Project no. IST-033576

XtreemOS

Integrated Project

BUILDING AND PROMOTING A LINUX-BASED OPERATING SYSTEM TO SUPPORT VIRTUAL ORGANIZATIONS FOR NEXT GENERATION GRIDS

Communication and dissemination report and plan
D5.1.6

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Reviewers

Domenico Laforenza (CNR), Gregor Pipan (XLAB)

Tasks related to this deliverable

Task No.	Task description	Partners involved
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Executive Summary

This deliverable provides a planning document to reach the objectives of the communication and dissemination activities of XtreemOS. This document is based on Annex 1 and on the deliverable D5.1.4 - Communication and Dissemination plan. It provides a report describing the actions that have been carried out during the second year of the project and the actions that are planned for the next reporting period (M25-M42) and beyond.

For the XtreemOS project to be successful both communication and dissemination activities are very important and it is crucial to inform the widest possible academic and industrial audience on the project progress and achievements.

During the second year of the project results have been disseminated through a greater number of joint scientific papers and LinuxSSI software (only software code publicly available so far) through the Kerrighed community. Beyond continuing to publish scientific results, the first software release (July 2008) will imply greater and more diversified efforts in communication and dissemination actions (SourceForge repository, install/live CD, press release, demonstrators…).

At the end of the year 2008, XtreemOS will be distributed through the Linux distributions of Mandriva and Redflag Software, and OSCAR, too. Furthermore, it is planned to contribute to –and try to influence- OGF standards; Since June 2007 XtreemOS is an organizational member of the OGF and different XtreemOS partners have regularly participated in OGF meetings.

Proactive communication is the key to raise awareness, attract the interest of various audiences, and make the project and its findings visible across Europe and beyond. During the second year more proactive actions have been initiated, including submission of special XtreemOS stories to specialized websites, website referencing etc. All partners contributed to the better visibility of the project when participating in events, giving talks, presenting scientific papers and distributing the XtreemOS pens and flyers. Furthermore, the corporate image has been improved with the cooperation of several partners and the help of a professional designer.

After the first software release the main goal of the communication task will consist in proactively promoting XtreemOS and in convincing users and developers to get involved by testing, using, and contributing to the XtreemOS software. WP4.4 will provide a set of demonstrators running with real-world applications of WP4.2 to show the benefits of XtreemOS (M37). Together with WP5.3, it is planned to get in contact with other IST grid projects too and motivate their involvement in the future developments of the XtreemOS software. Furthermore, XtreemOS plans to provide support to the emerging communities of users and developers as well as training courses (WP5.2) for external (and internal) users and developers.

1. Communication report

The following communication report describes activities carried out during the last 12 months (M13-M24). Because communication is very important, the consortium decided to establish a separate communication budget to fund communication activities, e.g. booths, pens, communication materials, Internet of Services 2008 (concentration meeting for FP6) etc; This global budget is managed by the WP5.1 leader (UDUS). The communication strategy is validated by the executive committee who must also approve any communication-related expense beforehand.

1.1 Corporate Image

As recommended by the reviewers, the communication materials were refined to improve and strengthen the corporate image of the project. The consortium has improved the existing communication materials together with a professional designer:

- Project logo re-designed and available in various format (re-sizeable at will),
- A new general project poster (see Annex D), more focused on science (whereas the first project poster mainly presented the composition of the consortium as it was too early to show results or technical targets),
- Sleeve / presentation pack: a glossy sleeve (nicely printed in colors etc.) giving general and permanent key information on the project & consortium in which we will insert scientific documents/folders/flyers (A4 format). A template will be provided for these technical sheets (A4) that could be regularly updated unlike the "sleeve" that will remain the same.
- New PowerPoint templates based on the new look&feel of the project poster (see Fig.1 below),
- Graphical components for install CD / live CD (logo, background pictures, …).

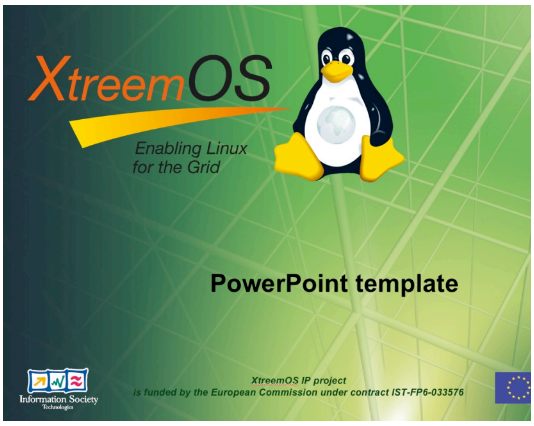


Figure 1: XtreemOS new look&feel – PowerPoint template

One of the next steps is to reflect this new look&feel on the project website (to ensure the homogeneity of the corporate image). It should be emphasised that this new, consistent and professional-looking graphical layout will be used whenever applicable (flyer, brochure, newsletter), in order to implement the corporate image.

1.2 Proactive communication activities

1.2.2 Participation in events

A reliable way to make the project known is to ensure that XtreemOS is presented at events where possible target audiences attend. XtreemOS partners will make sure to distribute publicity material at those events and where possible, make presentations (and should the occasion arise, demos).

BOF at Supercomputing 2007

XtreemOS organized a *BOF* (Birds of Fever) *"Grid Operating System Community Meeting"* at Supercomputing 2007. Around 30 participants met in Reno-Sparks, USA, on November 13th, 2007.

The XtreemOS project and the BOF were promoted on INRIA institutional booth, see figure 2. A new flyer, XtreemOS pens and a circular were handed out there. The BOF had been advertised well in advance on various channels: mail to individuals/targeted key researchers and business people, newsgroups, website, etc.

Below are the speakers who were invited to give a talk at the XtreemOS BOF:

- Ron Minnich, Sandia National Laboratory, USA (Grid9/Plan9),
- Andrew Grimshaw, University of Virginia, USA (Legion),
- Christine Morin, IRISA-INRIA, France (XtreemOS).

In 2008, XtreemOS will have its own (small) booth. A tutorial proposal has also been submitted by the consortium and a demo of the XtreemOS system will be prepared, too.

LASCO'08 workshop at USENIX 2008

During this second year, the XtreemOS consortium prepared a one-day workshop called *"Large-Scale Distributed Computing" (LASCO'08)* co-located with *USENIX 2008*. The objective of this workshop is, firstly, to gather key people working on large-scale computing and, secondly, to attract attention on the XtreemOS project. It is scheduled for June 23, 2008 and will therefore be further reported in the next deliverable about communication and dissemination.

Below are the invited speakers and the title of their talk:

- Margo Seltzer, Harvard University, "Performance and Forgiveness",
- Miron Livny, University of Wisconsin, "Large Scale in What Dimension?",
- Arthur Maccabe, University of New Mexico, "Experiences in Developing Lightweight Systems Software for Massively Parallel Systems".

This workshop is a great opportunity for the project to increase its visibility among the scientific community, especially as XtreemOS appears as the sponsor of the event on LASCO'08 webpage (with XtreemOS logo on the main page): http://www.usenix.org/events/lasco08, see figure 3.

Figure 2: XtreemOS at SC'07

Figure 3: LASCO'08 at USENIX 2008

Additionally to the two major above-mentioned events, XtreemOS partners promoted the project making presentations, giving talks at various other events (M13-M24). The below list does not include talks at conferences to present accepted publications that are noticeable places for promotion action, too (see section 3.1).

- European Services, Software and Grid Technology Days, Brussels, September 2007.
- CoreGrid summer School in Budapest, Hungary, September 2007.
- Cluster and Grid 2007 in Austin, USA, September 2007.
- NorduGrid conference in Copenhagen, Denmark, September 2007.
- OGF 21 meeting, Seattle, USA, October, 2007.
- Supercomputing 2007 in Reno, USA, November 2007.
- Grids@work, Sophia-Antipolis, France, November 2007.
- E-science conference, Bangalore, India, December 2007.
- BCS-FACS 2007 Christmas Workshop, Formal Methods in Industry, London, UK, Dec. 2007.
- Grid@Asia Workshop, Seoul, South Korea, December 2007.
- Qualipso conference, Rome, Italy, January 2008.

- Solutions Linux, Paris, January 2008 (see figure 4).
- Kerrighed Summit, Paris, France, February 2008.
- 3rd EGEE user forum meeting, Clermont-Ferrand, France, February 2008.
- OGF 22 meeting, Cambridge MA, USA, February 2008.
- SOS12 workshop, Wildhaus, Switzerland, March 2008.
- CCGrid 2008, Lyon, France, May 2008.
- Computer Science meeting of the European digital Ecosystems (OPAALS Project), May 2008.
- Italian e-Science 2008 (IES08), Napoli, Italy, May 2008

It is worth specifically mentioning that XtreemOS was promoted by Christine Morin (project leader) during her keynote speech "Beyond Grid middleware: XtreemOS Vision", at CCGrid, Lyon, France, in May 2008.

Figure 4: XtreemOS at Linux Solutions 2008, Paris (Mandriva booth)

1.2.3 Presentations at seminars

Below is a list of seminars given by XtreemOS partners (not linked with paper submissions):

- Invited talk at University of Lugano about Replicated Objects, Jörg Domaschka (ULM)
- Application Development with SAGA, T. Kielmann and A. Merzky, GridKa School, Karlsruhe, Germany, September 12, 2007.
- NorduGrid conference, invited talk, Copenhagen, Denmark, September 2007, Christine Morin (INRIA)
- Journées Thèmes Emergents- HPC File Systems: From Cluster to Grid, INRIA Rennes October 3-4 2007, Jan Stender (ZIB), Erich Focht (NEC), Adrien Lèbre (INRIA – organizer of the event)
- SAGA – Software Solution Session, S. Jha, T. Kielmann and A. Merzky, OGF 21 meeting, Seattle, USA, October 17, 2007.
- "Security on XtreemOS: A Grid-enabled Operating System", EchoGRID Second Strategic Workshop (http://echogrid.ercim.org/content/view/33/11/), Beijing, 29 -30 October, 2007, Erica Yang (STFC)
- Mini-seminar at Laboratoire d'Informatique, de Robotique et de Microélectronique de Montpellier (LIRMM)- "The European Project XtreemOS: How to build and promote a Linux-based Operating System to Support Virtual Organizations for Next Generation Grids". Montpellier, France, December 2007 (Domenico Laforenza, CNR-ISTI)
- Qualipso Conference – "Opportunities and Issues for EU Research Projects in Open Source Software: the XtreemOS Approach" by Óscar David Sánchez, Paolo Costa, Jörg Domaschka, Gregor Pipan, Christine Morin, Rome, Italy, January 2008 (Oscar D. Sanchez),
- Presentation of XtreemOS project - focusing on XtreemOS MD flavour - at TID internal seminar, Valladolid (Spain), January 2008,
- Presentation of XtreemOS project - focusing on XtreemFS: a global file system targeted to data sharing among organizations, Universidad de Murcia (Spain), February 11, 2008
- Invited talk at SOS12 workshop "From petascale to exascale: Issues and hopes", Wildhaus, Switzerland, March 10-12, 2008, Christine Morin
- NEC User Group Meeting, Vienna Schloss Hernstein, April 7-9,2008, Erich Focht (Talk on R&D activities at NEC HPCE, part of the talk was on XtreemOS)
- Invited talsk by Toni Cortes (BSC) on XtreemOS: XtreemFS: a global file system targeted to data sharing among organizations, Universidad de Murcia, Murcia, February 11, 2008

- SAP gave an overview talk about XtreemOS at Rutgers University in New Jersey, see http://dydan.rutgers.edu/Seminars/2008/dementiev.html
- Virtual Nodes and fault tolerance strategies in Grid Systems, within a lecture, Ulm University, Germany

1.2.4 Press releases and story

Up to now, two press releases presenting the project objectives and organization have been issued. At the start of the project an initial generic press release had been prepared - aiming at a wider public - to raise awareness of the existence of the project and the financial participation from the European Commission.

During the second year of the project, we created a new story (partially based on the SC07 XtreemOS presentation) and submitted it to following specialized websites:

- http://insidehpc.com (HPC news for supercomputing professionals), an article released on 03/12/2007 at http://insidehpc.com/2007/12/03/xtreemoscoming-to-a-grid-near-you-jun-2008
- http://www.toolinux.com (ToolLinux, Le Journal du Libre) – see Appendix B
- http://linuxfr.org - story: http://linuxfr.org/2007/12/19/23478.html
- http://www.linuxhpc.org (Linux High Performance Computing) – story available at http://www.linuxhpc.org/stories.php?story=07/12/21/6857310
- http://www.isgtw.org (International Science Grid This Week) – see Appendix B
- For several other submissions we did not receive a feedback

This XtreemOS story gave more technical and scientific details on the goals, scientific targets of the project and expected capabilities of the software components.

Partners are requested to keep track of all – especially local - press releases and inform the leader of WP5.1, who collects them in the XtreemOS BSCW server (restricted to the partners and the European Commission - http://bscw.irisa.fr/bscw/bscw.cgi/0/25128) and publishes them in public area of the XtreemOS website.

Table 1 shows additional press releases in different regional languages (from June 2007 – May 2008).

