



Project no. IST-033576

## XtreemOS

Integrated Project

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

### Collaboration report and plan including commitments for contributions to task 1 to 8 (PC4) D5.3.4

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Task No.	Task description	Partners involved <sup>°</sup>
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T5.3.3	Collaboration with other ICT projects	All except CDC

<sup>°</sup> This task list may not be equivalent to the list of partners contributing as authors to the deliverable

\* Task leader

## Executive Summary

The liaison and co-operation activities with other ICT projects is a key issue that aims at exploiting synergies between these projects and at increasing the impact of the ICT initiative. By collaborating, the involved projects will reduce duplicated efforts, as well as learn from each other.

To that purpose XtreamOS has established two parallel courses of action:

- Contribution to the concertation/collaboration gateway activities initiated by the European Commission, and
- Independent collaboration activities with other EU-funded projects or other research groups (at XtreamOS own initiative).

Besides the traditional collaboration activities, XtreamOS has collaborated with BREIN project to organize the Internet of Services 2008 – EU concertation days event (together with the European Commission services).

This deliverable D5.3.4 is structured around these two collaboration focuses and describes the achievement for the M24-M39 period.

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## Abbreviations and acronyms

BEinGRID	Business Experiments in GRID
BREIN	Business objective driven Reliable and Intelligent grids for real busiNess
CWG	Collaboration Working Group
EC-GIN	Europe-China Grid InterNetworking
ECSS	European Community for Software and Software Services
EGEE	Enabling Grids for E-science
FIA	Future Internet Assembly
FP6	Sixth Programme Framework
FP7	Seventh Programme Framework
NESSI	Networked European Software & Services Initiative
NEXOF-RA	NESSI Open Framework - Reference Architecture
OGF	Open Grid Forum
RESERVOIR	Resources and Services Virtualization without Barriers
SAGA	Simple API for Grid Applications
S-CUBE	Software Services and Systems Network
SSAI	Service and Software Architectures, Infrastructure and Engineering
SSAI&E	Service and Software Architectures, Infrastructure and Engineering
VO	Virtual Organization

# 1. Introduction

The XtreamOS project has implemented a Collaboration Gateway in the work package WP5.3 “Collaboration with other Grid related ICT projects”, which includes the activities planned in the Cross Project collaboration work package initially edited by Clemens-August Thole from Fraunhofer Institute SCAI and Mark Parsons from EPCC, and now within the context of the inter-project collaboration between ICT projects under the WP2007/2008 objective “Service and Software Architectures, Infrastructure and Engineering” (SSAI&E).

This document aims to detail the contribution of XtreamOS to the collaboration process (from XtreamOS perspective) and it is divided in two parts. The first one deals with the XtreamOS participation in the Collaborative Working Groups, including the management of the working group on Virtual Organizations and the planned activities. The second one reports on the collaboration between XtreamOS and other (EU-funded) Grid projects and the pursuance of these collaborations.

## 2. Participation of XtreamOS in collaboration activities

The aim of the collaborative working groups is to foster collaboration between projects and leverage knowledge sharing and joint learning, apply each other’s (intermediate) research results, and increase awareness of novel developments beyond projects to harmonize and adjust their goals accordingly.

The collaborative working groups have been re-structured and SSAI&E collaboration groups (“Service and Software Architectures, Infrastructure and Engineering”) were inaugurated during the European launch event, on March 5<sup>th</sup> 2008. Inter-project collaboration between ICT SSAI&E projects builds upon previous collaboration activities already started in FP6 in the areas of Software & Services and Grid Technologies.

The rationale behind these activities is to allow the ongoing research projects to benefit from each other and exploit potential synergies.

Some of the FP6 SSAI Collaboration and Technical Groups still exist and have been continued as part of SSAI&E collaboration groups. Some other activities and working groups that had previously been identified as interesting for XtreamOS are now closed (many FP6 projects have now come to an end and the collaboration tasks they led have been discontinued or suspended).

An updated list of Grid-related projects in which XtreamOS partners are involved can be found in Appendix 1.

In the following section we will give an overview of the (new) CWGs and outline XtreamOS involvement and/or future commitment wherever applicable.

### 2.1 Service Architectures

#### 2.1.1 Presentation of the CWG

For the moment, collaboration in this working group follows the activities of the NEXOF-RA project (<http://www.nexof-ra.eu/>).

NEXOF-RA, a NESSI Strategic Project, is building an Open Reference Architecture for service frameworks through a collaborative open process. The overall ambition of NEXOF-RA is to deliver a Reference Architecture for NESSI Open Framework (ranging from the infrastructure up to the interfaces with the end users) leveraging research in the area of service-based systems to consolidate and trigger innovation in service oriented economies.

CWG Chairs:

- Stefano de Panfilis (project: NEXOF-RA): stefano.depanfilis [AT] eng.it
- Klaus Pohl (Project S-CUBE): klaus.pohl [AT] sse.uni-due.de

NEXOF-RA presently seeks contribution on the following topics:

Core Service Framework Area

- Service Description
- Design Time Service Composition
- Service Discovery
- Interoperability of Message-Based Service Interaction

User Interaction Area

- Declarative Authoring Language for User Interfaces
- Context Model and Universal APIs

Infrastructure Area

- Definition of Infrastructure Services

Security Area

- Dynamic identity management for SOA
- Privacy Management in SOA

Quality of Service Area

- Scalable Approaches to Service Oriented Infrastructures
- Highly Availability for Multi-Tier Architectures

### **2.1.2 XtreamOS involvement and commitment**

The two last topics (Quality of Service Area) may be of interest for the XtreamOS project whereas the first mentioned topics are out of the scope of our project. XtreamOS is currently not an identified contributor but will follow the progress of this CWG (and will collaborate if deemed appropriate by the consortium).

## **2.2 Service Engineering**

### **2.2.1 Presentation of the CWG**

The objective of the Service Engineering CWG is to enable the development of a joint research agenda for the area of Service Engineering.

CWG Chair:

- Schahram Dustdar (project: COMPAS/S-CUBE): dustdar [AT] infosys.tuwien.ac.at

In the first meeting the working group participants identified the following research challenges:

- Specification of Services
- Engineering of Service Compositions
- Service Engineering Methodology
  - Relationship to Software Engineering Methodology
  - Relationship to Business Process Modeling techniques
  - Relationship to Ontology-driven techniques
  - Model-driven approaches
  - Mashup-approaches
- Autonomic Adaptation - Service Engineering Techniques
  - Engineering of Self-\* properties
- Service Testing and Simulation
- Service Governance Techniques
  - Management and Monitoring techniques for services

- Service Evolution and Versioning
- Engineering techniques for Human provided Services

These research challenges will provide the basic structure for a future book.

### **2.2.2 XtreamOS involvement and commitment**

XtreamOS is not involved in this CWG as the topics addressed are not linked with XtreamOS.

## **2.3 Semantics Technologies**

### **2.3.1 Presentation of the CWG**

The mission of this working group is to provide a forum for collaboration amongst projects, primarily within the Software and Service Architectures unit, on the application of semantics to SOA.

