SEVENTH FRAMEWORK PROGRAMME
Research Infrastructures

INFRA-2012-2.3.1 – Third Implementation Phase of the European High Performance Computing (HPC) service PRACE

PRACE-3IP

PRACE Third Phase Implementation Phase Project

Grant Agreement Number: RI-312763

D3.3
First Annual Dissemination and Outreach Report

Final

Version: 0.4
Author(s): Martin Peters, ICHEC, Emma Hogan, ICHEC; Nicola McDonnell, ICHEC; Audrey Gerber, IUCC; Danica Stojiljkovic, IPB; Tiina Leiponen, CSC; Stelios Erotokritou, CaSToRC; Cornelia Staub, RISC/JKU; Michael Krieger, RISC/JKU; Georgi Prangov, NCSA; Leon Kos, ULFME; David Henty, EPCC; Iain Bethune, EPCC
Date: 25.06.2013

Project and Deliverable Information Sheet

PRACE Project	**Project Ref. №: RI-312763**	
	Project Title: PRACE Third Phase Implementation Phase Project	
	Project Web Site: http://www.prace-project.eu	
	Deliverable ID: D3.3	
	Deliverable Nature: Report	
	Deliverable Level: PU *	**Contractual Date of Delivery:** 30 / 06 / 2013
		Actual Date of Delivery: 30 / 06 / 2013
	EC Project Officer: Leonardo Flores Añover	

* - The dissemination level are indicated as follows: **PU** – Public, **PP** – Restricted to other participants (including the Commission Services), **RE** – Restricted to a group specified by the consortium (including the Commission Services). **CO** – Confidential, only for members of the consortium (including the Commission Services).

Document Control Sheet

Document	**Title: First Annual Dissemination and Outreach Report**	
	ID: D3.3	
	Version: 0.4	**Status:** ***Final***
	Available at: http://www.prace-project.eu	
	Software Tool: Microsoft Word 2007	
	File(s): D3.3.docx	
Authorship	**Written by:**	Martin Peters, ICHEC, Emma Hogan, ICHEC; Nicola McDonnell, ICHEC; Audrey Gerber, IUCC; Danica Stojiljkovic, IPB; Tiina Leiponen, CSC; Stelios Erotokritou, CaSToRC; Cornelia Staub, RISC/JKU; Michael Krieger, RISC/JKU; Georgi Prangov, NCSA; Leon Kos, ULFME; David Henty, EPCC; Iain Bethune, EPCC
	Contributors:	
	Reviewed by:	Veronica Teodor, FZJ; Primož Drešar, ULFME
	Approved by:	MB/TB

Document Status Sheet

Version	Date	Status	Comments
0.1	10/June/2013	Draft	
0.3	11/June/2013	Proofed Draft	
0.4	25/June/2013	Final version	

Document Keywords

Keywords:	PRACE, HPC, Research Infrastructure, dissemination, outreach, education, social media

Table of Contents

List of Figures

List of Tables

References and Applicable Documents

[1] PRACE-3IP Dissemination Plan (http://www.prace-ri.eu/IMG/pdf/d3.1.pdf)

[2] PRACE-3IP Outreach Plan (http://www.prace-ri.eu/IMG/pdf/d3.2.pdf)

[3] PRACE website (http://www.prace-ri.eu)

[4] PRACE events service (http://events.prace-ri.eu)

[5] PRACE-1IP Final Dissemination Report (http://www.prace-ri.eu/IMG/pdf/d3.1.8_1ip.pdf)

[6] PRACE-2IP First Dissemination Report (http://www.prace-ri.eu/IMG/pdf/D3-1-3_2ip.pdf)

[7] PRACE Summer of HPC Blog, *Projects*, http://summerofhpc.prace-ri.eu/projects/

[8] PRACE Press Releases, *PRACE Summer of HPC Press Release,* 21/01/2013, http://www.prace-ri.eu/PRACE-Summer-of-HPC

[9] PRACE Summer of HPC Facebook page, https://www.facebook.com/SummerOfHPC

[10] PRACE Summer of HPC Twitter, https://twitter.com/SummerOfHPC

[11] PRACE Summer of HPC LinkedIn group, http://www.linkedin.com/groups/Summer-HPC-4725549

[12] PRACE Twitter, https://twitter.com/PRACE_RI

[13] Outreach Podcast, http://podcast.is.ed.ac.uk:8080/Podcasts/capturED/D744/EPCC/2012-09-14/Supercomputers_in_Science__from_the_Big_Bang_to_Climate_Change-video.m4v

[14] PRACE Wikipedia entry, http://en.wikipedia.org/wiki/Partnership_for_Advanced_Computing_in_Europe

List of Acronyms and Abbreviations

AISBL	Association sans but lucrative (legal form of the PRACE RI)
BSC	Barcelona Supercomputing Center (Spain)
BSCW	PRACE internal document management system
CINECA	Consorzio Interuniversitario, the largest Italian computing centre (Italy)
CINES	Centre Informatique National de l'Enseignement Supérieur (represented in PRACE by GENCI, France)
CMS	Content Management System
CRM	Customer Relations Management
CSC	Finnish IT Centre for Science (Finland)
CSCS	The Swiss National Supercomputing Centre (represented in PRACE by ETHZ, Switzerland)
DECI	Distributed European Computing Initiative
DEISA	Distributed European Infrastructure for Supercomputing Applications. EU project by leading national HPC centres.
EC	European Community
EPCC	Edinburg Parallel Computing Centre (represented in PRACE by EPSRC, United Kingdom)
EPSRC	The Engineering and Physical Sciences Research Council (United Kingdom)
ETHZ	Eidgenössische Technische Hochschule Zuerich, ETH Zurich (Switzerland)
ESFRI	European Strategy Forum on Research Infrastructures; created roadmap for pan-European Research Infrastructure.
FZJ	Forschungszentrum Jülich (Germany)
GCS	Gauss Centre for Supercomputing (Germany)
GÉANT	Collaboration between National Research and Education Networks to build a multi-gigabit pan-European network, managed by DANTE. GÉANT2 is the follow-up as of 2004.
GENCI	Grand Equipement National de Calcul Intensif (France)
GPGPU	General Purpose GPU
GPU	Graphic Processing Unit
GRNET	Greek Research & Technology Network
HET	High Performance Computing in Europe Taskforce. Taskforce by representatives from European HPC community to shape the European HPC Research Infrastructure. Produced the scientific case and valuable groundwork for the PRACE project.
HPC	High Performance Computing; Computing at a high performance level at any given time; often used synonym with Supercomputing
IBM	Formerly known as International Business Machines
ICHEC	Irish Centre for High-End Computing
ICT	EC organised ICT event
IPB	Institute of Physics, Belgrade
ISC	International Supercomputing Conference; European equivalent to the US based SC0x conference. Held annually in Germany.
JSC	Jülich Supercomputing Centre (FZJ, Germany)
KTH	Kungliga Tekniska Högskolan (represented in PRACE by SNIC, Sweden)
LRZ	Leibniz Supercomputing Centre (Garching, Germany)
MB	PRACE Management Board

MoU	Memorandum of Understanding.
NAMD	Not (just) Another Molecular Dynamics program
NDA	Non-Disclosure Agreement. Typically signed between vendors and customers working together on products prior to their general availability or announcement.
PATC	PRACE Advanced Training Centre
PRACE	Partnership for Advanced Computing in Europe; Project Acronym
PSNC	Poznan Supercomputing and Networking Centre (Poland)
RI	Research Infrastructure
RISC	Research Institute for Symbolic Computation
RZG	Rechenzentrum Garching of the Max Planck Society
SC	Supercomputing Conference – annual event held in the USA
SHAPE	SME HPC Adoption Programme in Europe
SNIC	Swedish National Infrastructure for Computing (Sweden)
SoHPC	PRACE Summer of HPC Outreach Programme
SPIP	Système de Publication pour l'Internet Partagé or Participatif
STFC	Science and Technology Facilities Council (represented in PRACE by EPSRC, United Kingdom)
Tier-0	Denotes the apex of a conceptual pyramid of HPC systems. In this context the Supercomputing Research Infrastructure would host the Tier-0 systems; national or topical HPC centres would constitute Tier-1
UCHP	University of Copenhagen, Denmark
UHEM	Ulusal Yuksek Basarimli Hesaplama Merkezi
ULFME	University of Ljubljana, Faculty of Mechanical Engineering
VSB	Technical University of Ostrava (Czech Republic)

Executive Summary

This deliverable entitled the First Annual Dissemination and Outreach Report outlines the work carried out by the PRACE-3IP project from 1 July 2012 to 30 June 2013. As there is a temporal overlap with the PRACE-2IP project a considerable effort has been made to ensure only PRACE-3IP work is reported and in doing so may not reflect the full picture of the work carried out by the dissemination and outreach teams within PRACE during the reporting period.

WP3 is split into two tasks: Dissemination and Outreach. Both have produced plans, Dissemination plan (D3.1) [1] and Outreach plan (D3.2) [2], on M3 and M6 respectively. Following the delivery of the respective plans the two tasks have made significant progress to deliver the work as outlined in the original description of work.

The dissemination task highlights include:

- PRACE Web presence, posters, and brochures were updated with PRACE-3IP project details.
- Transition report developed to accelerate the work requested to transfer the dissemination tasks from the PRACE Implementation Projects to the PRACE AISBL.
- Developing a PRACE social media plan. This included a full analysis of the current social networks and target audience.
- Publishing five articles in national print media using local languages to present HPC and in doing so extends the dissemination reach of PRACE to the general public.
- Planned usage of the PRACE contact database to send out an email based newsletter to all contacts (> 5000 contacts).
- Advertising of PRACE activities has also started within PRACE-3IP including the promotion of the Summer of HPC programme on Facebook and the PRACE training offering in the highly visible magazine Scientific Computing World.

Outreach team highlights include:

- The PRACE Summer of HPC programme was designed and the implementation is currently on-going where 24 students have been placed in 10 HPC centres across Europe.
- Two PRACE Campus Schools and two PRACE HPC Class Days were held to reach out to school going students and the general public.

1 Introduction

The Dissemination and Outreach work package within PRACE-3IP is mandated with the tasks of communicating the results of the entire project, and publicizing the activities of PRACE. This deliverable describes the work carried out by the WP for the first twelve months of the PRACE-3IP project, from 1 July 2012 to 30 June 2013.

The second chapter of this deliverable describes the work of the dissemination team while the third chapter focuses on the activities of the outreach team. The fourth chapter outlines a social media plan for PRACE. The final chapter summaries the work carried out and draws some conclusions.

2 Dissemination

Dissemination activities in PRACE-3IP are divided into six subtasks called the PRACE AISBL Dissemination Transition, Web, Press, Events, Liaising with Journalists, and PRACE CRM.

PRACE-3IP Dissemination activities run in parallel with PRACE-2IP dissemination work. The handover date has been set to 1 July 2013 where PRACE-3IP will become the responsible project for the creation of press releases, newsletters, magazines and web updates. This is set to differentiate the projects even if some of the activities and work are done simultaneously by both projects. The key differences between dissemination in PRACE-2IP and PRACE-3IP include the transition process, advertising, higher usage of social media, liaising with journalists and improved use of the PRACE CRM.

The PRACE AISBL Dissemination Transition subtask has created a working group that has defined the key dissemination activities including website and CRM hosting, magazine production, and event management. The costs of these activities have been estimated both in terms of personnel and subcontracting. This information was collated into a report that was presented to the PRACE council on 12 June 2013 in Jülich, Germany. The outcome of this meeting will direct the subtask for the remainder of the project and so fulfil the definition of the subtask to align the project more closely with the PRACE AISBL.

The events team activity will not be reported in this deliverable as the events held during the reporting period fall under the remit of PRACE-2IP. The first major event to be managed by PRACE-3IP will be ICT13 in Vilnius, Lithuania followed by SC13 in Denver, USA both held in November 2013.

2.1 Web

Figure 1: The PRACE-RI website

The PRACE RI official website [3] is the main channel for communicating information about PRACE activities and its results (both from PRACE IP projects and PRACE AISBL). It also serves as an entry point to other PRACE web services such as the PRACE Training Portal, PRACE Events service [4] and other web pages specifically dedicated to certain activities (e.g. Summer of HPC page [7]). A snapshot of the PRACE-RI web front-page from 10 June 2013 can be seen in Figure 1. The web team within PRACE-3IP is tasked to design a new template to improve its look-and-feel. In doing so a report of the current system and plans for the future is provided below.

2.1.1 *Website Layout*

The PRACE RI website is powered by the SPIP (Système de Publication pour l'Internet Partagé or Participatif) Content Management System version 2.1. Its layout is based on the free SPIP theme called Ahuntsic, which was altered to suit the changing needs of PRACE organisation. The layout is composed of the following components: top bar, left and right sidebar and the main content panel. The top bar is composed of the PRACE banner, search box and top menu with shortcuts to Homepage, Forum, FAQ, Job vacancies, Press Releases, Newsletters, and Contact. The left sidebar is a placeholder for the main menu, while the right sidebar contains banners that highlight upcoming events and important news.

The main content panel of the homepage features an animated slideshow that highlights major PRACE events, publications and scientific projects. Below the slideshow is a placeholder for highlighting announcements (such as open calls), followed by thumbnails linking to the social and mass media with PRACE presence. The remainder of the main content panel lists the latest news from PRACE with short summaries similar to a blog.

The main content panel of a section page is composed of the section description followed by the list of the latest articles in that section and its subsections (with brief summaries). In article pages, the main content panel contains article text, along with the attached photos and links associated with the story.

2.1.2 *Website Structure*

The main menu (left sidebar) was updated during the PRACE-3IP and is carefully structured in order to enable easy browsing through the web site. The whole website is divided into several sections, and each section can contain pages and multi-level subsections.

The first section entitled ‘About PRACE’ contains basic information describing the PRACE association, its organisation, statutes, statistics, and members, along with the information on how to become a new member. The next section is called ‘HPC Access’ and it is dedicated to Tier-0 calls. It contains all information about different types of calls organized by PRACE, resources and prototypes provided, information on ‘Industry Access’, ‘How to apply’ and the ‘PRACE Peer Review’ process. This section also contains the list of successful applicants to previous PRACE calls.

The section ‘PRACE FP7 Projects and Outcomes’ is dedicated to PRACE preparation and implementation phase projects. In this section one will find information about all PRACE FP7 projects (PRACE-PP, PRACE-1IP, PRACE-2IP, PRACE-3IP), all public deliverables produced within those projects, and information about DECI (Distributed European Computing Initiative), Tier-1 access (calls, resources, awarded proposals).

A section dedicated to PRACE users and HPC users in general is named ‘Training and Documentation’. It contains links to the PRACE Training Portal and website dedicated to the Summer of HPC, information about PRACE Advanced Training Centres (PATCs), and a list of all training events organized by PRACE (seasonal schools, PATC courses) linking to the

corresponding pages in the PRACE Events Service [4]. This section is also a home to user-oriented documentation including Best Practice Guides, Whitepapers and how-to user documentation that are products of the technical work packages within the PRACE projects, e.g. WP7 in PRACE-3IP.

Information about major events organized by PRACE such as PRACE conferences, industrial seminars and outreach events are placed in the 'Events' section. In this section, there are also links to other HPC related events that are not organized by PRACE but can be relevant to its users and staff.

The last section, entitled 'Media', contains PRACE promotional material (logo, brochure, posters, and presentations), videos on PRACE, PRACE News (press releases, newsletters, and short announcements), PRACE publications (digest, annual and scientific annual report, and PRACE Scientific Case for HPC in Europe 2012 - 2020), and links to the presentations held at various events.

Logos of PRACE media supporters are listed at the end of the main menu.

2.1.3 *Website Backend Functionalities*

The website administrators and editors have authorized access to the website backend (see Figure 2) for adding and editing content, and for managing website layout and plugins. Many plugins were added in order to improve the website functionality and they are regularly used by the web team. The most useful features of the website backend are listed below.

Figure 2: Snapshot of the PRACE RI website backend

- **Contact form** enables website visitors to send a short message to the website administrators (info@prace-ri.eu).

- **Anything Slider** plugin is used to enable the animated slideshow on the homepage, linking the sliding images to the featured content.
- **Babibel Dropdown** enables the submenu popup when a visitor places his/her mouse over the item in the main menu. This is used to reduce the size of the left menu, while keeping it easy to browse through the sublevels.
- **URL éditables** plugin allows for the pages to have multiple customized URLs.
- **RSS Syndication** is the built-in feature for importing the RSS feeds from another website. This is used for displaying the list of other media news related to PRACE and also for importing the links and short summaries of past and upcoming PRACE training events from the PRACE Events Service [4]. In this way, updating of the training events lists is fully automated.
- **Fullcalendar** imports the list of events from PRACE Events System and displays it as a calendar (Figure 3).

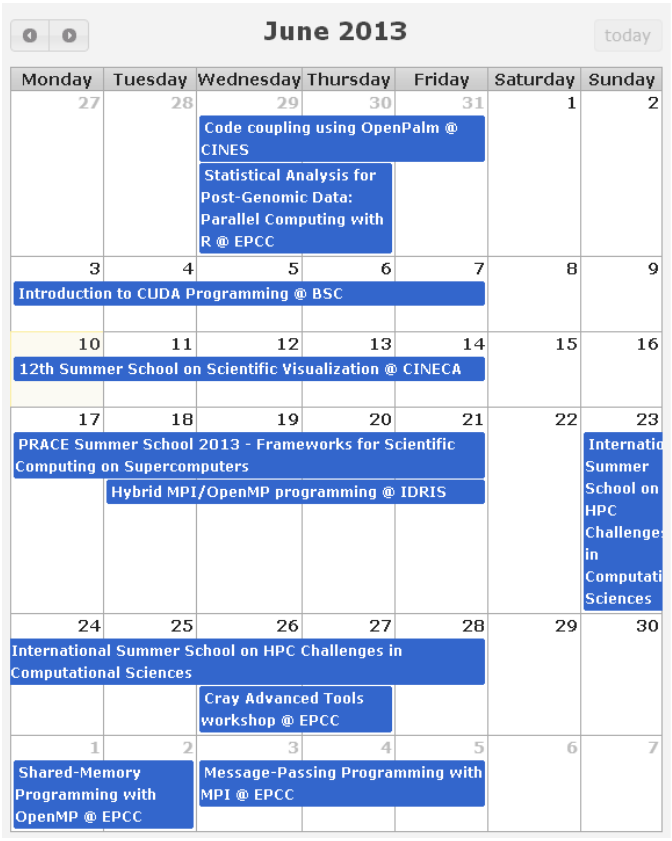

Figure 3: Calendar of training events

- **Clevermail** plugin is used for sending out the information on the latest Press Releases, Newsletters and Call Alerts to the email addresses of the subscribers. Any visitor of the website can easily subscribe to receive this information by filling in their email address in the subscription form.
- **Formidable** plugin is used for creating different kind of forms (registrations, short surveys, applications, etc.). The submitted data can be saved in the database and/or sent directly to the provided email address.
- **Media library** is used for easy uploading and updating of images and files.