Title	Source	Date	Language
Linux-based XtreemOS Goes Up Against Globus Toolkit for Grids	http://getcurrentevents.com	2 June 2007	English
XLAB razvija računska Grid omrežja	Tehnološki park Ljubljana	8 June 2007	Slovene
Xlab začel sodelovati v projektu XtreemOS	www.vzajemci.com	9 June 2007	Slovene
XLAB sodeluje v snovanju razpršenih omrežij	Monitor	9 June 2007	Slovene
XLAB IN GRID OMREŽIJ	Moj Mikro	11 June 2007	Slovene
XtreemOS as silver member	OGF newsletter	June 2007	English
Razprsena omrezja s slovenskim Znanjem	sistem	July/August 2007	Slovene
EU: Renewed European Open Source Grid systems	Open Source News	28 August 2007	English
Five Questions of Low-Cost Computing, Virtualization and Grid Computing	China Computer World	14/09/2007	Chinese
XtreemOS - Enabling Linux for the Grid	TCSC Newsletter Volume 9, No.2, 2007	November 2007	English
XtreemOS coming to a grid near you, Jun 2008	http://insidehpc.com	03/12/2007	English
Un ordinateur personnel à l'échelle du monde...	INRIA's code source newsletter n°49	05/12/2007	French
XtreemOS : utiliser une grille de calculateurs comme un PC	http://linuxfr.org	19/12/2007	French
XtreemOS : 'Linux pour les grilles du futur'	http://www.toolinux.com	20/12/2007	French
XtreemOS, a Linux-based OS that supports Grid Computing	http://www.linuxhpc.org/	21/12/2007	English
XtreemOS: a Linux-based operating system to support next-generation grids	http://www.isgtw.org/	16/01/2008	English
XtreemOS - Productos y Servicios con Linux	www.hispafuentes.com	20/01/2008	Spanish

XtreemOS - Productos y Servicios con Linux & Software Libre	www.hispafuentes.com	20/01/2008	Spanish
L'INRIA à Supercomputing 2007 Un système d'exploitation basé sur Linux pour soutenir les organisations virtuelles pour	http://www.inria.fr/actualites	01/02/2008	French / English

Table 1: Press releases (M13-M24)

All these press releases are available on the XtreemOS website (in the public area): http://www.xtreemos.eu/publications/press/xtreemos-press-releases (only the most popular releases will be soon advertised on XtreemOS website to limit the website content to high quality articles).

XtreemOS is also cited in a number of press releases related to the Excellencia award received by Christine Morin on October 15, 2007. The 'Excellencia Prize' rewards five young women engineers, in recognition of their achievements in leading a successful professional life, as well as a fulfilling personal life (http://www.excellencia.eu/).

- Ouest-France, regional newspaper on November 10, 2007,
- Les Echos, French newspaper in economics in October 2007,
- HPCwire electronic newsletter on November 1st 2007 (http://www.hpcwire.com/offthewire/17903839.html).
- Lemondeinformatique.fr (http://www.lemondeinformatique.fr/actualites/lire-levee-de-rideau-pour-les-laureates-du-cru-excellencia-2007-24303.html)

Furthermore, Christine Morin (project leader) was interviewed for the “Femmes d’influence” slot on France Info news radio channel on October 29, 2007 and obviously took the opportunity to promote the project.

A short article was also published within the IEEE Technical Committee on Scalable Computing newsletter (TCSC Newsletter Volume 9, No.2, 2007).

1.2.5 Wikipedia page

Almost every Internet user knows and uses wikipedia and thus the consortium can reach a very large audience by providing an XtreemOS wikipedia page.

As described in D5.1.4, the English Wikipedia page was initially deleted due to missing research results. Therefore, it was decided to retry the English version when the first software will be released (at M26). Then, we will create/update wikipedia pages in the regional languages spoken in the consortium (for which no wikipedia already exists): French, Chinese, Italian, and Dutch.

Below is the list of the wikipedia pages, updated, and which are alive at M24 of the project:

- http://es.wikipedia.org/wiki/XtreemOS (Spanish)
- http://de.wikipedia.org/wiki/XtreemOS (German)
- http://sl.wikipedia.org/wiki/Xtreemos (Slovene)

1.3 Project Website

From the very beginning of the project a website has been developed and maintained by INRIA (http://www.xtreemos.eu). The project website intends to be the central point for communicating comprehensive information about XtreemOS: This is why having the XtreemOS website up and running was one of the first priorities in terms of communication.

It should be mentioned that the XtreemOS website is regularly updated by both INRIA (general and scientific content) and project partners (scientific content) in order to reflect the progress of the project, news and events linked to the project and its research fields. Fresh news and information allow keeping the website interesting and attractive.

From the second year of the project, the website has been offering the following new information:

- Publication list with downloadable PDF-files,
- Deliverables (public deliverables due at M24 are now available),
- 2nd newsletter (October 2007),
- White paper, updated flyer, news, …

A new display of fresh news (with a "new" icon) and the creation of a hotspot section (with the "hot news") aims at making the information flow on the homepage more lively and eye-catching. Events and announcements from other Grid projects (CoreGRID, SIMDAT, BEinGRID…) are also promoted on XtreemOS website. In return, those projects advertise for XtreemOS events and open positions on their websites.

The website has been advertised on numerous communication channels:

- Referencing in main search engines, e.g. Google,
- Bi-directional links between most of the partners' institutional websites and the XtreemOS website,
- Reciprocal links with other Grid-related projects (CoreGRID…)
- Submission of announcements in specialized websites (www.slashdot.com, www.LNWnet.com, www.newsforge.com for examples) – see appendix B.
- Messages sent on mailing lists for expert groups (IEEE, Kerrighed developers…),
- INRIA booth and BOF "grid operating system community meeting" at SC07
- The LASCO'08 workshop was also a good opportunity to promote the XtreemOS website as XtreemOS is the main sponsor of this workshop on large-scale computing co-located with Usenix'08 (see Fig. 3 – Section1.2.2).

XtreemOS explicitly asked to appear on the following websites (only those are mentioned which accepted to list XtreemOS):

- http://www.ogf.org/UnderstandingGrids/grid_projects.php
- http://www.eu-ecss.eu/events/relatedproject_listing

Website access statistics are discussed in Section 6.

1.4 Publicity materials

Besides the refinement of communication materials (see section 1.1), a wide range of promotional materials were produced/updated to reflect the project progress and disseminated including:

- 2nd flyer to handed out at SC'07 (including an e-flyer version),
- 3rd flyer handed out at OGF22 and Solutions Linux 2008, see Figure 5,
- 2nd general marketing-like poster at OGF23

The above-mentioned materials can be downloaded by the partners via the XtreemOS website. The flyer, e-flyer and XtreemOS fact sheet can also be downloaded on the public website (http://www.xtreemos.eu/overview/). Partners are encouraged to adapt their own local publicity from the generic publicity material.

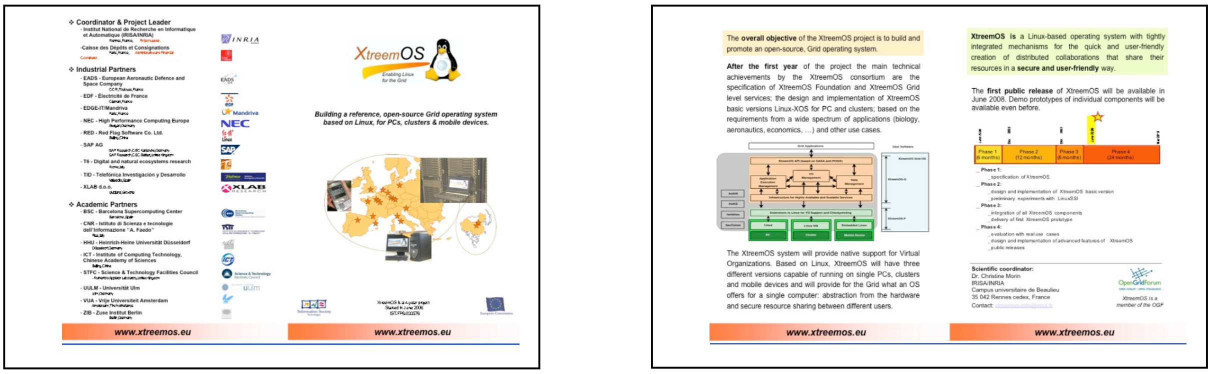


Figure 5: Third XtreemOS flyer (front and back)

1.4.1 Newsletter

The XtreemOS newsletter is published twice a year and freely downloadable on the website (in PDF version) and aims at raising public awareness of the project and keeping people informed on its activities and results.

It is also possible for everyone interested in the project to register for a mailing list to be sure to receive all issues: https://listes.irisa.fr/wws/subscribe/xtreemos-newsletter.

A rough (recurrent) outline of this news bulletin can be given as follows:

- XtreemOS top events/catcher
- XtreemOS collaboration activities news (in particular TG8 led by XtreemOS)
- Project activities update (technical content)
- In the spotlight section (general news about partners)
- Presentation of XtreemOS partners
- Upcoming and past events

The 2nd newsletter was released in October 2007 and is available on the public website. It is also enclosed in appendix A. This second issue has been promoted through mailing lists and in the XtreemOS story submitted on specialized websites.

The 3rd XtreemOS newsletter has been a bit delayed to get aligned with the first public release and is scheduled for September 2009 before the Internet of Services 2008 event in Brussels (co-organized by XtreemOS).

1.4.2 Marketing package

We have created an XtreemOS-customized pen with the penguin logo, motto and URL website to be distributed at events. The first 500 pens have been handed out at Supercomputing 2007, OGF 22, Solutions Linux 2008, etc.

2,000 new pens have been ordered to anticipate promotion actions at major events (OGF23, Rencontres Mondiales du Logiciel Libre (RMLL'08), Internet of Services 2008, Supercomputing 2008, ICT 2008…etc).

Although the new look&feel of XtreemOS has green graphical backgrounds, it was agreed to keep the flashy orange pens for the moment (same colours range as the project logo)

Figure 6: XtreemOS pen

2. Communication plan

2.1 Strategy

The main objectives during the next 18 months (M25-M42) are:

- Refinement of communication strategy to show the project first concrete results and targeted improvements, raise awareness of the benefits of a Grid-OS approach for different audiences: decision makers, geeks, the scientific community, business companies, and potential users/customers,
- Proactive communication on the project activities and outcomes especially towards the Linux/OS, distributed system, Grid communities and towards industries in Europe and worldwide,
- Promotion and dissemination of scientific findings,
- Promotion of the first global software release at M26 and of future new features, new applications, bug fixes...

For the next reporting period (M25-M42) the following objectives have been added:

- Establish the refined corporate identity/image of the project,
- Proactive communication to get users and developers from the open source community involved in the XtreemOS software open development,
- Proactive promotion of commercially interesting benefits of XtreemOS to key players (business…).

Communication timeline:

- M25-M27:
  - Promotion of the first system release
  - Open mailing lists and bug tracker system for external users
- M25-M42:
  - Raise awareness of the new OS-based approach for Grid systems
  - Promote software release: first packaged versions, new features, bug fixes, …
  - Communication of scientific findings
  - Motivate the contribution of developers to the software development
  - Incite users to test the XtreemOS system
- M37-M42: promote commercially interesting benefits of XtreemOS to key players

2.2 Planned Actions

The main *objectives* for the next reporting period (M25-42) are to continue to raise awareness on the benefits of a Grid-OS approach for different audiences and to proactively disseminate the project activities and the scientific findings to get users/developers/testers involved in our open source project.

Besides it is very important to regularly promote and communicate on software releases, updates, and advanced features, bug fixes to show that the project is alive and that the community of users and developers are supported.

2.2.1 Communication Budget

Because communication is very important, the consortium has established a global communication budget that will be used to pay communication-related activities in the future, e.g. the OGF membership, booths, professional press material etc.

2.2.2 Proactive communication activities

The project office will contact the FP6 and FP7 projects of D3 unit to promote the first software release and incite them to actively contribute to the software.

Furthermore, the project leader will contact the persons who have shown interest in XtreemOS either at events (SC'07, OGF meetings…) or through the contact mailing list of the project (more than 50 contact points have been collected so far).

The XtreemOS partners will also be encouraged to promote the first system release (and the next ones) using their internal communication media, e.g. institution journals, reports, websites, newsletters etc.

We will intensify the promotion of XtreemOS on specialized websites, e.g. www.slashdot.com, www.LNWnet.com, www.newsforge.com, and http://distrowatch.com, after the first release and keep the targeted communities informed on the progress of the project with messages on dedicated mailing lists (IEEE, Kerrighed developers, …).

Partners are encouraged to establish contacts with people interested in the project both from academia and industries to target key audiences in direct mail campaigns when informing on new software releases, newsletter issue, XtreemOS events, etc. Project partners will deliver the newsletter to their friends, interested audiences they know by using their social networks.

2.2.3 Participation in events

Another way to ensure the visibility of the project is to attend events with targeted audiences. XtreemOS partners will hand out promotional materials at those meetings, conferences, trade fairs, seminars, workshops, training events (…) and where possible make presentations of the project and/or related activities (scientific papers) and demos of the XtreemOS integrated components.

Participation in general Linux, Grid, OS and distributed system events with presentations, papers and posters will be continued. Further tutorials will also be submitted to scientific conferences and summer schools, and events with demonstration slots will also be considered.

Some of these events are attended by partners as part of their corporate policy and they will use these opportunities to communicate about XtreemOS too. The “event” calendar on the XtreemOS website will be regularly updated to inform on interesting events. Furthermore, the project office regularly informs partners by email about approaching deadlines for submissions to events/conferences.

Different partners plan to present XtreemOS during trade fairs that attract a wider audience including decision makers, investors, geeks, and even youngsters. One of the top events is the CeBit where NEC and ULM will present XtreemOS (M33). Further demonstrations are planned at national trade fairs.

2.2.4 Workshop for key players

The major goal of this workshop is to raise awareness of XtreemOS to key players in the fields of operating system, Linux, distributed and grid systems. It is planned to organize it in 2009 co-located with a major conference, e.g. Usenix, with a broader research topic, e.g. large scale distributed systems. The workshop will gather influent researchers to exchange and share views on on-going research, discuss about future research directions. The majority of participants of this workshop will be invited-only. Selected key players will be contacted to animate the chosen thematic debates and discussions and a small book will be edited at the end of this workshop.

