to be VRC-driven, creating specialised section for each VRC supported. GSG users can access the services through a simple authentication mechanisms (hiding digital certificates management) based on username and password provided by an Identity Federation and can fully exploit the e-Infrastructure capabilities through a normal web-browser, executing applications with an intuitive user interfaces (hiding complex middleware interfaces).

VRCs supported and applications available in the GSG have been chosen in tight collaboration with CLARA and the Latin American NRENs, taking in account the above considerations and, then, selecting large communities and high impact applications. All VRCs and applications supported are shortly described in this document.

A well targeted training activity has been set up to create a Latin American team, named “Latin American Task Force - LA Task Force”, able to manage all the aspects of the GISELA Science Gateway, from the operational ones (keeping the portal running) to the contents management with a particular attention for users support to integrate new applications in the GSG and Identity Federations management. The LA Task Force is already operational and is composed by people selected by CLARA and Latin American NRENs. The creation of the LA Task Force and the INFN commitment to continue to support this task force until it will become completely independent allowed us to make the end of GISELA transparent to the e-Infrastructure/GISELA SG end users.

Finally, WP3 drove the creation of Identity Federations in Latin America, selecting Mexico as pilot country for this action. A special training event to deploy an Identity Federation in Mexico has been held in July 2012 and, now, a Mexican team is working on this task. The Mexican Identity Federation will be ready in the forthcoming months.

3. ACHIEVEMENTS

This section summarizes the WP3 main achievements during the second project year.

3.1. THE VRC-DRIVEN GISELA SCIENCE GATEWAY

At the end of the first project-year WP3 adopted a new strategy to attract the research communities with higher regional impact in Latin America that could guarantee the sustainability of the e-infrastructure. Indeed, it was clear that the only way to obtain NRENs commitment to keep the e-Infrastructure up and running was widening the number of users exploiting the e-Infrastructure with high impact applications in order to increase NRENs interest in the e-Infrastructure.

Following a common trend adopted in several e-infrastructures that considered the technical difficulties to use e-Infrastructures as the biggest hindrance towards a larger uptake, we decided to provide users with a friendly and intuitive environment called Science Gateway.

The Science Gateway is a web site allowing users to fully exploit the e-Infrastructure capabilities through a normal web-browser implementing, as main requirements, simple authentication mechanisms (hiding digital certificates management) and intuitive user interfaces to execute applications on the e-Infrastructure (hiding complex middleware interfaces).

The GISELA Science Gateway - GSG (<https://gisela-gw.ct.infn.it/>) has been deployed at the beginning of the second project-year and has been designed to be VRC-driven, creating a specialised section for each VRC supported. The GSG home page is shown in Figure 1.



Figure 1: The VRC-driven GISELA Science Gateway Home Page

The main functionalities available in the GISELA SG are the following:

- Multi-languages support (as for today, Spanish and English);
- Authentication based on username/password pair provided by an identity federation, hiding digital certificates, through a shibboleth based authentication mechanism³ and the use of robot certificates⁴ still keeping the security level needed;
- A catchall Identity Federation named GrIDP⁵, able to serve all the LA countries where an Identity Federation is not operational, has been deployed;
- General information on WP3, VRCs and applications supported by GISELA;
- A new concept of application registry allowing users to directly submit selected high impact applications on the GISELA e-infrastructure in an easy way (see in Figure 2 the applications already integrated);
- One section for each VRC supported containing specific information on the VRC applications as:
 - Application characteristics;
 - Case studies.

These web-site areas can be considered as specialised Science Gateways for the VRCs, assuming the role of access point to submit some VRC applications on the e-Infrastructure.

- Multi-middleware support (based on the SAGA OGF standard) to exploit all the grid middleware used in the GISELA e-Infrastructure (now EMI-UMD/gLite and OurGrid);
- Collaborative tools like a wiki and a GISELA Virtual Room to organise virtual seminars or meeting;
- Training Materials;
- A success stories section;
- A section to request support to add new applications on the GSG;
- Access through credentials provided by the most famous social network (e.g. Facebook) and a community page on Facebook⁶.

The core functionality of the GISELA SG is the possibility to submit selected applications directly through a web browser interface, simply filling a web form. Then, WP3 considered a fundamental target for the SG success to increase the number and the quality of applications integrated in the SG (an integrated application is an application in which a user can submit jobs to the infrastructure directly from the Science Gateway). For this reason WP3 dedicated a relevant effort, during the second project year, to:

- Identification of the applications to be integrated in the Science Gateway considering:

³ Shibboleth web site, see <http://shibboleth.internet2.edu/>

⁴ A grid portal with robot certificates for bioinformatics phylogenetic analyses, see <http://dl.acm.org/citation.cfm?id=195241>

⁵ <http://gridp.ct.infn.it/>

⁶ <https://www.facebook.com/pages/GISELAScienceGateway-Community/347171765358049>

- A CLARA & NRENs analysis;
- High impact applications already present in the GISELA Applications Database.
- Integration in the SG of the applications identified as above described;
- Spreading in LA the knowledge to maintain running the GISELA SG after the project lifetime;
- Spreading in LA the knowledge to update the GISELA SG contents after the project lifetime;
- Spreading in LA the knowledge to integrate new applications in the SG, creating a group of people able to integrate applications in a short time and to continue this activity after the project end.















NAME	RUN PAGE	DOMAIN	STATUS	INSTITUTION
SPECFEM3D		Earth Sciences	In production	ASGC UNAM
RCSA		Computer Science and Mathematics	In production	UNAM
R		Computer Science and Mathematics	In production	INFN
ProtTest		Life Sciences	In production	CETA-CIEMAT
Phylogenetics		Life Sciences	In production	UPV
Octave		Computer Science and Mathematics	In production	INFN
ME-MLS		Computer Science and Mathematics	In production	UdelaR
jModelTest		Life Sciences	In production	CETA-CIEMAT
Industry@Grid		Others	In production	CEFET-RJ
GROMACS		Life Sciences	In production	UNINETT Sigma UNIPG UNIANDES
GATE		Life Sciences	In production	USTHB INFN
GA_DPPM		Computer Science and Mathematics	In production	UdelaR
CLUSTALW		Life Sciences	In production	SARA
ASTRA		Others	In production	DANTE INFN UNICT

Figure 2: A subset of the GISELA Science Gateway application registry. The ‘RUN PAGE’ column contains the links to the application submission form.

3.1.1. The GISELA Science Gateway and the long-term sustainability

The last three actions of the activity plan described in the previous section have been performed to reach the general objective of long-term sustainability of e-Infrastructures in Latin America, avoiding to lose the added value provided by the GISELA SG.