- **Menu Accordion** plugin enables the extendable sections within the page content (show/hide or Read More buttons), making the page more compact. This is very useful especially on the "PRACE Awarded Projects" page which displays a long list of projects, accompanied by abstracts and further details that become visible for a selected project after clicking on the "Read more" link.
- **Polyhierarchy** plugin enables one article to belong to different subsections.
- **Statistics** is a built-in feature, providing basic information on the number of visits (per page and total), incoming links distribution and most visited pages. From May 2013 **Google Analytics** plugin is installed, and more advanced statistics became available, like geographical distribution of visitors and average time of viewing pages – see Figure 4. More detailed analysis will be provided on M24 in D3.4.

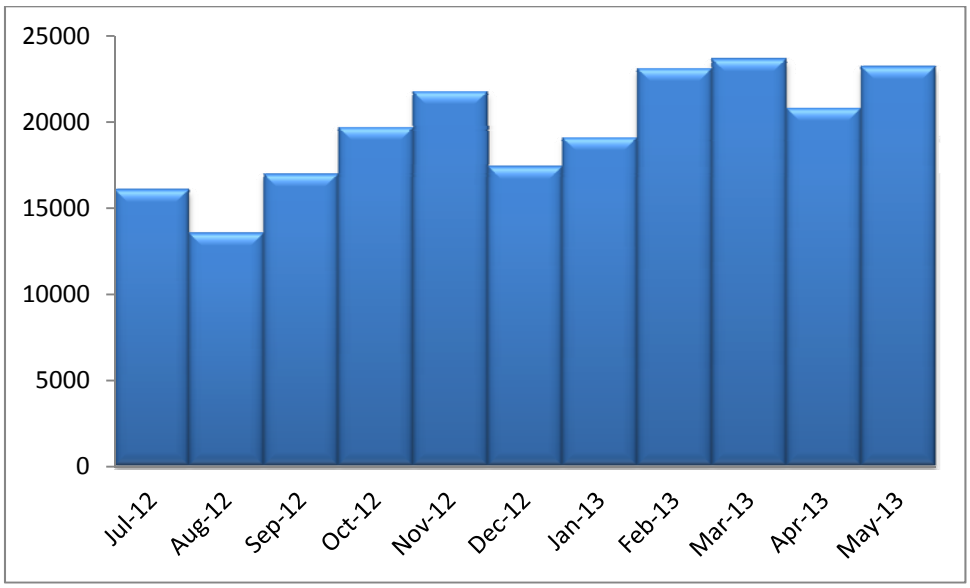

Figure 4: Total number of monthly visits to the PRACE RI website

2.1.4 *Plans for Website Migration*

The PRACE website [3] is used to publish activities of PRACE IP projects and PRACE AISBL. The CMS used to power the website is SPIP version 2.1 which was simple to setup and it was initially able to satisfy the modest needs of the PRACE dissemination team. As the PRACE website has grown in terms of content, it was necessary to add new features, such as allowing visitors of the website to subscribe to receive PRACE newsletters, press releases and call alerts by email, enabling online registration to various events, easier management of document and media files, enhancing content visualisation, configuration of multiple URLs for single web page, etc. These features were added by installing suitable plugins that are offered by the SPIP community, or by implementing some tweaks and workarounds.

However, it was not possible to meet some demands for better visual appeal and a number of flaws of the SPIP CMS were revealed, which makes it unsuitable as a long term solution for PRACE website. Some major flaws include:

- Backend editor of webpages is basic and good knowledge of HTML and CSS is required for achieving desired appeal.
- Website layout is rigid and knowledge of HTML, CSS, PHP and SPIP template coding is necessary to make changes; furthermore these changes have to be done on the host and are not possible from the backend interface.

- Backend is not intuitive and it is difficult for new users/editors to get started.
- Database of available plugins doesn't cover all PRACE website look-and-feel needs.
- There is no suitable plugin for displaying website on mobile devices which is compatible with the current SPIP theme (Ahuntsic).
- In some cases the workarounds used to achieve certain effects are not elegant and they require specific knowledge which makes the maintenance of the website difficult and sometimes it is impossible to achieve desired visual appeal of a newly added content.

For these reasons it is strongly suggested to migrate the PRACE website to a different CMS which would have an intuitive backend making it easy to use, create dynamic content, enabling effortless site maintenance and providing professional and modern look-and-feel, without losing any of the features that are currently available. The most popular Open Source CMS that would overcome all flaws enlisted above would be WordPress. It is very easy to set up and use, has rich extension and theme libraries and versatile layouts and requires very little or no advanced knowledge. A decision to progress the migration that aligns with the PRACE communications strategy will be taken during the remainder of the PRACE-3IP project.

2.2 Press

During the reporting period the press team has published 19 press releases, two magazines, and updated and distributed printed promotional material. Even though the PRACE Digest magazines 2 and 3 are PRACE-2IP WP3 efforts, it was partially accomplished with PRACE-3IP WP3 effort as some of the articles were written by partners only involved in PRACE-3IP. The press team is also working on defining the design guidelines for PRACE, advertising the activities of PRACE and liaising with national journalists, which are discussed further below. The social media plan developed by the team in presented in Section 0.

2.2.1 *Press Releases*

PRACE has published 19 press releases during the reporting period of which five (**highlighted in bold**) are directly related to PRACE-3IP activities:

- 4 July 2012 - PRACE Scientific Annual Report 2012 now available!
  - http://www.prace-ri.eu/PRACE-Scientific-Annual-Report,349
- 16 July 2012 - Third Annual HPC Summer School welcomes 60 students from 4 continents
  - http://www.prace-ri.eu/Third-Annual-HPC-Summer-School
- 18 July 2012 - PRACE and XSEDE call for Expressions of Interest for Joint Access by International Teams
  - http://www.prace-ri.eu/PRACE-XSEDE-EoI
- 19 July 2012 - CURIE spices up PRACE portfolio
  - http://www.prace-ri.eu/inauguration-CURIE
- 20 July 2012 - Europe's fastest supercomputer SuperMUC gives PRACE a head start.
  - http://www.prace-ri.eu/inauguration-SuperMUC
- 29 August 2012 - PRACE system equips science to face the tempest (Featured Projects)
  - http://www.prace-ri.eu/PRACE-system-equips-science
- 17 September 2012 - PRACE partners aim high for HPCWire's Reader's Choice Awards 2012
  - http://www.prace-ri.eu/HPCWire-Reader-Choice-Awards
- **22 October 2012 - Warm welcome for 25th PRACE Member: Belgium!**

  - http://www.prace-ri.eu/Belgium-new-member
- 29 October 2012 - PRACE Regular Call 5: records galore!
  - http://www.prace-ri.eu/PRACE-Regular-Call-5-allocations
- 13 November 2012 - HPCwire's Readers' and Editors' Choice Awards 2012: PRACE partners receive well-deserved recognition!
  - http://www.prace-ri.eu/HPCwire-Award-Winners-2012
- 27 December 2012 - Most Innovative Industrial HPC End-User Application in Europe - Open Competition in conjunction with 5th PRACE Executive Industrial Seminar
  - http://www.prace-ri.eu/Most-Innovative-Industrial-HPC-End
- **21 January 2013 - PRACE Summer of HPC**
  - http://www.prace-ri.eu/PRACE-Summer-of-HPC
- **4 February 2013 - Training available for students in U.S., Europe, and Japan at International Summer School on HPC Challenges in Computational Sciences**
  - http://www.prace-ri.eu/Training-available-for-students-in
- 28 February 2013 - PRACE 6th Regular Call: growing scientific wingspan
  - http://www.prace-ri.eu/PRACE-Regular-Call-6-allocations
- **11 March 2013 - PRACE´s Open R&D HPC access for industry awarded in a European e-Infrastructure FP7 Project Success Story Competition**
  - http://www.prace-ri.eu/FP7_SuccessStory_Winner
- **7 May 2013 - PRACE Autumn School 2013**
  - http://www.prace-ri.eu/PRACE-Autumn-School-2013
- 15 May 2013 - PRACE 5th Industrial Executive Seminar HPC changing Europe's industrial landscape
  - http://www.prace-ri.eu/PRACE-5th-Industrial-Executive-Seminar-HPC-changing-Europe-s-industrial-landscape
- 3 June 2013 - PRACE: veni, vidi, vici
  - http://www.prace-ri.eu/veni-vidi-vici
- June 2013 - The PRACE Scientific Conference with success stories and strategies in European HPC
  - http://www.prace-ri.eu/PRACEday2013

2.2.2 *Design Guidelines*

Since the beginning of PRACE projects, specific dissemination guidelines were created by the advertising agency that provided the look-and-feel of PRACE, Up-to-point Oy in Finland. The use of PRACE logo and design guidelines have been presented in detail in the First dissemination report in PRACE-1IP and in PRACE-2IP in the dissemination kit. These include the use of PRACE map, blue and orange colouring, a curved orange line as the basic guidelines of brochures, posters and rollups as well as other material. In PRACE-3IP the guidelines were complemented by the guidance from PRACE Project Council Chair, Catherine Rivière and previous Managing Director, Maria Ramalho. These include the following:

- The use of PRACE map banner as the indent in every PRACE publication. This meant that the PRACE newsletter, PRACE Digest and all the project materials should look alike in the cover upper indent. Also the PRACE AISBL materials should share this guideline.
- Removing the image of the girl from the background of the map window.
- It was decided that the PRACE flyer should not reflect the project details any more, but rather present the special activities of PRACE such as the SHAPE (**S**ME **H**PC **A**doption **P**rogramme in **E**urope).

- PRACE social media preliminary guidelines were created and will be presented in more detail later in this document.
- The graphic design of PRACE AISBL will be confirmed after the PRACE communications strategy work is completed and approved by the PRACE Council.

2.2.3 *PRACE Magazine*

The Second PRACE Digest magazine, 1/2013 (Deliverable of PRACE-2IP WP3) was published in February 2013 with 40 pages. The front cover can be seen in Figure 5 (LHS). The PRACE Digest 1/2013 presents Tier-1 or DECI project results as well as Tier-0 or PRACE resource allocated results. The following list outlines the content of the magazine:

- Editorial by Maria Ramalho
- Paving the Way toward Third Generation Photovoltaic Power?
- How does Turbulence effect star formation?
- Calculating the Climate Change scenarios
- Impact of the Indonesian Through flow on the Global Ocean Circulation
- Material research helps to Create stronger structures
- Splitting Water
- Harnessing High Performance Computing architectures for Earth Climate system simulations
- Simulating activity on the sun with large Plasma models
- PRACE's Training Programme offers a versatile Education in supercomputing
- In search of Ligands that prevent Blood clotting
- Black holes as Guinea pigs
- Supercomputers help reveal Dinosaur mechanic

The Third PRACE Digest 2/2013 was published in April 2013 presenting the industrial use cases. The magazine was designed and produced for the Industrial Seminar in Stuttgart, 15 April 2013. The front cover can be seen in Figure 5 (RHS). The Magazine included 40 pages and presented the following industrial use cases of resource allocations and applications:

- PRACE Computing Resources Available to the Industry, editorial by Catherine Rivière
- Long-term Partnering with Industry
- Helping Industry to Manage the Risk of Pluvial Floods
- Pursuit of Better Flow
- Faster and Open Engine Simulations for Automotive Industry
- Building Faster and Safer Complex Structures
- Identifying new Application for known Drugs
- A Popular Open Source Multiphysical Simulation Software
- Optimising Simulation Software: Fluid Dynamics and Heat Transfer
- Innovative Large Scale Hydrodynamic Simulations
- Designing safer Cars with
- Accurate Crash Test Simulations
- Xcelerit Unleashes the Power of Many-Core Hardware
- Simulating Large-Scale Seismic Events

Figure 5: The Second (LHS) and Third (RHS) PRACE Digest Magazine

2.2.4 *Printed Material*

PRACE has currently 25 members and six Tier-0 supercomputers. All printed material was updated to reflect recent changes such as the inauguration of the new supercomputer in Barcelona called Mare Nostrum and to include the details of the PRACE-3IP project. These materials are given to delegates at major events such as ISC, SC, and ICT in addition to training events and other national meetings. The PRACE brochure describes the projects and its major achievements and milestones shown in Figure 6. The three posters were updated as shown in Figure 7-9. Brochures and posters were circulated to partners for display and distribution at local events.

Figure 6: Updated PRACE brochure

Figure 7: The first PRACE poster

Figure 8: The second PRACE poster.

Figure 9: The third PRACE poster.

Figure 10: The PRACE folder design

The PRACE folder was updated with the design shown in Figure 10. This is used to distribute printed material including writing pads, brochures, USBs, and pens at events including PRACE Advanced Training Centre (PATC) events and seasonal schools.

2.2.5 *Advertising*

Advertising is a new focus for the dissemination team within PRACE-3IP. With a modest budget it is designed to place PRACE in the spotlight of people that would otherwise not see it, e.g. young students. The first example of advertising was carried out with Facebook to promote the Summer of HPC programme with more details provided in Section 3.1.3.

The second advertisement focused on traditional printed material where the training offering of PRACE was presented. The advertisement was placed in the Scientific Computing World ISC13 magazine as shown in Figure 11.

PRACE marketing and advertising activities for the remainder of the project will focus on selected events like such as the PRACE Scientific Conference and Industrial Seminar, ISC or SC using print and digital media.

Figure 11: Scientific Computing World Full Page Advertisement.

2.2.6 *Liaising with National Journalists*

The goal of the liaising with national journalists subtask is to place information about PRACE into national newspapers in their local languages. The stories should contain information about PRACE projects and scientists working on PRACE resources. Furthermore, the connection between scientists and journalists should be enabled to facilitate interviews to allow the message to be received by the general public. Using local languages enables the spread of the message, as the majority of European citizens don't read daily or weekly English publications. Suitable publications are daily or weekly newspapers which contain sections for technology and research. Content of articles was not limited to specific PRACE projects in a country, but also general information about PRACE as a whole.

Strategy

A 4-stage strategy that was successful applied by ICHEC (Ireland) was taken up by all partners to publish articles. This strategy is a waterfall model where each steps leads into the next as shown in Figure 12.

1. Newspapers: Identify target publications
2. Journalist: Identify journalists with a proven track record in covering science or education
3. Scientist: Identify national scientists working with PRACE resources
4. Story: Liaise between journalist and scientist(s)

The list of newspapers and journalists from all countries, in addition to the list of stories and scientists were collected and uploaded to the project's internal document management system.

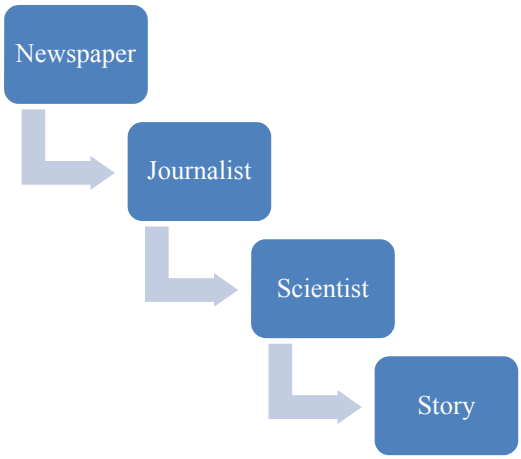

Figure 12: Scheme to interact with national journalists

Progress to Date

In the first 12 months the focus of the subtask was to gather the contact information of newspapers, journalists and scientists. 10 out of 11 subtask members got contact information of suitable newspapers and journalists. The subtask team published five articles in national newspapers.

Country	Newspaper	Journalist	Scientist	Stories	Media Clippings
Austria	✓	✓	✓	✓	✓ (1)
Czech Republic	✓	✓	✓	✓	✓ (1)
France	×	×	×	✓	×
Hungary	✓	✓	×	✓	× (May/June)
Ireland	✓	✓	✓	✓	✓ (1)
Israel	✓	✓	×	✓	× (June)
Italy	✓	✓	×	✓	×(May/June)
Poland	✓	✓	✓	✓	×
Serbia	✓	✓	×	✓	×
Slovenia	✓	✓	×	✓	✓ (2)
Turkey	✓	✓	✓	✓	×

Table 1: Liaising with journalists Status at M12

Austria

The organisation and coordination of the subtask team carried out by JKU/RISC.

The activities for the subtask in Austria were manifold:

- The website www.austriangrid.at was started to spread news concerning Grid, Cloud and High Performance Computing to Austrian experts and journalists, which also contains news about PRACE.
- Spreading news about PRACE in different channels like newsletters, Facebook page, website, via specific networks and in personal presentations.
- Translating general texts and brochures of PRACE into German to pass it to the journalists.
- Furthermore initiating a press publication:
  1. Contacting a scientist in Austria who is working as a collaborator on the Project "MAGICS" (Preparatory Access – 11th cut-off) at the medical University in Graz, Austria.
  2. The Scientist sent general information about this project and agreed on bringing it to a newspaper.
  3. Contacting a journalist who wrote former articles about related projects and offered him/her general information about PRACE and the contact to the scientist and his project.
  4. The journalist was interested in the story and got the information & contact data.
  5. The journalist contacted the scientist and published two articles – one about the project and one about PRACE in general. The media clipping can be found in Annex 6.1.

Czech Republic

VSB is currently in the process of building relationships with the Czech media. Therefore it was decided to focus on specialised magazines when it comes to articles about PRACE. VSB contacted a magazine for investors interested in Czech Republic and they have published a one-page article consisting of general information about IT4Innovations and PRACE as well. The media clipping can be found in Annex 6.2.

Ireland

A list of national newspapers was drawn up and the scientific content, audience demographic and circulation information analysed to develop a top three list to target.

Once the target publications were identified, ICHEC looked through the science content for the previous three months and created a shortlist of journalists who have previously written on science topics. The first choice journalist Peter Lynch was contacted through the director of ICHEC and was interested in the story. Therefore no further steps were required. A sample email was prepared to contact journalists directly should personal contacts be exhausted.

Next, Irish scientists with significant PRACE awards were listed. A shortlist was established and some brief information about the scientist and their work prepared. This information was passed on to the journalist to help develop the story. An email was prepared to contact scientists to obtain their consent and/or willingness to speak to a journalist. However, the finalised story did not contain identifiable information and consent was not required

The journalist and the editorial staff at the Irish Times decided on the specific article content. They were provided with background information and sample articles ICHEC were available to arrange interviews with scientists should he required it. ICHEC also provided feedback on the draft article.

Peter Lynch's article "Computers essential to advances in research" was published in the Irish Times' Science Today section on 7 February 2013. The media clipping can be found in Annex 6.3.

Slovenia

ULFME published articles in the Ventil and IRT3000 magazines in April 2013 with general stories of PRACE activities in Slovenia. Quark magazine will also have an extended version of 1.5 page article published in summer 2013. Media Clippings can be found in Annex 6.4. Details of the magazines are listed below:

1. Magazine »Quark« - Mr. Boris Čerin / Biyearly issuing magazine about research and development in Slovenia. In English. 100 pages.
2. Magazine Ventil – Roman Putrih / Ventil is a scientific as well a professional magazine, publishing the results of research-and-development work at universities, institutes and companies on fluid power, automation and mechatronics.
3. Magazine IRT3000 – / The main topics passed to the readers by the magazine are innovation, development, manufacturing technologies, tool making and machine building.