2.2.5 Project Website

The XtreemOS website will be continuously kept up-to-date and expanded with:

- News regarding XtreemOS software components (new features, bug fixes, etc.)
- Most popular press releases after major software releases and trade fair shows,
- Newsletters to keep the interested audience up-to-date and aware,
- Project publications (downloadable public deliverables, slide presentations, scientific papers…),
- News items regarding collaboration with other EU-funded Grid-related projects, namely the technical Group on VO management (TG8) led by the XtreemOS consortium,
- RSS-news-feed-service,
- Research section.

The XtreemOS releases will be disseminated through a SourceForge repository (http://sourceforge.net/projects/xtreemos/) and the XtreemOS website will point to this public repository. To this purpose, a ‘Software section’ will be added to the current structure of the website when the first release is available.

Furthermore, visitors will be able to register for support mailing lists for users and developers via the website (M26). The bug tracker that will be used in the near future within the consortium will be accessible for the external open source community, too (M26).

We will regularly publish news items (releases, research papers…) on the website to keep visibility on Internet search engines (get a better website indexation/referencing).

Wikipedia pages
The English version of the XtreemOS Wikipedia page was originally deleted because of missing research results. Therefore, it is planned to retry this page after M25 when the first XtreemOS release is available. Additional Wikipedia pages (in French, Chinese…) will be created/updated as well (in regional languages spoken within the consortium).

2.2.6 Newsletter and press release

Newsletters are expected to be generated anytime the project matches an important deadline whose content can be of importance to people not strictly involved in the project or some important results are found (for instance, the third issue will correspond to the first software release).

Recent, interesting and relevant news will also be selected from different scientific resources (journals, websites, etc) and included within this news bulletin to keep the interested people informed on the project progress, results and related research domains.

As the project evolves, and especially when the main scientific milestones are met, specific press releases will also be issued to disseminate the project results. Different target audiences, scientific community, business companies, will be taken into account when it comes to modulate the press release messages, language, detail level, etc.

2.2.8 Marketing package

Because brochures and flyers are often thrown away, the consortium decided to produce a marketing package containing promotional goodies like an XtreemOS CD/DVD, a coffee mug and a pen with the XtreemOS logo and the URL of the website on each. The marketing package is planned for M30 when the first system release version is packaged.

2.2.10 Key project events and related communication activities

See Section 5.

3. Dissemination report

3.1 Publications

Scientific articles constitute an excellent dissemination action to reach a wider scientific audience and to make them aware of the project objectives, activities and results in a detailed and extensive manner.

From all the scientific publications that can potentially be produced by partners during the project, only those publications related with the objectives and activities of the network have an added value with respect to the dissemination purposes of XtreemOS.

The first XtreemOS white paper *("XtreemOS: a vision for a Grid Operating System")* is available since mid-May 2008 on the project website and has been broadly promoted and disseminated. It has been produced by an XtreemOS (limited) editorial board and with the contributions from the whole consortium. It is planned to update and complete this first white paper each year.

The project office maintains a *conference list* on the wiki server with important scientific conferences/workshops (see Annex C). Partners are regularly notified by the project office of upcoming deadlines to submit papers, posters, tutorials, workshops (…) and the project leader also regularly inquires about XtreemOS submissions under preparation (namely papers and posters submitted for publication to peer-reviewed international conferences and workshops) during WP leaders' telephone conferences for instance.

XtreemOS joint papers (June 2007 – May 2008) – extracted from the below complete lists:

- Felix Hupfeld, Toni Cortes, Björn Kolbeck, Jan Stender, Erich Focht, Matthias Hess, Jesús Malo, J. onathan Marti, Eugenio Cesario, "The XtreemFS architecture – a case for object-based file systems in Grids", Concurrency and Computation: Practice and Experience, Volume 20 Issue 8 June 2008.
- Massimo Coppola, Yvon Jegou, Brian Matthews, Christine Morin, Luis Pablo Prieto, Óscar D. SánchezOscar David Sanchez, Erica Y. Yang, Haiyan Yu, "Virtual Organisation Support within a Grid-wide Operating System", IEEE Internet Computing, Vol. 12, No. 2, 2008.
- Erica Y. Yang, Brian Matthews, Amit Lakhani, Yvon Jégou, Christine Morin, Óscar David Sánchez, Carsten Franke, Philip Robinson, Adolf Hohl, Bernd Scheuermann, Daniel Vladušič, Haiyan Yu, An Qin, Rubao Lee, Erich Focht, Massimo Coppola, "Virtual Organization Management in XtreemOS: an Overview", CoreGRID Symposium, Springer Verlag, Rennes, France, August 2007.
- Amit D. Lakhani, Erica Y. Yang, Brian Matthews, Ian Johnson, Syed Naqvi, Georghe C. Silaghi, "Threat analysis and attacks on XtreemOS: A Grid-enabled Operating System", CoreGRID Symposium, Rennes, France, August 2007.
- Toni Cortes, Julita Corbalán, and Gregor Pipan, "Application Execution Management in XtreemOS" (poster), IEEE Grid conference, Austin, Texas, September 2007.
- Christine Morin, Yvon Jégou, Adrien Lèbre, Thierry Priol, Óscar David Sánchez, Haiyan Yu, Erica Y. Yang, Brian Matthews, Luis Pablo Prieto, "XtreemOS: A Grid Operating System Providing Native Virtual Organization Support" (poster), E-Sciences 2007 conference, Bangalore, India, December 2007.
- Óscar David Sánchez, Paolo Costa, Jörg Domaschka, Gregor Pipan, Christine Morin, "Opportunities and Issues for EU Research Projects in Open Source Software: the XtreemOS Approach ", Qualipso Conference, Roma (Italy), January 2008
- Felix Hupfeld, Björn Kolbeck, Jan Stender, Mikael Högqvist, Toni Cortes, Jesús Malo, Jonathan Marti. "FaTLease: Scalable Fault-Tolerant Lease Negotiation with Paxos." In: Pro. of the International Symposium on High Performance Distributed Computing (HPDC) 2008.
- John Mehnert-Spahn, Michael Schöttner, Thomas Ropars, David Margery, Christine Morin, Julita Corbalán, Toni Cortes, "XtreemOS Grid Checkpointing Architecture"(poster), IEEE Intl. Symposium on Cluster Computing and the Grid (CCGrid), Lyon, France, May 2008.

- Adrien Lèbre, Renaud Lottiaux, Erich Focht, Christine Morin, "Reducing Kernel Development Complexity In Distributed Environments", EuroPar 2008, Las Palmas de Gran Canaria, Spain, August 2008.
- Toni Cortes, Erich Foch, Matthias Hess, Felix Hupfeld, Björn Kolbeck, Jesús Malo, Jonathan Martí, Jan Stender, "XtreemFS: a case for object-based storage in Grid data management", VLDB workshop on Grid Data Management, Vienna, Austria, September 2007.
- Jan Stender, Björn Kolbeck, Felix Hupfeld, Eugenio Cesario, Erich Focht, Matthias Hess, Jesús Malo, Jonathan Marti. "Striping without Sacrifices: Maintaining POSIX Semantics in a Parallel File System". 1st USENIX Workshop on Large-Scale Computing (LASCO '08), Boston, June 2008.
- Ian Johnson, Amit Lakhani, Brian Matthews, Erica Y. Yang, Christine Morin, "XtreemOS: Towards a Grid Operating System with Virtual Organisation Support" (poster), UK e-Science All Hands Meeting, September 2007.

List of journal papers related to XtreemOS:

- Thorsten Schütt, Florian Schintke, Alexander Reinefeld, "Range Queries on structured overlay networks", Computer Communications, vol. 31, pp. 280-291, February 2008.
- Felix Hupfeld, Toni Cortes, Björn Kolbeck, Jan Stender, Erich Focht, Matthias Hess, Jesús Malo, J. onathan Marti, Eugenio Cesario, "The XtreemFS architecture – a case for object-based file systems in Grids", Concurrency and Computation: Practice and Experience, Volume 20 Issue 8 June 2008.
- Massimo Coppola, Yvon Jegou, Brian Matthews, Christine Morin, Luis Pablo Prieto, Óscar D. SánchezOscar David Sanchez, Erica Y. Yang, Haiyan Yu, "Virtual Organisation Support within a Grid-wide Operating System", IEEE Internet Computing, Vol. 12, No. 2, 2008.

All scientific papers related to XtreemOS (June 2007 – May 2008)

International conferences

- Thomas Ropars. Combining Optimism and Pessimism in a Grid Message Logging Protocol. In Student Forum of International Conference on Dependable Systems and Networks (DSN 2007) (Supplemental Volume), Edinburgh, UK, June 2007.
- Erica Y. Yang, Brian Matthews, Amit Lakhani, Yvon Jégou, Christine Morin, Óscar David Sánchez, Carsten Franke, Philip Robinson, Adolf Hohl, Bernd Scheuermann, Daniel Vladušič, Haiyan Yu, An Qin, Rubao Lee, Erich Focht, Massimo Coppola, "Virtual Organization Management in XtreemOS: an Overview", CoreGRID Symposium, Springer Verlag, Rennes, France, August 2007.
- Amit D. Lakhani, Erica Y. Yang, Brian Matthews, Ian Johnson, Syed Naqvi, Georghe C. Silaghi, "Threat analysis and attacks on XtreemOS: A Grid-enabled Operating System", CoreGRID Symposium, Rennes, France, August 2007.
- Thorsten Schütt, Florian Schintke, Alexander Reinefeld, "A Structured Overlay for Multi-dimensional Range Queries", EuroPar, Rennes, France, August 2007 (Springer LNCS 4641)
- Alberto Sánchez, Toni Cortes, Jesús Montes, Pierre Guéant and María S. Pérez, "Lessons learnt from cluster computing: How they can be applied to grid environments", The 8th Hellenic European Research on Computer Mathematics & its Applications Conference, Athens, Greece, September 2007.
- Toni Cortes, Julita Corbalán, and Gregor Pipan, "Application Execution Management in XtreemOS" (poster), IEEE Grid conference, Austin, Texas, September 2007.
- Christine Morin, Yvon Jégou, Adrien Lèbre, Thierry Priol, Óscar David Sánchez, Haiyan Yu, Erica Y. Yang, Brian Matthews, Luis Pablo Prieto, "XtreemOS: A Grid Operating System Providing Native Virtual Organization Support" (poster), E-Sciences 2007 conference, Bangalore, India, December 2007.

- Óscar David Sánchez, Paolo Costa, Jörg Domaschka, Gregor Pipan, Christine Morin, "Opportunities and Issues for EU Research Projects in Open Source Software: the XtreemOS Approach ", Qualipso Conference, Roma (Italy), January 2008
- Christine Morin, Yvon Jégou, Óscar D. Sánchez, "XtreemOS: A Grid Operating System Providing Native Virtual Organization Support", 3rd EGEE User Forum, Clermont-Ferrand, France, February 2008.
- Alvaro Arenas, Benjamin Aziz, Juan Bicarregui, Brian Matthews, Erica Y. Yang. "Modelling Security Properties in a Grid-Based Operating System with Anti-Goals", Proc. Symposium on Requirements Engineering for Information Security, Barcelona, Spain, March 2008.
- Felix Hupfeld, Björn Kolbeck, Jan Stender, Mikael Högqvist, Toni Cortes, Jesús Malo, Jonathan Marti. "FaTLease: Scalable Fault-Tolerant Lease Negotiation with Paxos." In: Proc. of the International Symposium on High Performance Distributed Computing (HPDC) 2008.
- John Mehnert-Spahn, Michael Schöttner, Thomas Ropars, David Margery, Christine Morin, Julita Corbalán, Toni Cortes, "XtreemOS Grid Checkpointing Architecture"(poster), IEEE Intl. Symposium on Cluster Computing and the Grid (CCGrid), Lyon, France, May 2008.
- Adrien Lèbre, Renaud Lottiaux, Erich Focht, Christine Morin, "Reducing Kernel Development Complexity In Distributed Environments", EuroPar 2008, Las Palmas de Gran Canaria, Spain, August 2008.

International workshops

- Toni Cortes, Erich Foch, Matthias Hess, Felix Hupfeld, Björn Kolbeck, Jesús Malo, Jonathan Martí, Jan Stender, "XtreemFS: a case for object-based storage in Grid data management", VLDB workshop on Grid Data Management, Vienna, Austria, September 2007.
- Tallat M. Shafaat, Monika Moser, Ali Ghodsi, Thorsten Schütt, Seif Haridi, Alexander Reinefeld, "On Consistency of Data in Structured Overlay Networks", CoreGRID Integration Workshop, Greece, April 2008.
- Thomas Ropars, Christine Morin, "Fault Tolerance in a Cluster Federation with O2P-CF", Workshop on Resiliency in High-Performance Computing (Resilience 2008). Held in conjunction with CCGrid 2008, May 2008.
- Paolo Costa, Guillaume Pierre, Alexander Reinefeld, Thorsten Schütt and Maarten van Steen, "Sloppy Management of Structured P2P Services." At the Third Workshop on Hot Topics in Autonomic Computing, June 2008.
- Jan Stender, Björn Kolbeck, Felix Hupfeld, Eugenio Cesario, Erich Focht, Matthias Hess, Jesús Malo, Jonathan Marti. "Striping without Sacrifices: Maintaining POSIX Semantics in a Parallel File System". 1st USENIX Workshop on Large-Scale Computing, Boston, June 2008.
- Francesc Guim, Ivan Rodero, Marta García, and Julita Corbalán, "The XtreemOS JScheduler: Using Self-Scheduling Techniques in Large Computing Architectures", 1st USENIX workshop on Large Scale Computing (LASCO'08), Systems, Boston, June 2008.
- An Qin, Haiyan Yu, Chengchun Shu, and Bing Xu, "XOS-SSH: A Lightweight User-Centric Tool to Support Remote Execution in Virtual Organizations", Institute of Computing Technology, Chinese Academy of Sciences, 1st USENIX Workshop on Large-Scale Computing (LASCO'08), Boston, June 2008.
- Jérôme Gallard, Geoffroy Vallée, Adrien Lèbre, Christine Morin, Pascal Gallard, Stephen L. Scott, "Complementarity Between Virtualization and Single System Image Technologies", 3rd Workshop on Virtualization in High-Performance Cluster and Grid Computing (VHPC '08) (co-located with EuroPar 2008), Canary Island, Spain, August 2008.