Thanks to a well-targeted training plan that will be described in detail in Section 3.5.1, WP3 coached LA people, selected by CLARA and NRENs (see Table 1) to keep alive and running the GISELA SG

after the Project end. This group, called “Latin American Task Force - LA Task Force” is currently able to manage all the aspects of the GISELA SG, from the operational ones (keeping the portal running) to the contents management with a particular attention for users support to integrate new applications in the GSG and Identity Federations management.

The LA Task Force is already operational and now working on:

- Integrating new applications on the GSG;
- Updating the GSG contents;
- Preparing GSG end users training materials;
- Organising GSG end users training events;
- Deploying an Identity Federation in Mexico.

Although the GISELA SG transition process is not completed yet (the GISELA SG is still running at INFN Catania), a MoU (currently in preparation) between INFN and CLARA will ensure that the operation will be guaranteed by INFN after the project lifetime until CLARA and NRENs will be ready to deploy it in Latin America. Moreover, INFN committed to continue to support the LA Task Force in the applications integration process (a new training event has been planned for the end of September 2012 in Catania for application developers from Venezuela).

The creation of the LA Task Force, and the INFN commitment to proceed with its support to this task force until it will become completely independent, allowed us to make the end of the GISELA project transparent to the e-Infrastructure/GISELA SG end users: the GISELA SG will continue to run, users will continue to be able to submit jobs, new applications will be integrated in the next months, new contents will be added and the old ones will be updated.

Table 1: The Latin American Task Force

Name	Institution	Country
Angélica Espinoza	UNAM	Mexico
Artur Miller Jimenez	UNIANDES	Colombia
Daniel Bellomo	UNRC	Argentina
Daniel Burbano	UNIANDES	Colombia
David Mendez	UNIANDES	Colombia
Fernando Andres Quiñonez Granados	UIS	Colombia
Gilberto Diaz	ULA	Venezuela
Jesus Cruz	UNAM	Mexico

Name	Institution	Country
José Luis Garza Rivera	UNAM	Mexico
Luis Torres	UIS	Colombia
Nathalia Garcés	UNIANDES	Colombia
Nicolas Ortiz	UNIANDES	Colombia
Xandre Chourio	UDZ	Venezuela
Sergio Augusto Gelvez Cortes	UIS	Colombia
Monica Hernandez	UIS	Colombia
Moises Hernandez	UNAM	Mexico
Miguel Alvarez	UNAM	Mexico
Eliel Aguilera	ULA	Venezuela
Gerardo Garcia	ULA	Venezuela
Hernan Garcia	ULA	Venezuela
Rafael Torres	ULA	Venezuela
Eduardo Granados	ULA	Venezuela
Ximena Robles	CEDIA	Ecuador
Jhoanna Serpa	CEDIA	Ecuador
Santiago Iturriaga	UDELAR	Uruguay
Carlos Pineda	UNAM	Mexico

3.1.2. The GISELA Science Gateway and the multi-middleware support

The GISELA SG submits application on the e-Infrastructure using a library based on the Simple API for Grid Applications (SAGA) OGF standard. The SAGA standard provides applications developers with a unique interface to submit jobs towards infrastructures running different middleware (e.g. gLite, GLOBUS, UNICORE, etc.) making the middleware distinctive features transparent to the final users. We adopted JSAGA⁷ as SAGA implementation.

Since the GISELA e-infrastructure runs two different middleware, EMI-UMD/gLite and OurGrid, the SAGA API allows us to exploit EMI-UMD/gLite and OurGrid resources with a unique application interface.

Since JSAGA did not support OurGrid, the WP6 team, in collaboration with WP3, developed an OurGrid adaptor for JSAGA that will be integrated in the JSAGA official release in a short time (see D6.2 - <http://documents.gisela-grid.eu/record/404?ln=en> for more details).

Some applications⁸ available in the GISELA SG are able to transparently submit jobs towards either gLite or OurGrid resources (see Figure 3).

Moreover, thanks to this feature, the Latin American e-Infrastructure will be able to integrate resources running other middleware (e.g., GLOBUS) in a transparent way. Indeed, the GSG will be automatically able to submit jobs towards these different resources only changing some configuration parameters without any modification in the user interface software.

⁷ See JSAGA web-site: <http://grid.in2p3.fr/jsaga/>

⁸ OurGrid does not support parallel applications (e.g. MPI).

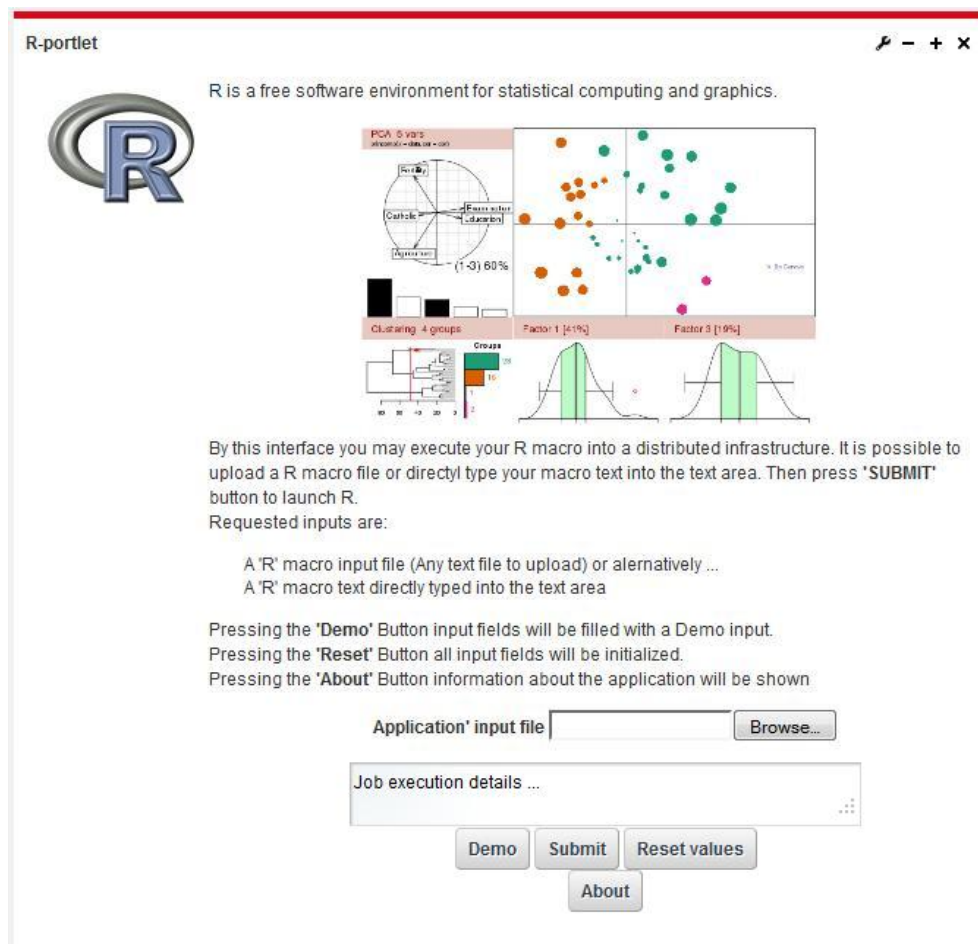


Figure 3: “R” submission form. Jobs will be transparently submitted towards gLite and OurGrid resources.