CWG Chair:

- John Domingue (project: SOA4ALL): j.b.domingue [AT] open.ac.uk

In particular the working group will focus on:

- Generic ontologies for describing services. Current initiatives in this area include the Web Services Modelling Ontology (WSMO).
- Generic ontologies for describing Grid entities. A Grid Resource Ontology was recently developed while there are ongoing efforts for the development of SLA, QoS and Security related ontologies.
- Architectures and infrastructures for managing semantic SOA systems and applications. An example of this includes the Semantic
- Execution Environment currently being standardised within OASIS.
- Architecture and methodologies for the development of Semantic Grid infrastructures such as the S-OGSA reference architecture.
- Semantic languages and representation formalisms for representing services.
- Use cases that demonstrate the business value delivered from the adoption of semantics in a SOA environment.

### **2.3.2 XtreamOS involvement and commitment**

This working group and the topics discussed are out of the scope of our project.

## **2.4 Service Front Ends**

### **2.4.1 Presentation of the CWG**

The Services Front End (SFE) Collaboration Working Group aims to set up a collaboration schema among projects in order to effectively deliver:

- A common vision on the technologies and architecture associated to Service Front Ends in the future Internet of Services
- Open specifications and, potentially, open source reference implementations of components in the envisioned architecture

When agreed, results of these joint efforts will be submitted for adoption by the NEXOF-RA initiative promoted by NESSI.

CWG chair: Juanjo Hierro (project: FAST): jhierro [AT] tid.es



## 2.4.2 XtreamOS involvement and commitment

This working group and the topics discussed are out of the scope of our project.

## 2.5 Collecting Use Cases

### 2.5.1 Presentation of the CWG

The objective of this CWG is to enable the creation of a repository of use cases that could be used as a reference by the various projects in the area. The information about use cases will be enriched over time with pointers to the specific solutions for these cases, including their evaluation in realistic contexts.

CWG chair:

- Elisabetta di Nitto (project: S-CUBE): dinitto [AT] elet.polimi.it

### 2.5.2 XtreamOS involvement and commitment

Although XLAB is not formally involved in this CWG, they are working on the SLA@SOI/Reservoir cooperation that will run SLA@SOI use-cases on Reservoir infrastructure (SAP and TID are also involved in these two projects as shown in Appendix 1). We will contact the CWG chair to know how XtreamOS could possibly contribute.

## 2.6 QoS and SLAs

### 2.6.1 Presentation of the CWG

The objectives of the QoS & SLA Working Group are briefly described as follows:

- Share mutual understanding of QoS & SLAs across various projects (terminology, functional and non-functional requirements, relevant standards & technologies). Foreexample, what does "QoS" mean in SOI (QoS on different layers, vertical QoS issues etc).
- Develop mediation framework that allows for translation between different perspectives. This framework refers to an annotated version of tables, which include the following information:
  - main terminology concepts
  - artifacts with which SLAs are associated (e.g. business process, Web service, application container, DB, server, network, etc)
  - metrics for assessing service level objectives / QoS
  - lifecycle issues
  - used standards
- Drive joint initiatives towards broader communities (e.g. NEXOF-RA, Future Internet Assembly, standardisation)
- QoS & SLAs: Identify the dependencies / barriers etc between QoS provision and SLAs
- Examine the role of QoS & SLAs in the Future of Internet (e.g. are the current SLA schemas able to serve the needs posed by the Future Internet trends - such as sensors?)
- Identify other FP7 stakeholders and check their involvement in this WG. Examine the objectives of the other WGs to identify points for collaboration.

CWG chairs:

- Eddie Townsend (project: IRMOS): eddie\_townsend [AT] xyratex.com

- Wolfgang Theilmann (project: SLA@SOI): wolfgang.theilmann [AT] sap.com

## 2.6.2 XtreamOS involvement and commitment

XtreamOS is not formally involved in the QoS & SLA Working Group but some project members follow the activity and actions taken by the CWG participants (and report any important news/decisions to the consortium).

## 2.7 Virtualised Service Platforms

### 2.7.1 Presentation of the CWG

The main activities of this working group are:

- Define what is meant by a service, and determine the set of requirements a service must meet in order to be supported. This will take into account envisioned future Internet trends such as sensors, RFIDs, "smart dust" etc.
- Identify other FP7 stakeholders in a virtualized service platform and solicit their involvement.
- Formulate the non-functional requirements on a virtualized service platform from an application provider point of view.
- Verify the set of requirements against contributed use-cases.
- Start working on a common definition of the interfaces required by service/application providers for lifecycle management.
- Examine the objectives of the other CWGs (e.g. Service Architecture) to identify potential overlaps and points for collaboration.

CWG Chairs:

- Eliot Salant (project: RESERVOIR): salant [AT] il.ibm.com
- Eddie Townsend (project: IRMOS): eddie\_townsend [AT] xyratex.com

### 2.7.2 XtreamOS involvement and commitment

XtreamOS will take actions to get involved in this CWG. The collaboration with the S-Cube/Reservoir projects somehow goes in that direction too (see Section 3.6).

## 2.8 Coordination of contribution to standards

### 2.8.1 Presentation of the CWG

The mission of this group is to “Support and foster the collaboration, co-ordination and dissemination of standardisation efforts for ICT Service and Software Architecture, Infrastructures and Engineering projects within the Framework Programme 7”.

CWG chairs:

- Philipp Wieder (project: SLA@SOI): philipp.wieder [AT] udo.edu
- Franz Kudorfer (project: NEXOF-RA): franz.kudorfer [AT] siemens.com

### 2.8.2 XtreamOS involvement and commitment

Several partners of the XtreamOS Consortium (CNR, ZIB, VUA, etc.) are part of the Open Grid Forum (OGF). XtreamOS is also an OGF silver organizational member (and appears as such on the OGF website: [http://www.ogf.org/Members/members\\_members.php](http://www.ogf.org/Members/members_members.php)). The actions of XtreamOS carried out in the OGF framework have been made more visible on our project website: XtreamOS involvement in the OGF community appears now clearly on the homepage and a specific webpage give more information too (<http://www.xtreamos.eu/collaboration-gateways/>).

XtreamOS was promoted at OGF23 in Barcelona, Spain, with a booth offering promotional

materials (flyers, pens...) and a poster commented by Oscar Sanchez (INRIA). XtremFS was also presented at OGF24 (in Singapore) with ZIB representatives. XtremOS will take future OGF meetings as an opportunity to promote the second system release and try to attract developers/users from the OGF community.

Thilo Kielmann (VUA) is also one of the leaders of the SAGA working group and the work on XOSAGA directly influences this working group. XtremOS will also try to get involved in OGF working groups dealing with clouds.

## 2.9 Repository

### 2.9.1 Presentation of the CWG

There is a desire to build a Repository of OSS reference implementations for software emanating from the SSAI Projects. This will maximise the impact of the projects by focusing on innovative research rather than repetitive software development. This Repository could also become a key component for dissemination and exploitation within technology platforms such as NESSI.