National conferences

- Ian Johnson, Amit Lakhani, Brian Matthews, Erica Y. Yang, Christine Morin, "XtreemOS: Towards a Grid Operating System with Virtual Organisation Support" (poster), UK e-Science All Hands Meeting, September 2007.

- Erica Y. Yang, Ian Johnson, Brian Matthews, Alvaro Arenas, "VOHost: A Secure and Flexible VO Hosting System for Grids and Beyond", UK e-Science 2008 All Hands Meeting, Edinburgh, September 2008.

National workshops

- Benjamin Aziz, Alvaro Arenas, Juan Bicarregui, Brian Matthews, Erica Yang. *A Formal Security Requirements Model for a Grid-Based Operating System.* BCS-FACS Christmas 2007 Meeting: Formal Methods In Industry, London, UK, British Computing Society Electronic Workshops in Computing (eWiC) Series.
- Sylvain Jeuland, Yvon Jégou, Óscar David Sánchez, Christine Morin "Support d'organisations virtuelles au sein d'un système d'exploitation pour la grille", Actes de RenPar18, Rencontres francophones du Parallélisme (RenPar '18), Fribourg, Switzerland, February 2008.
- Thomas Ropars, Christine Morin, "O2P: un protocole à enregistrement de messages extrêmement optimiste", Actes de RenPar18, Rencontres francophones du Parallélisme (RenPar '18), February 2008.

Misc. publications

- Alexander Reinefeld, Florian Schintke, Thorsten Schütt "P2P routing of range queries in skewed multidimensional data sets", ZIB-Report 07-23 (2007)
- Thomas Ropars, Christine Morin, "O2P: An Extremely Optimistic Message Logging Protocol", Technical report, Research Report 6357, IRISA/Paris Research group, Université de Rennes 1, INRIA, 2007.
- Jérôme Gallard, Adrien Lèbre, Christine Morin, Pascal Gallard and Geoffroy Vallée. "Is Virtualization Killing Single System Image Research?", Technical report, RR-INRIA 6389, Nov. 2007.
- Tom Goodale, Shantenu Jha, Hartmut Kaiser, Thilo Kielmann, Pascal Kleijer, Andre Merzky, John Shalf, Christopher Smith, "A Simple API for Grid Applications (SAGA)". Proposed Recommendation GFD.90, Open Grid Forum, January 2008.
- Adrien Lèbre, Renaud Lottiaux, Christine Morin, "Reducing kernel development complexity in distributed environments", Research report 6405, INRIA, Rennes, France, January 2008.
- Jérôme Gallard, Geoffroy Vallée, Adrien Lèbre, Christine Morin, Pascal Gallard, Stephen L. Scott, "Refinement proposal of the Goldberg's theory", Research report, INRIA, Rennes, France, to appear 2008.

List of public deliverables (submitted in P2):
Submitted at M15

- D5.3.2: Collaboration report and plan including commitment for contributions to Task 1 to 8 (PC4)

Submitted at M18

- D2.1.3: Design and implementation of basic application unit checkpoint/restart mechanisms in Linux
- D2.1.4: Prototype of the basic version of Linux-XOS
- D2.2.2: Design and implementation of scalable SSI mechanisms in LinuxSSI
- D2.2.3: Design and implementation of basic checkpoint/restart mechanisms in LinuxSSI
- D2.2.4: Design and implementation of basic reconfiguration mechanisms in LinuxSSI
- D2.2.5: Design and implementation of high performance disk input-output operations in a cluster
- D2.2.6: Design and Implementation of a customizable scheduler
- D2.2.7: Prototype of the basic version of LinuxSSI
- D2.3.3: Design of a basic Linux version for mobile devices
- D3.1.2: Second draft specification of programming interfaces

- D3.1.3: First prototype of XtreemOS runtime engine
- D3.1.4: First version of system architecture
- D3.2.2: First prototype version of ad hoc distributed server
- D3.2.3: Simulation-based evaluation of a scalable publish/subscribe system (rejected)
- D3.2.4: Design and specification of a prototype service discovery system
- D3.2.5: Design and specification of a virtual node system
- D3.3.3: Basic services for application submission, control and checkpointing
- D3.3.4: Basic services for resource selection, allocation and monitoring
- D3.4.2: First Prototype ((basic XtreemFS object-based file system and basic Object Sharing Service)
- D3.5.4: Second draft specification of XtreemOS security services
- D3.5.5: First prototype of security services
- D3.5.6: Report on formal analysis of security properties
- D3.6.1: Requirements and specification of basic services for mobile devices
- D4.1.3: LinuxSSI integration and packaging in Debian, Mandriva and RedFlag distributions
- D4.1.4: LinuxSSI integration and packaging in OSCAR
- D4.2.4: Application references, requirements, use cases and experiments
- D4.3.2: Study of XtreemOS test bed extension

Ten additional deliverables due at M24 have been submitted (approval pending):

- D2.3.4 – Linux-XOS for MD/PDA
- D3.2.3 - Simulation-based evaluation of a scalable publish/subscribe system (re-submission)
- D3.4.3 – Design report for advanced XtreemFS and OSS features
- D3.5.7 – Security Analysis of the XtreemOS File System
- D3.5.8 – Specification of application firewall
- D3.6.2 – Design of basic services for mobile devices
- D5.1.6 – Communication and Dissemination plan
- D5.1.7 – Market analysis and technology transfer plan – update
- D5.2.2. - Training report and plan - update

White papers and technical reports:

- T. Cortes, C. Franke, Y Jégou, T. Kielmann, D. Laforenza, B, Matthews, C. Morin, L.P. Prieto, and A. Reinefeld, "XtreemOS: a Vision for a Grid Operating System", XtreemOS technical report #4, May 2008.
- David Margery, Matthieu Fertré (INRIA), T2.1.4 - Detailed specification and Workplan, XosTechRep_01, 11/07/2007 (http://www.xtreemos.eu)

3.2 Source code distribution

The first system release has been delayed for a few weeks (initially planned at M24 – eventually expected at the very beginning of M26) in order to validate both the software and the documentation.

So no source code was available for dissemination purpose during the second year of the project. However, the dissemination of LinuxSSI software has been done through direct contributions to Kerrighed open source project (http://www.kerrighed.org/).

The first version of an install CD containing basic packages has been created at M18, described in D4.1.3. Furthermore, LinuxSSI integration and packaging in OSCAR has been done by M18, described in D4.1.4.

The install CD has been updated to contain the first (integrated) system release of XtreemOS:

- All packages will be available as an option during install
- The user can select categories of packages, or individual packages:
    - Core
    - Node
    - Client

Not only will the source code be opened to external but the project will also provide appropriate documentations for the users/developers to be able to install, test and run XtreemOS easily (User and

Administrator's guide). Special attention will be paid to offer a high-quality documentations (potential users/developers could be lost if the system is not easily installed and the documentation explicit enough).

3.3 Contribution to standards

XtreemOS has been an organizational member of the Open Grid Forum since June 2007 and some partners (VUA, ZIB…) regularly participate in OGF meetings. At OGF21 and OGF22 meetings XtreemOS had an own booth presenting a general poster and a XtreemOS booth has been booked for OGF23, too.

3.4 Demonstrators co-located with scientific conferences

XtreemOS has been communicated at exhibitions (see Sections 1.2.2 and 1.2.3) but no demos have been presented so far (first public release available from M26).

It is important for XtreemOS to prepare a successful set of demos of the XtreemOS software (has also been recommended by during the formal review in July 2007). These demos must be easy to run by all the partners so that they can be shown at international, national and regional events.

The project has already identified some short-term events where demos could be presented:

- Internet of Services 2008 (XtreemOS will have a demo slot),
- Supercomputing 2008 (demo on XtreemOS booth),
- ICT2008 event (XtreemOS has applied for a exhibition booth to run a demo),
- XtreemOS summer school in 2009
- XtreemOS industrial days in 2009
- …

4. Dissemination plan

4.1 Strategy

Dissemination before M24 was mainly limited to scientific papers as no source code releases were planned. Nevertheless, XtreemOS disseminated source code through the LinuxSSI/Kerrighed project within WP2.2.

The objectives for M25-M42 are the following:

- Proactively disseminate and promote the project activities and results especially to the Linux, operating system, distributed system and Grid communities, geeks, and industries in Europe and worldwide,
- Share the technical results of the project and obtain feedback by expert groups, scientists, and the Linux and other interested communities to validate the project results,
- Explore potential application domains and related markets,
- Contribute to standards.

For the next reporting period (M25-M42) the following objective has been added:

- Get users and developers from the open source community involved

Dissemination activities will have an impact on technical progress of work because they allow external developers to contribute, motivate the validation of the outcomes (also by external users) and may result in re-evaluation of the objectives/goals.

Dissemination strategy for the next reporting period M25-M42:

- M26: first system release
- M25-M42:
  - Publications: scientific papers (esp. at important conferences), journal papers
  - Source code dissemination (together with demo applications from WP4.2) through SourceForge (major repository of the open source community) and on an installation/ live CD
  - Participation in OGF meetings to try to influence the OGF standards
- M28-M42:
  - Dissemination of source code via marketing packages (DVD with leaflet, pen & coffee mug) distributed by partners at events where they participate
- M30-M42:
  - Basic version packaged into distributions from Mandriva & Red Flag Software
  - Push XtreemOS into OSCAR & OSDL

4.2 Planned Actions

The main dissemination *objectives* for the next reporting period (M25-M42) are to proactively disseminate the project activities and results especially to the Linux, operating system, and Grid communities, geeks, and industries in Europe and worldwide. Beyond these objectives it is now very important to disseminate the software developed within the project and to stimulate contributions from the open source, Linux/OS and Grid communities. Furthermore, it is also important to influence OGF standards as XtreemOS software matures.

4.2.1 Source Code Dissemination

In the initial Description of Work, only two major releases (basic and advanced) were planned. It was decided that the time frame between the two releases was too long and a global release per year (from M26) with synchronisation of individual components would be more adequate. Between the two global releases, intermediate updates of individual components are possible (no specific plan for updates as it depends on the code itself: bug fixes, new features, …).

XtreemOS will be disseminated through a SourceForge repository and the XtreemOS public website will link to this well-known open source repository.

XtreemOS uses two forges:

- A private forge based on Gforge, http://gforge.inria.fr/projects/xtreemos/
- A public forge hosted at SourceForge, http://sourceforge.net/projects/xtreemos/? SourceForge will be a mirror of Gforge (any commit on Gforge).

The use of two forges was decided by the governing board in order to keep scientific contributions private before they have been published. When a paper has been published these code extensions will be mirrored on SourceForge, too. It is planned that most of the code is public and directly published on SourceForge.

Consequently two bug trackers will also be used in XtreemOS:

- One private bug tracker, based on Gforge used for bug tracking of private code
- One public bug tracker, hosted at SourceForge.net used for public code (also used by the consortium)

The software will be continuously disseminated through the following channels:

- SourceForge
- Edge-IT: creation and maintenance of rpm packets within the Mandriva Linux Clustering project
- Red Flag Software: creation and maintenance of Asianux packets
- EDF: internal Debian-based distribution

A live CD and an installation CD with the first system release are scheduled for M26.

4.2.2 Open Source Community

Alpha versions of the software are distributed only within the consortium. Although planned before, the consortium decided not to target any more at a small community of beta users as this would rather look like a closed source project than an open source project. During the second year of the project, the governing board members confirmed the open software development by a formal vote.

Single/stand-alone components can be disseminated separately but under XtreemOS branding. This will allow the open source community to get in touch with XtreemOS source code with a limited scope. Thus they have to deal with less lines of code, which will motivate them and speed up contributions. Furthermore, there is a higher chance that these component contributors will later go for the overall source code. Thus the open source community has a real and easier chance to contribute to XtreemOS.

External people will have a read access to XtreemOS source code and good contributions (decided by the XtreemOS executive committee) will be included in the XtreemOS mainstream.

4.2.3 Linux Community

It is of major importance to include the Linux community in dissemination activities. Therefore, partners participate in (e.g. with a booth) and publish at general Linux events (not only scientific conferences). Examples are: kernel developer meetings, Linux solutions conference in France, Linux Kongress, Linux Tag, Linux Symposium, etc.

To reach the Linux kernel developers and geeks it is important to participate in online discussions, e.g. postings on the Linux kernel mailing list. INRIA and NEC participate in the OSCAR core team. Kerrighed, the basis for the LinuxSSI component is already part of SSI-OSCAR. The XtreemOS consortium plans to further contribute to the Open Cluster Group activities with the XtreemOS standard and cluster flavours.

NEC closely cooperates with NEC Corporation's Linux Promotion Center and plans to use the relationship with the OSDL (NEC is a founding member of the Open Source Development Labs), the experience with the Linux open source community and the contacts to kernel developers for promoting and pushing the XtreemOS work into mainstreams.

4.2.4 Scientific Conferences

Main research findings have been and will be published and/or talked about at scientific (international and national) conferences and in scientific journals not only for dissemination purpose but also to incite to test implementations.

Special attention will be paid to those scientific conferences/journals focusing on OS/Unix (USENIX, OSDI, SOSP, Eurosys…) and Grid (CC-Grid, Cluster, Grid…) but also on broader conferences and journals related to parallel and distributed computing, e.g. ICS Heidelberg, US Supercomputing, IPDPS, HPDC etc.