3.1.3. The GISELA Science Gateway and the Identity Federations

The authentication mechanism in the GISELA SG is based on the Identity Federations⁹ hiding the complexity due to the digital certificates managing.

During the second project-year WP3 integrated in the GSG all the Identity Federations already existing in the countries involved in GISELA: CAFé (Brasil), IDEM (Italy), RCTSaai (Portugal), SIR (Spain).

Currently Brazil is the only country in Latin America with an Identity Federation operational¹⁰. For this reason a catchall Identity Federation named ‘GrIDP’, able to serve all the remaining LA countries, has been deployed.

⁹ See <https://refeds.org/> and http://en.wikipedia.org/wiki/Federated_identity_management

¹⁰ https://refeds.org/resources_list.html

Moreover, it has been decided to drive the creation of Identity Federations in Latin America, selecting Mexico as pilot country due to the high number of Mexican GSG users and considering that Mexico has been elected as the country that will run the e-infrastructure central services after the GISELA lifetime.

In July 2012, a specific training action has been organised in Catania (Italy), in collaboration with the EPIKH Project, inviting a Mexican team identified by CLARA and CUDI. During the event, the team was taught how to deploy a new Identity Federation. The Mexican team is now working hard and the Mexican Identity Federation will be ready in the forthcoming months.

3.2. VIRTUAL RESEARCH COMMUNITIES SUPPORTED IN THE GISELA SCIENCE GATEWAY

During the current reporting period, WP3 concentrated its effort towards:

- The creation of new VRCs sections in the GISELA SG;
- The increase of the number of integrated applications.

At the end of the Project, the GISELA SG includes 5 VRC sections with 14 available applications described in Table 2.

Table 2: GISELA SG VRCs sections and applications available.

VRC Sections	Applications
Cultural Heritage	ASTRA
Earth Sciences	SPECFEM3D
Industry	Industry@Grid
Life Sciences	ClustalW, GATE, GROMACS, JModelTest, Phylogenetics, ProtTest
Statistics and Mathematics	GA_DPPM, ME-MLS, Octave, R, RCSA

Further information about these applications is presented in Sections 3.2.1 to 3.2.5.

CLARA, LA NRENs and the LA Task Force defined a short-term plan to increase the number of available applications. The new applications to be integrated in the GISELA SG in the next months are listed in Sections 3.2.1 to 3.2.5.

3.2.1. Cultural Heritage

Table 3: Applications currently available in the VRC Cultural Heritage

Applications	Short description	Run page
ASTRA	The ASTRA projects aims to reconstruct the sound or timbre of ancient instruments (not existing anymore) using archaeological data as fragments from excavations, written descriptions, pictures, etc.	https://gisela-gw.ct.infn.it/astra

Table 4: Cultural Heritage applications to be integrated in the GISELA SG

Applications	Short description
SONIFICATION	Data audification (or sonification) is the representation of data and information through sounds and melodies. Sonification can be considered as the acoustic counterpart of data graphic visualization, a mathematical mapping of information from data sets to sounds.

3.2.2. Earth Sciences

Table 5: Applications available in the VRC Earth Sciences

Applications	Short description	Run page
SPECFEM3D	The software package SPECFEM3D_GLOBE simulates three-dimensional global and regional seismic wave propagation based upon the spectral-element method (SEM).	https://gisela-gw.ct.infn.it/specfem3d

Table 6: Earth Sciences applications to be integrated in the GISELA SG

Applications	Short description
Digi-clima	The aim of the Digi-Clima project is to provide semi-automatic processing capabilities for historical graphical rain intensity records.
WRF	The Weather Research and Forecasting Model (www.wrf-model.org) is a next-generation mesoscale numerical weather prediction system designed to serve both operational forecasting and atmospheric research needs.

3.2.3. Industry

Table 7: Applications available in the VRC Industry

Applications	Short description	Run page
Industry@Grid	Industry@Grid is a scheduling application that uses LiSA algorithms to solve <i>job shop</i> , <i>flow shop</i> and <i>open shop</i> problems. It combines dispatching and neighborhood search heuristics to look for good solutions for the provided scheduling problem, as the optimal solution for most real life problems is impossible to find on a feasible time.	https://gisela-gw.ct.infn.it/industry-grid

