



Enhancing Grid Infrastructures with
Virtualization and Cloud Technologies

Report on Dissemination, Collaboration and Standardization Activities

Deliverable D3.2 (V1.0)
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Abstract

This document reviews the dissemination, collaboration and standardization activities of the StratusLab project at the end of Project Year 1 (May 2011) – with analysis of progress to date – and describes plans and mechanisms for future activities to improve the project’s visibility and enhance external collaborations. Dissemination activities are progressing well. Project visibility is good, particularly within the DCI project community due to the dissemination efforts which encompass participation in events, engagement with related communities, a strong online presence, coverage in the press, and dissemination activities centred around the project results and software releases. Plans for Year 2 will proceed along similar lines with an increased focus on disseminating project results and on training. The project has developed collaborations with several related projects, having signed MoUs with two and developed draft MoU with three more. In Year 2 more of these collaborations will be formalised with MoUs, and the technical aspect of collaboration will increase. Standardization efforts to date have focussed on identifying relevant standards of which the project can make use, while in Year 2 more focus will be put on driving standardization.



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Contributors

Name	Partner	Sections
Cassidy, Kathryn	TCD	Editor
O'Callaghan, David	TCD	Editor

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1 Executive Summary

This document describes the dissemination, collaboration and standardization activities which have been carried out in the first year of the StratusLab project, provides analysis of the work done, and looks ahead to the second year of the project.

The project has been represented at many events internationally. StratusLab's presence has been in the form of conference booths, invited talks, presentations, panel discussions, posters and tutorials. Over 40 talks and presentations mentioning StratusLab have been given by project partners during the first year. In particular, the project has had a very visible presence at EGI events, with a booth at both the EGI Technical Forum 2010 and the EGI User Forum 2011, and project members have also participated in the meetings of several related projects and communities.

The project is attempting to create a strong on-line presence with the website at <http://www.stratuslab.eu/> forming the core of the project's external interface as well as a focus for project members. A redesign of the site is almost complete and it is expected that the new version will go live prior to release 1.0, in June 2011. The on-line presence has been extended to tools such as an RSS news feed and Twitter, along with other social networking tools encouraging users to bookmark or republish pages of interest.

The press has been an important part of the dissemination activity, with the use of press-releases and articles in publications such as *International Science Grid This Week* helping to spread awareness of the project and disseminate results. Project results are also disseminated through demonstrations and tutorials. Papers targeting relevant national and international journals and conferences are in preparation.

Major dissemination efforts are centred around software releases with a release dissemination plan being created for each. Release announcements have been widely picked up by on-line technical media outlets.

The user community was surveyed by WP2 to provide input to the project roadmap, and this opportunity was also used for dissemination.

Overall the dissemination activities are proceeding well, with the majority of the planned activities having been completed, and most target metrics met. Some specific conferences and communities which the project expected to target have not been targeted during the first year of the project, but others which were not planned have been targeted instead.

The user discussion mechanism which was expected to be in place by this point has been deployed but has not yet seen very high usage, and other options are being considered. The project blog has also not yet been created, although partner blogs have been used to disseminate release notifications and results.

Dissemination plans for the second year are in place, including a continuation of the release dissemination strategy, increased training effort in the form of participation in summer schools and organising tutorials at conferences, and continued participation in related conferences and meetings.

The collaboration activity is also progressing well with MoUs now signed with EGI and EDGI and draft MoUs with VENUS-C, IGE and Cyfronet. Other MoUs are in development with a number of projects. The project has also engaged heavily with the projects in the DCI area, and other related projects including face-to-face meetings to specifically discuss collaboration as well as participation in workshops and meetings organised by the other projects.

Specific plans for collaboration are being codified in the MoUs with each project, and a general high-level plan to continue to pursue MoUs and collaborations with related projects is also in place.

In the area of standardization, the project has identified some standards which it will adopt and development is complete or in-progress on these. In addition, some input has been made to the standardization process, although this has been limited. As the technology matures this input is likely to increase.

2 Introduction

2.1 Purpose

The purpose of this report is to review the dissemination, collaboration and standardization activities of the project; to analyse the experience from the first year of the project; and to set out plans for the second year of the project.

2.2 Organization

This document contains two main chapters, *Dissemination* and *Collaboration and Standardization*. Each of these chapters first describes the Aims and Objectives of the activity, before going on to describe the activities undertaken during the first year of the project. They go on to include an analysis of the activities, highlighting where the project is on-target and any issues or problems encountered, and then plans for year two of the project are outlined. Finally some conclusions are presented in the *Conclusions* chapter.

3 Dissemination

3.1 Aims and Objectives

From the beginning of the StratusLab project, dissemination has had a high priority with the goal of ensuring visibility of the project and its results across Europe and internationally.

The dissemination effort in StratusLab has several broad aims, outlined originally in D3.1 [14], as follows:

- To raise project awareness
- To inform users and the public about the project results
- To interact with user communities in order to educate them about the project's benefits (in conjunction with WP2)

3.1.1 Target audiences

The StratusLab consortium aims to make the project results known to multiple target audiences including – but not limited to – industry, commercial clients, technology journalists, researchers, students and other technical professionals.

The technical target audience for StratusLab has been split into two broad categories: end-users and systems administrators. The end-users consist of the domain scientists who will use StratusLab in their work; while the system administrators belong to the resource centres which will install the StratusLab distribution, in particular those coming from a background in grid computing (e.g. from National Grid Initiatives and the European Grid Infrastructure).

3.1.2 Dissemination methods

The StratusLab project makes use of a range of methods to meet the dissemination aims and objectives. These include:

- Interaction with related communities to raise awareness
- In print and online
- Publishing, demonstrating and disseminating project results

- Events and talks
- Publicity related to software releases

The project incorporates to the largest extent possible the communication best practices collected by the European Commission and acknowledges the funding from the European Commission through the FP7 programme via the appropriate use of the FP7 logo, EU flag, EC/e-Infrastructures, and the like in all dissemination activities and materials. Scientific publications of the project explicitly acknowledge the European Commission's financial support through the StratusLab project.