Partners will also be encouraged to present the XtreemOS research results at exhibitions co-located with scientific conferences. Important events are: ISC Dresden, US Supercomputing Conference, and NEC User Group meetings. XtreemOS has booked an own booth for SC 2008.

It is important to notice that the lists are not exhaustive and there will be more events to attend.

4.2.5 Exhibitions

Proposals for exhibitions have been submitted to ICT2008. Furthermore, a demo is scheduled at Supercomputing 2008 where XtreemOS has an own booth. Furthermore, XtreemOS will have a demo slot at the Internet of Services 2008 event and will be in charge of organizing panel/round-table discussions about open source (with key speakers).

4.2.6 Seminars and Workshops

Each academic partner plans to further disseminate the results into lectures and seminars etc. for undergraduate and PhD students and also during the XtreemOS summer school planned in 2009 (see Section 6.3). XtreemOS will also have a slot at next CoreGRID summer school (July 2008).

4.2.7 Contributions to Standards

Of course XtreemOS will, on the one hand, respect existing standards and will, on the other hand, try to influence standards. The major Grid standard of interest is the Open Grid Forum (OGF). XtreemOS is a organizational member of OGF and several partners regularly participate in OGF meetings. Furthermore, the communication budget was/will be used to book booths at OGF meetings to show posters, possibly run demos and distribute promotional goodies.

4.2.8 Key project events and related dissemination activities

See Section 5.

5. Key project events and activities

In the following Table 2, M1, the operational project starting date, is June 1st 2006. The table includes past events starting from M13. Paper presentations at scientific conferences are not included in this table.

(F)=final, (P)=packaged

“Prototypes” = includes: LinuxSSI, XtreemOS, and use cases of WP4.2.

Key Project Event	Expected timing (annex 1)	Activity	Actual timing
	M13	OGF membership	M13
	M13	Presentation at the Linux Symposium 2007	M13
		First International Workshop on Global Computing, Sibiu, Romania	M13
	M13	LinuxTag 2007	M13
	M14	Presentation at EuroPar (Rennes) – August 2007	M15
	M14	CoreGRID symposium + EuroPar 2007 (papers presented)	M15
		Press releases in local papers (Slovenia)	M14
	M15	UK eScience All Hands meeting	M15
	M15-16	Second newsletter	M17
	M16	Presentation at Cluster and Grid 2007 (Austin, USA)	M16
		Gridka school	M16
	M16	Presentation/participation in CoreGRID summer school (Budapest, Hungary)	M16
		Invited talk at NorduGrid conference	M16
	M17	Participating - OGF21 meeting	M17
	M18	BoF session at Supercomputing 2007 + promotion	M18
	M19	Press releases in specialised websites	M19
	M19	E-Science 2007 conference (Bangalore, India)	M19
		Talk at Laboratoire d'Informatique, de Robotique et de Microélectronique de Montpellier	M19
	M20	Presentation at Qualipso conference (open source project)	M20
	M20	Show prototypes/presentation LinuxSSI at Linux solutions conference & expo in France + participation in Kerrighed summit	M20
		TID internal seminar	M20
	M21	Presentation at EGEE users forum	M21
		Talk at Universidad de Murcia	M21
	M21	Participation / poster - OGF 22 (Cambridge, MA)	M21
		Presentation at RenPar 18 workshop, Fribourg, Switzerland	M21
	M22	Publication in IEEE Internet Computing	M22
		Invited talk at SOS12 workshop, Wildhaus, Switzerland	M22
	M23	NEC User Group Meeting	M23
XtreemOS standard flavour (F), Linux-XOS for MD/PDA (F), experiments and evaluation.	M24	Newsletter, internal communication, mailing list, show prototypes at ISC Dresden.	
	M24	CCGrid 2008 (poster, invited talk)	M24
		Talk at Italian e-Science 2008	M24
	M24	Talk at Computer Science meeting of the European digital Ecosystems (OPAALS Project)	M24
	M25	Participation in OGF23 (Barcelona, Spain)	
	M25	Talk at Major Cities Conference	
	M25	LASCO’08 workshop (organization, sponsoring, papers, invited talk)	
	M25	Paper presentation at HPDC 2008	
	M25-M27	Newsletter, mailing list campaign, press releases	
XtreemOS first system release	M26	XtreemOS/Grid4all meeting, Paris, France	

	M26	Re-try Wikipedia pages in English and regional languages	
Linux-XOS for MD/PDA (P)	M26	Press release, mailing list.	
	M26	Open mailing lists and bug tracker system for external users	
	M26	Presentation at Rencontres Mondiales du Logiciel Libre 2008 (RMLL2008)	
	M26	Participation in CoreGRID summer school (Dortmund, Germany)	
Basic version of XtreemOS standard (P) and federation (F) flavours	M27	Press release targeting IT journalists, mailing list	
	M27	Presentations at EuroPar 2008 / CoreGRID symposium, Granda Canaria, Spain	
	M28	Co-organization of Internet of Services (concertation days) + demo	
	M29	Show prototypes at the Linux Kongress	
	M30	Show prototypes at US Super Computing + XtreemOS booth + tutorial on Security and VO Management in Grids?	
	M30	Presentation and booth at ICT 2008 event (Lyon, France)?	
Basic version of XtreemOS federation flavour (P), XtreemOS-G for MD/PDA (F), experiments and evaluation.	M30	Newsletter, press release targeting IT journalists, mailing list, push LinuxSSI-XOS into OSCAR & OSDL	
Workshop for research managers	M32	Show prototypes, use cases demos, and distribute marketing package	
XtreemOS-G for MD/PDA (P).	M32	Press release + targeting IT journalists, mailing list., distribute marketing package to interested users.	
	M33	Show prototypes and stable beta at the Cebit 2009, distribute marketing package at the fair and send it to interested users	
	M35	Show prototypes at NEC User Group meeting	
	M35	Participation in Eurosys 2009	
Experiments and evaluation based on XtreemOS standard, and federation and mobile devices/PDA flavours	M36	Show prototypes at ISC Dresden	
	M37	Newsletter, Show prototypes at the Linux Symposium	
Linux-XOS for MD/MP (F).	M40	Press release, mailing list.	
	M40	XtreemOS day for key players	
	M40	XtreemOS school	
	M42	Show prototypes at US Super Computing	
Linux-XOS for MD/MP (P).	M42	Newsletter, press release + targeting IT journalists, mailing list, distribute marketing package to interested users.	
	M45	Show final prototypes and stable beta prototypes at Cebit2010	
XtreemOS-G for MD/MP (F)	M46	Newsletter, press release, mailing list.	
Experiments and evaluation, advanced versions of XtreemOS standard, and federation and mobile devices/PDA flavours (F/P)	M48	Press release targeting IT journalists, internal communication, mailing list, distribute marketing package to interested users, show all prototypes at ISC Dresden	

Table 2: Key project events and related communication and dissemination activities

6. Evaluation of the communication and dissemination activities

The evaluation and measurement of communication and dissemination effectiveness is important to optimize these activities. As recommended during the formal review meeting in July 2007 the following additional indicators will be / have been established:

- Number of joint papers,
- Number of postings (external) on mailing list / bug tracker,
- Number of software downloads (system and components),
- Number of tutorials and number of events attended.

Subsequently, the indicators available so far, collected during the second period are presented and discussed below.

6.1 Scientific Papers

The consortium continued to publish results in scientific and as recommended by the reviewers more joint papers have been written/accepted. The numbers in table 3 cover the period from June 2007 – May 2008.

Number of XtreemOS related papers / joint papers	**35 / 13**
International journals	3 / 2
International conferences	13 / 8
International workshops	8 / 2
National conferences	2 / 1
National workshops	3 / 0
Other publications	6 / 0

Table 3: Scientific paper numbers (June 2007 – May 2008)

The following table 4 shows the numbers from the last year (June 2006 – May 2007).

Number of XtreemOS related papers / joint papers	**25 / 3**
International journals	1
International conferences	12
International workshops	9
National conferences	3
National workshops	0
Other publications	0

Table 4: Scientific paper numbers (June 2006 – May 2007)

6.2 Deliverables

Below are the numbers of deliverable downloads (all deliverables accumulated):

- 2007: 146
- 2008: 63

We anticipate that the first software release will generate more interest in the deliverables publicly available on the website.

6.3 Google hits

Figure 7 below shows the number of pages found when executing searches on Google search engine with the unique keyword "XtreemOS" (from June 2007 until May 2008). Rising numbers in September 2007 and afterwards can be explained by the XtreemOS BOF at SC07 and participation in seminars (talks about XtreemOS). The peak at the beginning of 2008 can be explained by the submission of XtreemOS stories to specialized websites in December 2007 – January 2008.

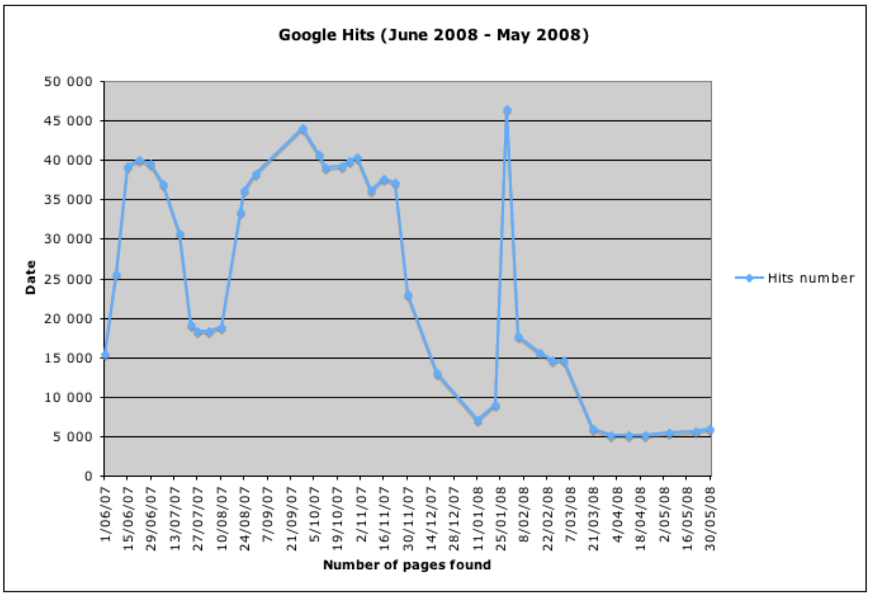


Figure 7: Google hits when searching for "XtreemOS"

6.4 XtreemOS website ranking

Table 5 below presents an evaluation of the search results of well-known search engines when searching for the XtreemOS website. For example "1" means that http://www.xtreemos.eu (or http://www.xtreemos.org, the first domain name of the project website) ranked 1st on the search results. Searches were made since M7 of the project, after the project website was broadly promoted. It can be observed that most rankings have slightly improved.

XtreemOS-related keywords in search engines

	Linux-based Grid OS	*Next generation grids*	*Grids and virtual organization*	*Distributed system linux*
	Google			
February 2007	1	162	23	51
	MSN			
February 2007	1	1	6	220
	Altavista			
February 2007	1	5	2	>250
	Yahoo			
February 2007	51	220	>250	>250

	Linux-based Grid OS	*Next generation grids*	*Grids and virtual organization*	*Distributed system linux*
	Google			
February 2008	1	46	24	53
	MSN			
February 2008	5	3	9	>250
	Altavista			
February 2008	1	9	6	>250
	Yahoo			
February 2008	5	41	34	>250

Table 5: Ranking of XtreemOS website in different search engines

6.5 Website statistics

The following statistics have been collected from the XtreemOS public website since the very beginning of the project. Figure 8 shows the number of visits on the XtreemOS website from June 2006 - May 2008.

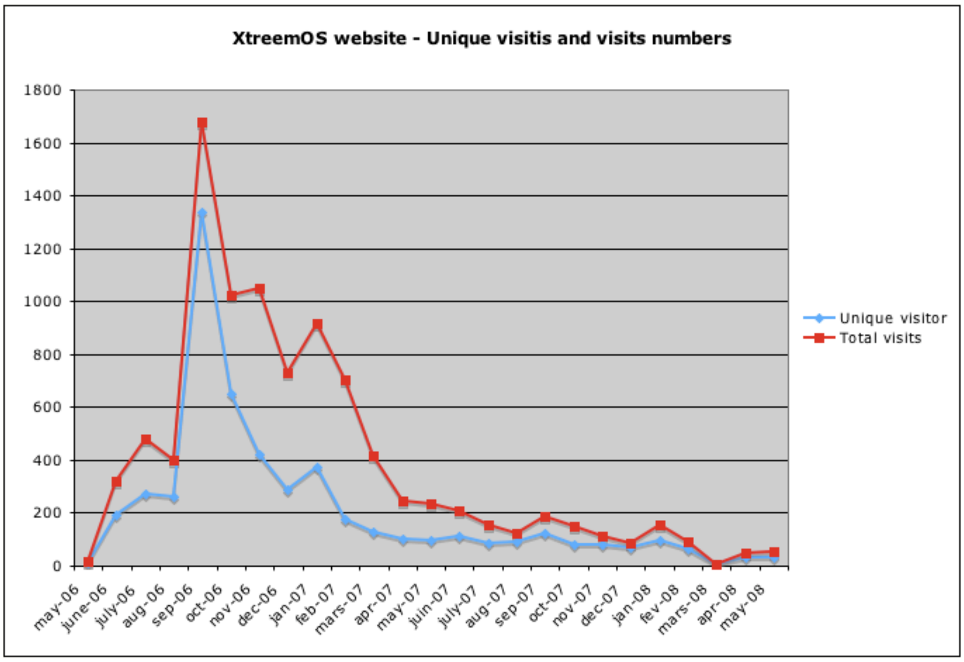


Figure 8: XtreemOS website visitors

This above chart shows that promotional events have an impact on the website visits (for example, in September 2006 and 2007, XtreemOS was promoted during the European Grid Technology Days in Brussels and in January 2007, the first issue of XtreemOS newsletter was released). The average number of unique visitors per month is about 100. We expect much more visitors when the first system releases is available in July 2008.