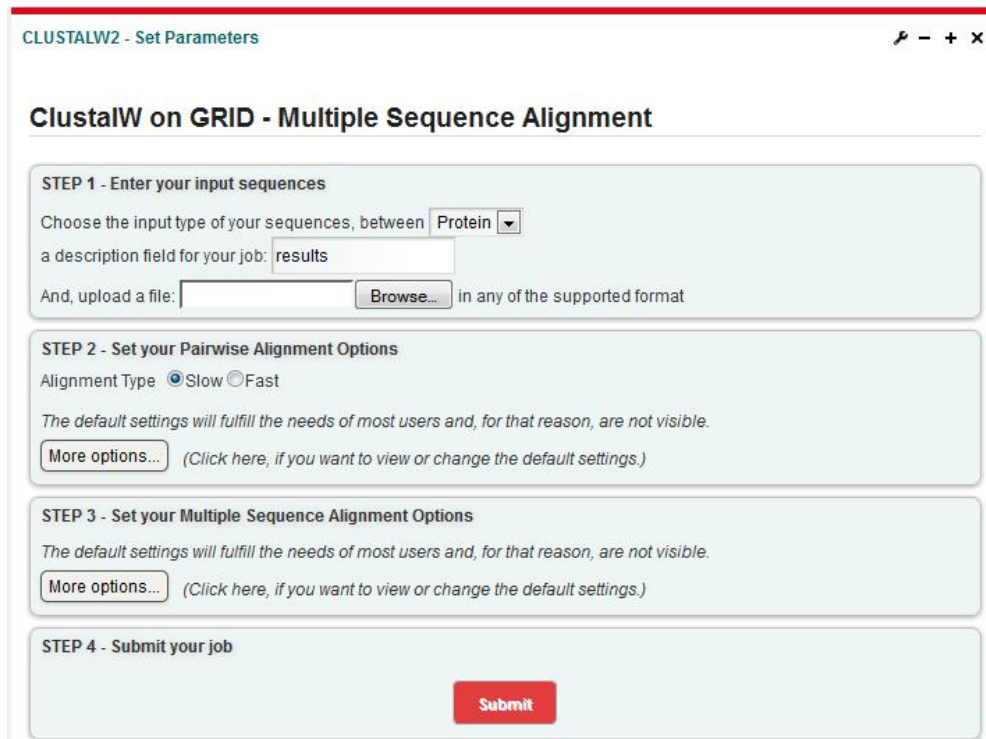
3.2.4. Life Sciences

Table 8: Applications available in the VRC Life Sciences

Applications	Short description	Run page
ClustalW	ClustalW is a widely used multiple sequence alignment computer program.	https://gisela-gw.ct.infn.it/clustalw
GATE	GATE is an advanced opensource software developed by the international OpenGATE collaboration and dedicated to numerical simulations in medical imaging and radiotherapy.	https://gisela-gw.ct.infn.it/gate
GROMACS	GROMACS is a versatile package to perform molecular dynamics, i.e. simulate the Newtonian equations of motion for systems with hundreds to millions of particles.	https://gisela-gw.ct.infn.it/gromacs
JModelTest	This program, which estimates the evolutionary relationships between DNA sequences obtained from different individuals or specie, is an open source java program (http://darwin.uvigo.es) to find the best model of nucleotide replacement for a given alignment.	https://gisela-gw.ct.infn.it/jmodeltest

Applications	Short description	Run page
Phylogenetics	It is a program for the Bayesian estimation of phylogeny. Bayesian inference of phylogeny is based upon a quantity called the posterior probability distribution of trees, which is the probability of a tree conditioned on the observations. The conditioning is accomplished using Bayes' theorem.	https://gisela-gw.ct.infn.it/phylogenetics
ProtTest	It was the first program developed for the selection of best-fit models of protein evolution. It is an open source java program (http://darwin.uvigo.es) to find the best model of amino acid replacement for a given protein alignment.	https://gisela-gw.ct.infn.it/prottest

As an example, the ClustalW job submission form is shown in Figure 4.



CLUSTALW2 - Set Parameters

ClustalW on GRID - Multiple Sequence Alignment

STEP 1 - Enter your input sequences
 Choose the input type of your sequences, between
 a description field for your job:
 And, upload a file: in any of the supported format

STEP 2 - Set your Pairwise Alignment Options
 Alignment Type Slow Fast
The default settings will fulfill the needs of most users and, for that reason, are not visible.
 (Click here, if you want to view or change the default settings.)

STEP 3 - Set your Multiple Sequence Alignment Options
The default settings will fulfill the needs of most users and, for that reason, are not visible.
 (Click here, if you want to view or change the default settings.)

STEP 4 - Submit your job

Figure 4: The ClustalW job submission form

Table 9: Life Sciences Applications to be integrated in the GISELA SG

Applications	Short description
ABINIT	ABINIT is a package whose main program allows one to find the total energy, charge density and electronic structure of particle systems within Density Functional Theory (DFT).
Biogeography analysis using R scripts	This application has been developed to create a map with the probability of a species of surviving for each coordinate of Colombia.
G-HMMER	HMMER, the bioinformatic application, under the terms of the GNU General Public License, is an implementation of profile Hidden Markov Model methods for sensitive database searches using multiple sequence alignments as queries. In other words, it is a suite of programs that allow multiples alignments using probabilistic methods.
NAMD	NAMD is a molecular modelling application, capable of running in a distributed cluster environment.
PAGT	Technological platform for the analysis of genomic and transcriptomic data.

3.2.5. Statistics and Mathematics

Table 10: Applications available in the VRC 3.2.5. Statistics and Mathematics

Applications	Short description	Run page
GA_DPPM	It implements an efficient evolutionary algorithm to solve the Deadline Problem in Project Management, an important hard-to-solve problem in project management and software engineering.	https://gisela-gw.ct.infn.it/ga_dppm
ME-MLS	ME-MLS is an efficient multithreading local search algorithm for solving the multi-objective scheduling problem in heterogeneous computing systems considering the makespan and energy consumption objectives.	https://gisela-gw.ct.infn.it/me-mls
Octave	GNU Octave is a high-level interpreted language, primarily intended for numerical computations.	https://gisela-gw.ct.infn.it/octave
R	It is a free software environment for statistical computing and graphics.	https://gisela-gw.ct.infn.it/r
RCSA	Computing of the number of right coideal subalgebras of $Uq(so_{2n+1})$.	https://gisela-gw.ct.infn.it/rcsa

Table 11: Statistics and Mathematics applications to be integrated in the GISELA SG

Applications	Short description
AGP	It solve the Satisfiability (SAT) problem, a fundamental problem of Mathematician Logic and Computational theory.
HTK	The Hidden Markov Model Toolkit (HTK) is a portable toolkit for building and manipulating hidden Markov models. HTK is primarily used for speech recognition research although it has been used for numerous other applications including research into speech synthesis, character recognition and DNA sequencing.
SASECA	SASECA implements a new approach for feature selection using associative memories.

3.3. APPLICATIONS PORTFOLIO

GISELA currently supports **89** applications on the catchall VO “prod.vo.eu-eela.eu”, **59** of them being in a production stage. However, this does not mean that all ported applications are currently running on the infrastructure on a production basis. They should be considered as “available applications”, which can be requested by users whenever they need. A sub-set of these applications has been inherited from the EELA & EELA-2 Projects.

The GISELA Science Gateway (<https://gisela-gw.ct.infn.it/application-database>) applications registry is the central database containing all the information about the applications supported.

3.4. OTHER APPLICATIONS AND VRCS SUPPORTED

Beyond the applications supported directly through the catch-all VO, the GISELA e-Infrastructure supports applications of some world-wide VOs as Biomed, HEP, etc..

Table 12 shows the applications associated to each supported VOs.

Table 12: Other VOs’ Applications

VRCS	Legacy applications	Virtual Organisations
Life Sciences	Haddock, Cyana, Xplor-NIH, CS-ROSETTA, MD, Amber, MDD, Bowtie, etc.	Biomed, enmr.eu
HEP	Applications managed by each VO	ALICE, ATLAS, AUGER, CMS and LHCb

3.5. USER SUPPORT

3.5.1. Training events and other user support actions

The Training Plan (TP), set up in close cooperation with the CLARA TT¹¹, has been continuously adapted to the VRCs actual needs and the business opportunities identified by the CLARA TT during the second year of the project.

For each targeted audience of the TP, training actions were organised as described in Table 13.