Plans for M13-M24

JKU/RISC will attempt to publish an article about the work carried out in WP7 about "socio-economic challenges" where colleagues from JKU are mainly involved. But JKU is required to wait for first results that can be offered to the press. As the cooperation with the local press is strengthened and JKU is planning even more collaboration with a certain local newspaper, it is expected that this story will be published in autumn 2013.

VSB will continue the cooperation with specialised newspaper and magazines. The Technical Weekly (which is a weekly newspaper dedicated to industry and technical advancements) will be contacted and offered a wider range of topics not only PRACE general information but also information about the projects of Czech scientists using the PRACE infrastructures. Additionally, the Czech Republic is hosting the PRACE Summer School in June 2013 that is expected to have some coverage from this event at local newspaper level.

IUCC as Israel's NREN and a national inter-university resource will highlight its recent membership in PRACE, Grid computing and HPC in general in the coming months. Towards this goal, IUCC is in consultation with a local PR agency and together is currently considering several angles to approach local journalists for a feature piece. It is estimated that this will begin to bear fruit in mid to late 2013.

NIIF decided to work up a project description (including interviews) and sent it to the MTI (Hungarian News Centre), which is a national-wide press agency where all journalists obtain information. They chose scientists whose research recently appeared in the latest PRACE Digest. The plan is to have an interview with Adam Gali and Márton Vörös (Paving the Way toward Third Generation Photovoltaic Power).

NIIF will take advantage of one of the following future events to also get in contact with journalists:

- **Researchers' Night,** September 2013 - NIIF will participate on this event and host an HPC class too, so they are counting on getting into the news with these.
- **International HPC Summer School**, summer 2014 - Hungary is ear marked to host the next Summer School, which will draw the attention of the press.

In Serbia it is planned to promote PRACE and HPC in general when IPB inaugurates their new HPC system. This is expected to take place in summer 2013. In addition to this news story it is planned to publish a one or two page article about the importance of HPC for science and industry.

CINECA has decided to focus on a PRACE project coordinated by Matteo Ceccarelli due to the fact that his research subject is very appealing to the general public and that he is an early

stage researcher. He informed CINECA that he just submitted a project to the regular call and results out of this project can be used for future press releases.

In Slovenia, ULFME are proposing the following stories to journalists:

1. Interviews with Successful HPC users:
   - Prof. Iztok Žun - Chair of Fluid Dynamics and Thermodynamics, ULFME Ljubljana
   - Mr. Tomi Ilijaš – general manager of the company Arctur and SME contact in EU-China HPC collaboration initiative - http://www.arctur.si/eng/
2. Summer of HPC 2013 in Ljubljana, Slovenia – 6 July – 31 August 2013 where three students will be visiting Slovenia for the internship programme.
3. PRACE Autumn School 2013 in Ljubljana, Slovenia – 23-27 September 2013 where an industry focused PRACE seasonal school will present an opportunity to present PRACE to the public in Slovenia. The school will teach computational fluid dynamics, structural mechanics and electromagnetics which will enable students to work within the automotive, aerospace and energy fields.

2.3 PRACE CRM

During the past twelve months, the PRACE CRM (Customer Relationship Management) activities have been carried out as planned. The regular operation of adding new contacts has continued. New contacts have been added from contact details collected from various conferences (such as ISC12 and SC12 and the 4th PRACE industrial seminar) in addition to PRACE seasonal schools and PATC training events contacts.

The PRACE CRM – as of 1 June 2013, stores the details of 5088 contacts and these are tagged using a number of identifiers. Table 2 lists all these identifiers and the number of contacts tagged with each one. It should be noted that a contact may be tagged with more than one identifier.

Type of Contact	Number of Contacts
SC08 contact	59
ICT 2008 contact	43
ISC 2008 contact	25
Scitech 2009 contact	389
SC09 Treasure Hunt contact	20
SC09 contact	187
ISC 2009 contact	130
ICT 2010 contact	73
ISC 2010 contact	147
SC10 contact	215
SC11 contact	468
ISC 2011 contact	225
DEISA PRACE Symposium 2011 contact	189
ISC 2012 Contacts	249
SC12 Contacts	565
PRACE Day 2012 contact	206
2012 - 4th PRACE Industrial Seminar contact	76
PRACE Training Event Attendees	2170

Table 2: Contact identifiers used in the PRACE CRM

The 5088 PRACE CRM contacts reside in 80 different countries. Table 3 describes the number of contacts stored in the PRACE CRM based on PRACE represented countries and continent.

Country	Number of Contacts
PRACE Partner Countries	3422
Other European Countries	157
Africa	56
Asia	294
Australia	22
North America	584
South America	24
Country Not Available	529

Table 3: Country of origin of stored contacts in the PRACE CRM.

Further to the above, the details of at least 300 industrial contacts are stored in the PRACE CRM. Examples include contacts from IBM (working at different international branches), Mellanox, Boeing, Rolls Royce, Goodyear and many others.

In December 2012, the mass mailing capability of the PRACE CRM was used to send a "PRACE Season's Greetings" card to all contacts, see Figure 13. This allowed for a thorough maintenance of the contact details to be carried out. This included:

- Identification and deletion of any duplicate entries
- Identification and deletion of erroneous data, e.g. name-email mismatch or spam email addresses
- Deletion of invalid contacts:
  - As contact details have been collected from PRACE 1IP it is expected that some of the details will no longer be valid. Contacts change their organisation when they change their jobs and thus their previously stored emails are no longer valid.
  - Such details were identified through the "Mail Delivery Subsystem" automated messages received when the "PRACE Season's Greetings" was sent. Close to 350 contacts were removed in this manner.

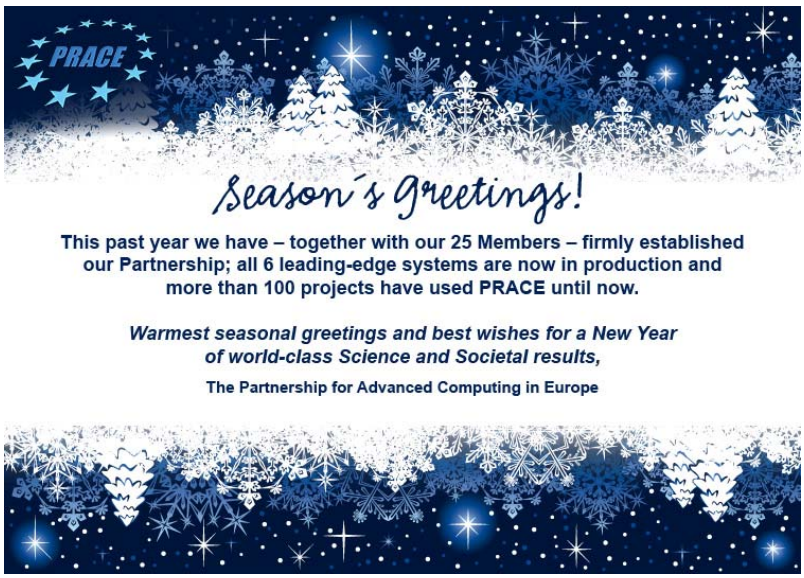

Figure 13: PRACE Season's Greetings card sent using the PRACE CRM December 2012

Due to the wide geographical spread and large number of contacts stored in the PRACE CRM, the use of its mass mailing capability will act as a very useful and effective dissemination tool for PRACE. Plans to send a bi-monthly PRACE Newsletter to all PRACE CRM contacts using this capability are being discussed. The first such newsletter is scheduled (upon PRACE Board of Directors approval) to be sent to all contacts in June/July 2013.

The PRACE CRM has also been used to update the prace-training-announce mailing list that is currently used by WP4 to advertise forthcoming PATC events. Through the appropriate PRACE CRM tagging of previous training event participants, when requested the mailing list was able to grow in size from 1100 members to 2170 members – thus allowing for better dissemination of PRACE/PATC training events throughout Europe and beyond.

In closing, the PRACE CRM has also been migrated from external hosting in Germany to hosting on the Cyprus Institute's premises. This has been implemented to allow for better security to be in place upon the stored contact details. The main reason why this was implemented was to allow for LDAP user details (stored by WP6) to be provided to WP3 so these details could be stored in the PRACE CRM. The exchange of this data is dependent upon a security audit of the Cyprus Institute security infrastructure, which is on-going. The possibility of merging the PRACE CRM data with other lists of contacts will be carried out, however, whether we will be able to use a contact from another list will have to be looked into. This will depend on the consent that was given by a contact when they provided their details to the respective list.

3 Outreach

The outreach activities in PRACE-3IP are divided into two subtasks namely the PRACE Summer of HPC and the PRACE Campus Schools and HPC Classes. Details of both subtasks are provided below.

3.1 PRACE Summer of HPC (SoHPC)

The PRACE Summer of HPC (SoHPC) programme set out to offer undergraduate and junior postgraduate university students the opportunity to spend two months of summer 2013 at a HPC centre in a PRACE partner country. Students will undertake a visualisation project, based on the outcomes from PRACE technical work or other work using PRACE resources (where possible), under supervision of a Project Mentor. This end product will be available to PRACE for use in further outreach and dissemination activities.

The primary goal of the SoHPC is to ensure a positive experience for all students and through that experience to encourage them in their path to become the next generation of HPC users.

3.1.1 *Current Status*

The PRACE Summer of HPC has been a great success to date. It is currently in preparation for phase three of its four-phase programme (1. Select Projects, 2. Select Students, 3. Project Work, 4. Follow-on), outlined in D3.2 [2], with phases one and two completed and reported on below.

During the implementation of phases one and two the number of available student positions has increased from twenty, as originally planned, to twenty-four. Twenty-four students have been assigned to 21 projects at ten sites across Europe. 198 student applications, of which 189 were valid, were received and the dedicated SoHPC website has received over 10,000 unique visitors. This is over 4.5 times the number of anticipated applications as forecasted in D3.2 [2]. Due to the large response, the programme has received additional assistance from PRACE partners in the form of administrative effort. The successful applicants will begin their placements in July 2013. The programme will culminate with the presentation of their results at the end of August. It is envisaged that relationships with students, as well as further promotion and dissemination of the programme's results will be maintained through activities in the follow-on phase. The programme has to-date far exceeded its initial success metrics. The work will continue to ensure that the programme continues to be a success. Feedback has been received at all stages of the process and will be used to create a manual outlining how to improve and administer the programme in the future.

3.1.2 *Project Selection*

The six stages of the Project Selection Process outlined in D3.2 [2] have been completed.

Identifying Sites, Site Co-ordinators and Project Mentors
The Irish Centre for High End Computing (ICHEC), as Programme Co-ordinator sought PRACE partner countries to host students for the Summer of HPC. The ten sites listed in Table 4 came forward to host students. Students in Hungary, Italy, and Turkey will work together on the same project, as the workload is sufficient for two students. A guide on how to run a visitor programme entitled: 'A Guide to Hosting a Summer of HPC student' was developed and provided to sites. It is also available to partners through the project's internal document management system.

Country	Organisation	Number of Students	Number of Proposals
Czech Republic	VSB-TUO	2	2
Denmark	UCHP	2	2
Hungary	NIIF	2	1
Ireland	ICHEC	3	3
Italy	CINECA	2	1
Serbia	IPB	2	2
Slovenia	ULFME	3	3
Spain	BSC	2	2
Turkey	UHEM	2	1
UK	EPCC	4	4

Table 4: Host Sites

Each site nominated a Site Co-ordinator to manage the hosting process in their organisation. Site Co-ordinators identified potential Project Mentors, who then developed and submitted project proposals. A complete list of projects, Project Mentors and Site Co-ordinators is available in Table 5.

Site	Full Project Name	Mentor	Site Co-ordinator
Czech Rep	Visualization of air pollution models using volumetric rendering	Dušan Fedorčák	David Horák
Czech Rep	Visualization of large data sets from CFD simulations using OpenFoam and Paraview	Tomas Karasek	David Horák
Denmark	Accelerate routines within the CCSM4 project using GP-GPU	Mads Kristensen	Brian Vinter
Denmark	Parallel K-means Clustering in Computational Astrophysics	Mads Kristensen	Brian Vinter
Hungary	Visualization and Performance Analysis of PRACE Material Science Community Codes: Quantum Espresso and Siesta	Gabor Roczei, Ivan Marton, Tamas Hornos	Tamas Maray
Hungary	Visualization and Performance Analysis of PRACE Material Science Community Codes: Quantum Espresso and Siesta	Gabor Roczei, Ivan Marton, Tamas Hornos	Tamas Maray
Ireland	Visualising Large OpenFOAM Models using Paraview	Michael Moyles, Paul Nolan	Simon Wong
Ireland	Profiling the hybrid Molecular Dynamics code, DL_POLY, on heterogeneous cluster	Michael Lysaght	Simon Wong
Ireland	Scalable visualization of Climate data using OPeNDAP-enabled Paraview	Alastair McKinstry	Simon Wong
Italy	Visualisation of 3D-3V simulations of plasma turbulence	Giuseppa Muscianisi	Paola Alberigo
Italy	Visualisation of 3D-3V simulations of plasma turbulence	Giuseppa Muscianisi	Paola Alberigo
Serbia	Calculation and visualization of the electronic structure of C60 with GPAW	Antun Balaž	Antun Balaž

Site	Full Project Name	Mentor	Site Co-ordinator
Serbia	Visualisation of electron-phonon coupling in organic semiconducting materials	Nenad Vukmirović	Antun Balaž
Slovenia	Upgrades of the VisIt Universal Access Layer reader plugin	Leon Kos	Leon Kos
Slovenia	Visualization support for scientific workflows with VisIt Kepler Actor	Leon Kos	Leon Kos
Slovenia	Wind Loading on a Solar Tracker	Boris Jerman	Leon Kos
Spain	Task Based Parallelization using a top-down approach	Rosa M. Badia	Renata Giménez
Spain	Parallelization of Facial Attribute Classifiers	Nacho Navarro	Renata Giménez
Turkey	Simulation and visualization of bioflow in coronary arteries	M. Serdar Çelebi	Emre Onat
Turkey	Simulation and visualization of bioflow in coronary arteries	M. Serdar Çelebi	Emre Onat
UK	Timeline profiling and visualisation in Python	Lawrence Mitchell	Irina Nazarova/ Catherine Inglis
UK	Dinosaur racing to demonstrate the role of HPC in simulation	Nick Brown	Irina Nazarova/ Catherine Inglis
UK	Multi-platform parallel code coverage and regression testing with CP2K	Iain Bethune	Irina Nazarova/ Catherine Inglis
UK	Looking inside a Liquid Crystal Display with Paraview	Oliver Henrich & Kevin Stratford	Irina Nazarova/ Catherine Inglis

Table 5: SoHPC Projects

Identifying Projects

It was initially envisaged that each site would propose two projects requiring the participation of one student in each. However in some cases the proposed projects' implementation required two students and in these cases, the corresponding country submitted only one project proposal. In other cases, there were many proposed project ideas and additional project proposals were submitted with the intention of reducing the number after the Project Proposal Evaluation Phase. In total, twenty-one project proposals were submitted by 31 December 2012. These 21 proposals gave the programme the potential to host twenty-four students (see Table 5 above).

Evaluating Projects

The project evaluation plan had foreseen a meeting of a panel of all Project Mentors and Site co-ordinators that would evaluate the proposals. However, after careful consideration it was deemed more efficient to deal with the Project Proposals on a case-by-case basis initially and then request further comments by all other members of the panel. Leon Kos, the Project Selection Co-ordinator (ULFME) in collaboration with the Project Co-ordination team (ICHEC), initially reviewed all the Project Proposals. The Project Selection Co-ordinator liaised with Project Mentors to make amendments and improvements and all twenty-one proposals were finalised.

Although the initial programme was designed to accommodate twenty students, due to the quality of the proposals, a decision was made to retain all project proposals and then reduce the number (if necessary), at a later stage, once student interest had been gauged at the close of applications.

Project Proposal forms were again reviewed and the pertinent information for students was selected and posted on the dedicated blog [7], further details of the blog are provided in Section 0 below. These pages were made available to Project Mentors prior to publication and Project Mentors were invited to submit feedback on their own and others proposals. Additional edits to the project proposals and the website were made a result of this feedback process in advance of the launch of the programme.

Reaching Potential Applicants (Students)

Once the Project Selection phase was completed, the programme was advertised to potential applicants i.e. late-stage undergraduate and early-stage postgraduate students studying at European institutions. The announcement was implemented in two phases. The first phase included preliminary information about the programme, while the second phase was the official opening of the application process. The programme was initially announced on the 20 December 2012 with general information available via the dedicated SoHPC blog [7]. A flyer (see Figure 14) was distributed to all partners of the PRACE-3IP project, to facilitate efficient dissemination through national channels. Each Partner tailored the message and dissemination channels to best suit the target audience in their own country. Some examples of dissemination efforts included email lists, direct contact with university lecturers, contacting university careers services, social media and speaking to university computing and science societies.

Figure 14: Summer of HPC Flyer

In line with the objectives of PRACE-3IP WP3, social media channels were also set-up and used to reach students including Facebook [9], Twitter [10], and LinkedIn [11]. More information on the social media campaign can be found in Section 0.

3.1.3 *Student Selection*

The six stages (1. Call for Applications, 2. Application submission, 3. Applications reviewed, 4. Student assignment, 5. Student interviews, 6. Student registration) of the Student Selection phase, outlined in D3.2 [2] have also been completed.

The Call

The call for applications was made on the 25 January 2013. The opening date was advertised by a press release [8] on 21 January 2013 and by a banner on the PRACE homepage [3] in addition to popular social media channels [9][10][11]. A Facebook advertising campaign was undertaken to advertise the opening of applications targeting 18-25 year old students in Europe. The image and text that appeared on Facebook is shown in Figure 15.

Figure 15 SoHPC Facebook Advertisement

The demographics of applicants were monitored throughout the applications process and an additional Facebook advertising campaign was undertaken to address underrepresented groups, namely women and European countries from which there had been no applicants.

Applications

Applications were accepted via online document submission implemented within the Summer of HPC Blog [7]. Students submitted their CV, application form as a word document and code test. Applications opened on 25 January 2013 and had an initial deadline of 17 February 2013. An extension to 24 February 2013 was planned but due to the volume of applications a shorter extension to 19 February 2013 was offered.

198 applications were received through the Summer of HPC blog. Ioannis Liabotis (GRNET) in his role as Student Selection Co-ordinator with the assistance of the Programme Co-ordination team (ICHEC) filtered the applications as they were received, identifying incomplete, ineligible and spam applications. Students were notified of incomplete applications and given the opportunity to rectify their omission. At the end of the filtering process 189 applications were moved forward to the next review stage.

Written references were sought for these 189 applicants. A template was emailed to the students' nominated referees. References were processed by the Student Selection Co-ordinator with the assistance of David Horák (VSB) and placed in the student folder on the BSCW.

The 189 applications were filtered once more and students with inadequate code test, inadequate references or who did not update their incomplete application were identified. 176 applications went forward to be reviewed by the Student Selection Panel.