The following three repositories are available to contributions from the SSAI Projects:

- The BEinGRID project is making available Gridipedia, its project repository to external contributions from other projects. The BEinGRID project will be fully in charge of this process and will vet all contributions for: quality, applicability and external maintainability.
- The S-Cube network will be making its Knowledge Map repository available,
- The NEXOF-RA project will also be making its repository available.

CWG chair:

Kostas Kavoussanakis (project: BEinGRID): kavousan [AT] epcc.ed.ac.uk

### 2.9.2 XtremOS involvement and commitment

XtremOS has promoted its first software release and software repository on the European Community for Software & Software Services website (<http://www.eu-ecss.eu/>) and on Gridipedia too ([www.gridipedia.eu](http://www.gridipedia.eu)).

It was decided to wait for a more stable version of the XtremOS system before starting huge promotional and marketing actions, as XtremOS 2.0 would integrate new, advanced (grid) features and more differentiating factors than release 1, to make a stronger "selling" strategy, as well as it would also be significantly easier to install and configure.

After the second release of the XtremOS system, the promotion actions will be intensified (fall 2009) and contacts will re-activated with BEinGRID (See below Section 3.7).

XtremOS also got closer to S-Cube (see below Section 3.6).

## 2.10 Dissemination

### 2.10.1 Presentation of the CWG

There are numerous projects and initiatives active in the field of Service and Software Architectures, Infrastructure and Engineering. The collaboration group "Dissemination" aim to assist these projects in their dissemination efforts.

The focus is on establishing a joint platform for the stakeholders in the field of Software & Software Services, where they cannot only access information on related projects and events but also disseminate their own activities, knowledge and outcomes.

CWG Chairs:

- Production of books - Mike Papazoglou (project: S-CUBE): mikep [AT] uvt.nl

- Summer schools - Christos Nikolau (project: S-CUBE): nikolau [AT] tsl.gr

- Web site- Tiziana Lombardo: t.lombardo [AT] metaware.it

## 2.10.2 XtreamOS involvement and commitment

As a general rule, each dissemination event organized by the XtreamOS project has been/will be advertised not only through the appropriate academic or industrial channels, but also directly to all SSAI&E projects interested to participate (via project coordinators) and on the ECSS website ([www.eu-ecss.eu](http://www.eu-ecss.eu)).

↳ Organization of the Internet of Services 2008 event (collaboration meeting)

XtreamOS co-organized the Internet of Service 2008 event in Brussels on September 22-23, 2008 (with BREIN project and the EC services): [http://cordis.europa.eu/fp7/ict/ssai/events-20080922-23-cm-soft\\_en.html](http://cordis.europa.eu/fp7/ict/ssai/events-20080922-23-cm-soft_en.html)

This was a meeting for FP6 and FP7 projects in the area of Software & Services, Grid and Software and Service Architectures and Infrastructures.

This collaboration meeting included discussion panels (about Future Internet), round tables (“Open Source in FP projects”, “Technology transfer and exploitation in FP projects”, “International collaboration”) and working groups meetings.

↳ XtreamOS summer school (September 7-11, 2009, Oxford, UK)

The first XtreamOS summer school will take place from September 7-11,2009 in Oxford, UK (<http://www.xtreemos.eu/xtreemos-events/xtreemos-summer-school-2009>).

We promoted this event through different FP6/FP7 projects and through promotion tools (SSAI Events Calendar and news section on ECSS website, Belief / Mancoosi / Reservoir projects website etc.)

Appendix 2 shows examples of XtreamOS promotional actions towards EU-funded grid projects.

Furthermore, the XtreamOS members endeavoured to participate in the events organized by other projects, provided that such participation is beneficial for XtreamOS or for the event itself.

It is thus noticeable that XtreamOS members participated in major Grid-related events. Below is a snapshot of some Grid events attended by XtreamOS:

- BEinGRID Industrial Event, Barcelona, Spain, June 2008,
- CoreGRID summer school 2008, Dortmund, Germany, July 2008
- CoreGRID symposium, Las Palmas de Gran Canaria, Spain, August 2008
- Internet of Services 2008, Brussels, Belgium, September 2008
- EGEE’08 conference, Istanbul, Turkey, September 2008
- Middleware 2008 conference, Leuven, Belgium, December 2008
- Eurosyst’09, Nürnberg, Germany, April 2009
- Euro-Par 2009, Delft, The Netherlands, August 2009
- CoreGrid workshop, Delft, The Netherlands, August 2009.

↳ Future action: promotion of XtreamOS v2.0 among EU-funded Grid projects (and future updates, intermediate releases) along with XtreamOS scientific results and events.

## 2.11 Future Internet Assembly

### 2.11.1 Presentation of the CWG

The Assembly is structured to permit open interactions and cross-fertilization across technical domains, reaching out to whoever has talent.

It works towards:

- Common deliverables creating value for the projects concerned
- Joint strategic research agenda regarding common actions and requirements
- Developing a consolidated calendar of events aiming at avoiding fragmentation of efforts

FIA website: [www.future-internet.eu](http://www.future-internet.eu)

FIA wiki: [http://services.future-internet.eu/index.php/Main\\_Page#Topics](http://services.future-internet.eu/index.php/Main_Page#Topics)

CWG Chairs:

John Domingue: [j.b.domingue \[AT\] open.ac.uk](mailto:j.b.domingue@open.ac.uk)

Bruno Francois-Marsal: [bruno.francois \[AT\] thalesgroup.com](mailto:bruno.francois@thalesgroup.com)

### **2.11.2 XtreamOS involvement and commitment**

XtreamOS is not formally involved in the organization of FIA's activities.

## **2.12 Data Management**

### **2.12.1 Presentation of the CWG**

Today's growing wealth of digital data in Europe is poorly exploited. Advances in storage, pervasive computing, digital sensors and instrumentation have led to massive growth in the volume of data collected and the number and complexity of data repositories. This growing wealth of data has an increasing potential to yield great benefits to citizens, science and business as it contains vital hidden knowledge.

The DM-CWG has particular interests in technologies that can help in the management and interpretation of these increasingly large and complex data sets.

CWG chair:

- Rob Baxter (project: ADMIRE): [r.baxter \[AT\] epcc.ed.ac.uk](mailto:r.baxter@epcc.ed.ac.uk)

### **2.12.2 XtreamOS involvement and commitment**

This CWG is in relation to the following XtreamOS work package:

- WP3.4 – Data Management (XtreamFS file system and Object Sharing Service)

Jan Stender (ZIB) participated in the meeting of this CWG at the 2008 concertation meeting in Brussels.

## **2.13 Trust & Security**

### **2.13.1 Presentation of the CWG**

Trust and Security covers a very broad area including technical issues such as the need and mechanisms for authentication, business issues such as the grounding of trust in business processes or in Virtual Organisations, and operational issues such as the need for user training and software maintenance.