6.6 Google analytics

We have decided to use Google analytics from April 2008 to learn more about the website visitors. Below are the first results, only covering 4 weeks.

Figure 9 shows that visitors are from all over the world. Most of them are from the US and France but also from Asia and South America.

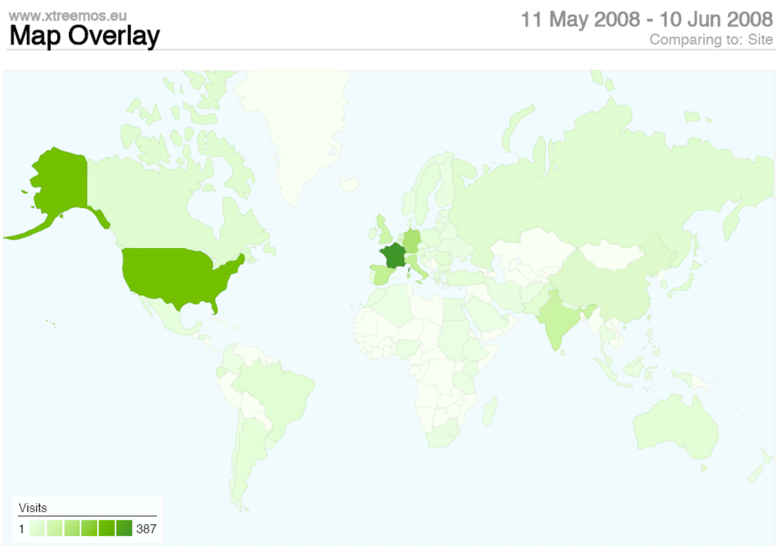


Figure 9: XtreemOS website map overlay

The next Figure 10 shows the interest of visitors in certain items of the XtreemOS website. Obviously, the white paper was of high interest during the last month.

Content Performance

Page Views	Unique Page Views	Time on Page	Bounce Rate	% Exit	$ Index
728 % of Site Total: 13.13%	585 % of Site Total: 13.23%	00:01:39 Site Avg: 00:00:59 (66.85%)	72.38% Site Avg: 62.46% (15.89%)	44.09% Site Avg: 35.88% (22.89%)	$0.00 Site Avg: $0.00 (0.00%)

URL	Page Views	Page Views
/hotspot_news/first-xtreemos-white-paper-available	319	43.82%
/news-topic	53	7.28%
/hotspot_news/1st-workshop-on-large-scale-computing-lasco-08	45	6.18%
/news/ccgrid-2008-keynote-on-xtreemos	34	4.67%
/news/xtreemos-at-ogf22	26	3.57%
/news/andrew-morton-s-seminar-during-xtreemos-general-meeting-video	23	3.16%
/news	20	2.75%
/publications/newsletter	19	2.61%
/news/new-version-of-kerrighed-2-1-0	16	2.20%
/news/r-d-engineers-wanted-at-inria-rennes	12	1.65%

Page Views

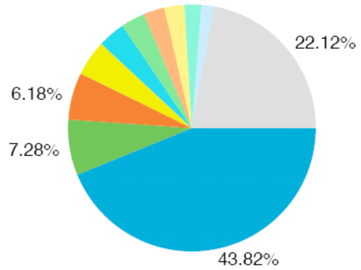


Figure 10: XtreemOS website content performance

7. Conclusions

The communication and dissemination activities have continuously progressed over the last year. Two years after the project start the activities mentioned in Annex 1 have been started, continued, intensified and evaluated.

As recommended during the first review meeting more pro-active communication actions have been installed, e.g. XtreemOS story submissions to specialized websites and newsletters, keeping partners informed about upcoming paper submission deadlines by the project office. The established communication budget has been and will be used to pay communication activities, e.g. OGF membership, booths, pens etc. It has also been used to pay a professional designer, to improve the corporate image (as suggested by the reviewers). Together with the consortium the logo has been refined and the promotional materials have been updated: leaflet, PowerPoint template, and general poster.

Although numerous papers have been published during the first year, a greater number of joint papers have been submitted and accepted during the second year showing that the project collaboratively produced more scientific findings. Only the LinuxSSI software component has been disseminated through the Kerrighed community so far as the first system release is planned for the very beginning of the third year.

As expected and like shown by the measurement data collected, the global visibility of the project has evolved but still needs to be improved (both in industrial and academic communities). This will be a very important target for the second phase of the project and we expect that this task will be easier after the first software release in July 2008.

Obviously, communication and dissemination activities during the second phase of the project must attract potential users and developers to use and contribute to the XtreemOS software. Therefore, the XtreemOS open source software will be disseminated through various channels, e.g. SourceForge, distributions of Mandriva, RedFlag, OSCAR. Selected demo applications from WP4.2 will be part of the system release and will show the benefits of XtreemOS. Although the “killer application” has not been identified so far, there are various interesting applications within WP4.2 covering a wide range of application domains (bio-informatics, business etc.).

Furthermore, support contacts, user/developer mailing lists, an open online bug tracker together with liaison activities of WP5.3 shall make it easy for interested “outsiders” to get aboard.

8. Appendices

A. Newsletter: 2nd issue – October 2007

XtreemOS

Enabling Linux for the Grid

Newsletter

Issue n.2

October 2007

XtreemOS is one-year-old

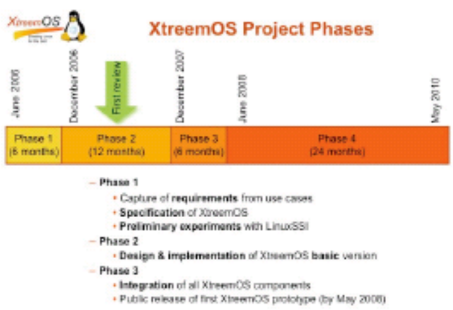
Successful First Review Meeting

Brussels, 20 July 2007. XtreemOS successfully passed the first year review by the European Commission. Not only did **the project fully achieve its objectives and technical goals but even exceeded expectations** the reviewers concluded in their evaluation.

The expert review panel headed by EU officer Charles Macmillan, gained deep insights into the work performed and the current status of the project which was represented by the scientific coordinator of XtreemOS, Christine Morin (INRIA), the leaders of the respective workpackages as well as the technical and the financial management. Further representatives from industrial partners and Chinese partners also attended the meeting.

After the first year of the project the main technical achievements by the XtreemOS team not only include the capture of requirements from wide spectrum of applications and use cases, the specification of XtreemOS Foundation and XtreemOS Grid level services but also the design and implementation of XtreemOS basic versions for PC and clusters. Further alpha versions of various XtreemOS components were made available for internal testing: the Simple API for Grid Applications (SAGA); the Grid file system XtreemFS; node-level checkpointing and restart; as well as services for high availability and scalability like ad hoc distributed servers, virtual nodes and the directory service. Furthermore, INRIA prepared the Grid'5000 testbed for the purpose of evaluating XtreemOS with scientific and business applications. Experiments with Kerrighed, which is the basis for the cluster-enabled XtreemOS flavour LinuxSSI, gave directions for the next revisions.

The reviewers emphasized that **the XtreemOS mobile flavour could represent a challenging key area for exploitation that could open up a huge market.** Although the consortium is involved in a large number of communication and dissemination activities the partners will further strengthen the interactions and information exchange with CoreGRID (research community focus), with NessiGRID (industry focus) and with other ongoing European projects.



Overall the reviewers expressed their concerted opinion that **the consortium "set a very good ground towards a successful continuation of the project."**

Inside this Issue

Website: http://www.xtreemos.eu
E-contact: xtreemos-info@irisa.fr

To make sure you receive all issues of the XtreemOS newsletter, register on the mailing list from the website http://www.xtreemos.eu/publications/newsletter

Project Activities Update

The objectives of XtreemOS are to design, implement, evaluate and promote a Linux-based Grid operating system providing native support for Virtual Organizations

Results of the first year

During the first year of the project, we first worked on the capture of requirements from a set of reference applications and use cases. The 14 reference applications cover different sectors: aerospace, energy, bio-informatics, business, finance, virtual reality and telecommunications. With this input, we worked on the specification of the XtreemOS Grid operating system. The results of this work are described in a comprehensive way in a set of deliverables (available in XtreemOS website). Next, we started the design and implementation of the XtreemOS components for the first basic version of the system for individual PCs and clusters.

We regard it as essential for a practical system that there should be some assurance provided that the system does meet recognised security criteria. Therefore, work is ongoing to derive a systematic analysis of threats to the XtreemOS system, with a view to validating the integrity of XtreemOS.

The work on the XtreemOS flavour for mobile devices started later, in order to take advantage of the work already done for single PCs and clusters. Right now, its design (adapted to the special features of mobile devices) is on the point of being finished and the implementation ready to start.

At present, the implementation of the first version of XtreemOS is at full speed, while the design of the XtreemOS architecture, showing the main functionalities of the system is complete.

A number of new are available on the XtreemOS website
http://www.xtreemos.eu/publications

XtreemOS architecture: an overview

The overall XtreemOS architecture is depicted in Figure 1. The XtreemOS architecture is divided logically into two layers: XtreemOS Foundation layer, XtreemOS-F; and XtreemOS Grid-support layer, XtreemOS-G.

XtreemOS-F provides a modified Linux kernel embedding native support for Virtual Organizations, in three major variants: one for PCs and workstations; one for cluster computing (based on the existing Kerrighed Single-System Image OS); and one for small mobile devices such as PDAs and smartphones.

Overall XtreemOS Architecture

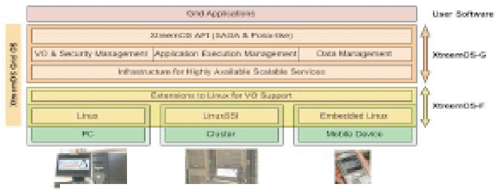


Fig.1 – XtreemOS Architecture

XtreemOS-G provides several Grid OS distributed services to manage computation and data resources securely: Application Execution Management (AEM), that allows applications to be started, monitored and controlled, and system resources to be selected and allocated; a Grid file system (XtreemFS), that provides reliable and efficient data management; and VO Management (VOM), that guarantees a secure operational environment for the Grid, covering all common requirements for information security as well as those intrinsic to the Grid. Additionally, a highly-available and scalable infrastructure is set up to deploy these services over a large number of nodes. This infrastructure supports publish/subscribe services, directory service, node/resource discovery, node virtualization and distributed servers. XtreemOS provides a common API to Grid applications, based on the emerging Simple API for Grid Applications (SAGA) standard, currently under development within the OGF.

Project Activities Update

XtreemOS development

Once the specification and design phase of the first version XtreemOS is finished, our efforts are focused on its implementation.

By the end of November 2007 we expect all the main components and services of XtreemOS to be finished and packaged (first basic version). During the following 6 months, we will undertake the task of integrating these components into a stable and easy-to-install XtreemOS distribution by the end of May 2008. However, the design of interfaces between components is being already taken into account, to smooth the integration task as much as possible.

Organizing the development in a project such as XtreemOS by partners distributed all around Europe and China is a really complex task. So, XtreemOS is taking advantage of previous experience of R&D projects carried out in a distributed way, as well as inspiration from the Open Source community.

TG8 on VO Management

Christine Morin, XtreemOS scientific coordinator, as co-chair of the technical group on Virtual Organization (TG8, http://www.virtualorg.eu/) organized a session on September 27th, 2007 in the framework of the European Services, Software and Grid Technology Days.

TG8 focuses on all aspects of VO management. This technical group's goal is to give the opportunity to share knowledge, to compare the different approaches studied by the different ICT Grid-related projects and to identify topics of common interest to be jointly further investigated.

The work progress on the various topics that were identified during the TG8 kick-off meeting (held in January 2007) was reported during the session: VO classification, architecture and models, policy in VO (in intersection with TG6 on security), VO use cases and requirements, VO contracts and SLA, manageability of VO.

To contact TG8 chairs: tg8-chair@listes.irisa.fr

Meeting in Suresnes (France)

Between 26th February and 1st March 2007, some 50 members of the XtreemOS consortium, together with a number of invited experts, met for four days of intensive meetings at the offices of EADS in Suresnes, overlooking the banks of the River Seine just outside of Paris, France.

Three sets of meetings took place: the 1st meeting of the project's Science Advisory Committee; a training day, with a number of tutorials; and a general meeting, with technical meetings arranged by the XtreemOS workpackages.

Technical meetings

Two days of technical discussion took place at the meeting, with XtreemOS workpackages having meetings concentrating on their own work, or organising joint sessions with other workpackages to coordinate their work together.

A plenary session to discuss the overall XtreemOS architecture show the key role that the Virtual Organization concept plays in XtreemOS, bringing together all the infrastructure and services. Consequently, several joint meeting dealt with the integration of security mechanisms into the different XtreemOS components.

Collaboration with the EC-GIN project

The EC-GIN (http://www.ec-gin.eu/) project investigates how to adapt the networking infrastructure of the Internet to optimize Grid applications.

EC GIN Europe-China Grid InterNetworking

During the meeting in Suresnes, Dr. Pascale Vicat-Lablanc from INRIA presented EC-GIN to XtreemOS, and an interesting discussion took place on how both projects might collaborate, taking advantage of the network enhancements provided by EC-GIN.