Student Selection Panel

An initial Student Selection Panel of 21 members comprised of volunteer Project Mentors, Site Co-ordinators and appointments from the Management Board (MB) was identified and approved by the PRACE-3IP MB at their meeting on 18 December 2012. Due to the popularity of the programme reviews were required for 176 applications. As a result, this would have required 16 or 17 reviews per reviewer. This was deemed to be an unacceptable workload for reviewers in the given time frame. The PRACE-3IP Project Management Office (PMO) was approached to help address this problem and a supplementary Ad Hoc Selection Panel consisting of 11 additional reviewers was proposed by PMO and approved by the MB. A full list of reviewers is available in Table 6.

Name	Country	Organisation	Role	Selection Panel Member?
Stelios Erotokritou	Cyprus	CaSToRC	Ad Hoc Student Selection Panel	Yes - Ad Hoc
Martin Rehr	Denmark	UCHP	Ad Hoc Student Selection Panel	Yes - Ad Hoc
James Avery	Denmark	UCHP	Ad Hoc Student Selection Panel	Yes - Ad Hoc
Morten Norregard	Denmark	UCHP	Ad Hoc Student Selection Panel	Yes - Ad Hoc
Konstantinos Nikas	Greece	GRNET	Ad Hoc Student Selection Panel	Yes - Ad Hoc
Nikos Anastopoulos	Greece	GRNET	Ad Hoc Student Selection Panel	Yes - Ad Hoc
Henry Nussbacher	Israel	IUCC	Ad Hoc Student Selection Panel	Yes - Ad Hoc
Massimo Guarrasi	Italy	CINECA	Ad Hoc Student Selection Panel	Yes - Ad Hoc
Vladimir Slavnic	Serbia	IPB	Ad Hoc Student Selection Panel	Yes - Ad Hoc
Emma Hogan	Ireland	ICHEC	Project Co-ordination team	Coordinator
Martin Peters	Ireland	ICHEC	Project Co-ordination team/WP Leader	-
Nix McDonnell	Ireland	ICHEC	Project Co-ordination team	Chair
Dusan Fedorcak	Czech Republic	VBS	Project Mentor	-
Tomas Karasek	Czech Republic	VBS	Project Mentor	Yes
Mads Ruben Burgdorff Kristensen	Denmark	UCHP	Project Mentor	Yes – Ad Hoc
Ivan Marton	Hungary	NIIF	Project Mentor	-
Gabor Roczei	Hungary	NIIF	Project Mentor	Yes
Michael Moyles	Ireland	ICHEC	Project Mentor	Yes
Michael Lysaght	Ireland	ICHEC	Project Mentor	Yes
Alastair McKinstry	Ireland	ICHEC	Project Mentor	-
Giuseppa Muscianisi	Italy	CINECA	Project Mentor	-

Name	Country	Organisation	Role	Selection Panel Member?
Dr. Nenad Vukmirovic,	Serbia	IPB	Project Mentor	Yes – Ad Hoc
Boris Jerman	Slovenia	ULFME	Project Mentor	-
Nacho Navarro	Spain	BSC	Project Mentor	Yes
Rosa M. Badia	Spain	BSC	Project Mentor	Yes
Dr. Çelebi's	Turkey	UHEM	Project Mentor	-
Nick Brown	UK	EPCC	Project Mentor	-
Lawrence Mitchell	UK	EPCC	Project Mentor	Yes
Iain Bethune	UK	EPCC	Project Mentor	-
Kevin Stratford	UK	EPCC	Project Mentor	-
Oliver Heinrich	UK	EPCC	Project Mentor	-
David Horak	Czech Republic	VSB	Site Co-ordinator	-
Karina Pesatova	Czech Republic	VSB	Assistant Site Co-ordinator	-
Brian Vinter	Denmark	UCHP	Site Co-ordinator	Yes
Tamás Máray	Hungary	NIIF	Site Co-ordinator	Yes
Barbara Tóth	Hungary	NIIFI	Assistant Site Co-ordinator	-
Simon Wong	Ireland	ICHEC	Site Co-ordinator	Yes
Paola Alberigo	Italy	CINECA	Site Co-ordinator	Yes
Antun Balaz	Serbia	IPB	Site Co-ordinator/ Project Mentor	Yes
Leon Kos	Slovenia	ULFME	Site Co-ordinator/ Project Mentor / Project Selection Co-ordinator	Yes
Renata Giménez	Spain	BSC	Site Co-ordinator	-
Emre Onat	Turkey	UHEM	Site Co-ordinator	Yes
Catherin Inglis	UK	EPCC	Site Co-ordinator	-
Irina Nazarova	UK	EPCC	Site Co-ordinator	-
Ioannis Liabotis	Greece	GRNET	Student Selection Co-ordinator	Yes
Pekka Manninen	Finland	CSC	Student Selection Panel Member	Yes

Name	Country	Organisation	Role	Selection Panel Member?
			(MB Appointee)	
Jean-Philippe Nomine	France	CEA	Student Selection Panel Member (MB Appointee)	Yes
Hermann Lederer	Germany	RZG	Student Selection Panel Member (MB Appointee)	Yes
Giovanni Erbacci	Italy	CINECA	Student Selection Panel Member (MB Appointee)	Yes
Maria Ribera	Spain	BSC	Student Selection Panel Member (MB Appointee)	Yes
David Henty	UK	EPCC	Training Co-ordinator	Yes

Table 6: SoHPC Roles

Two reviewers, at least one of whom was from the original Student Selection Panel, reviewed each of the 176 applications. 352 reviews were completed in total and were made available together with the applications within each student folder on the project's document management system (BSCW). A student review template implemented as an excel sheet was made available in the reviewers' package.

Reviewers reviewed each student's CV, application form, reference and code test and graded them both overall and in three key areas – Motivation & Enthusiasm, PRACE Ambassador Potential and Technical Ability. Grades ranging from Alpha (exceptional), Beta + (Good), Beta – (Average), Gamma (Poor) were awarded. This grading scheme was successfully used in previous projects including HPC-Europa and by EPCC.

Reviews were collected and collated by the Project Co-ordination team at ICHEC and students with overall Alphas from both reviewers, overall Gammas from both reviewers or different overall grades from reviewers were identified. Students with two Alphas (45) were automatically promoted to the Student-Project assignment stage, while students with two Gammas (20) were automatically rejected. Students with differing grades or two Beta grades (111) were referred for discussion and final decision to the selection panel.

The Selection Panel & the Ad Hoc Selection Panel held three meetings on 12, 13, and 14 March 2013. The first of these meetings addressed the students with differing grades. The purpose was to assign either an Alpha (promote) or Gamma (reject) grade to these students. To make the process more effective, it was proposed and unanimously accepted by the selection panel, that only students who had received at least one Alpha should be discussed. This resulted in 56 additional students being assigned a Gamma (rejected) grade. The remaining 55 students discussed in detail during the Selection Panel meetings of the 12 and 13 March 2013 with 27 being awarded an Alpha grade and 28 a Gamma grade.

This created a pool of 72 eligible (graded with Alpha) students to be considered for the student project-matching phase. The second half of the meeting of 13 March 2013 and the meeting of the 14 March 2013 unanimously assigned 24 students to the 21 projects and

approved a list of alternates (in case some of the initially selected students could not take up their place) from groups underrepresented after the initial allocation of placements. These allocations were made based on the skills and interests of the students, the choice of project mentors (when available) as well the desire for broad representation. In keeping with the outreach goal of the programme representation across country of study, level of study, and gender was sought in order to maximise the outreach range of the SoHPC student group. Students with high PRACE Ambassador potential scores were also favoured. The assigned students range in age from 20 to 29, with students from seventeen countries represented. Students range from undergraduate to PhD Students. Six students are female and 18 male.

Students Interviews, Offers & Acceptance

Project Mentors or Site Co-ordinators optionally interviewed the assigned students to ensure the suitability of the student for the specific project, and no objections were raised as a result of this process. Following interviews, official offers were made to the twenty-four successful candidates. Of these twenty-four candidates, twenty accepted and four were unable to accept their placement. Project Mentors and Site Co-ordinators were approached to identify students who would fit their project from the alternates list to fill these four vacant places. The Selection Panel approved the alternates selected via email and offers were made for the additional places. All places were filled and all rejected students received an email on 5 April 2013 outlining the status of their application and commending them for the merit in their application in the context of the high level of competition for places. An opt-out from future communications was provided, with the remaining applicant contact details retained for future PRACE communications.

3.1.4 *Success Criteria*

Four success criteria to evaluate the SoHPC programme were identified in D3.2 [2], two of which are relevant at this stage of the implementation:

- Successful attraction of up to 40 applicants to the programme
- Goodwill towards and familiarity with PRACE and HPC
    - Social Media interaction
        - Facebook likes
        - Twitter Followers
        - LinkedIn connections
        - Blog entries
        - Blog visits
    - Any media coverage

The first metric has been exceeded by a considerable margin with 189 valid applications received. These applications were received from students affiliated in twenty-six different countries and representing forty-five different nationalities.

By the second metric, the programme has also been extremely successful accumulating, 485 Facebook likes, 123 twitter followers, 59 LinkedIn group members and over 10,000 unique visitors to the blog [7][1] from all over the world. Geographical locations of the blog visitors can be seen in Figure 16 and Table 7. The blog has transitioned from a static site advertising the programme to a more traditional blog in preparation for the beginning of the student projects in July 2013. Currently the blog contains one welcome post, but the number of posts will increase significantly during the programme, as the students describe their projects and experiences on placement. Media coverage will be pursued at the end of the programme, once final products are available and for the awards presentation. These social media statistics will

[1] Statistics were compiled on 31 May 2013

continue to grow and form an important base for the students own outreach efforts. More information regarding social media metrics is available in Section 4.4.

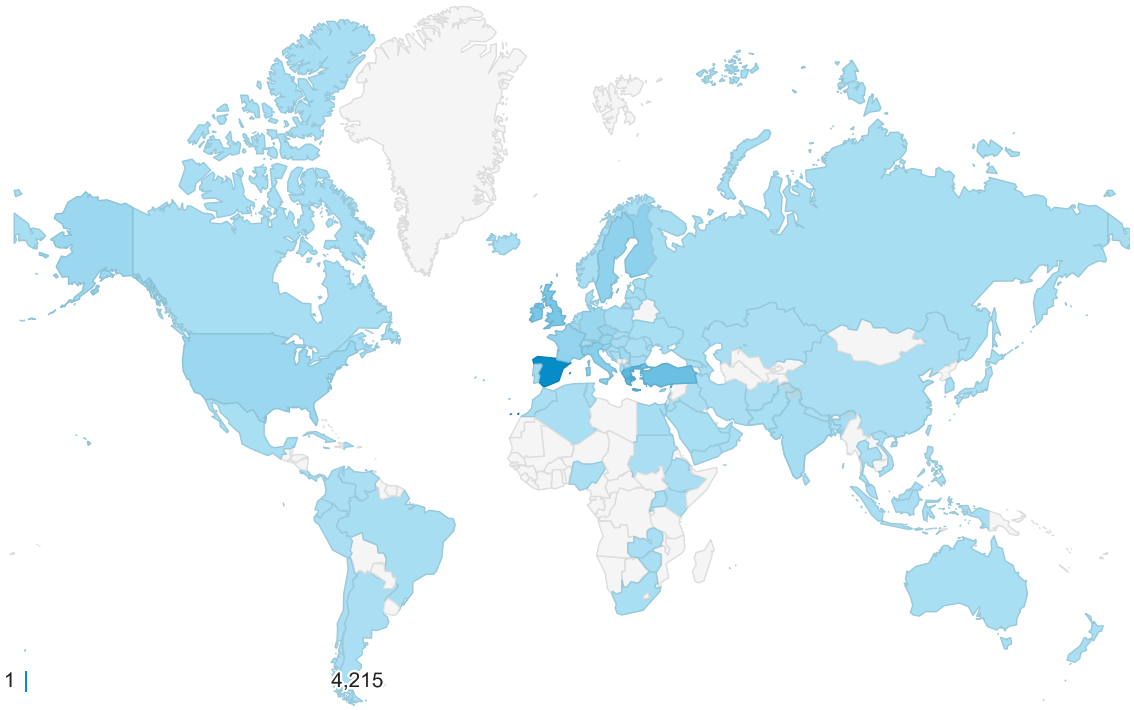

Figure 16 Blog Visits from December 2012 to May 2013

Country / Territory	Total Visits	% of Total	Unique Visitors	% of Unique
Spain	4,215	22%	2,410	24%
Greece	2,053	11%	950	9%
Turkey	1,624	9%	638	6%
United Kingdom	1,251	7%	697	7%
Ireland	1,247	7%	589	6%
Italy	829	4%	408	4%
Finland	706	4%	350	3%
Sweden	657	3%	283	3%
France	593	3%	326	3%
Slovenia	497	3%	281	3%
Other	5,123	27%	3,180	31%
Total	18,795	100%	10,112	100%

Table 7 Top 10 Countries of Origin for Blog Traffic

3.1.5 *Recommendations for Future*

Feedback has been gathered from all those involved in implementing the SoHPC programme and the following recommendations are made for any future iterations of the programme. These recommendations will be explored in detail in the Summer of HPC Manual, which will support the logical transition of the project to the PRACE AISBL.

Allow more time for all stages
Ideally the process should start as soon as the previous SoHPC programme ends. More time would allow for longer windows for each stage of the process. This would facilitate more time for the peer review of the project proposals, a longer application period for students, earlier announcement of the programme and would give reviewers and selection panel members more time to complete their duties. The earlier finalisation of project proposals would allow for promotion of the programme using the project details in advance of the call.

Create a more streamlined and automated application and review process
A web-based application form would reduce the workload of the administration of the programme considerably. This web-based system would streamline the application process and eliminate the need for students to provide a CV. It is recommended that the number of preferences for projects students can express should be reduced from five to three. The use of such a fully web based system could also automate the assignment of reviewers to applications and provide a platform for reviewers to cooperatively agree a grade for assigned students. This in turn would provide more time during the selection panel meetings to focus on student to project assignments. Reviewers could also be assigned to students as the applications are received. It is anticipated that the burden on reviewers would be significantly reduced. Automatic grading of the code test could also be investigated. The HPC-Europa software, hosted at CINECA, could be adapted for this purpose. This would, however, require a significant time investment.

Create a wiki for Site Co-ordinators
A wiki site with all the latest information for Site Co-ordinators would help facilitate co-ordination and communication.

Request References for Alpha Graded students only
References are not required for the initial review. References should only be sought for students who reach the student-project assignment stage. Increasing the time horizon of the planning process would facilitate the timely collection of references for the selected students.

Increase the size of the Selection Panel from the outset
A larger Selection Panel is strongly recommended to deal with the large volume of applicants.

An extended timeline and an automated system will go someway towards ameliorating the effort required for the reviewers but an extended panel is also a must. If sufficient reviewers are available, the possibility of having three reviewers per application could add rigour.

Develop a communication plan
A clear and structured communication plan with proposed content and a timeline would be beneficial in planning communication with students, both through social media and conventional media. Automated update emails at key points in the programme would be valuable. Site and project profiles, in addition to key milestones and deadlines can be incorporated into this communication plan. An update schedule for the blog, social media accounts and emails would ensure smooth publishing and preparation of content to maximise impact and reach.

Build on the success of the blog and social media
The SoHPC programme has a strong in-built audience through its social media accounts. This audience should be leveraged to spotlight other PRACE activities and opportunities. In future iterations it would be useful to ask on the application form, where the students heard about the programme. Projects could be promoted more effectively in social media using more images and potentially with Project Mentor interaction.

Consider more flexibility or a graduated scale for flight costs, for site more distant that others
The imposed cap on flight costs was more onerous on some students than others due to the distances involved. A graduated scale based on distance is recommended.

3.1.6 *SoHPC Plans for M13-M24*

Training Week
Preparations are underway for the arrival of the twenty-four participants in Edinburgh, UK for training week 30 June -5 July 2013, co-ordinated by David Henty at EPCC. Students will participate in an Introduction to HPC PATC course (MPI and OpenMP will be introduced) with additional outreach and visualisation modules to be provided by Leon Kos (ULFME) & Seán Óg Delaney (ICHEC) and the ICHEC project co-ordination team.

Projects
Students will arrive to their respective sites on 8 July 2013 and begin work on their projects. They will also participate in their own outreach activity by describing their experiences on the Summer of HPC blog. They will be supported by their Project Mentors, Site co-ordinators and via a student support forum and a weekly teleconference. They will submit a plan of work in week three and their final product and Final Report in the last week.

Awards
The Students will compete for two awards – Best HPC Ambassador and Best Visualisation. The selection criteria, process and prizes are under development. The presentation of awards will be leveraged for press coverage.

Follow-on
A mailing list of all applicants has been created. Further opportunities will be communicated to these interested parties via email as well as through the social media accounts. Additional follow-on activities will be finalised during the programme.

3.2 PRACE Campus Schools & HPC Classes

The PRACE Campus Schools and HPC Classes focuses on enlightening students aged between 15-18 years about Science, Technology, Engineering, and Mathematics (STEM) through HPC. Applying various approaches, these events are envisaged as a key to demystify supercomputers, to describe how they are built and what they are used for in STEM. Two Campus schools have been organised during the reporting period in Slovenia (November 2012) and Ireland (January 2013) in addition to two HPC classes in the UK (September 2012) and Austria (April 2013).

1st PRACE Campus School
As part of the 1st PRACE Campus School held in the University of Ljubljana, Slovenia on 15-17 November 2012, experienced trainers presented the benefits of HPC. Simple programmes in various parallel languages describing comprehensible problems were given e.g. calculation of Pi with Monte Carlo and integration. Additionally, an introduction to the Ansys simulation software with broad outlook to the real engineering and scientific problems was presented.

Multiphysics simulations in the field of structural mechanics and computational fluid dynamics were also presented during the event. Images from the school can be seen in Figure 17.

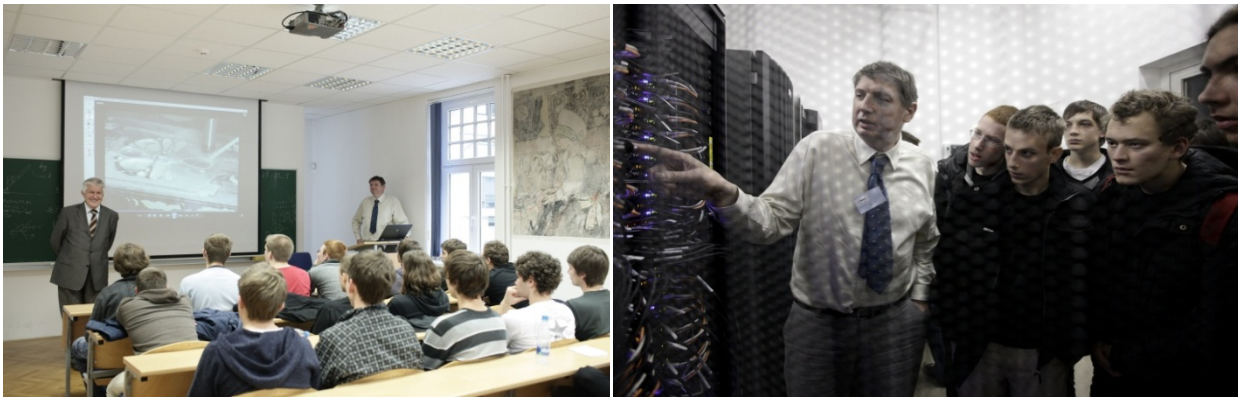

Figure 17: Pictures of the 1st PRACE Campus School, 15-17 November 2012, University of Ljubljana (UL), Faculty of Mechanical Engineering (FME), Aškerčeva 6, Ljubljana, Slovenia

2nd PRACE Campus School

In contrast, during the 2nd PRACE Campus School at the BT Young Scientist & Technology Exhibition (BTYSTE), 10-12 January 2013, in a more informal environment the Irish Centre for High-End Computing (ICHEC) showcased all things supercomputing to primary and secondary level students at the RDS, Dublin, Ireland. Over 45,000 visitors attended the exhibition with students from over 200 schools visiting the ICHEC stand to understand the utility of supercomputing. Students and teachers attended from schools from all across Ireland. Pictures from the event are shown in Figure 18 and Figure 19.