3.2 Activity review

This section presents a review of the dissemination activity in the first year of the project. The project published its “Initial Plan for Dissemination, Collaboration and Standardization Activities” (D3.1) [14] in October 2010. In addition, the quarterly reports have documented the project's progress including its dissemination activities.

3.2.1 Events

StratusLab has been represented at many events internationally. This has included conference booths, invited talks, presentations, panel discussions and posters. A comprehensive list of events at which StratusLab has had a presence is given in Table 3.1.

Table 3.1: Events

Title / Event	Date
XtremOS Summer School, Günzberg, Germany	July 2010
CSIC graduate course on Grid and e-Science, Valencia, Spain	Jul 2010
EuroPar 2010, Ischia, Italy	Aug 31 – September 3 2010
CERN, Geneva	
HPC 2010 International Workshop on High-performance Computing, Grids and Clouds, Cetraro, Italy	Jun 21 – 25, 2010
SWSTE 2010, Herzlia, Israel	Jun 15 – 16, 2010
First European Summit on Future Internet, Luxembourg	Jun 2 – 3
EuroPar 2010	Aug 31 – Sep 3 2010
Integrating Cloud Monitoring and Accounting with Grid Operational Tools	14 Sep 2010
Operational Considerations From Running Grid Services on Cloud Resources	14 Sep 2010
StratusLab Accounting Requirements, EGI Technical Forum 2010	15 Sep 2010
Cloud Challenges, EGI Technical Forum 2010	16 Sep 2010
ICT 2010, Brussels, Belgium	27–29 Sep 2010
GRISBI Bioinformatics School, Roscoff, France	1 Oct 2010
OGF30/Grid2010	25–28 Oct 2010
CloudComp 2010	26–28 Oct 2010
ISC Cloud 2010	28–29 Oct 2010
HP Labs Seminar	Nov 2010
7th International Cloud Computing Expo	1 Nov 2010
SlipStream and StratusLab, Cloud & ICT 2.0 Summit, Geneva	18 Nov 2010
OW2 Annual Conference	24–25 Nov 2010
Spanish NGI meeting, Barcelona, Spain	2 Dec 2010
Continued on next page	

Table 3.1 – continued from previous page

Title / Event	Date
“StratusLab : Le projet et sa distribution cloud” (C. Loomis, LAL) at France-Grille Cloud Event in Lyon, France	13 Dec 2010
UCM talk at France-Grille Cloud Event in Lyon, France	13 Dec 2010
“Cloud Computing – Anatomy and Practice” (M.-E. Bégin, SixSq) at <i>Groupe romand des utilisateurs/trices de GNU/Linux et de Logiciels libres</i> , Morgé, Switzerland	11 Jan 2011
“StratusLab Cloud Distribution” (C. Loomis, LAL) “Opening the Cloud” 2011 ASSYST Meeting on Cloud Computing, Paris, France	31 Jan 2011
UCM talk at Cloud Expo Europe 2011, London, United Kingdom	2 Feb 2011
“Bioinformatics distributed infrastructure, services and cloud computing” (C. Blanchet, CNRS IBCP) at <i>ELIXIR Workshop - Bioinformatics Infrastructures</i> , Amsterdam, Netherlands	22 Feb 2011
“Security Management in OpenNebula Cloud Architectures” (Javier Fontán, UCM) at 9th RedIRIS Security Forum on Cloud Computing	9 Mar 2011
“StratusLab Cloud: Early success stories and community feedback” (V. Floros, GRNET) at CloudScape III, Brussels, Belgium	15 Mar 2011
“StratusLab: Enhancing Grid Infrastructures with Virtualization and Cloud Technologies” (C. Loomis, LAL) at EU-Canada Future Internet Workshop, Waterloo, Ontario, Canada	23 Mar 2011
StratusLab Booth at the EGI User Forum 2011, Vilnius, Lithuania	11 Apr – 14 Apr 2011
“Operating Grid Services on the StratusLab Cloud” (V. Floros, GRNET) at the EGI User Forum 2011, Vilnius, Lithuania	11 Apr 2011
“StratusLab Tutorial” at the EGI User Forum 2011, Vilnius, Lithuania	12 Apr 2011
“StratusLab Collaborations” at the ECEE Workshop during the EGI User Forum 2011, Vilnius, Lithuania	13 Apr 2011
“Sharing Virtual Appliances with the StratusLab Marketplace” at the HEPiX Workshop in Darmstadt, Germany	5 May 2011
Continued on next page	

Table 3.1 – continued from previous page

Title / Event	Date
“Panel Discussion” sharing knowledge on StratusLab’s experience in applying agile (and Scrum) in academic context and FP7 contracts (Marc-Eliañ Bégin, SixSq) at XP2011, Madrid, Spain	11 May 2011
“StratusLab use cases” at EGI User Virtualisation Workshop, Amsterdam, Netherlands	12 May 2011
“Cloud Computing & StratusLab” at Journée Grille de production EGI, Lille, France	17 May 2011
“StratusLab: Enhancing Grid Infrastructures with Cloud and Virtualization Technologies” at the TER-ENA Conference in Prague, Czech Republic	19 May 2011
“StratusLab: Enhancing Grid Infrastructures with Cloud and Virtualization Technologies” at Journées GRISBI in Lyon, France	26 May 2011
“Grid-Ireland Operations Centre / TCD presentation” featuring StratusLab at Lero Cloud Computing seminar Cork, Ireland	26 May 2011

3.2.1.1 EGI Technical Forum 2010

Particular emphasis is placed by the project on EGI events, which are seen as a focal point for the Distributed Computing Infrastructure ecosystem.

The project booked an exhibition booth at EGI Technical Forum 2010 in Amsterdam and presented posters, demonstrations and other dissemination material. StratusLab had a very visible presence at the event. Project members gave a number of high-profile presentations, listed in Table 3.1.

StratusLab members participated in the session *Enabling Clouds for e-Science*, which brought together a number of international cloud computing projects.