It is clear that there are distinctive requirements for dealing with trust in industrial or commercial projects such as those from the IST programme, when compared with (e.g. Grid-based academic research activities). This makes it inappropriate to focus on the much narrower topic of Security technologies, as Trust plays a crucial role differentiating IST Software and Services projects from previous e-Science work in EU and National programmes.

CWG chairs:

- Mike Surridge (project: THINK TRUST): [ms \[AT\] it-innovation.soton.ac.uk](mailto:ms@it-innovation.soton.ac.uk)

- Joris Claessens (project: PERSIST): [joris.claessens \[AT\] microsoft.com](mailto:joris.claessens@microsoft.com)

### 2.13.2 XtreamOS involvement and commitment

This CWG is in relation with the following XtreamOS work packages:

- WP2.1 – VO support in Linux,
- WP2.3 – VO in Linux for mobile devices, and,
- WP3.5 – Security in VOs

XtreamOS endeavours to attend this CWG meetings that are incidentally often co-located with the CWG about Virtual Organizations (co-led by XtreamOS project leader). The two working groups have common research topics and addresses linked technical issues. Alvaro Arenas (STFC), who is leading the task on formal analysis of security properties, is a regular participant in these meetings.

## 2.14 Virtual Organisations (ex-TG8)

### 2.14.1 Presentation of the CWG

The VO working group focuses on all aspects of virtual organization management in next generation Grid architectures. Several ICT Grid-related projects are interested in VO management. This collaborative working group's goal is to give the opportunity to share knowledge, to compare the different approaches studied by the various projects and to identify topics of common interest to be further investigated.

CWG chairs:

- Christine Morin (project: **XtreamOS**): christine.morin [AT] inria.fr
- Lukasz Dutka (project: GREDIA): dutka [AT] agh.edu.pl

### 2.14.2 XtreamOS involvement and commitment

A face-to-face meeting on VO management was held in Paris on July 2-3, 2008. The meeting was organized in three parts:

- 1- Technical presentations from participants,
- 2- TG8 white paper - report from action chairs,
- 3- Discussion on the organization of the future works in TG8.

The participants in that meetings came from 8 different EU-funded projects as shown by the below list:

- Christine Morin, INRIA (XtreamOS)
- Lukasz Dutka, Cyfronet (Gredia)
- Vladimir Vlassov, KTH Stockholm (Grid4all)
- David Brossard, British Telecom (BeInGrid)
- Sylvain Jeuland, INRIA (XtreamOS)
- Kostas Stathis, Royal Holloway, Univ. of London, (ArguGrid)
- Yvon Jégou, INRIA (XtreamOS)
- Alvaro Arenas, STFC (GridTrust/CoreGRID)
- Dave Kelsey, STFC (EGEE)
- Erica Yang, STFC (XtreamOS)

The last TG8 meeting took place in June 2009 during the collaboration day meeting in Brussels (June 10-11, 2009), co-organised by the IRMOS, SLA@SOI and SOA4ALL projects and the European Commission. The agenda of this CWG is available in appendix 2.

About 20 people attended this session, most of them being involved in ongoing projects:

- GREDIA - Bartosz Kryza
- XtreamOS - Alvaro Arenas
- Grid4All - Vladimir Vlassov

- ViroLab - Piotr Nowakowski
- GridTrust - Alvaro Arenas
- edutain@grid - Bassem Nasser
- BeInGRID - Angelo Gaeta & Stéphane Mouton

A new physical meeting, possibly co-located with the Trust and Security group, is still to be scheduled.

## 2.15 Software Service Economics

### 2.15.1 Presentation of the CWG

The objective of this working group is to provide a forum for exchanging new ideas and research around Grid business models and SLAs. The working group will foster discussions on topics related to business models and economics of not just Grid but also of software services. The major topics include business model analysis, quality of service, market dynamics, user needs, legal issues, economic models, regulatory and taxation aspects.

CWG chair:

Jorn Altmann: [jorn.altmann \[AT\] acm.org](mailto:jorn.altmann@acm.org)

### 2.15.2 XtremOS involvement and commitment

The activities of this CWG are not directly relevant to XtremOS.

## 2.16 Formal Methods for SOA and Future Internet

### 2.16.1 Presentation of the CWG

This Group Discussion aims at determining how formal methods would contribute to the specification, design, development and deployment of service oriented architectures, based on potential or real error risks analysis.

CWG Chair:

- Alexander Romanovsky (project: DEPLOY): [alexander.romanovsky \[AT\] ncl.ac.uk](mailto:alexander.romanovsky@ncl.ac.uk)

### 2.16.2 XtremOS involvement and commitment

XtremOS does not participate as a core group member but will follow the activities of this group discussion.

## 3. XtremOS collaboration with other FP6/FP7 Grid projects

### 3.1. Collaboration with EC-GIN project ([www.ec-gin.eu](http://www.ec-gin.eu))

*EC-GIN (Europe-China GridInterNetworking - <http://www.ec-gin.eu>) is a Specific Targeted Research Project in response to IST Call6 in the area "International Cooperation on Grid Technologies" with China as target country.*

The research and development planned by EC-GIN project is complementary and share common interests with the XtremOS project. As a matter of fact, EC-GIN aims at developing new communication protocols and optimizing already existing ones, for their use in Grid environments.

That is why the XtremOS consortium expressed interest in collaborating technically with EC-GIN.

Collaboration efforts with EC-GIN for M24-M39:

EC-GIN project is coming to an end (end date: November 2009) is now communicating its

results through Gridipedia (BEinGRID). NS-2 code for Grid simulation is the first such contribution among many public deliverables to follow.

XtreemOS may collaborate again with EC-GIN via Gridipedia when XtreemOS v2.0 is ready.

### **3.2. Collaboration with NESSI platform (www.nessi-europe.com)**

*The goal of NESSI is to provide a unified vision and strategic research agenda for European research in software and services by establishing the technological basis and developing strategies that will speed up the transformation of the European economy towards a knowledge-based economy through service-oriented business models.*

Collaboration efforts with NESSI for M24-M39:

Nessi Grid as project is over. We made our contributions to the Strategic Research Agendas (mainly via SAP and TID): [http://www.nessi-europe.com/Nessi/Portals/0/Nessi-Repository/SRA/Documents/NESSI-Grid-SRA\\_v2.0.pdf](http://www.nessi-europe.com/Nessi/Portals/0/Nessi-Repository/SRA/Documents/NESSI-Grid-SRA_v2.0.pdf)

This second SRA version features a complete coverage of a multitude of envisioned business scenarios including their associated requirements and challenges. Furthermore, it incorporates community input collected by more than 40 independent research/infrastructure projects as well as experts of the field.

XtreemOS will keep an eye on the NESSI activities and satellite initiatives (NSP: NESSI Strategic Projects are, for instances, NEXOF, RESERVOIR, SOA4ALL, SLA@SLOI).

### **3.3. Collaboration with EGEE (Enabling Grids for E-Science / www.eu-egee.org)**

*Enabling Grids for E-science (EGEE) is the largest multi-disciplinary grid infrastructure in the world, which brings together more than 120 organisations to produce a reliable and scalable computing resource available to the European and global research community.*

It is noticeable that EGEE representatives actively participated in the TG8 meetings and EGEE representative were invited to the workshop related to the CWG on VO last July 2008.