The first zone of the stand displayed an eight-way Raspberry Pi cluster built especially for the event where the inner workings of a parallel machine were visible to the attendees. A parallel version of Conway's Game of Life was run across the machine to describe the software layer.

Figure 18: Picture from the BTYSTE13 event. LHS: Three students from St. Joseph's Mercy Secondary School, Navan, Co. Meath, Ireland investigating the Raspberry Pi Cluster. RHS: An example audience during presentations at the stand.

Presentations were delivered to students in the second zone describing the need for supercomputing and the resources that Europe has to offer in terms of hardware. Weather models over Ireland and the UK were presented in 3D as ICHEC runs the national weather forecast for Met Éireann (Irish Meteorological Service).

Within the third zone of the stand live Molecular Dynamics simulations and other interactive demos provided by NVIDIA were run on a NVIDIA K20. While a Sudoku demo, one that searched for 17 clue grids, allowed the direct comparison of the Intel Xeon Phi and the Intel Sandy Bridge technologies.

Figure 19: Images from BTYSTE13. LHS: Stand at the BTYSTE. RHS: 2nd PRACE Campus School, 10-12 January 2013, Dublin, Ireland: ICHEC staff that attended the stand at the BTYSTE.

1st PRACE HPC Class

The British Science Festival 2012 was held in Aberdeen, UK, on the 4-9 September 2012. An estimated ten thousand visitors experienced a range of workshops, exhibitions, drop-in activities and talks on a wide range of STEM (Science, Technology, Engineering and Maths) subjects. With support from PRACE, EPCC attended the festival on the last day, offering two events: a general interest talk entitled "Supercomputers in Science: From the Big Bang to Climate Change" given by David Henty, and an exhibition "Supercomputing and You".

The talk introduced the basic concept of computer simulation as a complement to theory and experiment, discussed how the vast improvements in computer performance since the 1960s have enabled complex phenomena to be modelled, and showcased a number of applications including cosmology and climate as suggested in the title. Video of the event itself is not available, but a local 'dry-run' of the presentation is online [13]. The talk was well received by an audience of around 100 people, many of whom went on to visit the exhibition shortly afterwards as a result.

Figure 20: Images from the British Science Festival in September 2012.

The exhibition consisted of a mixture of display items and interactive activities. Images from the event can be seen in Figure 20. EPCC staff were also on hand to answer questions from visitors and guide them through the activities. A rolling video presentation of HPC data visualisations was shown continuously on a large screen, covering applications in climate and weather modelling, materials science, fluid dynamics, space science and biology. In addition to several information display stands, EPCC was kindly loaned an XT4 compute blade from Cray, and this proved to be very popular with visitors, who were able to see how the technology used to build a supercomputer is both similar and different to desktop computer hardware that they were familiar with. Two interactive activities were run at the booth, the first of which was an interactive molecular dynamics simulation of 'Mouse Urine' (solvated Mouse Major Urinary Protein). Using the NAMD package running on HECToR (Cray XE6 at EPCC) and the VMD client running locally, participants could interact with the simulation in real-time, and attempt to force the MUP molecule to release a bound pheromone molecule.

This activity not only illustrated the technique of molecular modelling on parallel computers, but also showed how the results of such a simulation could be applied to the design of biologically inspired molecules for pharmaceutical or cosmetics applications. The second activity was a parallel sorting game, where groups of people had to work together, following a particular algorithm to sort a shuffled deck of cards. When the cards were finally sorted and arranged in order, they could be turned over to reveal a picture of the HECToR supercomputer. Packs of cards were also given away to those who wanted them. Over 150 people visited the exhibit during the day ranging in age from 5 up to 80!

Both the presentation and booth were real successes in raising awareness of how supercomputers are used in modern-day science to a very diverse audience. An application to run another HPC class was accepted at the British Science Festival 2013 in Newcastle where PRACE and EPCC will again give a similar exhibit, with some new activities, including a 'virtual paleontology' dinosaur modelling game being developed as part of the PRACE Summer of HPC programme, and another talk on science using volunteer computing.

2nd PRACE HPC Class

The second HPC Class was organised in Austria on 25 April 2013. RISC held a half-day HPC class for students at the age of 16 in the framework of the Girls' Study Day. The Girls' Study Day is an initiative of the Upper Austrian government to raise the interest of girls in technical jobs and technical studies.

11 girls from the HagenBORG high school attended the HPC class organized in Hagenberg and received a basic introduction to application building on HPC infrastructure from the area of life sciences. After an overview about applications for medical simulations (eye motility simulations, blood flow simulations and skin burn documentation) a short introduction to bioinformatics was given. The big data challenges in bioinformatics, with a focus on comparative genomics, were explained in detail.

Figure 21: Images from the Austrian Girls' Study Day organised by RISC held in April 2013.

One of the highlights in this half-day workshop was the construction of a Raspberry Pi cluster. Starting with 5 Raspberry Pis in their original wrappings, the girls designed a casing for the cluster made of cardboard in the shape of the RISC logo. Through efficient design all cables as well as the master were hidden under the cardboard. The finished cluster was then used to run ParaView in parallel and distributed over all nodes to visualize medical image data.

The positive feedback of this class emphasized the need for practical and hands-on experience in schools and the necessity for computer science and especially HPC to improve on the communication and outreach to teenagers. Images from the HPC class can be seen in Figure 21.

Two additional PRACE Campus Schools will be held in Bulgaria (Autumn 2013) and the Czech Republic (Winter 2014) during the project in addition to attending the EU Contest for Young Scientists in September 2013, Prague, Czech Republic. Additional one-day HPC Classes will be held in Austria, Hungary and the UK.

4 Social Media

4.1 Introduction

Exposing PRACE to its varied and diverse target audiences presents a unique challenge. In addition to the fact that PRACE is a pan-European initiative that spans national borders, cultural gaps and language barriers, PRACE's message must be communicated and equally targeted to very diverse target audiences. These include the scientific and research communities, industry, policy makers, government and NGO funding agencies, competing organisations, peer groups, educators, the general public and internal audiences. Each of these target audiences has a unique agenda, and all are important parties that PRACE needs to engage in order to achieve its goals.

Alongside this, communications in today's digital environment has undergone fundamental changes. Outreach and dissemination are no longer conducted via "pushing" relevant material to target audiences. The advent of social media transformed outreach and dissemination into a two-way avenue of communications between organisations and their target audiences. Social media also allows for much improved market segmentation, with the widespread use of special interest groups, forums, discussion groups and more. This is a notable asset for PRACE in its quest to reach such a diverse range of audiences.

This plan to take advantage of social media channels is being prepared as part of WP3's Dissemination Activities in the PRACE-3IP project, under the auspices of the press team. Emphasis is on events, HPC community building in HPC, showcasing project results, and leveraging training events. The plan covers content creation and expanding the reach in social media channels, as the two are integral and equally vital.

This plan is an extension of activities begun under the PRACE-2IP project, most notably experience gained in the PRACE-2IP outreach for high school students (http://www.daretothinktheimpossible.com) campaign, as well as building on the experience of the activities initiated by PRACE AISBL to date and the use of social media in event management and promotion, such as the Summer of HPC in PRACE-3IP. In addition, this plan is designed to align with the transition from the IP projects to the PRACE AISBL taking over dissemination activities.

4.2 PRACE Social Media Channels: Status and Plans to Expand Reach

Social Media channels are numerous and while each purport to serve a specific purpose; they are in fact quite integrated. When used in the right combination, they form the organisation's overall web presence. Whichever mix is ultimately selected and deployed, it is important to note that they are all centred on a central website integrated with the appropriate graphics on the website that are compatible with social media channels.

When used wisely, social media is invaluable to the communications mix. Selecting the right channels will provide added value to the PRACE Communication Strategy and Roadmap and for the post-project phase of PRACE's growth and development.

4.2.1 *Personnel*

At the foundation of this Social Media plan is strong cooperation and a continuum between the PRACE-2IP and PRACE-3IP projects and transition of activities to PRACE AISBL. This choice of personnel assignment reflects this policy. Barbara Tóth, subtask leader of the Dare to Think the Impossible campaign is managing the social media dissemination for this project

to raise awareness of HPC among high school students. This campaign is centred strongly on social media tools, such as YouTube videos, a Facebook page and online interaction. In PRACE-3IP, the sub-task it is being headed by Marjolein Oorsprong, PRACE Communications Officer, reflecting the ultimate transition to centralized social media activities for the entire PRACE organisation.

4.2.2 *Current Social Media Channels*

Twitter

The @PRACE_RI Twitter handle was created in 23 April 2012 [12]. The current page is shown in Figure 22 where the cover and background images were customised. Details of PRACE press releases, newsletters and announcements are pushed to followers of the PRACE Twitter handle. All parties to PRACE relations, including members, staff, etc., can suggest items to be tweeted. As of 1 June 2013 there are 283 followers while 51 handles are followed. When tweeting the following hashtags are used:

- #PRACE
- #HPC
- #PRACEday
- #Supercomputer
- #Supercomputing
- #PRACEaward

Figure 22: The PRACE Twitter page

The PRACE Communications Officer in Brussels moderates the @PRACE_RI handle. Authorised tweeters list includes:

- Marjolein Oorsprong, PRACE Communications Officer
- Renata Gimenez, BSC
- Tiina Leiponen, CSC
- Danica Stojiljkovic, IPB
- Martin Peters, ICHEC

PRACE Members may re-tweet PRACE tweets from their Twitter accounts to increase reach. This activity is encouraged. PRACE in turn, can re-tweet members' tweets or other followers/followed accounts to further expand its communication reach.

In order to increase the number of followers, the social media subtask team will search the 25 member organisations for active Twitter accounts, and add them to the list of organisations PRACE follows. At the same time, an email and Tweet will be sent to each member organisation inviting them and requesting that they follow PRACE's Twitter account. The new HTML newsletter (see Section 2.3 for more details) includes the Twitter logo that links to the PRACE handle.

For project-based campaigns, events or training sessions, new Twitter accounts will be opened, as successfully done for the Summer of HPC (@SummerOfHPC). These Twitter accounts will be managed in an ad hoc manner by the event or campaign teams.

Additional hashtags will be used for specific needs, or events, such as #ISC12. During events, PRACE will use the relevant hashtags to ensure event participants see PRACE tweets.

LinkedIn

Closed discussion group (http://www.linkedin.com/groups?gid=3671809&trk=hb_side_g) and company (http://www.linkedin.com/company/prace) pages are currently being maintained on LinkedIn. Stephane Requena (GENCI) created the discussion group on 4 November 2010 and currently has 250 members. The page is owned by the PRACE Communications Officer and managed by the following team:

- Marjolein Oorsprong (PRACE AISBL)
- Stephane Requena (GENCI)
- Laetitia Baudin (GENCI)
- Martin Peters (ICHEC)
- Anni Jakobsson (CSC)

The Discussion Group (see Figure 23) provides a forum for professionals in the same industry or with similar interests to share content, find answers, post and view jobs, make business contacts, and position themselves in their communities as industry experts.

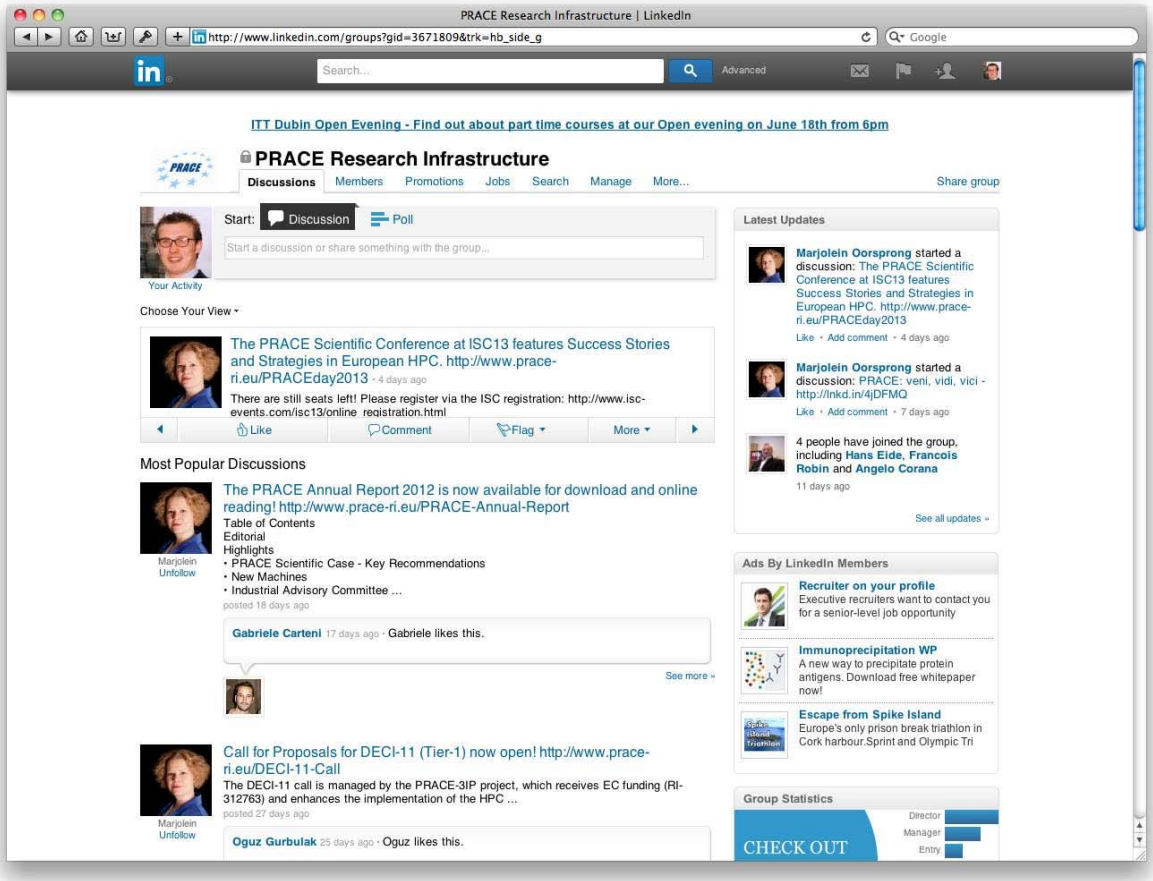

Figure 23: The PRACE LinkedIn group page

A Company Page (see Figure 24) is a place for companies or organisations to provide more information about products and services, job opportunities, and company culture. Posts can include links to the company or organisation website, or to other sites. Any LinkedIn member can follow a company that has set up a Company Page to receive regular updates. The PRACE company page has 55 followers and is managed by the PRACE Communications Officer and Martin Peters (ICHEC). A customised cover image was created to make the page more visually pleasing.

LinkedIn can be used to link to Call Announcements and as a way to further disseminate success stories, new content, project results and link to the PRACE user forums. In addition, LinkedIn is widely used for job searches. The current administrators of the page, or an assignee from the press team or web team, will follow vacancies posted on the PRACE website and post them to the PRACE LinkedIn page. Having job postings on LinkedIn will not only increase the pool of possible candidates, but will also serve to increase awareness of PRACE.

The current administrators of the page, or an assignee from the press team, will contact PRACE members via email to publicise the LinkedIn page and request that employees who have LinkedIn profiles, to follow it and/or the discussion group.

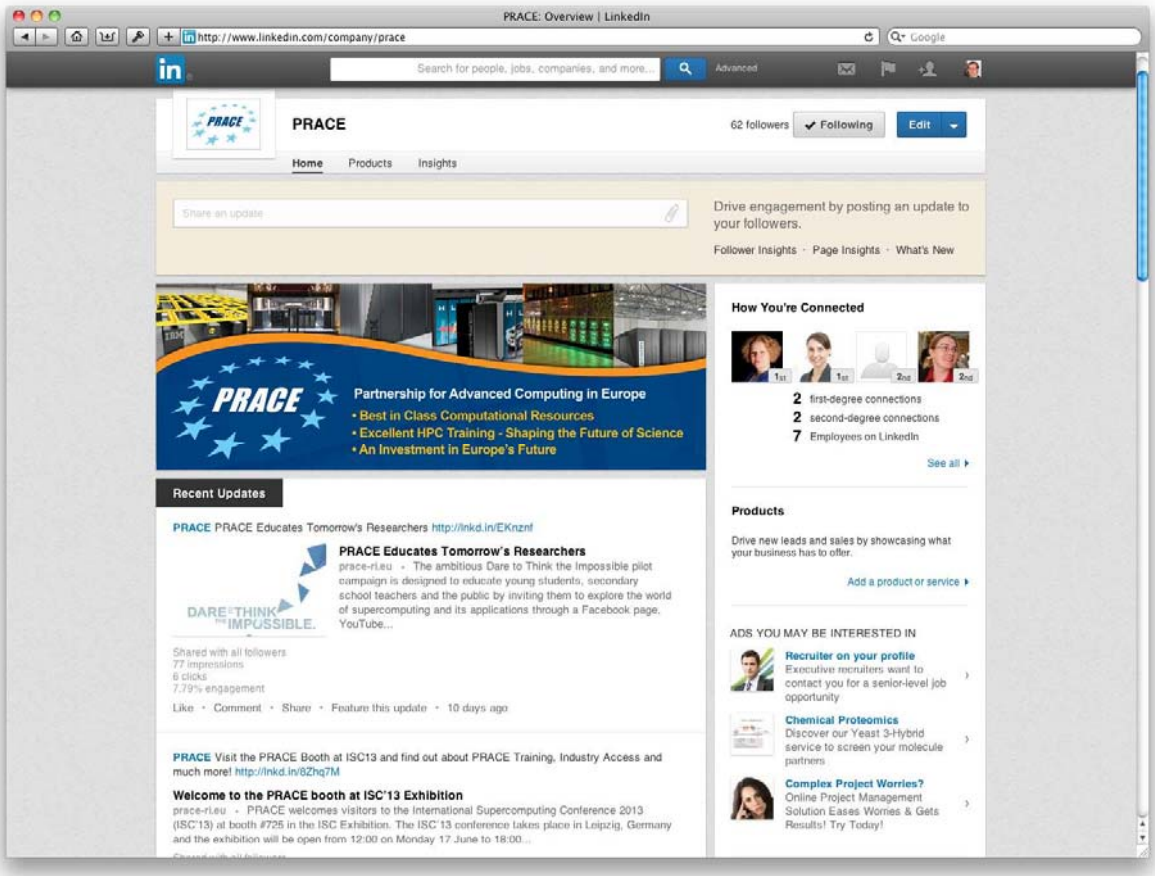

Figure 24: The PRACE LinkedIn company page

YouTube

PRACE has two active YouTube channels (http://www.youtube.com/user/PRACERI and http://www.youtube.com/user/pracesupercomputer). Six videos produced in previous IP projects are posted on the former while the latter hosts the Dare to Think the Impossible campaign videos. This channel will be assigned a manager from the press team, who will work in coordination with the PRACE Communications Officer, to update the page with the appropriate visuals and addresses, and maintain it similarly to the PRACE Website and possible future Facebook page. Login details will be supplied to the AISBL during the transition process. Video material from the PRACE Summer of HPC programme will also be posted to YouTube.