3.2.1.2 EGI User Forum 2011

The project booked an exhibition booth at EGI User Forum 2011 in Vilnius, Lithuania and WP3 coordinated the preparation of dissemination materials for the event including t-shirts and demonstrations.

GRNET presented the reference infrastructure provided for interested users. LAL provided training on StratusLab as part of the ‘Heavy User Communities’ training sessions at this event. Project partners participated in the virtualization strand of the conference program.

3.2.2 Raising Awareness in Related Communities

StratusLab partners have endeavoured to raise awareness of the project in meetings, forums and distribution lists of related European projects in which they participate.

StratusLab was represented at European meetings such as the 8th e-Infrastructure Concertation Meeting (see Section 4 below) and ICT 2010. StratusLab’s presence at EGI events is mentioned above in Section 3.2.1 and more detail of the collaboration with DCI projects is given in Section 4 below.

StratusLab members have participated in sessions of the Open Grid Forum [8] and other related communities, as indicated by some of the presentation locations in Table 3.1.

3.2.3 Online

The project is attempting to create a strong on-line presence. The project website is available at <http://www.stratuslab.eu/> and provides general information about the project, along with news and status updates on the project, an archive of public documents and deliverables, links to presentations and other dissemination material, and the project roadmap. The website content management system is regularly upgraded to get the latest features and security updates.

This site is in active use by the project members as well as forming the core of the project’s external interface, and it is regularly updated. A graphical design update is in progress, with the intention to coincide with release v1.0 of the StratusLab distribution. The website allows visitors to provide comments, and the initial use of this feature is to solicit feedback on the project roadmap.

The site integrates Twitter and RSS feeds to provide news about software re-

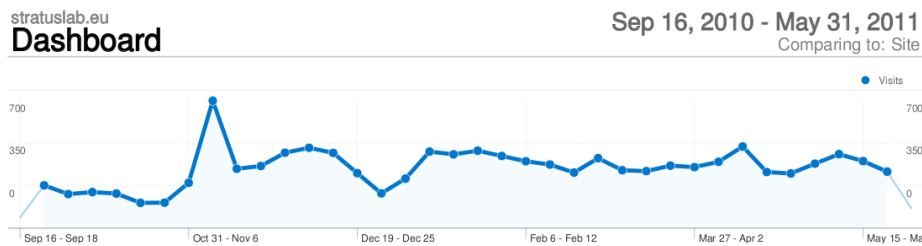


Figure 3.1: Website visits for Year 1

leases, press releases, attendance at events, and other newsworthy items. To date, the project Twitter and RSS feeds have been used to announce the project kickoff, participation in major events, publication of project documents and more informal updates on development including such as planning meetings and internal demos. The use of these tools will be continually reviewed and expanded.

Website monitoring was improved to give the project better visibility of the number of visitors and software downloads. Google Analytics gives a clear view of website traffic and, for instance, allows us to visualize spikes in traffic caused by media exposure (See Figure 3.1). AWStats (running locally on the web server) can provide in-depth statistics for non-web files, including software downloads. WP3 has begun to analyze the search engine results for the website and an effort to improve the site's page ranking is ongoing.

The website integrates tools to encourage visitors to bookmark and republish pages of interest to them. This is achieved through a plug-in which allows visitors to instantly create a bookmark to the site in a range of external sites and portals, including Facebook, Twitter and others.

The project partners maintain several weblogs such as the DSA Research blog [2], the Morfeo Cloud Technologies blog [5], and also publish posts in GridGurus [3] and OGF Thought Leadership Series [6] and these have been and will continue to be used as dissemination tools for the project.

In order to spread awareness of the site website the address ("stratuslab.eu") is included prominently in other project dissemination activities and on dissemination materials, such as t-shirts.

3.2.4 Press

The project has attempted to get coverage through traditional and on-line press by making news releases for major events, and by working with technical journalists to develop articles.

A project kickoff press release was created in June 2010, in both general and localised forms. The localised versions were not only translated into the local language, but also had a particular focus on the participation of local institutions. This press-release was widely picked up in both grid and cloud publications, as well as some more general scientific and educational publications. Coverage by major

grid and cloud publications included Cloud Computing Journal, International Science Grid This Week, SmartGrid, HPCWire and others. Including smaller local technical and educational publications, the press-release was carried in over fifteen online publications.

3.2.4.1 International Science Grid This Week

The project worked with the widely read International Science Grid This Week online magazine. StratusLab members have participated in iSGTW Live Chat! on 14 July 2010 and discussed StratusLab in the discussion. The project kickoff press release was also picked up by iSGTW (30 June 2010). An announcement of the user and administrator surveys was printed on 7 July 2010, and an announcement of the release of StratusLab version 0.1 was printed on 17 November 2010, and of version 0.3 on 15 March 2011.

StratusLab provided major input for on an article in *International Science Grid This Week* (<http://isgtw.net/>) entitled *Clouds are rising, with StratusLab* which described the results of the StratusLab surveys carried out by WP2 in Q1 and the first software release. This was published on 24 November 2010.

3.2.4.2 e-ScienceTalk

StratusLab was mentioned in the e-ScienceTalk *Grid Briefing* entitled *Mapping the e-Infrastructure Landscape* published in November 2010.

In addition, StratusLab has been in contact with e-ScienceTalk to discuss other the dissemination avenues which they might make available to the project, such as GridCafe, the GridCast blog and the Grid Briefing series.

A full list of references to StratusLab in the press is maintained in the project wiki [16].

3.2.5 Publishing, Demonstrating and Disseminating Results

As indicated in Table 3.1 above, StratusLab has been publicised at a variety of scientific meetings and conferences at national and international levels. In particular, since the first release in November 2010, several demonstrations and tutorials have been given, as well as a number of presentations and talks highlighting the results of the project and the availability and features of the StratusLab distribution.

The StratusLab Marketplace for sharing virtual machine images has also been publicised via presentations and posters at major conferences and this has already generated interest among the user communities.