The EGEE'08 Conference was held from 22 to 26 September 2008 in Istanbul and it offered a vast exhibition and demo area where businesses and Grid projects were invited to present their innovations and services to the Grid community, to meet and network with users, partners in EGEE and collaborating projects. An XtreemOS poster was presented by Sylvain Jeuland (INRIA).

- "XtreemOS: A Grid Operating System Providing Native Virtual Organization Support", Yvon Jégou, Christine Morin, Oscar D. Sanchez, Sylvain Jeuland - EGEE'08 conference, Istanbul, Turkey, 22-26 September 2008.

The resources currently coordinated by EGEE will be managed through the European Grid Initiative (EGI) as of 2010.

EGEE sponsor many Grid events and XtreemOS members will quite probably attend some of these meetings.

### **3.4. Collaboration with Grid4All (www.grid4all.eu)**

*The Grid4All project as part of the European Union's Sixth Framework Programme, Information Society Technologies, intends to promote the vision of democratizing the Grid as a ubiquitous utility where domestic users, small organisations and enterprises share their resources and services inside virtual organizations, and use resources via the Internet, thus reducing the otherwise necessary investment in computing resources.*

A joint meeting was organized on July 1-2, 2008 in Paris, France, between a delegation of representatives from XtreemOS and from Grid4All. This meeting consisted in mutual presentations to try to identify common research topics and shared interests.



The presentations of both projects and additional information are available on our project website: <http://www.xtreemos.eu/collaboration-gateways/xtreemos-meets-grid4all>

Grid4All project is now almost finished (started in June 2006 and funded for 3 years). Like EC-GIN Grid4All is now collaborating through Gridipedia. We have established contacts for a research collaboration on specific topics.

### **3.5. Collaboration with GridCOMP (www.gridcomp.ercim.org)**

*GridCOMP main goal is the design and implementation of a component based framework suitable to support the development of efficient grid applications. The framework will implement the "invisible grid" concept: abstract away grid related implementation details (hardware, OS, authorization and security, load, failure, etc.) that usually require high programming efforts to be dealt with.*

XtreemOS invited representatives from the GridComp project (<http://gridcomp.ercim.org/>) to a meeting organized in Bohinj, Slovenia, on October 8<sup>th</sup>, 2008.

GridCOMP project main goal is the design and implementation of a component based framework suitable to support the development of efficient grid applications.

This joint meeting was a good opportunity to identify common research interest and to investigate possibilities for cooperation or at least a coordinated information exchange. We namely identified suitable level(s) for possible interfacing between (future) prototypes and potential benefits/impact if this is technically possible and successful (XtreemOS covers lower layers while GRIDCOMP addresses higher layers of the grid system architecture).

GridCOMP was funded for 3 years since 2006 and it is now over.

### **3.6. Collaboration with Reservoir and S-Cube projects**

*The aim of the Reservoir project is to provide a foundation for a service-based online economy, where - using virtualization technologies - resources and services are transparently provisioned and managed on an on-demand basis at competitive costs with high quality of service (<http://www.reservoir-fp7.eu/>).*

*S-Cube, the European Network of Excellence in Software Services and Systems, aims at establishing an integrated, multidisciplinary, vibrant research community (<http://www.s-cube-network.eu/>).*

During our last general technical meeting in Amsterdam (March 2009), half a day was dedicated to a joint meeting with both Reservoir and S-Cube projects. This joint meeting was quite valuable and each project respectively presented its research activities, ongoing work and goals. From our XtreemOS point of view this was the appropriate time to organize such a joint session given that the first public release of the XtreemOS system was available (concrete results to show / demos to run). We also explored the technical opportunities for collaboration between Reservoir and XtreemOS and S-Cube and XtreemOS. A follow-up technical meeting is planned next winter 2009 for scientific and technical presentations on common research topics. Below is a draft list:

- Virtualization
- Resource provisioning from clouds
- Service adaptation
- Using XtreemOS to build clouds
- Cloud federation / distributed clouds
- Virtual organizations
- Monitoring & service adaptation
- Service high availability
- Service platforms on top of XtreemOS

- Data management in clouds
- (...)

The SAP team involved in XtremOS also initiated collaboration concerning value-based assessment with the Reservoir project via link to the SAP team involved in that project.

### **3.7. Collaboration with BEinGRID ([www.beingrid.eu](http://www.beingrid.eu))**

The BEinGRID consortium is composed of 95 partners who are running 25 Business Experiments (BEs), designed to implement and deploy Grid solutions in industrial key sectors

The repository of Gridipedia, a part of the BEinGRID (Business Experiments in Grid) IST project, is organized with Grid software components and solutions that are designed to meet common business requirements. Information on these components can be found in the Technical Solutions section of their portal. Released components can be downloaded via the Component Access page on their portal.

Other contents include: Information on how the components relate to business needs, design patterns providing solutions to common Grid problems, an explanation of what the Grid is, including a classification of Grids and a glossary, information on how Grid technology is being applied to business today, and, information about the leading Grid middleware.

The first release was not promoted to the highest extent because it was not stable enough: XtremOSv2.0 will also offer new differentiating, advanced grid functionalities. After the second release of the XtremOS system it is planned to re-activate the connections between XtremOS and BEinGRID to investigate the opportunities to test and validate XtremOS system on top on the BEinGRID business experiments/use cases, and, of course, to make XtremOSv2.0 software available on Gridipedia.

### **3.8. Collaboration with other Grid- and cloud-related projects**

In the 7<sup>th</sup> framework program, XtremOS may be interested in the SLA@SOI project too (SAP coordinator, TID + XLAB involved). This may be prospective collaboration and the XtremOS consortium will keep an eye on progress of this project (SAP).

UDUS people also had an internal meeting how OSS (WP3.4) could be used within Deploy. We plan to have a student doing this work within a bachelor or master thesis.

XtremOS has also somewhat “collaborated” with BREIN about the organisation of the Internet of Services 2008 event / collaboration days. This event gathering projects funded by the EC took place on September 22-23, 2008 in Brussels (see Section 2.10.2).

Through OGF events and the XtremFS demo at HPDC 2008 in Boston, XtremOS (by partners INRIA, VUA, and ZIB) came in contact with the Nimbus project from Argonne National Lab. Since, both projects loosely collaborate. Currently, virtual machine images of XtremOS can be used within Nimbus scientific clouds. Ongoing work is investigating to which extent XtremOS could become a platform on top of which Nimbus clouds could be deployed.

## **4. Conclusion**

The collaboration opportunities described here show clear potential to significantly increase the impact of the XtremOS project and the valuable contributions XtremOS can give to European cooperation activities.

Project partners are obviously interested in the XtremOS project itself, i.e. publishable results and achievements, but they also find important to make connections with other European initiatives related to the XtremOS research domains (Grid/cloud computing, open

source software, data management, virtual organizations, security etc.). This allows to widen the impact of XtremOS.