Wikipedia

The current limited PRACE Wikipedia entry [14] will be updated by the press team based on the current website content. Links to member organisations will remain.

Because Wikipedia is thoroughly indexed by Google and other search engines, this is a top priority. The PRACE Communications Officer, with the initial assistance of the PRACE press team, will actively monitor the citation for changes, since Wikipedia is open to contributions.

Google+

Google+ is very popular in the US but less so in Europe. As our user base is predominantly European, Google+ is not part of the social media mix at this time. Should the strategy of the association change to incorporate active communication efforts towards US users, Google+ may become a valuable tool.

4.2.3 *New Social Media Channels*

Facebook
Facebook is the largest social networking site. Facebook pages must be maintained with regular updates, like a central website, but with even with greater urgency for updates at regular intervals. As more and more PRACE events and campaign leverage Facebook extensively, such as Summer of HPC and the Dare to Think the Impossible campaign, a PRACE Facebook page is a highly recommended addition to the social media mix in order to support these efforts and to gain added value from the momentum and awareness these campaigns and events create.

The press team will compose a Facebook page and the necessary authorizations for update and approval will be set by the PRACE Communications Officer. Initially, the PRACE Facebook page can follow the developments of website updates, such as press releases, job postings and the like. While content is usually not simply posted or linked to, only minor adjustments are required as headings to posts.

Research Gate
ResearchGate is a network dedicated to science and research, enabling researchers to connect, collaborate and discover scientific publications, jobs and conferences. This online network of over 2.3 million academics and scientists allows them to connect with one another, usually with the intention of collaborating on and advancing research. The service was established in 2008.

It is similar to LinkedIn, but more detailed and more focused attention to areas that interest researchers, such as portals for non-peer reviewed work and supplementary material. There are also places on user profiles to get more direct feedback and ask questions. This offers another avenue for interaction and where HPC as a tool can be discussed in an open, searchable and interactive forum.

In order to exploit this channel, a sub-team of researchers will need to be approached to input HPC information on their profile and generate discussion. This must be part of PRACE's efforts in building communities that should be investigated further.

4.3 Community Building, Events and Targeted Content Marketing

4.3.1 *Dare to Think the Impossible*

Promoting awareness of HPC amongst secondary school students was a priority objective in PRACE-2IP. As such the Dare to Think the Impossible campaign was created and launched on March 2013. The campaign encompasses a variety of media, including an informational website, a Facebook page, printed brochures, and YouTube videos of interviews with PRACE scientists. An astronomy-themed online video game demonstrates astronomical simulations in a fun and engaging way.

The target audiences for the campaign are not a homogenous population. The use of social media is the fastest and most effective way to reach the primary target audience and with the widest reach. These include Facebook, Twitter and YouTube. Regularly maintained presence in these channels will ensure that the campaign gains traction, grabs the audiences' attention and directs it to the campaign website, the informational core and the centralized location from which all campaign elements are accessible.

Facebook
Facebook is considered to be today's most prevalent social networking community, a big hit among teenagers and the general public as well, and therefore an ideal platform for promoting the 'Dare to Think the Impossible' campaign.

The target group visits Facebook daily. Using this site gives the opportunity for the video game and the webpage to go viral. All that is needed is to post the 'Dare to Think the Impossible' webpage or 'Shooting Stars' game on their Facebook page (see Figure 25), and the network of interest expands exponentially.

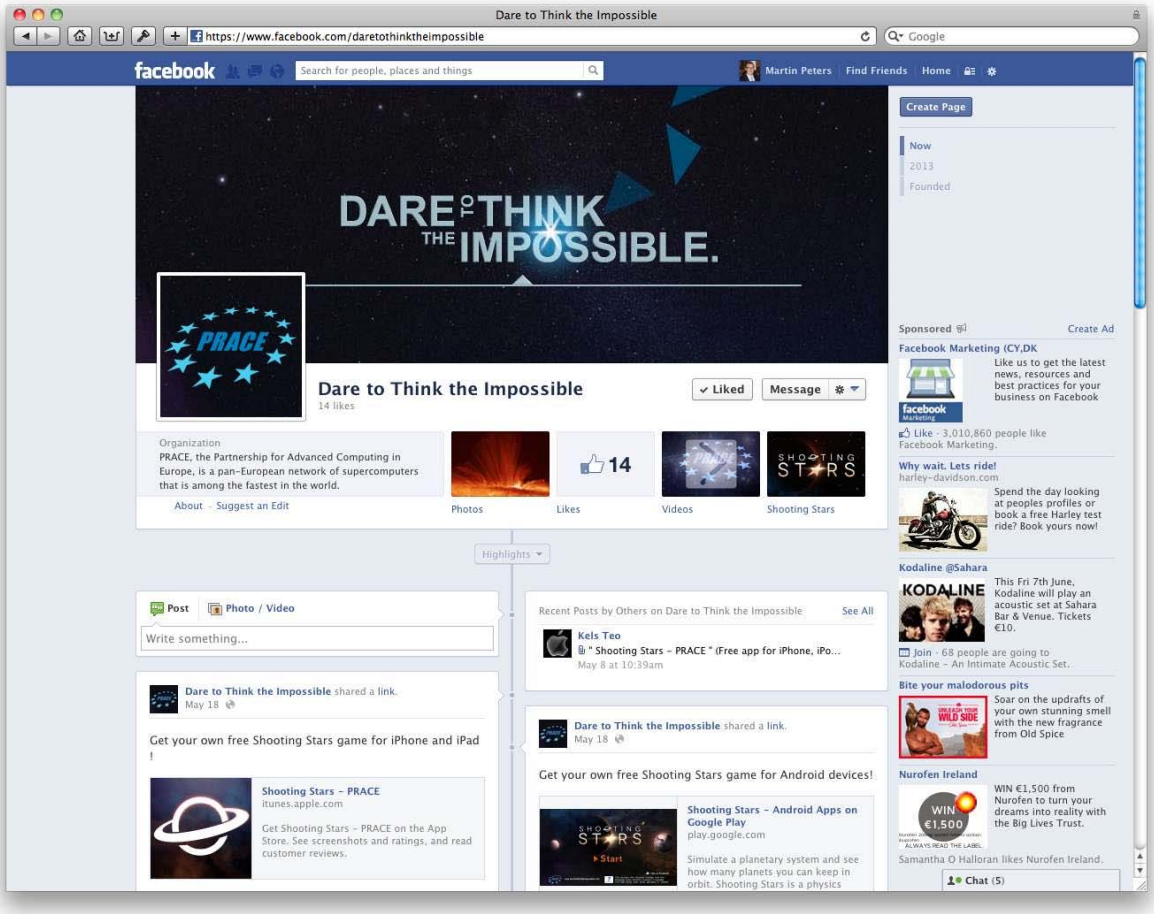

Figure 25: The Dare to Think the Impossible Facebook page

Twitter
Twitter attracts high-ranking politicians, experts and celebrities. It is a simple method of distributing URL links, and sharing pieces of information. Plans include linking the campaign Facebook page and Twitter accounts in order to maximize the benefits of social media.

YouTube
As much of the campaign is centred on strong video visuals, YouTube is used extensively to upload the ready-made and approved videos to YouTube and embed them into the campaign website. The popularity of the videos can be measured by the number of viewers, the number of likes and the comments.

4.3.2 *PRACE Summer of HPC*

PRACE embarked on an ambitious outreach programme to inspire and encourage the next generation of software engineers, system administrators, and general users of HPC systems.

This programme, the Summer of HPC (SoHPC) will take place in the summer of 2013 and offer undergraduate and junior postgraduate university students the opportunity to spend two months of the summer at a HPC centre in a PRACE partner country.

Outreach is at the core of the programme, both in terms of objectives and outputs. Students will undertake a visualisation project based on the outcomes from PRACE technical work, or other work using PRACE resources, and this end product will be available to PRACE for use in further outreach and dissemination activities.

Social media is an integral part of the programme from beginning to end and is one of the primary methods of communication used to address this new target demographic for PRACE. It will also be used by the students themselves to reach out to a broader audience of their peers, friends and families. Students will engage in outreach efforts of their own by maintaining and updating a blog outlining their experiences during the SoHPC with the goal of increasing familiarity of the general public with PRACE and HPC. Social media is also a potential channel for the dissemination of the final products the students will produce.

The social media strategy for SoHPC utilises four channels: a dedicated blog, Facebook, Twitter and LinkedIn, outlined below. To date, the model has proved a resounding success and serves as an ideal model for future PRACE activities.

Blog

The blog (Figure 26) has multiple roles during the programme. Initially it served as a landing page with brief information and a flyer. It prominently features links to the other social media channels.

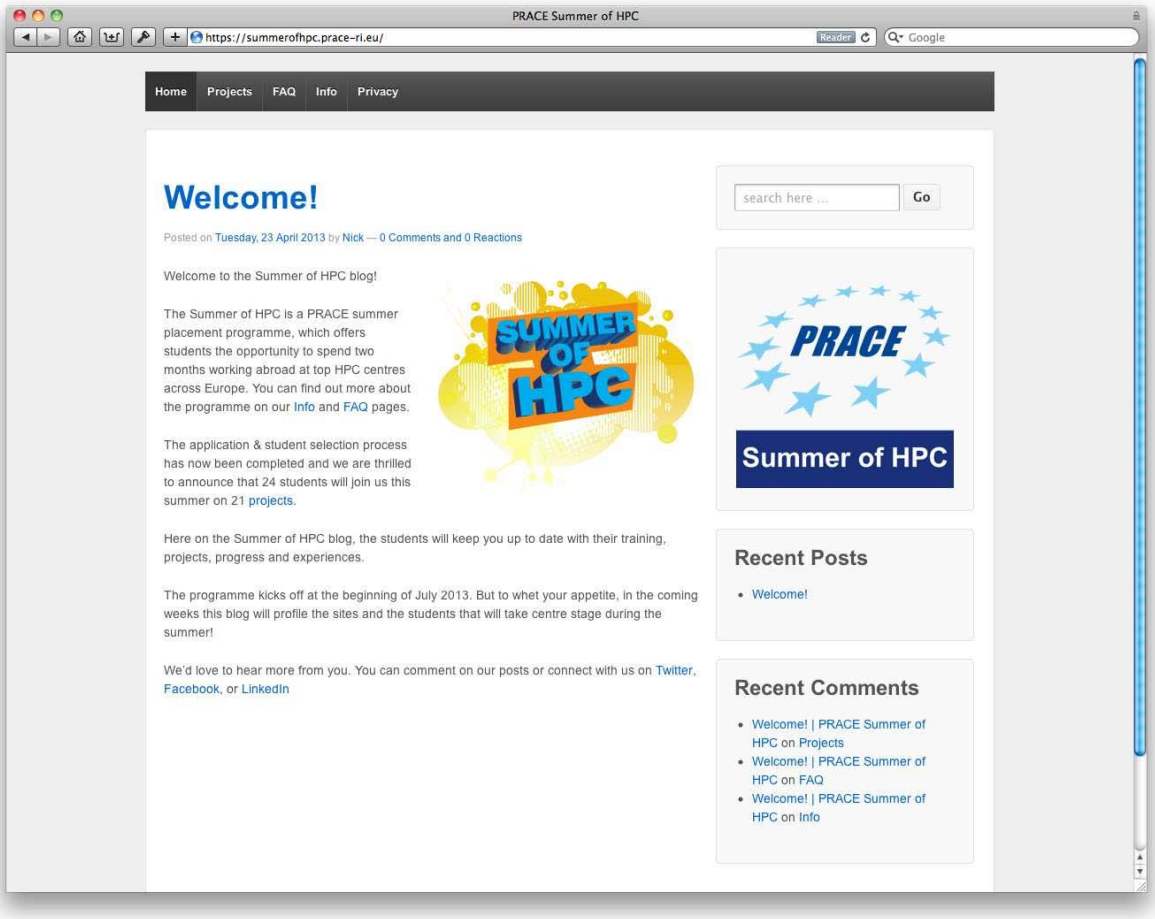

Figure 26: PRACE Summer of HPC Blog

Once the call for applications opened, it served as a location for project information, application information, FAQ and application page.

When the student selection process was completed, the site reverted to a more traditional blog, where students will be profiled and give updates on their experiences. The blog may also serve as a dissemination channel for the visualisation materials the students produce. The blog will be promoted on Facebook, Twitter and LinkedIn.

Facebook (www.facebook.com/SummerofHPC)

The Facebook page (Figure 27) is an additional landing page. As the most ubiquitous social media channel, it is envisaged as the primary way to reach, engage and interact with the target population. Frequent updates promoted the application process and the student blog updates. A Facebook advertising campaign was used to promote the Facebook Page and grow the audience. Facebook advertising provides the functionality to target specific demographic groups with an image and a short message. The SoHPC Co-ordination team consulted on the attributes of students who would be interested in the programme and defined a list of target attributes. The campaign targeted 18-25 year old students in European countries with a stated interest in science or computing. This demographic were shown an advertisement highlighting the availability of placements (illustrated in Figure 15). This campaign resulted in over 12 million impressions of the advertisement, reaching over 192,000 individuals in the weeklong campaign from 26 January to 2 Feb 2013. 2,350 click through to the Facebook page and 191 likes were recorded as a result. Additional top-up campaigns were run to address underrepresented groups, namely female students and underrepresented European countries. These top-up campaigns saw over 1.3m combined impressions, reaching close to 170,000 individuals. 326 click through and 44 likes were recorded as a result. A bespoke cover image for the page was also designed to increase its visual appeal.

Figure 27: PRACE Summer of HPC Facebook page

Twitter (http://www.twitter.com/SummerofHPC)

Twitter (Figure 28) was used to provide updates regarding the application process and student blog updates. The hashtag #SoHPC is being used which is the programme acronym but also unintentionally is very "hip" and fits with the target audience. Bespoke cover and background images were designed for the page, again to increase the visual appeal of the page.

Figure 28: PRACE Summer of HPC Twitter page

LinkedIn (http://www.linkedin.com/groups/Summer-HPC-4725549)

A general interest LinkedIn group was set up for the SoHPC programme (see Figure 29). This targets educators, HPC professionals and other parties who may be able to help disseminate the programme details to students, in addition to the students themselves. The updated schedule here is less frequent, with only key milestones being highlighted. A subgroup for participants was also created. This is envisaged as a community for the students, which will persist after the programme is completed.

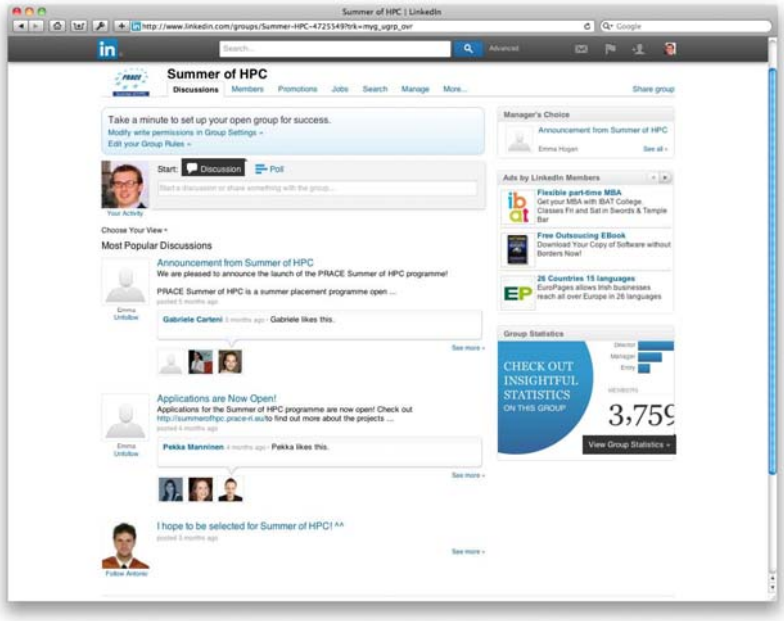

Figure 29: PRACE Summer of HPC Linkedin group page

Social Media Implementation Plan

Utilising these four channels the social media strategy for the SoHPC consists of five distinct phases:

Phase One - Launch & Piquing interest - The programme was announced in advance of the application opening date. This was co-ordinated through PRACE partners who disseminated a flyer (see Figure 14) to universities and pushed the announcement through their own dissemination channels. The flyer prominently featured the social media sites and encouraged prospective applicants to join, like or follow to get the latest information. This had the effect of establishing a primed audience for the later targeted messaging.

Phase Two - Building Audience and Attracting Applicants - Project details and application information was hosted on the blog. Engaging visual representations of the projects were used to promote individual projects on Facebook, e.g. see Figure 30, and Twitter. Key dates and deadlines in the application process were promoted.

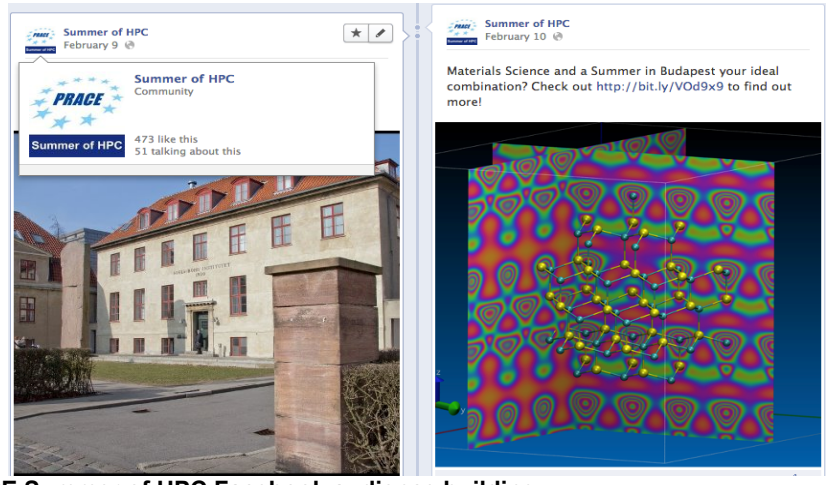

Figure 30: PRACE Summer of HPC Facebook audience building

A Facebook advertising campaign was undertaken to increase the profile of the Facebook page and attract potential applicants who had not already been reached. This consisted of a two-line call to action in conjunction with a map of Europe highlighting the sites and the Summer of HPC logo. The first round of advertising targeted 18-25 year old students living in

PRACE partner countries with an interest in either computer programming or science. This round of advertising coincided with the opening of applications. The second round of advertising targeted underrepresented groups – women and several countries who had no applicants.