In addition to dissemination of results of the project's development and research, results relating to the processes of the project, for example, the agile development methodology employed by the project, have also been disseminated at events such as XP2011 in Madrid, Spain and the EGI User Forum 2011 in Vilnius, Lithuania.

A tutorial aimed at introducing System Administrators to the StratusLab distribution was organised at the EGI User Forum 2011 in Vilnius, Lithuania in April 2011. This was very well attended, with 54 participants in total, 24 of whom tried

and succeeded in installing and running the StratusLab client.

Proposals for a StratusLab tutorial, a Cloud Computing and Virtualization presentation session, and a session on Agile Processes in Academic / FP7 projects have been submitted by the project for the upcoming EGI Technical Forum 2011, which will take place in September 2011, in Lyon, France.

In June 2010, two surveys were conducted by WP2 which provided input for dissemination activities. The surveys revealed information about the backgrounds of potential users, for example, the majority identified themselves as working in research or educational institutes, most came from the Computer Science/Engineering, Bioinformatics and Physics/High-Energy Physics domains, and there were a large number of Computer Science researchers among the respondents.

These results not only help the project to better identify its core user base, but they highlight areas where the project may need to invest additional effort in order to broaden the audiences reached by dissemination activities. For example, it was recognised that it is necessary to make a stronger effort in disseminating the project aims and results to commercial enterprises as they were under-represented among the respondents. This could be achieved by targeting more industry publications and events as well as academic ones.

An article was published in *International Science Grid This Week* (<http://isgtw.net/>), on 24 November 2010, describing the results of these surveys, as well as publicising the first release. More detail on the results of these surveys can be found in deliverable D2.1 *Review of the Use of Cloud and Virtualization Technologies in Grid Infrastructures* [12].

Publications in the most relevant national and international journals and conferences will aid in both raising project awareness and dissemination of results. All partners have undertaken to identify possible publication targets relevant to the specific area of the project in which they are involved. It is likely that such publications will become more important later in the project when there are more concrete results to report. A full list of relevant Calls for Papers is maintained on the project wiki [15].

The project has begun the process of writing such publications. To date, an initial, internal draft of an academic position paper on StratusLab has been prepared.

The StratusLab grant was also been acknowledged in a book chapter “Architectures for Enhancing Grid Infrastructures with Cloud Computing” by Eduardo Huedo, Rafael Moreno-Vozmediano, Ruben S. Montero and Ignacio M. Llorente (of StratusLab participant UCM) in *Grids, Clouds and Virtualization* (Springer, 2011).

A poster submitted by CNRS IBCP to the French annual Bioinformatics conference JOBIM 2011 in Paris, June 2011, has been accepted for presentation. The subject is “Virtualisation of Bioinformatics Applications on Cloud Infrastructure” and this specifically targets the bioinformatics user community, introducing the virtual bioinformatics appliances that have been built by the partner CNRS, and the benefit to bioinformatics scientists and engineers of using the cloud service from StratusLab.

3.2.6 Software Releases

Public releases of the StratusLab distribution provide an opportunity not only to renew contact with existing users, but to further publicise the StratusLab project via release announcements, press-releases, emails and other means.

For each scheduled release an internal dissemination plan is created, with details of the proposed activities to publicise the availability of the new version. The feature set in a particular release will inform this plan, for example, the venues chosen to publicise the release may differ depending on whether the new functionality is aimed particularly at users or at administrators.

Typically the release dissemination plan includes a notification to the user communities via the StratusLab Announcements mailing list, news items posted on the StratusLab website, notification in the StratusLab RSS and Twitter feeds and posts on partner blogs. Depending on the significance of the release and the features included, a press-release may also be prepared. Where suitable, release announcements are also sent via other mailing lists and fora in which the project members are involved.

For the initial release of version 0.1 on 9 November 2010, we wanted plenty of awareness of the software and the project, but with the focus on those groups who would be most interested in testing a version of the software that was not ready for full production use. With this in mind, the release was disseminated to our opt-in announcements list and relevant online media.

This release dissemination plan was revised for the subsequent releases of versions 0.2 (17 December 2010), 0.3 (15 March 2011) and 0.4 (8 June 2011).

A press release was prepared for the first software development release and distributed to a number of outlets that had been interested previously in our work. This was picked up by *HPCwire*, *Sys-Con*, *CloudExpo News*, *DSA Research Blog*, and *OpenNebula Blog*. In addition, an announcement appeared in *International Science Grid This Week* on 14 November 2010. A subsequent short press release was sent for release version 0.3 to the same outlets.

A major dissemination effort is planned for the upcoming first production release version 1.0, and the release dissemination plan is being updated for this purpose.

3.2.7 Dissemination tasks and metrics

Table 3.2 shows the dissemination tasks that were planned for the first year of the project, as outlined in deliverable D3.1 [14]. The majority of these have been completed with some still ongoing. In addition to these planned items, StratusLab was present at many more events, a full list of which is given in Table 3.1.

Table 3.3 lists the project's dissemination metrics that will be used to understand the impact of the dissemination activities. Notes: ¹ Metric has been adapted from "Number of people on StratusLab discussion list". See section 3.3.3 for a discussion of this metric; ² Visits between 1 June 2010 – 24 May 2011.