Table 13: 2nd year GISELA training actions

Audience	Training actions	Outcomes
CLARA TT & LA Task Force	Teach how to provide GOC services; Teach how to operate the GSG; Teach how to integrate applications into the GSG; Teach how to train new developers to integrate applications into the GSG;	<i>Continuation of user support services and provisioning of GOC services is possible after the end of the project;</i>
NRENS and RCs	Teach how to integrate pledge resources into the GISELA e-infrastructure; Teach how to operate RC services;	<i>Number of available resources has been slightly increased as compared to those available at the end of first year; resources will be kept available after the end of the project;</i> <i>Continuation of user support at the RC level and provisioning of RC services is possible after the end of the project;</i>
VRCS and researchers in LA	Teach how to integrate applications into the GSG; Support the integration of new applications into GSG; Disseminate the usage of applications supported by the GSG;	<i>A higher number of active users and applications are supported as to guarantee a minimal demand of Advanced Computing Services (ACS) throughout the GSG, after the end of the project;</i>

¹¹ See D3.3, <http://documents.gisela-grid.eu/record/267>

It is worth mentioning that the TP contributed to the long-term sustainability of e-Infrastructures in Latin America, as it helped to consolidate a group of experts in LA capable of providing user support services and maintaining e-Infrastructures core services (at both the GOC and RC levels). The TP also helped to consolidate an appealing portfolio of user-friendly and often requested applications integrated in the GISELA Science Gateway portal.

Two main forms of training were used for the implementation of the TP: face-to-face training events, and Virtual Meetings (VM).

Concerning the face-to-face training events (see Table 14), Schools for System Administrators, Schools for Application Integration in the GSG and dedicated workshops were organised, summing up a total of 14 training events (7 during the second year of the project).

Table 14: GISELA Training events & Workshops

Date	Event	Place
04 th - 27 th July 2012	Special GISELA/EPIKH training support action: Adaptation and integration of new applications into the GSG	Catania - Italy
04 th - 27 th July 2012	Special GISELA/EPIKH training support action: Deploy an Identity Federation in Mexico	Catania - Italy
18 th - 26 th June 2012	Latin America 2012 - Joint CHAIN/GISELA/EPIKH School for Application Porting to Science Gateway	Mexico City - Mexico
04 th - 15 th June 2012	Latin America "special" 2012 - Joint CHAIN/GISELA School for Application Porting to Science Gateway	Bogota - Colombia
28 th May - 01 st June 2012	Latin America "special" 2012 - Joint CHAIN/GISELA School for Grid Site Administrators	Bucaramanga - Colombia
21 st - 22 nd May 2012	Grid Computing Seminar for end-users	CICESE Ensenada B. C., Mexico
16 th - 17 th January 2012	Support and training for CEDIA systems administrators	Quito, Ecuador
13 th - 17 th June 2011	Grid Computing for Science & Technology Applications	Hermosillo, Sonora, Mexico
10 th December 2010	Joint CHAIN/GISELA/EPIKH Workshop	Valparaiso, Chile
29 th November - 09 th December 2010	Joint CHAIN/GISELA/EPIKH School for Application Porting	Valparaiso, Chile
22 nd - 26 th November 2010	Joint GISELA/EPIKH School for Grid Site Administrators	Valparaiso, Chile
26 th November 2010	Joint GISELA/EPIKH Workshop	Mexico City, Mexico
15 th - 25 th November 2010	Joint GISELA/EPIKH School for Application Porting	Mexico City, Mexico
08 th - 12 th November 2010	Joint GISELA/EPIKH School for Grid Site Administrators	Mexico City, Mexico

At the beginning of the second year of GISELA, some training events were planned in Argentina and Central America, but they could not be organised, most against the will of WP3 team. However these non-delivered face-to-face events were substituted either by e-mail support or virtual meetings, which did not affect the overall outcomes of the TP.

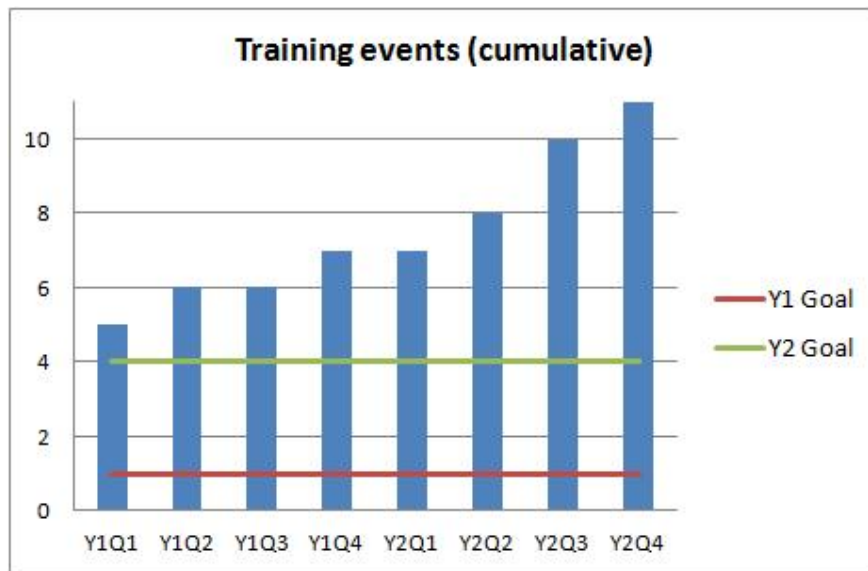


Figure 5: Cumulative number of Training Events

As shown in Figure 5, the number of organised training events (14) is much greater than the second year goal (4) defined in the DoW¹². The outperformance was required for successfully reaching main project objectives. Moreover, it contributed also to the accomplishment of some of the new quality metrics established after the First Project Review: active users in the GSG (currently 153); number of applications in production status (currently 59), and number of applications integrated in the GSG (currently 14).

With respect to Virtual Meetings, multiple dissemination and training activities aiming at promoting the usage of the GISELA Science Gateway were organised in collaboration with WP2 and the CLARA TT. These actions contributed also to the accomplishment of the TP expected outcome and WP3 quality metrics. All Virtual Meetings have been held using the virtual room provided by the GSG.

Two kind of WP3-related virtual meetings were organised during the second year of the project:

- **Virtual Seminars**, to teach developers and members of CLARA TT how to integrate new applications in the GISELA Science Gateway portal (see an example in Figure 6);

¹² See <http://documents.gisela-grid.eu/record/32>



Figure 6: Virtual seminar teaching how to integrate applications inside the GSG Virtual Room

- **Virtual Days**, to attract potential new users and research communities by presenting success stories and showing how e-Infrastructures and Advanced Computing Services help to reach scientific goals in an easier way. These virtual days, co-organised with WP2 and the CLARA TT, are listed in Table 15.