A follow-up workshop with S-Cube and Reservoir representatives will be organized in winter 2009 and will consist in scientific and technical presentations on topics of mutual interest (virtualization, cloud federation, resource provisioning from clouds etc.).

The release of the 2<sup>nd</sup> version of the XtremOS system will also be an excellent opportunity to re-activate contacts with the BEinGRID project.

# Appendices


## Appendix 1:

## Appendix 2: List of FP7 projects with XtreamOS partners involved

Research area: *ICT-2007.1.2* Service and Software Architectures, Infrastructures and Engineering

Project Acronym	Project coordinator	E-mail address	XtreamOS partners involved	End date
ADMIRE	Baxter, Robert	<a href="mailto:r.baxter@epcc.ed.ac.uk">r.baxter@epcc.ed.ac.uk</a>		2011
SLA@SOI	Theilmann, Wolfgang	<a href="mailto:wolfgang.theilmann@sap.com">wolfgang.theilmann@sap.com</a>	XLAB, TID	2011
COMPAS	Dustdar, Schahram	<a href="mailto:dustdar@infosys.tuwien.ac.at">dustdar@infosys.tuwien.ac.at</a>		2011
DEPLOY	Romanovsky, Alexander	<a href="mailto:alexander.romanovsky@ncl.ac.uk">alexander.romanovsky@ncl.ac.uk</a>	SAP, UDUS	2012
DIVA	Horn, Geir	<a href="mailto:geir.horn@sintef.no">geir.horn@sintef.no</a>	INRIA	2011
FAST	Carillo Pacheco, Miguel	<a href="mailto:mcp@tid.es">mcp@tid.es</a>	TID, SAP	2011
IRMOS	Varvarigou, Theodora	<a href="mailto:dora@telecom.ntua.gr">dora@telecom.ntua.gr</a>	TID	2011
M:CIUDAD	Gil, Guillermo	<a href="mailto:guille@robotiker.es">guille@robotiker.es</a>	TID	2010
MANCOOSI	Di Cosmo, Roberto	<a href="mailto:roberto@dicosmo.org">roberto@dicosmo.org</a>	EDGE-IT	2011
MOST	Ramijan, Barbara	<a href="mailto:barbara.ramijan@comarch.com">barbara.ramijan@comarch.com</a>	SAP	2011
NESSI 2010	Evain, Nicolas	<a href="mailto:nicolas.evain@fr.thalesgroup.com">nicolas.evain@fr.thalesgroup.com</a>		2010
NEXOF-RA	De Panfilis, Stefano	<a href="mailto:stefano.depanfilis@eng.it">stefano.depanfilis@eng.it</a>	TID	2010
OMP	Keur, Patrick	<a href="mailto:patrick.keur@philips.com">patrick.keur@philips.com</a>	INRIA	2009
OPEN	Paterno, Fabio	<a href="mailto:fabio.paterno@isti.cnr.it">fabio.paterno@isti.cnr.it</a>	CNR, NEC, SAP	2010
PERSIST	Doolin, Kevin	<a href="mailto:kdoolin@tssg.org">kdoolin@tssg.org</a>		2010
PROTEST	Derrick, John	<a href="mailto:J.Derrick@dcs.shef.ac.uk">J.Derrick@dcs.shef.ac.uk</a>		2011
Q-IMPRESS	Trifu, Mircea	<a href="mailto:Mircea.Trifu@fzi.de">Mircea.Trifu@fzi.de</a>		2010
RESERVOIR	Salant, Eliot	<a href="mailto:salant@il.ibm.com">salant@il.ibm.com</a>	TID, SAP	2011
ROMULUS	Iglesias, Carlos	<a href="mailto:cif@germinus.com">cif@germinus.com</a>		
S-CUBE	Pohl, Klaus	<a href="mailto:klaus.pohl@sse.uni-due.de">klaus.pohl@sse.uni-due.de</a>	INRIA	2012
SERFACE	Goebel, Steffen	<a href="mailto:Steffen.Goebel@sap.com">Steffen.Goebel@sap.com</a>	SAP, CNR	2010
SOA4ALL	Ristol, Santi	<a href="mailto:santi.ristol@atosorigin.com">santi.ristol@atosorigin.com</a>	INRIA, SAP	2011
SHAPE	Berre, Arne-jorgen	<a href="mailto:Arne.J.Berre@sintef.no">Arne.J.Berre@sintef.no</a>	SAP	2010
ALIVE	Vazquez, Javier	<a href="mailto:jvazquez@lsi.upc.edu">jvazquez@lsi.upc.edu</a>	UPC-BSC	2010
SERVICE WEB 3.0	Simperl, Elena	<a href="mailto:elena.simperl@sti2.at">elena.simperl@sti2.at</a>		2009
STREAM	Jimenez-Peris, Ricardo	<a href="mailto:rjimenez@fi.upm.es">rjimenez@fi.upm.es</a>	UPC-BSC, TID	2011
SMARTLM	Martrat, Josep	<a href="mailto:josep.martrat@atosresearch.eu">josep.martrat@atosresearch.eu</a>		2010

## Appendix 2: Promotion of XtreamOS events through EU-funded projects



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you are here: [home](#) » [news](#) » announcing the call for participation at the xtreamos summer school 2009

### Announcing the Call for participation at the XtreamOS summer school 2009

The XtreamOS Summer School will take place at the Wadham College, University of Oxford, UK, on the 7-11 September 2009. It will include lectures on modern distributed paradigms such as Grid computing, Cloud computing, and network-centric operating systems. The Summer School will combine lectures from research leaders shaping the future of distributed systems and world leaders in deploying and exploiting distributed infrastructures. Hands-on laboratory exercises and practical sessions using XtreamOS will give participants experience on using modern distributed systems.

The aims of the XtreamOS Summer School are:

- To introduce participants to emergent computing paradigms such as Grid computing and Cloud computing
- To provide lectures and practical courses on novel techniques to achieve scalability, highly availability and security in distributed systems
- To present Grid applications in the domains of E-science and business.
- To provide a forum for participants to discuss your research work and share experience with experience researchers.

For further information please visit the [school web site](#)

Area of interest

- Other (please specify)
- GRID

#### LATEST NEWS

- 22-06-2009 Announcing the Call for participation at the XtreamOS summer school 2009
- The XtreamOS Summer School will take place at the Wadham College, University of Oxford, UK, on the 7-11 September 2009. It will include lectures on modern distributed paradigms such as Grid computing, Cloud computing, and network-centric operating systems. The Summer School will combine lectures from research leaders shaping the future of distributed systems and world leaders in deploying and exploiting distributed infrastructures. Hands-on laboratory exercises and practical sessions using XtreamOS will give participants experience on using modern distributed systems.
- 19-06-2009 The EuroIndia project's June newsletter is now available!
- Enjoy the read on their last Brainstorming Session held in Paris in May 2009, where the preliminary findings were presented by Dr. Sudhanshu Rai from Copenhagen Business School, the knowledge mapping team leader.