In the next section we provide analysis of each dissemination activity to under-

Table 3.2: Roadmap of Dissemination Activities for Year 1

Activity	Date	Description	
Website updates	Ongoing	The website content will be continually updated to ensure that the site is informative and interesting to users	Achieved
OGF30/Grid2010 [7]	25-28 Oct 2010	Keynote speech given at this conference by a project participant to include slides on StratusLab	Achieved
CloudComp2010 [1]	26-28 Oct 2010	Keynote speech given at this conference by a project participant to include slides on StratusLab	Achieved
ISC Cloud2010 [4]	28-29 Oct 2010	Keynote speech given at this conference by a project participant to include slides on StratusLab	Achieved
First Release v0.1	Early Nov 2010	To coincide with the first release of the StratusLab Distribution a wide range of dissemination activities are planned including press releases, mail shots, etc.	Achieved
Documentation	Early Nov 2010	Documentation will be produced to accompany the first release and this will be available on the website	Achieved
iSGTW article	Nov 2010	An article is planned in the iSGTW outlining the results of the user surveys and publicising the availability of the first version	Achieved
EMI meeting	22-24 Nov 2010	Presence at EMI all-hands meeting	Achieved
Website redesign	Q4 2010	A possible website redesign to make it more user-friendly and eye-catching has been proposed	Due June 2011
Social networking	Q4 2010	Further integration with Microblogging, Social Networking or other tools will be investigated	Due June 2011
Search engine optimization	Q4 2010	WP3 has begun to analyze the search engine results for the website and an effort to improve the site's page ranking is ongoing.	Ongoing
CloudCamp	Q4 2010	Presence at CloudCamp meeting	Due July 2011
Project weblog	Q4 2010	A project weblog will be set up - the project weblog has not been created on the webserver, but microblogging using Twitter is heavily used by the project	Partially achieved
EGI User Forum 2011	11-15 April 2011	Presence at EGI User Forum 2011	Achieved
Training event	Q4 2011	Participation in Joint European DCI Summer School	Due July 2011

Table 3.3: Dissemination Metrics and Targets

Metric	Source	Year 1		Year 2
		Target	Actual	Target
Number of people on StratusLab announcement list	Mailer	25	67	75
Registered users on StratusLab discussion site	Mailer	50	–	100
Number of views of website	Web server	–	11814	–

stand how to improve the overall effort.

3.3 Analysis

3.3.1 Events

StratusLab has been extremely well represented at a variety of events, as noted in section 3.2.1. Almost all of the events identified in the roadmap of events for year one were attended, along with attendance at a large number of additional events which were identified during the year. Participation in these events was very successful, the StratusLab posters, booths, demos, presentations, talks and tutorials all generated considerable interest. The StratusLab booth at the EGI User Forum 2011 received the “Best Exhibition” award (voted by attendees), and the StratusLab tutorials at this event were very well attended.

Some specific events in which the project intended to participate, were not attended in year one. For example, it was intended to demonstrate the StratusLab distribution and seek feedback at trade shows such as VMWorld [10], the Virtualization Conference and Expo [9] and similar commercial events. This has not yet been possible, but will be revisited in year two.

A number of invitations to speak about the StratusLab project have been regrettably declined where it has not been possible to find an available speaker from within the project to attend.

3.3.2 Related communities

StratusLab has had considerable success in disseminating to related communities, particularly within the DCI ecosystem. Project partners have given several presentations at events of related projects, and members of related projects have been given access to the StratusLab Reference Infrastructure (See section 4.2.15). The visibility of the StratusLab project within related communities appears to be quite high.

Some communities have not yet been specifically targetted for dissemination. For example, although it was planned to disseminate results of the project to Technology Platform groups in which the consortium partners participate, such as INES

and NESSI, StratusLab has not actively worked with INES and NESSI at this point, however there are plans to pursue contact with INES in the near future.

3.3.3 Online

The website has been online since early in the project, and it forms the main public interface of the project. Website visits are, however, at a relatively low level (see Figure 3.1). Regarding search engine ranking, the project is visible under its own name and description (i.e. searching for ‘StratusLab’ or ‘combining grid and cloud’) but not highly visible for more generic terms such as ‘open source cloud’.

The project had expected to have a technical discussion mailing list, weblog or website forum to encourage dialogue with the user community and other interested parties. The project has not yet made full use of this medium, but microblogging using Twitter has been extensively used to announce software releases, conference participation, and the status of development.

A discussion feature has been added to the website where users can comment on certain pages and thus far it has been enabled as a test case for the project roadmap page.

Dissemination of this feature has been limited and as registration is not required it is difficult to accurately measure usage to date. Although there have been 233 unique visits to the discussion-enabled page, only one user has posted comments.

A dissemination plan for this discussion feature is being developed to coincide with the release of version 1.0, and other discussion mechanisms are now being investigated. These include the mailing list and blog as well as more technical interaction with users and potential open-source contributors by providing access to a bug-tracking system.

3.3.4 Press

The project has been relatively well covered in the press, in particular iSGTW and other e-ScienceTalk outlets. Spikes in website traffic have been seen coinciding with some press coverage and the project intends to further analyse these in order to identify the most successful press outlets.

There has also been some press coverage within the mainstream press, for example, the localised project kick-off press release was widely picked up by national media, however, this could be improved.

3.3.5 Results

Project results, including the availability and features of the StratusLab distribution, as well as the Marketplace, and some of the processes of the project have been disseminated, mainly by presentations and keynote speeches at conferences. Demonstrations and Tutorials have also been conducted and these have been very well received.

The project had intended to have a paper in a major conference or journal and this has not yet been achieved, but is in planning for year two.

3.3.6 Releases

Major dissemination efforts have centred around each software release. The targeting of press-releases and other dissemination materials to the specific user communities based on the feature set of the release appears to be an effective approach to release dissemination. This will continue in year two with a very large dissemination effort planned to coincide with the release of version 1.0.

3.3.7 Other issues

3.3.7.1 Dissemination to the general public

Dissemination to the general public is also important, to raise awareness of the project and for educational purposes. In targeting the general public it is necessary to focus on the economic and societal benefits of the project, its impact on science and research, and how this can be of benefit to the broader community. This is quite a different approach to that taken for dissemination to technical or scientific audiences. Thus far StratusLab has not focussed on dissemination to the general public.

3.4 Plans

Table 3.4 presents a roadmap of dissemination activities for the second year of the project. Only those in the relatively near-term can be considered concrete plans. The details of those in the longer-term are likely to change as the project progresses, and many additional activities will be added.

These plans include some activities that relate to the MoU agreed with EGI, described in Section 4.

3.4.1 Events

It is planned to have project representation at a large number of events again this year. Some specifics are given in Table 3.4.

3.4.2 Related Communities

StratusLab intends to broaden the range of related communities to which it disseminates during year two.