Table 15: List of WP3-related virtual training actions organised during second year of GISELA

Virtual Meeting	Date	Description
Virtual Meetings: Teaching how to integrate applications in the GSG	February-March 2012	The aim of these VMs was to set up a LA team capable to integrate applications in the GSG. These VMs were organised every two weeks during February and March 2012.
Virtual Day: <i>Día Virtual de Cultura</i>	March, 28 th 2012	Organised by CLARA and members of the CLARA TT, this session aimed at attracting Cultural Heritage & Art Communities researchers, artists and decision makers. CLARA provided high quality videoconference service.
Virtual Day: <i>Día Virtual de e-Infraestructuras</i>	May, 8 th 2012	Organised by CLARA, CUDI, RENATA, REDCONARE and members of the CLARA TT, this Virtual Day intended to let attendants know about success stories and benefits of e-Infrastructure use for multi-disciplinary e-Science research projects.

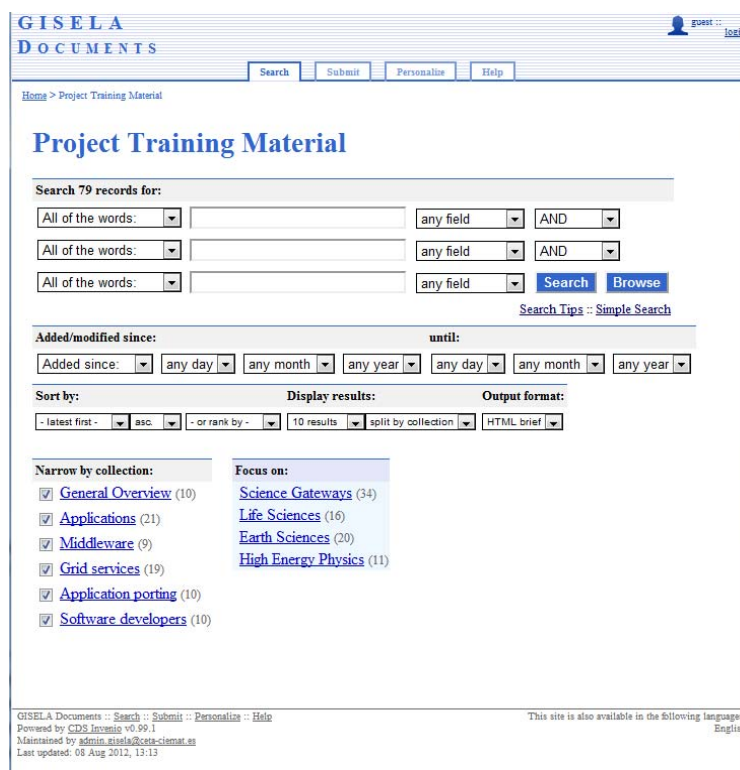
3.5.2. Documentation

All documentation produced by the project was systematically reviewed, tagged and uploaded to the GISELA Documents server¹³ and the GISELA Website¹⁴.

Special attention was paid during the second year of the Project to produce self-training material concerning the new GISELA Science Gateway paradigm, specifically tailored for application developers, integrators and users. The whole documentation concerning the GSG is currently available at the GISELA Events server¹⁵ and the GISELA Science Gateway¹⁶ web portal.

Training material is centrally gathered and referred from a dedicated section¹⁷ inside the GISELA Documents server. A new sub-section focusing on the GISELA Science Gateway was created during second project-year to enable users to perform advanced searches about GSG topics.

As shown in Figure 7, seventy nine (79) training documents (User guides, Installation guidelines, FAQs, etc.) are referred from to the GISELA Documents Server.



GISELA DOCUMENTS

Home > Project Training Material

Project Training Material

Search 79 records for:

All of the words: [] any field [] AND []

All of the words: [] any field [] AND []

All of the words: [] any field [] Search Browse

Search Tips : Simple Search

Added/modified since: [] until: []

Sort by: [] Display results: [] Output format: []

Narrow by collection:

- General Overview (10)
- Applications (21)
- Middleware (9)
- Grid services (19)
- Application porting (10)
- Software developers (10)

Focus on:

- Science Gateways (34)
- Life Sciences (16)
- Earth Sciences (20)
- High Energy Physics (11)

GISELA Documents - Search - Submit - Personalize - Help

Revised by G2S Invenio v0.99.1

Maintained by admin.gisela@cta-ciemat.es

Last updated: 08 Aug 2012, 13:13

This site is also available in the following languages: English

Figure 7: Training material search portal

¹³ See <http://documents.gisela-grid.eu>

¹⁴ See <http://www.gisela-grid.eu>

¹⁵ See <http://indico.gisela-grid.eu>

¹⁶ See <https://gisela-gw.ct.infn.it/web/guest>

¹⁷ See <http://documents.gisela-grid.eu/collection/Project%20Training%20Material?ln=en>

Figure 8 shows that, at the end of GISELA, the number of training documents exceeds by far the 2-year goal of the Project.

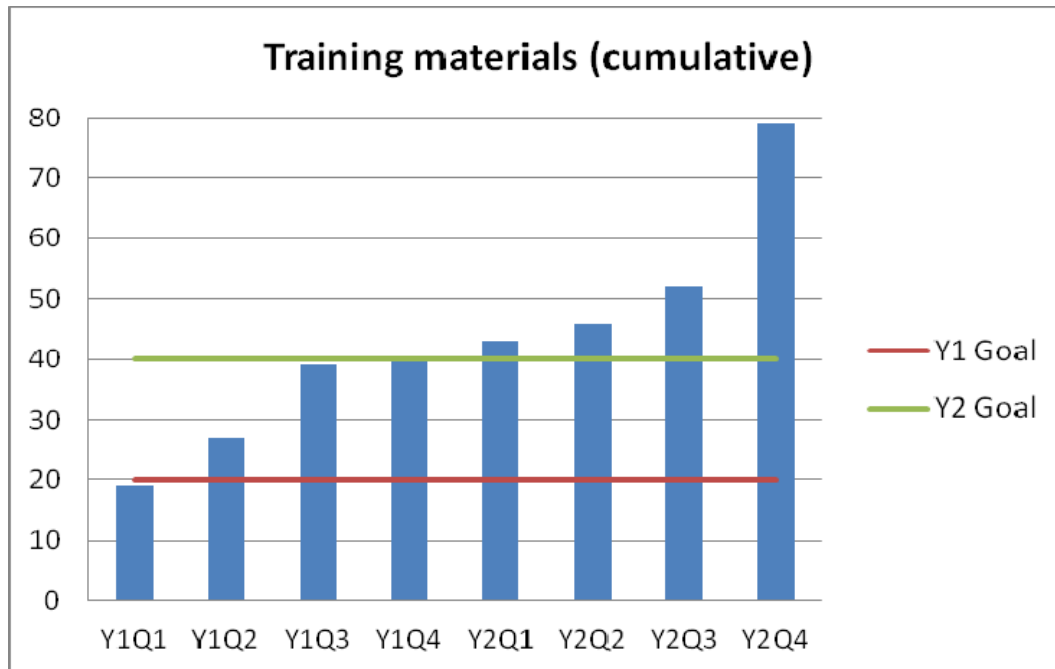


Figure 8: Cumulative number of training materials

3.6. PUBLICATIONS

Up to 78 GISELA related publications can be consulted in the “Publications” area in the GISELA Web Page¹⁸. From these, 21 papers, listed below and related to the activity of WP3, were published during the project lifetime.