[More news...](#)

#### UPCOMING EVENTS

- IADIS Multi Conference on Computer Science and Information Systems 2009
- The IADIS Multi Conference on Computer Science and Information Systems (MCCSIS 2009) aims to address two main subjects: Computer Science and Information Systems. The multi conference has different
- The 8th International e-VLBI Workshop - Science and Technology of Long Baseline Real-Time Interferometry
- The week long conference will cover both scientific applications (first half) and technical implementation (second half) with joint sessions in the middle. Participants are welcome to attend a part

[More events...](#)

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Figure 1 Call for Participation at XtreamOS summer school on Belief-project website

MANCOOSI WEBLOG MANCOOSI HOME



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**XtreemOS Summer School**

By Roberto Di Cosmo, Tuesday 23 June 2009 at 14:39.

On September 7-11 2009, in Oxford UK, will take place the **XtreemOS Summer School**. XtreemOS is a Linux-based operating systems that includes Grid functionalities, developed by an international consortium with which we share Edge-IT as a partner.

Posted in [General](#) | [no comments](#) »

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**Mancoosi meeting in Rome, June 4th and 5th 2009**

By Sophie Cousin, Tuesday 16 June 2009 at 15:42.

On June 4th and 5th 2009, the Mancoosi meeting originally planned in L'Aquila was organized in Rome in the premises of the Sapienza University of Rome, thanks to the efforts of our colleagues in L'Aquila despite the difficult circumstances. This was the opportunity of another fruitful project meeting (see [agenda](#)) with presentations of work carried on lately, close collaboration and discussions on the future of the project.

To be continued!



Support ideas for L'Aquila

**CALENDAR**

« June 2009

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

**SEARCH**

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- [September 2008](#)
- [August 2008](#)
- [July 2008](#)
- [June 2008](#)
- [May 2008](#)
- [April 2008](#)

**Figure 2 Announcement of XtreemOS summer school on Mancoosi blog**

The image shows a screenshot of the RESERVOIR website. On the left is a blue navigation menu with items: Home, News, Research, Contact Us, Project Deliverables, Service Clouds Explained, Blogs, Links, Search, Site Map, and Contact Us. Below the menu are logos for the SEVENTH FRAMEWORK PROGRAMME and NESSI. The main content area features a 'LATEST NEWS' section with four news items. The first item, 'XtreamOS Summer School', is highlighted with a yellow box and a yellow arrow pointing to it. Below the news is a 'RESERVOIR' section with two paragraphs of text. At the bottom of the main content are three image thumbnails labeled 'Key Technologies', 'Business Driven Research', and 'Demos'. The footer contains the text 'Reservoir ©2009'.

**RESERVOIR**

**LATEST NEWS** [See more...](#)

<b>XtreamOS Summer School</b> <b>25/06/2009</b> This year's XtreamOS summer school is being held at Wadham College, University of Oxford, Oxford, UK, on September 7-11, 2009.	<b>RESERVOIR at Digibiz, 2009</b> <b>16/06/2009</b> RESERVOIR will support the Cloud Computing Panel discussion at Digibiz, 2009 with Mark Linder, SAP, taking an important role in proceedings.	<b>Future Internet Assembly</b> <b>11-13 May 2009</b> <b>16/03/2009</b> RESERVOIR will have a presence at FIA in Prague.	<b>RESERVOIR at OGF25</b> <b>04/03/2009</b> Project members have been at OGF25, Catania, Sicily, Italy, participating in Cloud API BoF.
---	---	--	--

**RESERVOIR**

Resources and Services Virtualization without Barriers is an European Union FP7 funded project that will enable massive scale deployment and management of complex IT services across different administrative domains, IT platforms and geographies. The project will provide a foundation for a service-based online economy, where - using virtualization technologies - resources and services are transparently provisioned and managed on an on-demand basis at competitive costs with high quality of service.

Web 2.0 is rapidly taking hold, offering "the web as a platform". In parallel, traditional client-server computing is starting to lose ground as a new paradigm emerges - the Cloud Computing paradigm. Cloud Computing allows data centers to operate more like the Internet by enabling computing across a distributed, globally accessible fabric of resources, delivering service based on demand over the web, reducing software complexity and costs, expediting time-to-market, improving reliability and enhancing accessibility of consumers to government and business services. Thus, Cloud Computing represents a true materialization of Service-Oriented Computing's visionary promise. In RESERVOIR, we are developing breakthrough system and service technologies that will serve as the infrastructure for Cloud Computing. We aim to achieve this goal by creative coupling of virtualization, grid computing, and business service management techniques.

[Key Technologies](#)   [Business Driven Research](#)   [Demos](#)


**NESSI**

In addition, RESERVOIR researchers will be cooperating with other European Union FP7 projects, and NESSI projects to promote the exchange of ideas and interoperability.

Reservoir ©2009

Figure 3 XtreamOS summer school promoted on RESERVOIR website





**ECSS** european community  
for software  
& software services

architectures ■ infrastructures ■ engineering

**SOFTWARE'S think tank for a NETWORKED FUTURE**

European Community for Software & Software Services    Architectures ■ Infrastructures ■ Engineering

---

### Tutorial at ICS'2009: Security and VO Management in Grids

This tutorial provides an overview of security and Virtual Organization management in established and new Grid systems.

XtreamOS Grid project surveys the security and Virtual Organization management features provided by some major Grid middleware packages, and introduces the comparable functionality in XtreamOS, a Grid-based operating system.

Concepts in Grid security are introduced, including their respective challenges and protection mechanisms. XtreamOS Grid project describes the Globus, gLite and UNICORE middleware packages, showing the services they provide, their VO management functions, and security abilities.



The tutorial then explores the features of the XtreamOS Grid operating system, demonstrating the advantages of close integration between Grid functionality and operating system facilities.

There are three parts to this tutorial. It starts with an overview of the security and VO management concepts that underlie Grid computing. Implementations of these concepts are described in the next section, which compares the approaches being adopted in some popular Grid middleware packages. To finish, the XtreamOS Grid operating system is described and compared to Grid middleware packages.

The ICS Conference is the premier international conference for parallel computing, distributed systems and processing. A significant number of ICS2009 attendees are concerned with Grid computing and participate in collaborative inter-organizational and organizational projects. Security, trust, and VO management are central to the facilitation of such short-, mid-, and long-term collaborations. The tutorial will be given by members of the XtreamOS project, an Integrated Project supported by the European Commission's IST program to develop a next-generation Grid-aware operating system: Dr Christine Morin (scientific coordinator of the project) and Dr. Yvon Jégou.