3.4.3 Online

Updates to the website and online presence are planned. A redesign of the website look-and-feel has been completed and the new version will go live in June 2011, shortly before the release of version 1.0. The new version incorporates the project RSS news feed and Twitter feed into the main page in order to ensure that the content is regularly updated. It is also more visually appealing with a graphical banner and footer, and includes improved navigation and a reorganisation of some of the material in order to make it easier to find key information.

3.4.4 Press

StratusLab will continue to work with e-ScienceTalk and iSGTW. The project is investigating the possibility of an article in iSGTW shortly after the release of version 1.0, perhaps describing the StratusLab Marketplace and the Bioinformatics appliances which the project has created.

The project will also attempt to have articles published in a broader range of publications, including more mainstream press which would help extend the dissemination effort to the general public.

3.4.5 Results

With the imminent release of the production version 1.0 the project will begin a concerted effort to disseminate the results of the project thus far. Training the user communities will become more important in year two, and several training initiatives are being planned, including tutorials at major user community conferences, as well as the cloud training day given by StratusLab as part of the DCI Summer School in July 2011.

Other results of the project will also be more widely disseminated. The StratusLab Marketplace may be of interest to a very broad range of user communities. The installation of a dedicated test version of the Marketplace for the HEPiX community serves as a test case which may be repeated with other communities in future.

3.4.6 Software Releases

A major dissemination effort is planned for the first production release version 1.0. This will include an announcement posted on the main page of the redesigned webpage, announcement emails sent to the project's announce list and the contact lists of the partners, microblogging on Twitter with project partners encouraged to repost the announcement, stories on partners' blogs, a press release which will again be localised and targeted to each partners' country and an eventual article in iSGTW which will highlight some of the features of the release.

Going forward smaller more targeted dissemination efforts will continue coinciding with each development release.

Table 3.4: Roadmap of Dissemination Activities for Year 2

Activity	Date	Description
Release version 1.0	Jun 2011	A major dissemination effort is planned for the release of the first production version of the software
Contrail Summer School	Jun 27 – 30, 2011	Presentation and hands-on session on OpenNebula
HPCS2011	Jul 4 – 8, 2011	Keynote speech featuring StratusLab
CloudCamp	Jul 13 2011	Presence at CloudCamp meeting
Joint European DCI Summer School	Jul 11-16, 2011	StratusLab training day on cloud computing
Parco2011	Aug 30 – Sep 2, 2011	Keynote speech featuring StratusLab
EGI Technical Forum 2011	Sep 19-23, 2011	Booth, tutorial and talks on Bioinformatics Appliances, Agile and academic/FP7 projects are planned
ISC Cloud2011	Sep 26 – 27	Keynote speech featuring StratusLab
Training event	Q4 2011	It has been suggested that a Cloud School could be run in late 2011, either in conjunction with another event or as a stand-alone event.
Release dissemination	Ongoing	Future releases will be accompanied by dissemination efforts targeted based on the features of each release
Project weblog	Q3 2011	A project weblog will be set up
StratusLab paper	Q4 2011	A StratusLab paper will be submitted to a major conference

4 Collaboration & Standardization

4.1 Aims and Objectives

A large number of projects, companies, and standards bodies currently focus on cloud and virtualization technologies because of their promise and growing adoption. StratusLab must actively engage with those entities to ensure that the project's results are well represented, that we are aware of others' advances, and that we drive standardization in a direction consistent with our vision.

StratusLab has established collaborations with several other EU projects, particularly those in the Distributed Computing Infrastructures area, and is continuing to work with these projects to identify common interests, and to avoid duplication of effort.

The project aims to use existing standards where appropriate and also to actively engage with relevant standardization bodies in order to influence developing standards.

4.2 Activity review

During the project lifetime, collaboration will be pursued according to the plans and agreements in place with collaborators (while allowing for flexibility if circumstances change) and collaboration activities will be reported as part of the project's regular reporting cycle.

Many other concurrent European projects will be interested in the results of StratusLab or will be exploring complementary technologies. This task has set about identifying those projects of interest, and has opened discussions about collaboration with those projects. Memoranda of Understanding have been signed, or are in development with these projects.

Rather than an overall roadmap for collaborations, each bilateral collaboration has its own roadmap, determined by the collaborating contacts and forming part of any agreement between projects.

4.2.1 e-Infrastructure

Charles Loomis (CNRS LAL) participated in the 8th e-Infrastructure Concertation Meeting on 4–5 November 2010, CERN in Geneva, Switzerland (<http://www.e-sciencetalk.org/e-concertation/>).

4.2.2 SIENA

At the 1st SIENA Roadmap Event, 27 October 2010, in conjunction with OGF30, Brussels, Juan Caceres (TID) represented StratusLab at the Roadmap Editorial Board: a group of national and international distributed computing initiative members, active contributors to standards, and collaborating e-Infrastructure users to serve on an editorial board to provide input for and consolidate the *SIENA European Roadmap on Grid and Cloud Standards for e-Science and Beyond – Cloudscape III Use Cases and Position Papers* wide input.

TID wrote several sections on the SIENA Initiative¹ wiki, which was set up specifically for the writing of the Roadmap. The sections aimed at disseminating the activities carried out in Stratuslab, and consisted of an introduction to the project, a description of challenges and a description of engagement. In addition to that, deliverable D6.1 was uploaded as a reference document for StratusLab's *Cloud-like management of grid sites design*.

Vangelis Floros (GRNET) participated in the *Cloudscape III* meeting (March 15–16) organized by SIENA, and presented the project's status and success to date.

4.2.3 OpenNebula

Discussion has begun on promoting new StratusLab features and services (such as enhanced security, and the appliance marketplace) to the OpenNebula community through the mutual project partners.

4.2.4 SARA HPC Cloud

StratusLab members from CNRS, GRNET, TCD and UCM met representatives of the SARA HPC Cloud project in Amsterdam on 11 May 2011 to see how StratusLab could work with SARA on future developments of their HPC Cloud service. Mantychore representatives were also present at this meeting and described their project and technology, which appears to have applications for StratusLab.