- BARBERA, Roberto; BRASILEIRO, Francisco; BRUNO, Riccardo; CIUFFO, Leandro and SCARDACI, Diego. Supporting e-Science Applications on e-Infrastructure: Some Use Cases from Latin America. Book Chapter: “Grid Computing. Towards a Global Interconnected Infrastructure”, Editor "Springer", pages 33-55, July 2011.
- ISEA, Raul; MONTES, Esther; RUBIO-MONTERO, Antonio; MAYO, Rafael. State-of-art with PhyloGrid: Grid computing Phylogenetic studies on the EELA-2 Project infrastructure, Computer Communications and Networks 2011, SPRINGERLINK, 2011 (<http://www.springerlink.com/content/n100450864364113/>). Abstract in the GISELA Document Server.
- PINA, Antonio; ESTEVES, Antonio; PUGA, Joel; and OLIVEIRA, Vitor. A Geographical Information System for wild fire management. 5th Iberian Grid Infrastructure Conference (Ibergrid'2011), 8th - 10th June 2011, Santander (Spain) (<http://documents.gisela-grid.eu/record/211?ln=en>).

¹⁸ See http://www.gisela-grid.eu/index.php?option=com_content&view=article&id=43&Itemid=41

- GARCÍA, Sebastián; ITURRIAGA, Santiago; NESMACHNOW, Sergio (Universidad de la República, Uruguay). Scientific computing in the Latin America-Europe GISELA Grid infrastructure. Proceedings of the High-Performance Computing Latin America Symposium (HPCLatAm2011), Cordoba, Argentina, 2011. (Draft version: <http://www.fing.edu.uy/inco/grupos/cecal/hpc/publications/scicomp-GISELA.pdf>).
- ANDRONICO, Giuseppe; ARDIZZONE, Valeria; BARBERA, Roberto; BECKER, Bruce; BRUNO, Riccardo; CALANDUCCI, Antonio; CARVALHO, Diego; CIUFFO, Leandro; FARGETTA, Marco; GIORGIO, Emidio; et al. e-Infrastructures for e-Science: A Global View, Journal of Grid Computing, SPRINGERLINK Online First™, 24 March 2011 (<http://www.springerlink.com/content/81268575123q1p49/>). Abstract in the GISELA Document Server.
- Sara, García; José Miguel, Franco; César, Suárez; Guillermo, Díaz; Antonio, Plaza. Developing a portlet for the GISELA Science Gateway to process hyperspectral images, Proceedings of the Joint GISELA-CHAIN Conference, R. Barbera et al. (Eds.), COMETA 2012 (<http://www.gisela-grid.eu/conference>).
- Carlos J., Barrios; Luis A., Núñez; Fernando A., Quiñonez; Luis A., Torres. The Science Gateway LAGOVirtual, Proceedings of the Joint GISELA-CHAIN Conference, R. Barbera et al. (Eds.), COMETA 2012 (<http://www.gisela-grid.eu/conference>).
- Tsaregorodtsev, Andrei; Hamar, Vanessa. DIRAC experience with porting user applications in GISELA, Proceedings of the Joint GISELA-CHAIN Conference, R. Barbera et al. (Eds.), COMETA 2012 (<http://www.gisela-grid.eu/conference>).
- Juan C., Cuevas-Tello. High Performance Computing on Astrophysics with Artificial Intelligence Algorithms, Proceedings of the Joint GISELA-CHAIN Conference, R. Barbera et al. (Eds.), COMETA 2012 (<http://www.gisela-grid.eu/conference>).
- João Rodrigues, Inês Dutra, Sérgio Afonso, Rui Ramos, Lígia M. Ribeiro. The GridUP Portal, Proceedings of the Joint GISELA-CHAIN Conference, R. Barbera et al. (Eds.), COMETA 2012 (<http://www.gisela-grid.eu/conference>).
- J.L. Garza Rivera; A. Espinoza Godínez; V.K. Kharchenko; A. V. Lara Sagahon; J.J. Cruz Guzmán. Grid Colombia: Experiences of gridification of a Right Coideal Subalgebras application and its implementation in Science Gateway, Proceedings of the Joint GISELA-CHAIN Conference, R. Barbera et al. (Eds.), COMETA 2012 (<http://www.gisela-grid.eu/conference>).
- S., García; S., Iturriaga; S., Nesmachnow; M., da Silva; M., Galnarés; G., Rodriguez; G., Usera. Developing parallel applications in the GISELA grid infrastructure, Proceedings of the Joint GISELA-CHAIN Conference, R. Barbera et al. (Eds.), COMETA 2012 (<http://www.gisela-grid.eu/conference>).
- V., Ardizzone; R., Bruno; A., Calanducci; M., Fargetta; E., Ingrà; G., La Rocca; S., Monforte; F., Pistagna; R., Ricceri; R., Rotondo; D., Scardaci; and R., Barbera. The Catania Science Gateway Framework and the GISELA Implementation, Proceedings of the Joint GISELA-CHAIN Conference, R. Barbera et al. (Eds.), COMETA 2012 (<http://www.gisela-grid.eu/conference>).
- BARBASTEFANO, R. G.; SOUZA, L. R.; CARVALHO, D. Grid computing for a stochastic product-mix problem in Brazil. In: 23rd Annual POM Conference. Chicago: POMS 2012 Proceedings, 2012.