Phase Three - Continued Engagement-Profiling Successful Applicants - To continue our engagement with the audience, once the selection process has completed, the SoHPC co-ordination team will interview and profile successful students on the blog. These articles will be promoted on Facebook and Twitter. It is anticipated that there will be 2-3 updates per week. This will serve to grow the audience through exposure from students' social circle and also to allow the audience to connect with the participants.

Phase Four – Students' Outreach Efforts - Students will undertake social media training during their training week in Edinburgh (30 June – 5 July 2013). Following on from that, they will create content for the blog to engage the audience and share their experiences. The blog updates will be moderated by a MB approved Moderation Panel. Blog updates will be promoted through Facebook, LinkedIn & Twitter. It is anticipated that students will also promote their posts through their own social media channels. Students will be competing for the Best HPC Ambassador and Visualisation award, which will be based primarily on social media/blog contributions.

Phase Five – Follow-up & Continued Engagement - The blog will serve as a repository for the final products, which the students produce. In addition, the award winners (Best HPC Ambassador & Best Project) will blog about their experiences on their award trip in Autumn 2013. It is hoped that other students will continue to contribute to the blog once they return home.

Social Media Implementation Results

To date, the results of these social media efforts are reflected in the following statistics:

Blog - The blog has received 18,795 visits; 10,047 of which were unique users. Users spent an average of 3.56 minutes on the site. Visitors from 103 different countries were recorded, with the majority being from Europe. Spain, Greece, Turkey, the UK and Ireland had the highest proportion of visitors. Of unique visitors there was a variety of sources of traffic. 43% came directly, 12% from Facebook, 11% from Google/Organic, 5% from the PRACE website, 3% from Twitter and 1% from LinkedIn. Spain and Greece both had institutions refer significant numbers of viewers; this is one of the primary reasons for the success in those countries. This is also reflected in the number of applications received.

Facebook - The Facebook page has 485 likes, with Friends of Fans reaching 199,963 other Facebook users. 278 likes are organic while 207 originated from advertising. Turkey, Greece, Spain, Bulgaria, Ireland & Serbia make up the top 5 locations of the Facebook Fans. Most traffic is direct, with the Summer of HPC blog topping the external referrers' list.

Twitter - The Summer of HPC has 123 followers and has tweeted 33 times.

LinkedIn - The LinkedIn Summer of HPC group has 59 Members.

4.3.3 *PRACE Project Results and White Papers*

The scientific results of the various PRACE project work packages are a valuable resource and need to be leveraged to raise awareness and reach. This high quality content is a strong marketing tool that can be disseminated through social media channels, such as Facebook, LinkedIn and Twitter. This in turn will drive traffic to the PRACE website and advance PRACE's position as key player in the HPC community. In addition, based on the content,

new forums dedicated to the more narrow scope of each content piece will be sought out and posted in these forums.

A press team member will prepare short and compelling abstracts of the existing white papers on a monthly basis and prepare posts to PRACE's existing social media channels, as well as canvas social media sites relevant to the specific content.

4.4 Monitoring Impact of Social Media Efforts

While there is no doubt that social media is a powerful tool, its usefulness is minimised if proper analytics are not put in place to learn from the efforts and adjust tactics accordingly. Proper analytics helps uncover customer sentiment, across countless online sources and provides necessary insights to transform this information into actionable strategies and benchmarks.

There is a myriad of social media analytics solutions to help organisations take control of data so they can improve satisfaction, identify patterns and trends, and enhance decision making regarding dissemination and marketing campaign.

4.4.1 *Klout*

Initial use of KLOUT (www.klout.com) was undertaken by ICHEC as part of PRACE-3IP's Summer of HPC project. Klout provides a numerical representation of aggregate social media influence across all linked social media accounts (Twitter, Facebook, Google Plus, LinkedIn, Youtube and others). Klout examines 400 variables to determine the volume, variety and influence of those engaging with the social media content. Mentions, shares, retweets and other non-passive engagement are weighted more strongly than number of followers, likes etc. The Klout score is a number between 0 and 100, with an average Klout score of 40 and the upper 5% achieving a score of 63+.

The Summer of HPC project piloted the use of this tool and currently has a 90-day high of 46.2 and 90 day low of 24.76 as shown in Figure 31. Roughly 55% of the score is attributable to Facebook engagement, with 45% from Twitter.

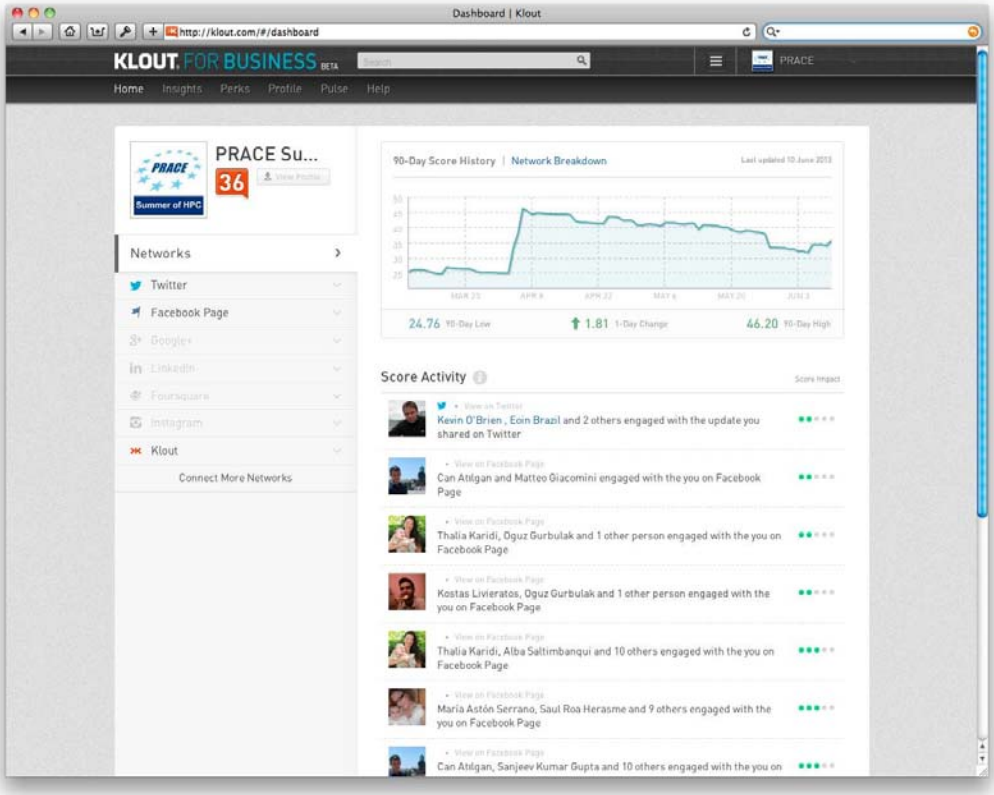

Figure 31: The Summer of HPC KLOUT Dashboard

Maintaining an above average Klout score is a desirable target and tracking of this score should give an indication of the types of posts that encourage the most interaction. It would be worthwhile to roll out the use of this tool to other PRACE accounts i.e. PRACE twitter and the Dare to Think the Impossible Facebook campaign.

4.4.2 *Meltwater Buzz*

Meltware buzz (www.meltwater.com) is a social media marketing software-as-a-service. Built on the Meltwater online intelligence platform, the Meltwater Buzz social media-marketing suite combines deep social media monitoring and analytics with efficient social engagement. Meltwater Buzz is designed to help users deploy more effective social marketing campaigns and develop stronger brand relationships across large communities to deliver real social media ROI.

Initial use of Meltwater Buzz was initiated by CSC and regular reports are generated as pert the keywords input to date. The reports are designed to facilitate increasing real-time communications with users and other interested parties, as well as raising the profile of PRACE among key opinion leaders in the HPC and science communities.

To make full use of the results the tool generates, PRACE would need to increase monitoring and real-time response to the identified keywords. Authorised users would need to be ready and available to respond and initiate on Twitter and to comment on blogs.

4.4.3 *Recommendations of Social Media Tools*

Based on the data from Meltwater, it appears that in terms of metrics, it is a realistic target to attempt to improve the volume of mentions of PRACE. Equally, PRACE can monitor individual campaign mentions, with the minimal resources available dedicated to social media presently in place. If and when the human resources made available to this task are

formalised, this activity can be expanded and discussions can take place on other keywords PRACE could and should be associated with and areas where PRACE would like to increase engagement. The extent of these efforts depends on the overall strategy of the organisation and the resources allocated to this effort.

If PRACE were to run engagement campaigns thematically or nationally, the Meltwater results could be valuable to monitor and track the sentiment, engagement, reach, word cloud, etc. but it is not clear what value these add other than for general information. Current trends and experience though point to in-depth analysis of performance of defined strategies or campaigns and it is here that PRACE's efforts should be focused and the appropriate analytical tools acquired.

4.5 Work Plan

The following work plan will be carried out in the following twelve months and reported on in D3.4 at M24.

1. Canvas and follow reciprocity with member organisation Twitter accounts.
2. Maintain job postings on PRACE LinkedIn Page.
3. Update and maintain PRACE YouTube channel.
4. Create PRACE Facebook page once approved to do so.
5. Maintain PRACE Facebook page.
6. Disseminate PRACE White Papers and project results via PRACE's existing social media channels.
7. Targeted content marking for PRACE White Papers and project results via content-specific forums, groups and channels.
8. Create a social media calendar.
9. Formalise a social media monitoring and analytics tool and put in place a social media "response team" to take action in real-time based on reports generated.
10. Investigate mechanisms of interacting with industrial users on social media. The Autumn School 2013 in Slovenia will be used as a pilot as it is industry focused.

5 Summary and Conclusions

The results from the first twelve months of PRACE-3IP WP3 have been outlined in this deliverable.

Going forward, it is imperative to keep the high quality of dissemination material and to ensure the PRACE brand is protected in all public activities. The second half of PRACE-3IP will present significant challenges including the conclusion of the 'logical transition to the AISBL' process and the increased usage of social media. However, numerous opportunities lie ahead to place PRACE positively in the public eye including the results of Tier-0 and Tier-1 resources, the PRACE Summer of HPC, PRACE Campus schools and the international events such as ICT13, SC13, PRACE Scientific Conference 2014 and ISC14.

6 Annex

6.1 Austrian News Clipping

Magazine: DerStandard (online and print version)
Date of publication: 17 April 2013
Title: Berechnung des Herzens, Kollektiv kalkulierende Kerne

JOURNAL FÜR WISSENSCHAFT, TECHNOLOGIE UND ENTWICKLUNG

FORSCHUNG SPEZIAL

MI., 17. 4. 2013 11

Vorsorgen für den Notfall auf dem Mars Seite 16 Visualisierung des Lebens Seite 15

derStandard.at/Forschung

Berechnung des Herzens

Grazer Forscher bauen das menschliche Herz im Computer nach. Ihre Simulationen sollen dazu dienen, Menschen mit gezielten, aber schmerzfreien Stromstößen vor dem Herztod zu bewahren. Die virtuellen Modelle benötigen allerdings eine enorme Rechenleistung.

Alois Pumhösel

Ein elektrischer Impuls breitet sich aus. In rasender Geschwindigkeit springt er von einer menschlichen Zelle zur nächsten. Die Impulse formen sich zu einer elektrischen Welle, die sich über das ganze Organ legt. Die Erregung strömt durch die Muskelfasern und löst eine mechanische Kontraktion aus. Der ganze Muskel verformt sich, zieht sich blitzartig zusammen und dehnt sich wieder aus. Das Herz hat geschlagen. Blut wird durch den Körper gepumpt, und im Sinusknoten des Organs entsteht der nächste Impuls.

Im Herzen greifen elektrochemische und mechanische Prozesse schnell und präzise ineinander. „Keinem menschlichen Geist ist es möglich, sich die Millionen parallelen Vorgänge vorzustellen, die im Herzen ablaufen", sagt Gernot Plank vom Institut für Biophysik an der Med-Uni Graz. Um sich ein genaues Bild machen zu können, müssen Plank und sein Team Supercomputer bemühen.

In dem vom Wissenschaftsfonds FWF geförderten Spezialforschungsbereich Mathematische Optimierung mit Anwendungen in den biomedizinischen Wissenschaften arbeiten sie an Simulationen des Herzens. Der Prozess eines Herzschlags wird dabei in zigtausende kleinste Zeiteinheiten zerlegt, für die jeweils der Zustand kleinster räumlicher Einheiten des Organs berechnet wird.

Die gegenseitige Beeinflussung der Zellen, die miteinbezogen werden muss, hat einen enormen Rechenaufwand zur Folge. Dadurch „entstehen enorme Gleichungssysteme mit 30 bis 100 Millionen Unbekannten, die hunderttausende Male gelöst werden müssen", erklärt Plank. Die Simulation eines einzigen Herzschlags wird so zu einer monumentalen Rechenaufgabe, die im Supercomputer, auf 16.000 Rechenkerne verteilt, immerhin noch einige Minuten in Anspruch nimmt. Im Zuge ihres Projekts „Magics" greifen die Grazer Forscher über die europäische Supercomputerorganisation Prace (Partnership for Advanced Computing in Europe; *siehe Artikel unten*) auf den französischen Großrechner Curie zu.

Modell der Zelle als Basis

„Durch die postgenomische Biologie steht uns ein enormer Wust an Daten zur Verfügung", sagt Plank. Daten, die Forscher in originalgetreue virtuelle Abbilder, sogenannte In-silicio-Simulationen biochemischer Prozesse oder ganzer Organe integrieren können.

Die Simulationen basieren auf Zellmodellen als kleinster Einheit, die von Mathematikern und Biologen gebaut werden, und subzelluläre Funktionen von Ionenfluss durch Zellmembranen über den Kalziumstoffwechsel bis zur Zellatmung beinhalten. Mehrere Millionen Zellen werden bei den Simulationen verschaltet. „So wie man anhand eines Wassertropfens nicht verstehen kann, wie ein Tsunami entsteht, kann man auch das Herz nicht verstehen, wenn man nur eine einzelne Zelle darstellt", sagt Plank.

Die anatomischen Daten über die physische Verformung resultieren aus dem bildgebenden Verfahren einer Magnetresonanztomografie (MRT). Die elektrische Funktion kann man über ein Standard-EKG abschätzen, erklärt Plank. Genauer und aufwändiger sind Mapping-Techniken, bei denen Katheter im Herzen elektrische Potenziale aus dem Herzinneren ableiten. Hat man ein virtuelles Modell geschaffen, muss es „parametrisiert" werden. Es sei keine leichte Aufgabe, ein derart komplexes System so einzustellen, dass sich ein reales, biologisches Herz in allen Funktionen und Eigenschaften genau abbildet.

Individuelle Elektroschocks

Ziel ist es, diagnostische und therapeutische Erkenntnisse von den virtuellen Herzen ableiten zu können. Sie sollen beispielsweise dazu dienen, Nebenwirkungen von Medikamenten zu prophezeien oder sogenannte implantierbare Kardioverter-Defibrillatoren (ICD) auf die individuellen Eigenschaften eines Herzens einzustellen. Wenn ein plötzlicher Herztod droht, geben diese Geräte im Körper gezielt Stromstöße ab, um den Muskel schnell wieder in Gang zu bringen.

Die ICD sind allerdings noch ungenau: Ein Großteil der abgegeben Elektroschocks ist unnötig, und für viele Patienten sind sie äußerst schmerzhaft. „Mithilfe der Simulationen sollen die elektrischen Felder, die die ICDs produzieren, individuell ‚ihren' Herzen angepasst werden, um mit möglichst wenig Energie sicher zu defibrillieren", sagt Plank. „Im besten Fall sind die Stromstöße dann schmerzfrei."

Kollektiv kalkulierende Kerne

Europa teilt seine Superrechner-Kapazitäten auf Forschung und Industrie auf

Der französische Großrechner Curie, an dem die Herzsimulationen der Med-Uni Graz *(siehe oben)* gerechnet werden, steht seit 2012 für Anwendungen aus Forschung und Industrie zur Verfügung. Curie kommt auf eine Leistung von 1,36 Petaflops, kann also pro Sekunde 1,36 Billiarden Rechenoperationen ausführen.

Als Petaflop-Rechner ist Curie im Zusammenschluss europäischer Großrechnerinfrastrukturen Prace integriert. Dasselbe gilt etwa für SuperMUC am Leibniz-Rechenzentrum bei München oder Mare-Nostrum an der Universitat Politècnica de Catalunya in Barcelona. Die rasante technische Entwicklung macht stetige Nachrüstungen notwendig. Die von der EU geförderte Organisation Prace in Brüssel veranstaltet regelmäßig Calls zur Nutzung der Großrechner, die sich sowohl an Wissenschafter und forschende Institutionen als auch an Klein-, Mittel- und Industriebetriebe richtet. Ausgewählte Projekte wie die Organsimulation, die Berechnung von Sonnenstürmen oder komplexer Enzymstrukturen bekommen Rechenzeiten auf passenden Infrastrukturen zugeteilt.

Ansprechpartner für Prace in Österreich ist das Forschungsinstitut Risc der Johannes-Kepler-Universität Linz, das den Projekten bei der Portierung, also der „Übersetzung" der Anwendungen für die Großrechner unterstützt. „Die Schwierigkeit ist, dass die Algorithmen so programmiert werden, dass sie zigtausende Rechnerkerne gleichzeitig verwenden können", erklärt Michael Krieger von Risc. Teilweise werde mit Software gearbeitet, die schon jahrzehntealt ist, und stetig erweitert wurde. Sie müssen in die Sprache der Großrechner mit ihren Multikernsystemen und speziellen Grafikkarten übersetzt werden. Prace bietet zudem Ausbildungen für Softwareentwicklung und die Nutzung großer Recheninfrastrukturen, die in Österreich derzeit aber nicht voll ausgeschöpft werden, so Krieger.

Österreichs schnellster Computer, Vienna Scientific Cluster 2, schafft übrigens mit 153 Teraflops gut ein Zehntel der Leistung Curies. Der zurzeit schnellste Rechner steht in den USA: „Titan" des Oak Ridge National Laboratory kommt auf 17,59 Petaflops. (pum)

www.prace-ri.eu

6.2 Czech Republic News Clipping

Magazine: Czech Focus
Date of publication: May 2013
Title: IT4Innovations to build the first supercomputer in the Czech Republic

IT4Innovations is an institution comprising a supercomputing centre and a centre of excellence where research and innovation go hand in hand with high performance computing (HPC) systems. There are five partners involved in the project: Technical University of Ostrava, University of Ostrava, Silesian University in Opava, Brno University of Technology and the Institute of Geonics of the Academy of Sciences of the Czech Republic.