URL:

BACK

<b>From</b>	2009-06-08 00:00
<b>To</b>	2009-06-08 00:00
<b>Type</b>	WORKSHOP
<b>Audience</b>	RESEARCH
<b>Topic</b>	Other (please specify) Grid
<b>Country</b>	United States
<b>Place</b>	IBM T.J. Watson Research Center, Metro New York City Area, USA
<b>Website</b>	<a href="http://www.xtreamos.eu/xtreamos-events/tutorial-at-ics-2009-security-and-vo-management-in-grids">http://www.xtreamos.eu/xtreamos-events/tutorial-at-ics-2009-security-and-vo-management-in-grids</a>
<b>Organising Entity</b>	*
<b>Contact Name</b>	Dr Christine Morin
<b>Contact Email</b>	<a href="mailto:christine.morin@irisa.fr">christine.morin@irisa.fr</a>
<b>Add to</b>	 vCal (Windows, Linux)  iCal (Mac OS X)

**Figure 4 Promotion of XtreamOS tutorial at ICS'09 on ECSS website**



The screenshot shows the XtremOS website with a green header and navigation menu. The main content area features a post titled "IWOCE2009 - Open Component Ecosystems" by Sandrine L'Hermitte, dated 2009-06-23. The post includes a table with event details, a paragraph about software composition, and a section on the workshop's scope. A sidebar on the left lists navigation options and upcoming events, while a sidebar on the right displays news items.

**XtremOS**  
Enabling Linux for the Grid

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you are here: home → events → forthcoming events → iwoce2009 – open component ecosystems

site map | accessibility | contact

## IWOCE2009 – Open Component Ecosystems

by Sandrine L'Hermitte — last modified 2009-06-23 16:03

**International Workshop**

what	Convention
when	2009-08-24 from 00:00 to 00:00
where	Amsterdam, The Netherlands
contact email	<a href="mailto:iwoce2009@easychair.org">iwoce2009@easychair.org</a>
add event to calendar	<a href="#">vCal (Windows, Linux)</a> <a href="#">iCal (Mac OS X)</a>

**IWOCE2009 - Open Component Ecosystems**  
International Workshop  
24 August 2009 - Amsterdam, The Netherlands

Over the last years, the composition of software parts is increasingly considered a crucial operation to build and maintain large software systems. The continuous and independent evolution of readily available components suggested that open platforms can better accommodate and manage them as normally happens in systems like open source software distributions, Eclipse, and J2EE, just to mention a few. The critical mass represented by such software components requires organizations, such as companies, research groups, and open source communities, to collaborate on custom software development, implementation and shared services. Such infrastructures can be regarded as ecosystems, i.e., collections of software projects that possibly belong to organizations, developed in parallel by the organizations, and able to integrate each other at assembly time, during the configuration, and/or dynamically after the deployment.

The capability of modeling, analyzing, and predicting the component behavior during these stages is intrinsically difficult and requires techniques, algorithms, and methods which are both expressive and computationally convenient in order to be engineered and conveyed in practical projects. Moreover, when analyzing software ecosystems, exploration and visualization cannot be neglected because of the large amounts of information that are available about the ecosystem.

**Scope**

The goal of the workshop is to gather together both researchers and practitioners active in open source software engineering, software composition, algorithms, constraint programming, and model-driven engineering to discuss, debate, exchange ideas, and outline common solutions to the problem of static and dynamic component aggregations in software ecosystems.

**navigation**

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- Science and Research
- Open Source Software
- Publications
- XtremOS-related events
- Press room
- Collaboration Gateway
- Open Positions
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- Blog XtremOS

**upcoming events**

- OpenSourceWorld  
San Francisco, CA,  
2009-08-12
- IWOCE2009 – Open Component Ecosystems  
Amsterdam, The Netherlands,  
2009-08-24
- Euro-Par 2009  
Delft, The Netherlands,  
2009-08-25

**news**

- Project Status  
2009-06-25
- Updated programme for XtremOS summer school  
2009-08-07
- XtremOS summit at Euro-Par 2009: Programme  
2009-07-27
- XtremOS position at STFC  
2009-07-17
- International Master Course in Computer Science and Networking – University of Pisa and SSUP S. Anna  
2009-07-16
- EuroSys 2010 – Call for Papers  
2009-07-16
- More news...

**Figure 5 Promotion of Mancoosi IWOCE workshop on XtremOS project website**

The screenshot shows the XtreamOS website interface. At the top, there is a header with the XtreamOS logo and a penguin mascot. Below the header is a navigation bar with links for home, blog, news, events, intranet, and newsletter. A search bar is located on the right side of the navigation bar.

The main content area features a news article titled "Future Internet Symposium 2009" by Sandrine L'Hermitte, last modified on 2009-07-16 10:47. The article text describes the Future Internet vision as a holistic one, involving policy making, innovation, and scientific research. A table provides details about the event:

what	Convention
when	2009-09-01 00:00 to 2009-09-03 00:00
where	Berlin, Germany
add event to calendar	<a href="#">vCal (Windows, Linux)</a> <a href="#">iCal (Mac OS X)</a>

The article continues with a declaration focusing on challenges and opportunities in the Future Internet, and mentions the Future Internet Symposium (FIS) as a research-focused complement to the Future Internet Assembly (FIA).

On the left side, there is a navigation menu with categories like Home, About XtreamOS, Science and Research, Open Source Software, Publications, XtreamOS-related events, Press room, Collaboration Gateway, Open Positions, Contact Us, Links, and Blog XtreamOS. Below this is an "upcoming events" section listing "OpenSourceWorld" in San Francisco, CA (2009-08-12) and "IWOCE2009 - Open Component Ecosystems" in Amsterdam, The Netherlands (2009-08-24).

On the right side, there is a "news" sidebar with a "Project Status" section dated 2009-06-25, and several news items including "Updated programme for XtreamOS summer school" (2009-08-07), "XtreamOS summit at Euro-Par 2009: Programme" (2009-07-27), "XtreamOS position at STFC" (2009-07-17), "International Master Course in Computer Science and Networking - University of Pisa and SSUP S. Anna" (2009-07-16), and "EuroSys 2010 - Call for Papers" (2009-07-16). A "More news..." link is also present.

Figure 6 Promotion of FIA-related event on XtreamOS website

## Appendix 3: Agenda of the TG8 meeting in June 11, 2009

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# ICT Challenge 1.2 Service and Software Architectures, Infrastructures and Engineering

*Internet of Services 2009*

Collaboration Meeting for FP6 & FP7 Projects  
Brussels, 10 & 11 June 2009

### Working Group: *Virtual Organisation*

Chairs: *Christine Morin* ([christine.morin@inria.fr](mailto:christine.morin@inria.fr)),  
*Lukasz Dutka* ([dutka@agh.edu.pl](mailto:dutka@agh.edu.pl))

### Abstract - Objectives of the Session

*The meeting is intended to summarize collaboration effort during the last years within this group and sketch plans for the future research planed by the group members. There are many projects finishing their activity within next couple months so we need to catch the results in the VO domain.*

### Detailed Agenda

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#### Time

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13:45	Introduction to session
13:50	Presentation of the current group status by the chair
14:00	Presentation of the partners achievements in VO area (20 min presentations) Bartosz Kryza – Project GREDIA Alvaro Arenas – Project XtremOS Alvaro Arenas – Project GridTrust Vladimir Vlassov – Project Grid4All Piotr Nowakowski – Project ViroLab
16:00	Summary of the current group status and plans for the nearest future
16:30	Closing the session