



2068-1

Advanced School in High Performance and GRID Computing -Concepts and Applications

30 November - 11 December, 2009

Introduction to the school

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High Performance
and GRID Computing:
concepts and applications



INTRODUCTION TO the school

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ICTP HPC/GRID School 2009 - Trieste, Italy - November 30- December 11, 2009

Our Goals

- To provide an overview of HPC and GRID computing concepts required for computational science.
- How to get the most out of (limited) computational resources.
- For those who will be facing careers in computational science to provide them with a list of what they will need to know well to be able to build or interact with a computational infrastructure.
 - to raise general awareness of IT issues amongst researchers in computational science.
 - To provide knowledge base to facilitate communication with people working in IT.

Structure of the school: 1st week

- First week will focus on introductory and intermediate skills.
 - Lab exercises will be uniform among participants and provided by the staff.
 - lectures are mandatory
 - Every day in the early morning a short discussion/review of the previuous day.
- Long days:
 - lectures in the morning
 - lab in the afternoon
 - Home work in the evening
 - Long Week: saturday morning is a working day..

Structure of the school: 2nd week

- Second week will present advanced topics:
 - Plenary Lectures on the first part of morning mandatory
 - Rest of the day people will be split into three different labs:
 - Hardware Lab: oriented to sys.adm and people requested to build cluster infrastructure
 - Software/Optimization/GPU labs: people interested in optimizing and parallezing their applications and port/play with GPU cards
 - Grid Lab: people interested in exploring this kind of infrastructures and the chances offered
 - work will be more individual.
- More information on next Monday and by Axel

Survival tips

- •Lectures will focus on introduction to most important IT topics for high performance Computing (HPC) and GRID
- •Only basics are covered: we only help you know "what you need to know".
- •Best source of detailed info: the web (encyclopedia Google, wikipedia)
- •Many concepts in the course are extensively applied in the lab-which is *mandatory*.

Moodle e-learning platform

- the official and authoritative place where program, exercises and lessons slides are posted.
- your main tool to give feedback to us
- you are requested to report daily during the school by means of the blog provided
- We will show you how to use it at the beginning of the lab this afternoon.
- Tutors will check your contribution in order to better tune exercises and lectures.

Again on moodle:

- You should already have enrolled in our course and you should also have taken the first preliminary things:
 - Quiz on Linux
 - Survey to let us know your interested and expectation about the school
 - Lessons on basic linux
- If you do not have an account yet contact us during coffee break.
- For any problem related to moodle send an email to albecamp@democritos.it

Labs for the first week:

- Beginners:
 - people with little or no experience using Linux
- Intermediate
 - more experienced people
- Materials/Exercises will almost be the same but presented at different pace
- You should already know which lab to join based on the results of the preliminary tests.
- Lists are in any case posted on the door of the lab

More on the lists

- If you are NOT on the lists fill in the questionnaire ASAP and then contacts us (Stefano&Axel)
- If you consider our choice inappropriate please contact us (Stefano&Axel) to discuss.
- DO NOT CHANGE LAB without informing us
- Arrangements can also be possible by the end of today..

In the lab:

- Try to use always the same computer for all the exercises and all the days.
- Strictly follow what is presented on moodle pages
- If you have suggestion/improvement on the exercises tell us: we will do our best to bring them in..
- If the pace is too slow for you do not go ahead but try to help other people to keep up
- Exercises requires some written report: take your time to do this.

homeworks:

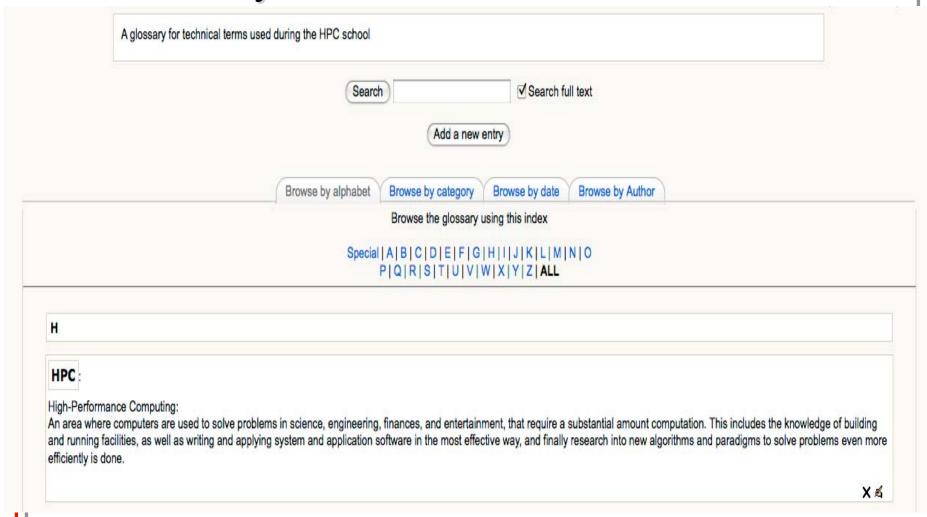
- Take the quiz at the end of the day
- Blog about the day activities and your impressions
- Contribute to the glossary
 - Each day selected students should define a list of terms related to lectures/exercises.
 - Today list of terms:

CPU / GHz / parallel computing / peak performance / NUMA Architecture /

MegaFLOP/ cluster computing / top500 sustained performance

List of students announced in labs

Glossary on moodle



How to get your certificate

- Attendance is mandatory. If you need to be somewhere else please clear it with us first.
- Participants will be asked to keep a blog on moodle. This blog will be monitored by course staff to keep them up to date on the progress of each student.
- Lab participants: must write a brief 1-2 paragraph description of what they did on their blog. Some students will be asked to make a small presentations.
- IF you are caught using ICTP resources for hacking purposes you will be expelled from the course without being awarded a certificate as well as other punitive measures.

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