The IT4Innovations National Supercomputing Centre will employ approximately 200 highly qualified researchers. Project costs amount to CZK 1.8 billion (approx. EUR 69 million) for the period 2010-2015, provided by the Operational Programme Research and Development for Innovation with 85% of funding provided from EU structural funds (European Regional Development Fund) and 15% from the Czech national budget.

The centre has two main objectives. One of them is acquisition of a high-performance supercomputer that is planned to be put into operation in 2014, at which time it should rank among the top 100 most powerful supercomputers in the world. The supercomputer located in Ostrava will be built in two stages. Currently a so-called small cluster is being supplied and a new tender was announced for the delivery of the final part of the supercomputing technology (i.e. the large cluster).

The second objective involves research activities and the unification of a wide range of fields of knowledge and science around the central theme of information technologies, thus not only achieving advances in informatics and computational mathematics as such, but also supporting the development of all the fields involved.

The supercomputer will be available not only to scientists but also to representatives of industry. "We want it to be used for meaningful tasks that will benefit both Czech society as well as science and research at the European level", explains Martin Palkovič, director of IT4Innovations. "In industry, the supercomputer will save time and help solve problems that would otherwise be very difficult to address. Being faster and offering products and services that are superior to those of competitors is the key to the success of any business today," continues Martin Palkovič.

Interested parties from industry can request cooperation with one of the eight IT4Innovations research teams that are divided into five groups based on their field of expertise, i.e. earth sciences, life sciences, engineering, new materials and embedded systems.

IT4Innovations has already started the distribution of the computational resources of the small cluster. Researchers from non-partner institutions could apply for access through the first round of the Open Access Competition, the deadline for which was on March 4. The first round of the Internal Access Competition for employees was held at the same time. All of the applications are now undergoing scientific, technical and economic evaluations. Both of the competitions will be held regularly. The Internal Access Competition is held four times a year and the Open Access Competition is held twice a year.

PRACE Research Infrastructure

IT4Innovations is also a member of the prestigious Partnership for Advanced Computing in Europe (PRACE) infrastructure. PRACE was established as an international non-profit association based in Brussels. It has 25 member countries whose representative organisations comprise a pan-European supercomputing infrastructure. Thanks to the membership of IT4Innovations, all researchers from both academia and industry from the Czech Republic have access to the most powerful supercomputers in Europe through three forms of access. Preparatory access is intended for resource use required to prepare proposals for project access. Applications for preparatory access are accepted at any time, with a cut-off date every three months. Project access is intended for individual researchers and research groups including multinational research groups and has a duration of one year. Multi-year access is available to major European projects and infrastructures that can benefit from PRACE resources and for which project access is not suitable. Multi-year and project access are subject to the PRACE peer review process.

PRACE has an extensive education and training programme to ensure effective use of the research infrastructure. The aim of PRACE RI training is to provide a sustained, high-quality training and education service for the European HPC community through seasonal schools, workshops and scientific and industrial seminars in order to effectively exploit the unprecedented capabilities of HPC resources. This year's PRACE Summer School will be organised in June in Ostrava. It will welcome around 60 participants from all over Europe. The tutorials will be presented by outstanding specialists, mostly leaders or members of the development teams from renowned institutions. ■

Karina Pešatová
PR and marketing coordinator
IT4Innovations

6.3 Ireland News Clipping

Magazine: Irish Times
Date of publication: 7 February 2013
Title: Computers essential to advances in research

Computers essential to advances in research

By PETER LYNCH
Last Updated: Thursday, February 7, 2013, 00:00

THAT'S MATHS: A supercomputer can do in an hour what it would take 10 billion people 10 years to calculate

Will computers ever be able to do mathematical research? Computers have amazing power to analyse huge data-bases and carry out extensive searches far beyond human capabilities. They can assist mathematicians in checking cases and evaluating functions at lightning speed, and they have been essential in producing proofs that depend on exhaustive searches.

The four-colour theorem, which states that four colours suffice for a map with neighbouring regions having distinct colours, was first proposed in 1852. It resisted all attempts at proof until 1989, when it became the first major theorem to be proven with substantial computer assistance.

Automatic Theorem Proving (ATP) is a developing branch of computer science. With the blistering pace of technological advances, the goal of generating proofs using computers looks increasingly realistic. In 1950, the early computer called ENIAC (Electronic Numerical Integrator and Computer) was five orders of magnitude faster than a human: that is, it could calculate as fast as 100,000 people.

Vital role

Today, supercomputer speeds are measured in Petaflops - one thousand million million calculations per second. That is five orders of magnitude faster than Earth's entire human population. These supercomputers can do in one hour what would take 10 billion people, calculating day and night, about 10 years.

But computers have another vital role in science: the simulation of physical systems ranging from sub-atomic to cosmic scales. Many fields now require complex simulations and calculations that are feasible only with high-performance computers. Irish researchers working on climate prediction, modelling the birth of stars, fluid dynamics, chemical engineering, biomedical modelling and nuclear physics are using supercomputers for their work.

Access to supercomputers allows researchers to run complex simulations and calculations. The Irish Centre for High-End Computing (ichec.ie) is Ireland's national high-performance computer-service provider.

Weather forecasts

Many researchers in Irish academic institutions are benefiting from computational time at ICHEC, producing significant scientific breakthroughs and articles in leading journals. Met Éireann's weather forecasts are also run on ICHEC computers.

But some research requires computer power greater than anything available in Ireland. ICHEC is a member of Prace, the Partnership for Advanced Computing in Europe (prace-ri.eu), and Irish researchers are gaining benefits from Prace through access to Europe's fastest computers. This is enabling them to carry out world-class science and engineering research.

The applications of supercomputing are almost boundless and will only increase in the future. Ireland's participation in Prace means that Irish scientists will have access to emerging computer technology. This week, Prace held a council meeting in Dublin to plan the next phase of the partnership.

What about pure mathematics? Although computer proofs are scorned by some mathematicians, it seems to me that they will ultimately be better than humans at generating and solving mathematics problems. Progress in automatic theorem-proving software over recent decades has been impressive.

Although mathematics involves drawing logical conclusions from stated axioms, which can be mechanised, aesthetics plays a central and indeed essential role. Mathematicians are motivated by curiosity and seek results that are interesting, elegant and beautiful. How will computers do this? Watch this space.

Peter Lynch is professor of meteorology at University College Dublin. He blogs at thatsmaths.com

6.4 Slovenia News Clipping

Magazine: VENTIL
Date of publication: April/May 2013
Title: Uspešen zaèetek superraèunalniškega projekta PRACE v Sloveniji

PREDSTAVITEV

Uspešen začetek superračunalniškega projekta PRACE v Sloveniji

Goran TOMŠIČ

Fakulteta za strojništvo Univerze v Ljubljani je pred enim letom postala slovenska predstavnica in članica v združenju PRACE – Partnerstvo za napredno računalništvo v Evropi (Partnership for Advanced Computing in Europe).

PRACE združuje vodilne nacionalne centre za superračunalništvo članic Evropske unije in povezanih držav. Povezava med njimi je obenem začetek panevropskega povezovanja superračunalniške infrastrukture, ki omogoča boljši dostop do tega ključnega razvojnega resursa.

Z vstopom v povezavo je Fakulteta za strojništvo UL prevzela del odgovornosti za skupna evropska prizadevanja pri pospeševanju odmevnih znanstvenih dosežkov ter inženirskega razvoja, ki vodi do večje konkurenčnosti Evrope in ima koristne učinke na družbo.

Dejstvo, da gre za resno in odločno pobudo Evropske unije, dokazuje tudi dejstvo, da skupno financiranje projektov PRACE s strani Evropske komisije trenutno dosega 100 milijonov EUR.

Dekan UL FS prof. dr. Jožef Duhovnik ocenjuje, da je članstvo v PRACE veliko priznanje fakultetnim naporom na področju HPC-računalništva, vendar obenem velik izziv: »Upravičiti moramo zaupanje države in evropskih partnerjev, ne le v razvojno-tehnološkem smislu, ampak predvsem tudi s spodbujanjem in omogočanjem uporabe superračunalništva v izobraževanju in industriji.«

Članice združenja PRACE (vir: prace-ri.eu)

UL FS je že v celoti integrirala lasten superračunalnik v svoje študijske in raziskovalno-razvojne aktivnosti. Fakultetni laboratoriji se lahko že pohvalijo s trinajstimi odmevnimi projekti za industrijo, ki so dokazali številne prednosti tega pristopa v praksi.

Med projekti najdemo napredne simulacije s področja termodinamike in varnosti cestnih ter terenskih vozil, numerično modeliranje in optimizacijo geometrije prostih površin, kot tudi raziskave povezane s paralelnim procesiranjem podatkov (vse podrobnosti o projektih so na voljo na spletnem naslovu *http://hpc.fs.uni-lj.si/project*).

Vendar naloga fakultete kot nacionalnega partnerja ni le, da sama uporablja to izjemno orodje, ampak da obenem spodbuja uporabo superračunalništva v industriji, kjer so možni številni prihranki in bistveno večja učinkovitost izrabe razvojnih kapacitet.

Drugi pomemben steber delovanja PRACE je spodbujanje dijakov in študentov, da razvijajo kompetence

92 Ventil 19 /2013/ 2

v superračunalniškem okolju. Vodja projekta HPC na UL FS doc. dr. Leon Kos poudarja, da fakulteta vlaga veliko energije v popularizacijo te tematike med mlajšo generacijo.

Novembra lani so tako izvedli tridnevno šolo superračunalništva za 40 dijakov izbranih srednjih šol – Gimnazija Bežigrad, Gimnazija Vič, Škofijska Gimnazija, Vegova Gimnazija, Šolski center Novo mesto (Tehniška gimnazija), Druga Gimnazija Maribor in Šolski center Celje (Elektro- in računalniška srednja šola).

Poleti 2013 bodo gostili mlajše podiplomske študente v sklopu mednarodnega projekta izmenjave PRACE Summer of HPC, ki se pod vodstvom mentorjev seznanjajo z uporabo HPC v znanosti in tehniki. Kot rezultat 10-tedenskega dela pa bodo nastale privlačne in uporabne vizualizacije.

Dr. Kos napoveduje, da bo s temi in številnimi drugimi aktivnostmi UL FS stopnjevala zavedanje o pomenu HPC-tehnologije za razvoj družbe,

Udeleženci in vodji 1. PRACE šole superračunalništva v Sloveniji (vir: arhiv UL FS)

saj kot pravi: "Nekoč je bil odraz razvoja odgovor na vprašanje, katera država ima jedrsko zmogljivost, danes pa je bolj pomembno vprašanje, katera država ima in zna uporabljati superračunalniške kapacitete."

Zato je pomembno nenehno nadgrajevati stopnjo znanja in kompetenc tega področja. V tem duhu bo septembra potekala PRACE jesenska šola 2013, mednarodni simpozij na temo premagovanja izzivov uporabe HPC-orodij v industriji. Poseben poudarek bo na zahtevah avtomobilistične, letalske in energetske industrije, kjer so možni izjemni učinki in prihranki stroškov.

Goran Tomšič,
UL, Fakulteta za strojništvo

Mednarodna robotska konferenca RAAD 2013

V Portorožu bo od 11. do 13. septembra 2013 potekala 22. mednarodna konferenca International Workshop on Robotics in Alpe-Adria-Danube Region, RAAD 2013. Konferenca je prvenstveno namenjena tesnejšemu povezovanju razvojnikov, raziskovalcev in uporabnikov robotskih tehnologij na območju dežel Alpe-Jadran-Donava, ki pa je z leti prerasla te okvire in se je udeležujejo raziskovalci s celega sveta. V duhu povezovanja sosednjih pokrajin konferenca vsako leto poteka v eni izmed dežel Alpe-Jadran-Donava. Prvič smo jo organizirali leta 1992 prav v Portorožu. V skladu s tradicijo bodo osrednje teme: kognitivna robotika, biološko motivirana robotika, izobraževanje v robotiki, zgodovina robotike in avtomatskega vodenja, vmesniki med človekom in robotom, humanoidni in hodeči roboti, industrijska robotika, robotika v medicini, mobilni roboti, novi mehanizmi, kinematika in dinamika robotskih mehanizmov, robotski vid, učenje robotov, servisna robotika ter mikro- in nanorobotika.

Na konferenci, ki bo potekala v kongresnem centru Metropol v Portorožu, pričakujemo od 80 do 100 udeležencev. V treh konferenčnih dneh bodo potekale predstavitve v dveh paralelnih sekcijah. Vsak dan bomo začeli z uvodnim predavanjem mednarodno priznanih robotikov. Letos bodo uvodni predavatelji:

- prof. Auke Ijspeert, vodja biorobotskega laboratorija na EPFL, Lausanne, Švica,
- dr. Alin Albu-Schäffer, vodja inštituta za robotiko in mehatroniko, DLR, Nemčija,
- prof. I-Ming-Chen, predavatelj na oddelku za mehaniko in aeronavtiko, Nanyang Technological University, Singapur.

Na konferenci bomo podelili nagrade za najboljši znanstveni prispevek in najboljše študentsko delo. Vzporedno bosta potekali tudi predstavitev in razstava domačih in tujih proizvajalcev robotov in tehnologij, ki se uporabljajo v robotiki in avtomatizaciji procesov. Vabimo vas, da obiščete spletno stran konference www.raad2013.org, kjer se lahko tudi prijavite kot udeleženec ali oddaste svoj prispevek. Za vse dodatne informacije pa vas vljudno prosimo, da se obrnete na predsednika organizacijskega odbora RAAD 2013 dr. Bojana Nemca (*bojan.nemec@ijs.si*) ali na dr. Leona Žlajpaha (*leon.zlajpah@ijs.si*).

Magazine: racunalniske-novice
Date of publication: April 2013
Title: Tesnejše povezovanje med Evropo in Kitajsko na področju superračunalništva

22.04.13 Tesnejše povezovanje med Evropo in Kitajsko na področju superračunalništva

Piano omogoča neomejen dostop do vseh vsebin. Že od 1,99 EUR dalje - VEČ INFORMACIJ

Računalniške novice

Novice | Triki | Forum | Revija | Igre | Akcije in licitacije | IT podjetja | Zaposlitveni oglasi | Dogodki | Izobraževanja | RN VIP

Novice Dogodki in obvestila

19.04.2013 16:39

Tesnejše povezovanje med Evropo in Kitajsko na področju superračunalništva

V bolgarski prestolnici Sofiji je ta teden potekala prva evro-kitajska konferenca o superračunalništvu (HPC), pod pokroviteljstvom mednarodne organizacije PRACE. Organizatorji si želijo doseči močnejšo povezovanje med Evropo in Kitajsko, posebej v smislu tesnejšega sodelovanja pri strokovnem, tehnološkem in strateškem načrtovanju in razvoju tega področja.

Namen dogodka pa je tudi doseči skupno razumevanje izzivov in priložnosti, ki jih ta tehnologija omogoča na področju znanstvenega raziskovanja ter predvsem z vidika industrijske konkurenčnosti in inovacijskega potenciala.

V zadnjih letih je namreč bilo veliko poudarka prav na uporabi HPC v znanstvenem okolju, kjer si dostop do enega superračunalnika deli tudi več tisoč uporabnikov posamezne univerze ali univerzitetne mreže. Po drugi strani pa je Podjetij, ki bi bila tako velika, da bi lahko sama vzpostavljala in izrabljala tovrstne kapacitete, relativno malo.

Zato se je razprava na konferenci dotikala dveh vsebinskih vprašanj – kako skupaj voditi razvoj tega področja in kako usmerjati ter omogočati uporabo HPC v industrijskih okoljih na način, ki bo omogočal kakovostni preskok v delu raziskovalnih oddelkov manjših, srednjih in velikih podjetij.

Prav slednji izziv se v pomembni meri navezuje na Slovenijo, bolj natančno na Fakulteto za strojništvo UL in njene partnerje kot je podjetje Arctur iz Nove Gorice. Direktor Arcturja, g. Tomi Ilijaš je bil govornik na dogodku, kjer je predstavil načrte za bistveno povečanje dostopnosti do HPC resursov za mala in srednja podjetja, ki tvorijo čez 90 % podjetij v Evropi.

Poudaril je, da je pomembno postaviti fokus tudi na gospodarsko izrabo HPC. Pri tem danes ni več izziv tehnologija, saj je računalništvo v oblaku, skupaj s hitrim internetom, omogočilo preprosto deljenje oziroma najem superračunalniških kapacitet. Glavni izziv je ozavestiti podjetja o prednostih in jim pomagati z različnimi računalniškimi, razvojnimi in poslovnimi znanji, da spremenijo svoj način dela.

Prednosti v razvojnem času in kvaliteti rezultatov so izjemne. Med odličnimi dokazi na tem področju najdemo imena kot so Pipistrel, ki razumejo in izrabljajo prednosti superračunalništva v oblaku za doseganje razvojnega preboja.

"Vprašanje ali uporabljaš superračunalnik bo kmalu podobno kot vprašanje ali uporabljaš internet. Zato danes močno vlagamo v prihodnost in želimo skupaj s partnerji prevzeti primat na tem področju. Pred kratkim smo podpisali sporazum o sodelovanju z vodilnim kitajskim superračunalniškim dobaviteljem INSPUR, s katerim nameravamo vzpostaviti sodoben superračunalniški center na Goriškem" dodaja g. Ilijaš.

Sprememba v miselnosti mora seveda priti tudi s strani akademskega okolja. Fakulteta za strojništvo UL v tem smislu igra pomembno vlogo, saj kot članica evropske mreže PRACE ima nalogo, da ustvarja spodbudne pogoje za oprijem HPC v gospodarstvu in izobraževanju. Zato poleg partnerstev s podjetji kot je Arctur, na fakulteti vlagajo številne napore v popularizacijo tega področja v družbi ter izobraževanje mladih strokovnjakov za delo v HPC okoljih.

Naslednja novica: Prve fotografije supermobilnika Nokia Lumia 928
Pretekla novica: Uporabniki objavili prve videoposnetke, zajete z očali Google Glass

Prejmite najbolj vroče in najbolj uporabne računalniške novice na vaš e-poštni naslov

Ne zamudite več nobene pomembne novice ali nasveta iz sveta računalništva.
Naročite se na našo brezplačno e-izdajo, in prejmite še množico dodatnih ugodnosti.

Vpišite svoj e-poštni naslov ... Želim svojo brezplačno e-izdajo

100 % skrbno bomo varovali vašo zasebnost in odnaročili se boste lahko kadarkoli!

SPONZORIRANO

Fon - svetovna WiFi skupnost

Norman Security Suite PRO

HITACHI INDUSTRIJSKI TISKALNIK

industrijski LED reflektor

ANKETA

Že imaš kakšen Bitcoin?

TOP MESECA IZ TRENUTNE RUBRIKE

ZADNJE KOMENTIRANE NOVICE

https://www.racunalniske-novice.com/novice/dogodki-in-obvestila/tesnejse-povezovanje-med-evropo-in-kitajsko-na-podrocju-superracunalnistva.html?RSSd9... 1/2