4.2.5 NIIF

StratusLab has had discussions with the National Information Infrastructure Development (NIIF) Program in Hungary. NIIF have already developed a working cloud prototype for their users. In particular, they have based their image repository infrastructure around iSCSI technologies. StratusLab has discussed various points for collaboration, in particular around using these storage technologies in the StratusLab distribution.

4.2.6 Cyfronet

Cyfronet, which operates the Polish NGI, approached StratusLab about the possibility of collaboration on cloud deployment in relation to a national project in Poland that will involve cloud computing. A draft MoU has been defined.

¹<http://www.sienainitiative.eu/>

4.2.7 HEPiX

Early in the project StratusLab initiated a collaboration with HEPiX in order to provide them with experience in virtualization, cloud computing, and OpenNebula. More recently, HEPiX have provided input on the design of the StratusLab Marketplace and a test version of the Marketplace has been deployed for the HEPiX Virtualization Working Group. This will allow them to test how the Marketplace can help them to publish and to share trusted virtual machine images between their grid sites. A concerted testing effort by the HEPiX people is expected to take place in the latter part of June 2011. StratusLab hope to work with HEPiX more extensively in the future with HEPiX acting as test sites for the StratusLab distribution, and cooperation on the HEPiX “Image Generation Policy” work.

4.2.8 ttylinux

The ttylinux distributions are small, but fully functional, linux distributions that are typically used for embedded systems. Images based on these distributions are extremely useful for testing the StratusLab cloud and for training. Scientists may also be interested in these images because of their extremely fast start-up times. StratusLab has initiated a strong collaboration with the maintainer of the ttylinux distributions in order to make it more appropriate for use in a cloud. Essentially all of the customization done by StratusLab for making cloud ttylinux images have been adopted by the maintainer and now appear in the standard ttylinux distributions. This makes it easier for the project (and others) to keep pace with the new ttylinux releases.

4.2.9 FP7 Proposals

StratusLab partners were approached by a number of project consortia interested in future collaborations for FP7 calls in late 2010. The project issued Letters of Support for four projects.

4.2.10 Distributed Computing Infrastructure Projects

Collaborations with projects in the DCI area were pursued in the form of in-person meetings (where possible) as well as audio conferences between representatives from all related DCI projects. The purpose of these meetings was to build understanding of each project’s objectives and to uncover possible collaborations.

A common deliverable *Distributed Computing Infrastructure Collaborative Roadmap* [13] detailing the proposed interactions between each of the DCI projects has been created with input from StratusLab and the other DCI projects.

4.2.11 EGI

StratusLab has signed an MoU with EGI which outlines a number of specific areas for collaboration including the development of cloud middleware components based on requirements gathered through the various scientific communities within EGI along with complementary training strategies, cooperation on workshops and

technical meetings and development of standards.

StratusLab contributed to and reviewed EGI-InSPIRE deliverable D2.6 on *Integration of Clouds and Virtualization into the European Grid Infrastructure*.

StratusLab was represented at an EGI Security Policy Group meeting in Amsterdam in January 2011. StratusLab input will be included in a number of security policies which touch on virtualization and cloud computing. StratusLab has been invited to participate formally in the Security Coordination Group under the MoU between the projects.

StratusLab members from CNRS, GRNET, TCD and UCM participated in the EGI User Virtualization workshop in Amsterdam on 12–13 May to map out the future of EGI as a federated virtualized infrastructure.

4.2.12 EDGI

StratusLab has signed an MoU with the EDGI project which allows EDGI to take advantage of a cloud infrastructure with StratusLab providing expertise in building virtual appliances as well as supplying base images for EDGI to build their appliances, and grid appliances for their interoperability testing. StratusLab also provides a test infrastructure to EDGI and use of the Marketplace. The EDGI project instantiates some StratusLab use cases and thus will provide requirements, as well as feedback on their use of the StratusLab tools and infrastructure.

4.2.13 VENUS-C

Project partners participated in several meetings with the VENUS-C project to discuss collaboration between both projects.

A draft MoU with VENUS-C has been defined covering collaboration in the areas of user requirements and experiences and on sharing expertise on standards, accounting, and OpenNebula (a core component of StratusLab). Furthermore, Stratuslab will investigate the use of the shared storage solution of VENUS-C while VENUS-C will investigate developing high-level APIs for some of the StratusLab benchmarks.

4.2.14 IGE

Project partners met with the IGE project about collaboration between both projects, to deploy Globus middleware and services on StratusLab sites. A draft MoU has been defined.

4.2.15 EMI

Since project Q2 Vangelis Floros (GRNET) has engaged in an informal interaction with EMI project. This was initiated by two members of EMI, Shahbaz Memon and Bjorn Hagemeier (both from the Jülich Supercomputing Center) mainly with the purpose for EMI to keep up to date with the developments of StratusLab integration activities. There have been various communications between the two parties answering questions and clarifying specific technical details about the StratusLab cloud solution. In addition, user accounts have been created for EMI members in

GRNET's reference cloud infrastructure providing access to the test installation and tools of StratusLab. This informal collaboration is expected to be formally defined in the coming months in the context of the MoU with EMI which is currently under preparation

4.2.16 Standards and Policy Bodies

StratusLab will engage with standards bodies to drive standardization in a direction consistent with our vision. Possible standardization targets include: Cloud API, Contextualization, Cloud/Grid Interface, Security and Accounting.

The project uses existing standards where appropriate, and engages with standards bodies to extend existing standards or create new standards.

Individuals participating in the technical work packages are best placed to participate in the technical discussions surrounding the standardization of cloud and virtualization services, thus all partners are involved in contributing to standards and policy bodies. This task identifies standards activities of interest to the project, encourages project participants to work in those standardization activities, and reports on their impact within the standardization efforts.

4.2.16.1 Use of existing standards

The project plans to use the OpenNebula OCCI API based on the OGF OCCI specifications. This feature is not yet in use in StratusLab 1.0, but will be included in future releases.