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Project Activities Update

XtreemOS Scientific Advisory Committee

The SAC is a scientific consultative body composed of 6 experts from academic and industrial entities, internal and external to the Consortium:

- **Dr. Stephen Scott** (chair), senior scientist at Oak Ridge National Laboratory (ORNL), USA, he leads the system research team (SRT) focusing on operating systems, system libraries and tools for addressing new issues and challenges in large-scale high performance computing environments (http://www.csm.ornl.gov/srt/index.html).
- **Dr. Yolande Berbers** (external member), professor at the Department of Computer Science of the Katholieke Universiteit Leuven (Belgium). As part of the DistriNet research group (http://www.cs.kuleuven.ac.be/cwis/research/distrinet), she leads projects on embedded systems and ubiquitous computing.
- **Andrew Morton** (external member), employed by Google, is a key software engineer in the Linux community, being the maintainer of the Linux 2.6 kernel (http://en.wikipedia.org/wiki/Andrew_Morton_%28computer_programmer%29).
- **Dr. Rosa Badia** (internal member), is associate professor at UPC, leads the Grid computing and Clusters group at BSC (http://people.ac.upc.edu/rosab/).
- **Dr. Thierry Priol** (internal member), senior researcher at INRIA, is scientific coordinator of the CoreGrid Network of Excellence (http://www.coregrid.eu).
- **Prof. Zhiwei Xu** (internal member), is chief scientist at the Chinese Academy of Sciences (http://www.ict.ac.cn/).

XtreemOS training day

Grid'5000 Training - *Yvon Jégou & David Margery, INRIA*

XtreemOS will be first validated on the Grid'5000 testbed in France. Grid'5000 is distributed on 9 sites and will provide 5000 processors/cores by the end of 2007. Its architecture was presented and then, various tools for reserving nodes, defining new OS images, rebooting nodes on user-defined images and for monitoring the platform were demonstrated in real-time.

VOMS Training - *Mike Jones, Manchester University*

VOMS (Virtual Organizations Membership Service) provides information on the user's relationship with her Virtual Organization (VO): her groups, roles and capabilities. Dr. Mike Jones (an external invited expert) presented it, together with a historical overview of authentication and authorisation, of the emergence of VOs and of the relations between Grids and VOs.

VM Technologies Training - Adolf Hohl, SAP

Business and legacy applications can keep state on multiple levels including the application server, database, supporting applications and the OS itself. Current Virtual Machine (VM) technologies consider these levels of state and provide a way to checkpoint/restart and migrate these applications. An overview and comparison of VM technologies was given and virtualisation was recommended to achieve strong isolation.

Common Criteria Training - *Syed Naqvi, CCLRC/STFC*

Syed Naqvi, visiting fellow at CCLRC/STFC, gave an overview of the Common Criteria, an industrial standard method of quality assurance for security in information systems. For users, Common Criteria is a way to define IT security requirements for hardware and software. For developers/vendors, it is a way to describe security capabilities of their product. And for evaluators, it is a tool to measure the belief we may attain about the security.

Project Activities Update

Meeting in Pisa (Italy)

XtreemOS members met in Pisa (Italy) on June 18-21, 2007 for a 4-day general meeting, hosted by the Italian National Research Council (CNR) in the Hotel Santa Croce in Fossabanda, an ancient monastery close to the Pisa downtown. More than 60 XtreemOS researchers and engineers attended the event.

XtreemOS meeting in Pisa (Italy), June 2007

Governing Board meeting

The first day, Monday, June 18, was dedicated to the Governing Board meeting that mainly focused on verifying and assessing the status of the project. Christine Morin (Project Leader–INRIA) presented the progress report of the first year of the project, the revised Description of Work and the main directions for the M13-M30 period. Oscar Sanchez (Technical Manager–INRIA) presented the sections on software development and SWOT analysis.

SWOT analysis

Technical meetings

The technical part of the Pisa meeting started with a plenary demo session on the afternoon of June 18, where developers had the opportunity to show their software prototypes running. Technical sessions were organized in the following days and covered all the aspects of the XtreemOS project: Virtual Organization support in Linux; Data Management; Security in Virtual Organizations; Federation Management; Highly available and scalable Grid services; Application Execution Management; Applications, Experiments and Evaluations; and Mobile Devices development methodology in XtreemOS-MD. Moreover, several joint sessions between different workpackages were organized, to deal with the integration of all the XtreemOS components, especially the Virtual Organization support.

A snapshot from the meeting

The Pisa meeting was closed on the late afternoon of June 21. Last but not least, just two words about the venue of the meeting, the Hotel Santa Croce in Fossabanda, a wonderful historic building, dating from the 14th century, surrounded by a large courtyard where a lot of unexpected, interesting discussions arose during coffee and lunch breaks. The place was chosen by CNR just to demonstrate that it is possible to work hardly and fruitfully also staying in a beautiful and

In the Spotlight

XtreemOS joins OGF

OGF aims to meet the international community accelerating Grid adoption by providing an open forum for Grid innovation and developing open standards for Grid software interoperability.

Since June 2007 XtreemOS is an organizational member of the Open Grid Forum.
http://www.ogf.org/Members/members_members.php

New Kerrighed version including XtreemOS technology

Three new versions of Kerrighed were released during this year and XtreemOS developers have contributed to the accelerated development and code stability increase.

The first contributions focused on improvements of packaging, testing and installation procedures, while helping to debug Kerrighed. Later NEC contributed to the port to the 2.6.20 kernel and to 64 bits ; The group is now working on splitting KDDM as stand-alone component to be pushed to the Linux community. Moreover, the University of Düsseldorf works with INRIA on checkpoint/restart and migration. INRIA works on kDFS, a global filesystem based on the distributed shared memory (KDDM) component of Kerrighed. XLAB develops a configurable global scheduler for the SSI cluster.
More information: http://www.kerrighed.org/

XtreemOS at SC07

SC07 (http://sc07.supercomputing.org/) is the premier international conference on high performance computing, networking, storage, and analysis. It will be held in Reno (Nevada, USA).

XtreemOS project will be presented at SC'07 exhibition on the **INRIA booth (#2433)**. Come to meet us at the exhibition that is open to the public from November 13 to November 15, 2007.

We invite you also to join our BoF **"Grid Operating Systems community meeting"**, starting at 12:15 p.m., location: A9. More information can be found on http://sc07.supercomputing.org/schedule/event_detail.php?evid=11296

XtreemFS

XtreemFS is the distributed file system which is developed by the XtreemOS data management workpackage. A first alpha version was released for project internal testing in late July. Main focus for this release was to test how different applications work with our file system. First results showed that many applications, e.g. MySQL or MaxDB, can already run on XtreemFS. In the next months, we will concentrate on enhancing the performance as well as bug fixing for the next release which is planned for the end of the year.

A more detailed description of the features and architectures can be found on the XtreemOS website: http://www.xtreemos.eu/science-and-research.

Get acquainted with two of the XtreemOS Partners!

红旗® Linux

Partner n°17

Since its founding on June 2000, **Red Flag** (by the National institute for research in computer science and control - http://www.redflag-linux.com/) is growing rapidly and firmly to be the largest Linux company in Asia with more than 150 employees.

The product line includes high-end Linux server OS, cluster system, desktop OS, embedded system, technical support services and trainings. Red Flag Linux has been adopted by plenty of industries, including government, China post, education, telecommunication, finance, insurance, transport, power, logistics, media, manufacture, etc.

Red Flag Software is the founder of Asianux, which is one of the most popular Linux distributors in the world and become the 3rd Linux Vendor world wide, especially in server area. From 2005 to 2006, Red Flag continued to be the top placed Linux vendor in Chinese market and achieved over 50% annual growth rate.

Science & Technology Facilities Council

Partner n°3

The UK Science and Technology Facilities Council (STFC, http://www.stfc.ac.uk) is one of Europe's largest multidisciplinary research organizations supporting scientists and engineers worldwide. The Council operates the UK's major scientific facilities in a wide range of disciplines that include a neutron source target station (ISIS), large scale telescopes at high altitudes, microstructure fabrication and laser facilities and has a major stake in others such as the Diamond Light Source. It manages scientific programmes such as particle physics in collaboration with CERN, space science and technology in collaboration with ESA and collaborative computational programmes.

The STFC team in XtreemOS belongs to the E-science Centre which has over 100 staff at the Rutherford Appleton Laboratory (RAL) in Oxfordshire and the Daresbury Laboratory in Cheshire. The Centre is responsible for e-science solutions which support the STFC facilities and programmes. This includes Grid-accessible computational clusters and Petabyte data storage. It manages the National Grid Service which accesses resources all over the UK and has a significant stake in EGEE.

RedFlag in XtreemOS

Red Flag is the member of WP4.1 (Software Integration and Packaging) as well as WP3.1/5.1/5.3/. Red Flag will build a solution based on the Asianux distribution which integrates XtreemOS, actively promote the solution in the China Academy of Science and universities, and support local ISVs in developing XtreemOS based applications

STFC in XtreemOS

Within XtreemOS, the STFC team (at RAL) is mainly responsible for design and implementation of security components and this underpins the VO support. The expertise builds on expertise built up in other EU and UK projects such as GridTrust, TrustCom, Akogrimo, DyCom and CoreGrid.

Upcoming Events

Grid- and Linux-related Events

EchoGRID Second Strategic Workshop
Date October 29th - 31st , 2007
Location CNIC, Beijing (China)
More information http://echogrid.ercim.org

Super Computing 2007
Date November 10th – 16th 2007
Location Reno (NV)
More information http://sc07.supercomputing.org/

e-science 2007
Date December 10th – 13rd 2007
Location Bangalore, India
More information http://www.escience2007.org/

XtreemOS Events

VO Integration and Security meeting
Date October 22nd -24th, 2007
Location Abingdon (UK)

Key developers' meeting
Date October 25th – 26th , 2007
Location Abingdon (UK)

4th Governing Board Meeting
Date December 20th 2007
Location Amsterdam (The Netherlands)

Technical General Meeting
Date January 21st – 25th, 2008
Location NA

Past Events

Grid- and Linux-related Events

GRIDS@work
Date November 27th to December 1st 2006
Location Sophia Antipolis (France)

Solutions Linux
Date January 30th to February 1st 2007
Location Paris (France)

IPDPS
Date March 26th - 30th 2007
Location Long Beach, California (USA)
More information http://www.ipdps.org

UK e-science 2007
Date September 10th - 13th 2007
Location Nottingham, UK
More information http://www.allhands.org.uk

Grid 2007
Date September 19th -21st 2007
Location Austin (TX)
More information http://www.grid2007.org

XtreemOS Events

EU IST Grid collaboration – European Services, Software and Grid Technology Days
Date September 26th – 27th 2007
Location Brussels (Belgium)

1st Formal Review
Date July 19th – 20th 2007
Location Brussels (Belgium)

3rd Governing Board Meeting
Date June 18th 2007
Location Pisa (Italy)

Scientific Advisory Committee Meeting
Date February 26th 2007
Location Paris (France)

Technical meeting & Training session
Date February 27th – 28th 2007
Location Paris (France)

Next issue: March 2008

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This newsletter is free and has been edited by the XtreemOS consortium
Add your name to the mailing list to receive future XtreemOS newsletter by sending an email to Sandrine.L_Hermitte@irisa.fr *or subscribe on-line on* www.xtreemos.eu

B. XtreemOS "story" submitted to specialized websites

TOOLinux – December 20, 2007 – "XtreemOS: 3linux pour les grilles du future"

toolinux
Premier quotidien francophone sur Linux, les logiciels libres et l'interopérabilité

Accueil RSS Sur votre Mobile A propos Contact Groupe Linagora 08000Linux

Toolinux, le journal du Libre, depuis 2000.

XtreemOS : 'Linux pour les grilles du futur'

20 décembre 2007 - Logiciels

Lancé en juin 2006, le projet XtreemOS vise à concevoir, réaliser et promouvoir un système d'exploitation fondé sur Linux pour les grilles du futur. Le projet est financé en partie par l'Union européenne.

Les grilles de calcul permettent à des organisations de mettre en commun leurs ordinateurs et d'accroître ainsi considérablement leur capacité de calcul. Néanmoins, utiliser, gérer et programmer les grilles de calcul est très complexe car les ressources ainsi mises en commun sont distribuées, hétérogènes, administrées de façon indépendante et reliées par des réseaux aux performances variables. Les outils développés pour les faire fonctionner, comme Globus, sont complexes d'utilisation, notamment parce qu'ils s'appuient sur des systèmes d'exploitation qui ne sont pas conçus pour gérer des ressources distribuées et versatiles.

En partie financé par la Commission Européenne, le projet de recherche européen XtreemOS développe un système d'exploitation pour administrer, programmer et utiliser facilement de très grandes collections de ressources réparties sur grille. L'idée sous-jacente est de rendre une grille aussi facile à utiliser qu'un ordinateur traditionnel. Le système XtreemOS sera construit pour fonctionner sur des PC et des grappes de calculateurs (clusters) - fondé sur la technologie Kerrighed - et permettre l'accès aux ressources à partir de PDAs et de téléphones mobiles. (http://www.kerrighed.org) Le consortium XtreemOS est constitué de 19 partenaires académiques et industriels localisés en Europe pour la majorité et en Chine. Le logiciel conçu et réalisé dans le cadre du projet XtreemOS est fondé sur le système d'exploitation Linux et sera diffusé sous licence libre. (http://www.kerrighed.org) Les fonctionnalités principales de XtreemOS permettent :

d'assurer la protection des données, des applications et des ressources dans un environnement distribué, administré de manière décentralisée par différentes institutions ; tout en facilitant l'accès à ces entités pour les membres d'une organisation virtuelle.
de s'auto-reconfigurer face aux défaillances des ordinateurs ou de liens du réseau et face à la dynamicité des grilles (une institution peut décider à tout moment d'ajouter ou de soustraire des ressources à une grille).
d'assurer l'exécution fiable des applications distribuées en dépit des fréquentes reconfigurations et défaillances pouvant survenir dans une grille,
de gérer efficacement l'allocation des ressources et les accès aux données pour garantir de hautes performances aux applications.
(http://www.kerrighed.org) En outre, le système d'exploitation XtreemOS est testé, dans son intégralité, grâce à un ensemble de 14 applications en grandeur réelle de différents secteurs (aéronautique, économie, biologie...) ; Ceci pour garantir que les besoins de l'utilisateur final sont bien prises en compte dans la conception, réalisation et validation du système.
Les premières expériences seront réalisées sur la plateforme expérimentale Grid'5000. Des expériences sont envisagées sur une grille interconnectant des ressources de Grid 5000, de la grille des Pays-Bas et de la grille chinoise.