- CARVALHO, D.; SOUZA, L. R.; BARBASTEFANO, R. G. Stochastic Product-mix Selection with Grid Computing. In: 3PGCIC-2012. Victoria: IEEE CPS, 2012. Accepted by the committee (<http://www.lsi.upc.edu/~net4all/3PGCIC-2012/accepted.html>).
- SOUZA, L. R.; CARVALHO, D.; BARBASTEFANO, R. G. Sequenciamento da produção em job-shops com o auxílio de grids computacionais. In: XXXII ENEGEP. Bento Gonçalves, 2012. Accepted by the committee.
- SOUZA, L. R.; BARBASTEFANO, R. G.; CARVALHO, D., Usando grids computacionais em problemas de mix estocásticos: um estudo de caso na indústria de plásticos. XXXI ENEGEP. Belo Horizonte: [s.n.], 2011
(http://www.abepro.org.br/biblioteca/enegep2011_TN_STO_140_885_18160.pdf).
- Rubio-Montero, A .J; Castejón, F.; Huedo, E., Rodríguez-Pascual, M.; Mayo-García, R. Performance improvements for the neoclassical transport calculation on Grid by means of pilot jobs, IEEE Proc. 2012 International Conference on High Performance Computing & Simulations, Volume: CFPI278H•CDR, Editor (books only): W. W Smari and V. Zeljkovic, USA 2012, pp. 609-615.
- Scardaci, D. The VRC-driven GISELA Science Gateway, EGI Community Forum, 29th March 2012, Munich (Germany) - <http://documents.gisela-grid.eu/record/333?ln=en>.
- Valeria Ardizzone, Riccardo Bruno, Antonio Calanducci, Carla Carrubba, Marco Fargetta, Elisa Ingrà, Giuseppina Inserra, Giuseppe La Rocca, Salvatore Monforte, Fabrizio Pistagna, Rita Ricceri, Riccardo Rotondo, Diego Scardaci and Roberto Barbera. Science Gateways for Semantic-Web-Based Life Science Applications, Proceedings of IWSG-Life 2012, 4th International Workshop on Science Gateways for Life Sciences, Amsterdam, Netherlands, 23-25 May 2012 (<http://documents.gisela-grid.eu/record/400?ln=en>).
- Valeria Ardizzone, Riccardo Bruno, Antonio Calanducci, Marco Fargetta, Elisa Ingrà, Giuseppe La Rocca, Salvatore Monforte, Fabrizio Pistagna, Rita Ricceri, Riccardo Rotondo, Diego Scardaci and Roberto Barbera. The GISELA Science Gateway, Proceedings of TICAL 2012, Network of Information and Communication Technologies Directors from Latin American Universities, Lima, Peru, 2nd – 3rd July 2012 (<http://documents.gisela-grid.eu/record/399?ln=en>).

4. OVERALL IMPACT & PROGRESS EVALUATION

Table 16 shows the status of WP3 quality metrics at the end of the Project. All the quality metrics have been reached except “Number of Applications integrated in VRC-driven Science Gateways”. However this metrics will be easily overcome in a couple of months since the LA Task Force is already working on new applications (see the Plan shown in the previous sections).

Table 16: WP3 quality metrics

	Quality metric	Current status Y2	Expected outcome Y2
1	Number of Active Users in the catch-all VO (prod.vo.eu-eela.eu)	108	100
2	Number of Active Users in the VRC-driven Science Gateway	154	100
3	Number of Applications in production status on the e-Infrastructure	59	40
4	Number of Applications integrated in VRC-driven Science Gateways	14	15
5	Number of specialized Science Gateway for VRC	5	2
6	Number of supported VRCS	6	≥ 3
7	Number of application's groups from Latin America	45	≥ 36
8	Number of training events	14	≥ 4
9	Number of self-training material	79	≥ 40
10	Number of papers published (WP3 related)	21	≥ 20

5. HUMAN EFFORT

The current human resources allocated to WP3 are listed in Table 17 and Table 18.

Table 17: Human effort allocated to WP3 management

Name	Role	Institution
Diego Scardaci	WP3 Manager	INFN
Rafael Mayo	Deputy Manager	CIEMAT
Guillermo Diaz	Deputy Manager & Task Leader	CIEMAT
Carlos Jaime Barrios Hernandez	Task Leader & Clara TT	RENATA
Luiz Rossi	Associate expert	CEFET/RJ
Dago Bedoya	Clara TT member allocated to WP3	RENATA
Diego Alberto Rincón Yáñez	Clara TT member allocated to WP3	RENATA

Table 18: List of application developers/ supporters

Name	Institution
Abelardo Roddriguez	UAM
Alexander Herrera	UNIANDES
Alina Roig	CUBAENERGIA
Anaís Hernández Ros	CUBAENERGIA
Angelines Alberto	CIEMAT
Angelines Alberto	CIEMAT
César Fernandez	UTFSM
David Méndez	UNIANDES
Enrique González	UNIANDES
Fredy Juarez	UAEM (UNAM)
Gabriel Usera	UdelaR

Name	Institution
Genevieve Moguilny	CNRS
Gonzalo Rodriguez	UdelaR
Guilherme Baptista	UFCG
Harold Castro	UNIANDES
Henry Ricardo Mora	CUBAENERGIA
Jesus Cruz	UNAM
Jhoanna Serpa	CEDIA
Jorge Blanco	CIEMAT
José Luis Garza Rivera	UNAM
Julio López	UFRO
Luiz Rossi de Souza	UFRJ
Maikel Isover Domínguez García	CUBAENERGIA
Manuel Rodriguez	CIEMAT
Mario Villamizar	UNIANDES
Mauro Canabe	UdelaR
Moises Hernandez Duarte	UNAM
Natalia Garces	UNIANDES
Paola Arce Azócar	UTFSM
Paulina López	REUNA
Querube Urriola	CIDETYS
Rafael Barbastefano	UFRJ
Raquel Pezoa	UTFSM
Santiago Iturriaga	UdelaR
Sebastian García	UdelaR
Sergio Nesmachnow	UdelaR
Tarciso de Oliveira Filho	UFCG
Villie Morocho	CEDIA

6. CONCLUSIONS

The new strategy based on the Science Gateway model, adopted during the second year of the project, allowed the GISELA Work Package 3 to offer a more attractive e-Infrastructure to Latin American research communities, hiding all the complexities of the Grid middleware like digital certificates management and not user-friendly interfaces.

In addition, a portfolio of high impact applications, selected by CLARA and Latin American NRENs, has been integrated in the GISELA Science Gateway and made available to end users.

As a net result, more than 150 users registered at the GSG at the end of the project with a continuous growth trend. In this way, widening the number of end users willing to use the e-Infrastructure, we lay the groundwork to reach the challenging objective of long-term sustainability of e-Infrastructures in Latin America.

Several dedicated training events have been organised to spread the knowledge to manage the GSG in order to keep the GSG model up & running after the project lifetime. In collaboration with CLARA and Latin American NRENs, WP3 created a Latin American Task Force that, after the project end, will manage all the aspects of the GISELA SG, from the operational ones to the contents management, easing the integration of new applications in the GSG.

Finally, the adoption of an authentication model based on Identity Federations in the GSG is aiding the spreading of the Identity Federation in Latin America. The creation, driven by GISELA, of a new Identity Federation in Mexico is a concrete example of such an effort.