VENUS-C is developing a data management solution for the VENUS-C that is SNIA CDMI compliant. The CDMI standard complements the OCCI with a focus on data management. The MoU in development with VENUS-C allows for use of this data management solution by StratusLab.

4.2.16.2 Extension of standards

StratusLab uses the TCloud API of Claudia for service and VM management, based on the VMware VCloud API. This has been sent to the DMTF for standardization.

The project has also had initial discussions with SARA HPC about future standards-based clouds using the best of existing standards and if necessary developing new standards, for instance in the area of network management.

4.3 Analysis

4.3.1 Memoranda of Understanding

The project is progressing well in this area with MoUs signed with EGI and EDGI, draft MoUs defined with VENUS-C, IGE and Cyfronet, as well as ongoing discussions with a number of other projects which may lead to MoUs in the future. Establishing MoUs is beneficial as it helps to define the relationships between the projects.

4.3.2 Standards

While several of the collaborations in which the project is involved have a standardization component, for example, SIENA, there has been little direct work on standardization to date. The focus so far has been on identifying existing standards which StratusLab can implement rather than on driving new standardization efforts. Gaps have been identified, however, and these are likely targets for future standardization work.

4.4 Plans

The project has already initiated a large number of contacts and collaborations with other projects. In year two, we expect that many of these collaborations will be formalised in the form of Memoranda of Understanding. In the short term, we hope to conclude MoUs with a number of projects where a draft MoU already exists, while MoU will be drafted with other projects. Table 4.1 gives an outline of some of the specific MoUs planned in the short term.

Whether formalised through an MoU or not, the existing collaborations are expected to deepen over the course of year two, with more detailed technical collaboration than has occurred to date.

At the same time, other relevant projects and parties for collaboration will continue to be identified.

As a relatively short project, StratusLab must consider the potential for its collaborating partners to contribute to exploitation and sustainability (see Deliverable D3.3 *Exploitation and Sustainability First Plan*), and this will also be further explored as year two progresses.

Table 4.1: Roadmap of Collaboration Activities in Year 2

Activity	Date
Finalise MoU with VENUS-C	Q5 2011
Finalise MoU with IGE	Q5 2011
Finalise MoU with Cyfronet	Q5 2011
Develop draft MoU with other projects	Q5 2011

5 Conclusions

This document describes the dissemination, collaboration and standardization activities undertaken by the StratusLab project in year one and the plans for the coming year.

Dissemination has been given a high priority and has been quite successful. Visibility of the project is high, due to the many presentations and keynote speeches given by project members. A particular effort has been made to inform related communities such as the DCI projects about the project and its results.

A strong online presence has been created with the project website acting as the main external interface for the project as well as a focus for project members. The website has been complemented by microblogging, use of an announce mailing list, a discussion forum and integration of Social Networking tools.

Dissemination activities have centered around the software releases with a release dissemination plan created for each release.

While some planned dissemination activities have not yet taken place, many more talks and presentations have been given than was originally envisioned and the dissemination effort is progressing very well. In the second year a greater focus will be placed on disseminating the project results and on training, with a number of specific events planned for these purposes.

The document also gives an outline of collaboration with related projects which are underway. Particular attention must be given to the Distributed Computing Infrastructure projects and, indeed, StratusLab has contributed to a common vision for the DCI projects [13]. Beyond the DCI projects, StratusLab has initiated collaborations with many other projects and user communities. MoUs have been signed with EGI and EDGI, and draft MoUs have been defined with VENUS-C, IGE and Cyfronet. Other MoUs are in the discussion stages.

Standardization efforts are progressing, the project is implementing a number of standards and has also begun the process of driving standards forward in some areas. Several of the collaborations in place with related projects include a standardization component.

In year two it is expected that the collaborations will deepen and more technical collaboration will emerge, including more work on standardization.

As the first year of the project draws to a close WP3 turns more of its attention to exploitation and sustainability of the StratusLab distribution. This is the focus of the report D3.3 “Exploitation and Sustainability First Plan” [11], prepared in

parallel with this report.

Effort on WP3 activities was slightly lower than expected at the beginning of the project. This was partly due to staffing issues and holiday periods. Effort has gradually increased to be on target for Q4. Effort in year two should continue to be on target as task 3.3 Exploitation and Sustainability began in Q4, and the dissemination, collaboration and standardization efforts are expected to increase after the first production release version 1.0.

References

- [1] CloudComp2010. <http://www.cloudcomp.eu/index.shtml>.
- [2] DSA Research Blog. <http://blog.dsa-research.org/>.
- [3] GridGurus. <http://gridgurus.typepad.com/>.
- [4] ISC Cloud2010. <http://www.isc-cloud.com/2010/>.
- [5] Morfeo Cloud Technologies Blog. <http://cloudtechnologies.morfeo-project.org/>.
- [6] OGF Thought Leadership Series. <http://www.ogf.org/TLS/>.
- [7] OGF30/Grid2010. <http://www.ogf.org/OGF30/>.
- [8] Open Grid Forum. <http://www.ogf.org/>.
- [9] Virtualization Conference and Expo. <http://www.virtualizationconference.com/>.
- [10] VMWorld. <http://www.vmworld.com/>.
- [11] M.-E. Begin and D. O’Callaghan. Exploitation and sustainability first plan, May 2011. D3.3.
- [12] C. Loomis and M. Airaj. Review of the use of cloud and virtualization technologies in grid infrastructures, 2010. D2.1.
- [13] S. Newhouse, A. di Meglio, A. Papaspyrou, D. O’Callaghan, J. Kovacs, and A. Manieri. Distributed Computing Infrastructure (DCI) Collaborative Roadmap. online at: <https://documents.egi.eu/public/ShowDocument?docid=172>, September 2010.
- [14] D. O’Callaghan and K. Cassidy. Initial plan for dissemination, collaboration and standardization activities, October 2010. D3.1.
- [15] StratusLab. Stratuslab calls for papers. online at: <http://stratuslab.eu/doku.php/cfp>.

- [16] StratusLab. Stratuslab press. online at:
<http://www.stratuslab.eu/doku.php/press>.