Une première version du système sera diffusée au printemps 2008 alors que des prototypes de des différents services du système sont d'ores et déjà implémentés et en cours d'intégration.

Les deux dernières années du projet seront consacrées au développement de fonctionnalités avancées notamment concernant la robustesse et la sécurité du système. Ambition : faire de XtreemOS un système d'exploitation de référence pour les grilles et de constituer une communauté d'utilisateurs et de développeurs.

Pour plus d'informations sur le projet XtreemOS, www.xtreemos.eu. La 2e lettre d'information XtreemOS est en ligne.

XtreemOS project - données clés

A la Une

Synchroniser son Ulteo Online Desktop sous Linux avec un poste de travail Windows

Nettoyage de printemps dans les offres dédiées d'OVH

Cray et Intel vont collaborer autour du calcul intensif

De l'état des lieux de la virtualisation et des perspectives de l'opensource

Revue de presse du 29 avril 2008

Invitation au séminaire 'Vivez l'Open Source sans risque. L'OSSA, ça marche !' à Paris, Lyon et Toulouse en mai

eyeOS 1.6 : le bureau virtuel chez soi, partout ailleurs et même sur le mobile

Des nouvelles de Wordpress et Wordpress.com à quelques jours du WordCamp de Paris le 3 mai

Opera 9.5 bêta 2 soigne sa sécurité et sa mémoire

Open Wide, nouveau partenaire pour eZ Systems

Microsoft met la main sur Fast Search & Transfer

Revue de presse du 28 avril 2008

gOS Space, le système Linux dédié à MySpace

iSGTW 16 January 2008 - "Technology - XtreemOS: a Linux-based operating system to support next-generation grids"

iSGTW INTERNATIONAL SCIENCE GRID THIS WEEK

Home > iSGTW 16 January 2008 > iSGTW Technology - XtreemOS: a Linux-based operating system to support next-generation grids

Technology - XtreemOS: a Linux-based operating system to support next-generation grids

While grids allow organizations to significantly increase their computational power, they can also threaten to be a significant headache. That's where it can help to have an operating system designed to keep things simple.

"Tools developed for grid use, like the Globus Toolkit, can be demanding and complex," explains Christine Morin of INRIA Rennes Bretagne Atlantique in France, "especially because they are based on operating systems that are not designed to manage distributed and versatile resources."

Morin is the scientific coordinator of XtreemOS, a four-year research project that aims to develop a grid operating system to simplify the usage, management and programming of grids.

"XtreemOS will provide native support for virtual organizations," says Morin. "It is based on Linux and will have three different versions capable of running on single PCs, clusters and mobile devices. It will provide for grids what other operating systems offer for single computers: abstraction from the hardware and secure resource sharing between different users."

XtreemOS

Enabling Linux for the Grid

At November's SC07 conference XtreemOS was represented in the INRIA's booth and also organized a well-attended Birds of a Feather session on grid operating systems.
Image courtesy of XtreemOS

Functions in good form

The core functionalities of XtreemOS allow users to securely manage their computation and data resources. Moran explains:

"'Virtual Organization and Security Management' guarantees a secure operational environment for grids, covering all common requirements for information security as well as those intrinsic to grids," she says. "'Application Execution Management' allows users to start, monitor and control applications, and selects and allocates resources to them; and 'Data Management' is a grid file system—XtreemFS—that targets wide-area networks with high latencies."

The cluster version of XtreemOS is based on the Kerrighed open source project, which provides a Single System Image operating system for clusters.

The XtreemOS team recently met in Pisa, Italy.
Images courtesy of XtreemOS

The road to 2008 release

XtreemOS is being comprehensively tested using eleven reference applications, including aeronautics, economics, biology and more, to ensure that end-user perspectives are taken into account in the design, implementation and validation of the system.

"These experiments will initially be carried out on the French national grid experimental platform Grid'5000," says Morin. "We then plan to extend the initial test bed to the DAS-3 grid in the Netherlands and CNGrid in China."

The first public release of XtreemOS will be in June 2008, while demo prototypes of individual components are already available.

The final two years of the XtreemOS project will be dedicated to developing advanced features, with a focus on robustness and security of the system and the creation of a users' community.

Search iSGTW

Search by keyword

enter query...

Browse by subject

iSGTW 23 April

Feature - The dynamics of dark energy: ZEN probes the limits

Feature - Mission: HealthGrid

Opinion - ISSGC'07: looking back, one year on

Link - Salute to SALUTE

Images - The micro-world of muscle cells

Announcements

Call for abstracts: EGEE'08, September, Turkey

Registration free: "Why you need grid and how to do it," May, UK

Open Science Grid launches effort to build new cyber communities

TeraGrid '08 Student Competitions deadline extended

Mark your diary

April

24-26, SPPC-08, Busan, Korea

28-29, DEISA Symposium - Advancing Extreme Computing in Europe, Edinburgh, UK

28-30, BioIT World Conference and Expo, Boston, U.S.

29-1 May, International Conference on High Performance Clustered Computing, Urbana, Illinois

More for the diary...

C. Events of interest

Snaphots of the XtreemOS wiki server page related to scientific conferences. Partners are informed by email by the project office about approaching deadlines for paper submissions for conferences of interest for XtreemOS.

Conferences / Symposia with deadlines to submit XtreemOS-related papers

Events	Website	Date	Location	Deadline
PRDC 2007 - 13th IEEE Pacific Rim International Symposium on Dependable Computing (PRDC)	http://www.deakin.edu.au/conferences/prdc2007/	17-19 December 2007	Melbourne, Australia	25th June 2007
Mobisys (6th International Conference on Mobile Sytems, Applications and Services)	http://www.sigmobile.org/mobisys/2008/	June 10-13, 2008	Breckenridge, Colorado, USA	26th November 2007
High Performance Computing and Simulation Symposium (HPCS)	http://hosting.cs.vt.edu/hpcs2008/	14-16 April 2008	Ottawa, Ontario, Canada	30th November 2007
ISORC 2008 - 11th EEE Computer Society symposium on object/component/service-oriented real-time distributed computing (ORC) technology	http://ise.gmu.edu/isorc08/	5-7 May 2008	Orlando, Fl	30th November 2007
DSN 2008 - 38th Annual IEEE/IFIP International Conference on Dependable Systems and Networks	http://www.ece.cmu.edu/~koopman/dsn08/	24-27 June, 2008	Anchorage, Alaska	3rd December 2007
ACM International Conference on Computing Frontiers	http://www.computingfrontiers.org/	5-7 May, 2008	Ischia, Italy	7th December 2007
Usenix Annual technical conference	http://www.usenix.org/events/usenix08/	June 22–27, 2008	Boston, MA, USA	7th January, 2008
ICA3PP 2008 - 8th International Conference on Algorithms and Architectures for Parallel Processing	http://www.cs.ucy.ac.cy/ica3pp08/	June 9-11, 2007	Cyprus	7th January 2008
ACM/IEEE International Symposium on High-Performance? Distributed Computing (HPDC)	http://www.hpdc.org/	June 23-27, 2007	Boston, MA, USA	14th January 2008
2008 IEEE 11th International Conference on Computational Science and Engineering	http://www.icmc.usp.br/cse08	July 16-18, 2008	Sao Paulo, Brasil	25th January 2008
International Conference on Cluster and Grid Computing Systems (CGCS)	http://www.waset.org/cgcs08/	25-27 April, 2008	Roma, Italy	30th January 2008
ICPP2008 (The International Conference on Parallel Processing 2008)	http://www.cse.ohio-state.edu/~icpp2008/	8-12 september, 2008	Portland, Oregon, USA	4th February 2008
International Supercomputing Conference (ISC)	http://www.supercomp.de/isc08/index.php5	June 17-20, 2008	Dresden, Germany	19th February, 2008
IADIS Wireless Applications and Computing 2008	http://www.mccsis.org/	22-24 July, 2008	Amsterdam, The Netherlands	25th February 2008
GCA'08 - The 2008 International Conference on Grid Computing and Applications	http://www.world-academy-of-science.org/worldcomp08/ws/conferences/gca08	14-17 July, 2008	Las Vegas, Nevada, USA	25th February 2008
ICWN'08 - The 2008 International Conference on Wireless Networks	http://www.world-academy-of-science.org/worldcomp08/ws/conferences/icwn08	14-17 July, 2008	Las Vegas, Nevada, USA	25th February 2008
2008 High Performance Computing & Simulation Conference (HPCS 2008)	http://cisedu.us/cis/hpcs/08/	3-6 June, 2008	Nicosia, Cyprus	28th February 2008
First International Conference on Data Management in Grid and P2P Systems (within the Dexa Conference Cluster)	http://www.irit.fr/globe2008 / http://www.dexa.org	September 1-5, 2008	Turin, Italy	10th March 2008
ISPDC 2008: 7th International Symposium on Parallel and Distributed Computing	http://ispdc2008.ipipan.waw.pl/	July 1-5, 2008	Krakow, Poland	10th March 2008
International Conference on Distributed and Parallel Systems (DAPSYS 2008)	http://www.lpds.sztaki.hu/dapsys	September 3-5, 2008	Debrecen, Hungary	15th March 2008
Seventh European Dependable Computing Conference (EDCC-7)	http://edcc.dependability.org/	May 7-9, 2008	Kaunas, Lithuania	15th March 2008
3rd ChinaGrid? Annual Conference (ChinaGrid 2008)	http://grid.lzu.edu.cn/chinagrid2008/	August 20-22, 2008	Dunhuang, Gansu, China	7th April 2008
IEEE/ACM International Conference on Cluster Computing (Cluster)	http://cluster2008.org/	29 September - 1 October 2008	Tsukuba, Japan	18th April 2008
9th IEEE/ACM International Conference on Grid Computing (Grid 2008)	http://www.grid2008.org/	29 September - 1 October 2008	Tsukuba, Japan	18th April 2008

Workshops with deadlines to submit XtreemOS-related papers

Events	Website	Date	Location	Deadline
Cracow Grid Workshop – CGW'07	http://www.cyfronet.krakow.pl/cgw07/	15-17 October 2007	Cracow, Poland	15th September 2007
Mardi Gras Conference 2008 - Workshop on Grid-Enabling? Applications	http://www.mardigrasconference.org/GEA_workshop.php & http://www.mardigrasconference.org/callforpapers.php	January 31- February 2, 2008	Baton Rouge, Louisiana USA	31st October, 2007
2nd Workshop on Context-Awareness? and Mobility in Grid Computing (co-located with CCGrid)???	information pending			Deadline for papers:
5th High-Performance? Grid Computing Workshop (in conjunction with IPDPS 2008)	http://www.cs.unb.ca/profs/aubanel/hpgc/	April 14, 2008	Miami, Florida USA	16th November, 2007
2nd International Workshop on P2P, Parallel, Grid and Internet Computing (3PGIC-2008)	http://www.ares-conference.eu/3PIG-2008/index.html	March 4-7, 2008	Barcelona, Spain	20th November, 2007
WGC'08 - The International Workshop on Grid Computing - In conjunction with The Third International Conference on Availability, Reliability and Security - ARES 2008	http://www.ares-conference.eu/conf/index.php?option=com_content&task=view&id=44	March 4-7, 2008	UPC, BArcelona, Spain	1st December, 2007
DAMAP - International Workshop in Data Management in Peer-to-peer systems	http://damap08.lip6.fr/	March 25, 2008	Nantes, France	17th December, 2007
Workshop on Autonomics for Grids and Datacenters (in conjunction with CCGrid 2008)	ihttp://www.caip.rutgers.edu/agd2008/	May 19-22, 2008	Lyon, France	January 4, 2008
HPDGrid 2008 (in conjunction with VECPAR'08)	http://vecpar.fe.up.pt/2008/hpdg08/php	June 14, 2008	Toulouse, France	10th March 2008
Workshop on Grid and Scientific and Engineering Applications (in conjunction with AMEE'08)	http://www.tu-sofia.bg/fpmi/amee/wrk_shop.html	June 8-14, 2008	Sozopol, Bulgaria	15th March 2008

Events with deadlines to submit XtreemOS-related posters

Events	Website	Date	Location	Deadline
International Conference on High Performance Computing (HiPC)	http://www.hipc.org/	18-21 December 2007	Goa, India	4th October, 2007
Mardi Gras Conference 2008 - Workshop on Grid-Enabling? Applications	http://www.mardigrasconference.org/GEA_workshop.php & http://www.mardigrasconference.org/callforpapers.php	January 31- February 2, 2008	Baton Rouge, Louisiana USA	15th December 2007
8th IEEE International Symposium on Cluster Computing and the Grid (CCGrid)	http://ccgrid2008.ens-lyon.fr	19-22 May, 2008	Lyon, France	15th February, 2008
Mobisys (6th International Conference on Mobile Sytems, Applications and Services)	http://www.sigmobile.org/mobisys/2008/	June 10-13, 2008	Breckenridge, Colorado, USA	6th April 2008
International Supercomputing Conference (ISC)	http://www.supercomp.de/isc08/index.php5	June 17-20, 2008	Dresden, Germany	10th April, 2008
Usenix Annual technical conference	http://www.usenix.org/events/usenix08/	June 22–27, 2008	Boston, MA, USA	6th May, 2008

D. New general poster