Computing R&D Workshop 2011

Report of Contributions

https://agenda.infn.it/e/3868

Contribution ID: **0** Type: **not specified**

Welcome

Monday, 4 July 2011 14:00 (10 minutes)

Presenter: BETTONI, Diego (FE)

Session Classification: Introduction, SuperB Status and goals for the workshop

Contribution ID: **1** Type: **not specified**

Status of SuperB

Monday, 4 July 2011 14:10 (40 minutes)

Presenter: BIANCHI, Fabrizio (TO)

Session Classification: Introduction, SuperB Status and goals for the workshop

Contribution ID: **2** Type: **not specified**

Goals of the Workshop

Monday, 4 July 2011 14:50 (40 minutes)

Presenter: Dr ELMER, Peter (Princeton University)

Session Classification: Introduction, SuperB Status and goals for the workshop

Contribution ID: **4** Type: **not specified**

Future of distributed data management systems

Wednesday, 6 July 2011 08:30 (25 minutes)

Presenter: Dr FURANO, Fabrizio (CERN)

Session Classification: Distributed Computing (I)

Contribution ID: **5** Type: **not specified**

Future of Grid parallel exploitation, Grid MPI

Wednesday, 6 July 2011 08:55 (25 minutes)

Parallelism support in the current grid middleware (gLite) and in the forthcoming EMI middleware will be overviewed, with special focus on the new features (support of the Wholenodes reservation, CPU affinity and hybrid MPI-openMP programming). Eventually I will shortly present the experience of parallel clusters installed in grid and supporting a preliminary version of these new features.

Presenter: ALFIERI, Roberto (PR)

Session Classification: Distributed Computing (I)

Contribution ID: **6** Type: **not specified**

Future of Grid resource exploitation systems

Wednesday, 6 July 2011 09:20 (25 minutes)

Presenter: GRACIANI, Ricardo (Barcellona University)

Session Classification: Distributed Computing (I)

Contribution ID: **7** Type: **not specified**

LHC current and future proposals

Wednesday, 6 July 2011 11:00 (25 minutes)

In this talk we'll present the current solutions adopted for the LHC Computing and their evolutions, with a final overview of a possible future scenario of the HEP Computing Models and tools.

Presenter: DE SALVO, Alessandro (ROMA1)

Session Classification: Distributed Computing (II)

Contribution ID: **8** Type: **not specified**

Evolution of the distributed computing model - The case of CMS

Wednesday, 6 July 2011 11:25 (25 minutes)

The presentation starts from the description of how the CMS experiment is changing its approach in the exploitation of distributed resources and concludes with thoughts on possible evolutions for the future of HEP experiments.

Presenter: GRANDI, Claudio (BO)

Session Classification: Distributed Computing (II)

Contribution ID: **9** Type: **not specified**

Middleware Evolution in EMI

Wednesday, 6 July 2011 11:50 (25 minutes)

Presenter: Dr GIACOMINI, Francesco (CNAF)

Session Classification: Distributed Computing (II)

Contribution ID: **10** Type: **not specified**

Discussion

Wednesday, 6 July 2011 09:45 (20 minutes)

Session Classification: Distributed Computing (I)

Contribution ID: **11** Type: **not specified**

Discussion

Wednesday, 6 July 2011 12:15 (45 minutes)

Session Classification: Distributed Computing (II)

Contribution ID: **12** Type: **not specified**

Quality check tools for software developers

Tuesday, 5 July 2011 17:00 (20 minutes)

Presenter: FRANCESCO GIACOMINI (CNAF)

Session Classification: Software Development Tools

Contribution ID: **13** Type: **not specified**

ALICE experience using Coverity

Tuesday, 5 July 2011 17:20 (20 minutes)

This talk will convey the experience of using Coverity for AliRoot software in A Large Ion Collider Experiment (ALICE). AliRoot consistently undergoes intensive development and release cycles, thus creating an increasing demand for automated high precision tools aiding developers in maintaining coding standards and ensuring code correctness. Coverity as a software solution, providing both static code analysis facilities and a centralised web interface, is actively enforced within the collaboration. The talk will start by describing the approach taken to set up Coverity and the automation process. It will also look at the use policy and the observed effects. The presentation will then explore checkers of varying impact with few examples of observed defects. In addition, examples of false positive cases will be presented with an explanation on how to model Coverity to ignore them. Thirdly, the talk will provide a critical evaluation of the application of Coverity to the AliRoot code with some considerations on the usage of automated tools in High Energy Physics (HEP) experiment software development. In conclusion, the talk will explore additional tools extensively used within ALICE for ensuring good coding standards.

Presenter: OLGA DATSKOVA (CERN)

Session Classification: Software Development Tools

Contribution ID: **14** Type: **not specified**

Experience in using Etics, a multi-platform and open source build and test system for big software projects

Tuesday, 5 July 2011 17:40 (20 minutes)

Presenter: ELISABETTA RONCHIERI (CNAF)

Session Classification: Software Development Tools

Contribution ID: **15** Type: **not specified**

CMS build and integration workflows: present and future perspectives

Tuesday, 5 July 2011 18:00 (20 minutes)

Presenter: GIULIO EULISSE (NORTHEASTERN UNI)

Session Classification: Software Development Tools

Contribution ID: **16** Type: **not specified**

Evaluation of the Git Version Control System

Tuesday, 5 July 2011 18:20 (15 minutes)

Presenter: MARCO CORVO (CNRS & INFN)

Session Classification: Software Development Tools

Contribution ID: **17** Type: **not specified**

HEP software on Multicore: present experience and perspectives

Tuesday, 5 July 2011 08:30 (1 hour)

Presenter: INNOCENTE, Vincenzo (CERN)

Session Classification: New CPU Architectures, GPU's and Framework (I)

Contribution ID: **18** Type: **not specified**

SuperB R&D on going on storage and data access

Wednesday, 6 July 2011 14:00 (25 minutes)

Presenter: Dr PARDI, Silvio (INFN Napoli)

Session Classification: Storage (I)

Contribution ID: **19** Type: **not specified**

The Storage @ INFN Tier1: status and perspective

Wednesday, 6 July 2011 14:25 (25 minutes)

Presenter: DELL'AGNELLO, Luca (CNAF)

Session Classification: Storage (I)

Contribution ID: **20** Type: **not specified**

Distributed Tier1: NDGF experience and future developments

Wednesday, 6 July 2011 14:50 (25 minutes)

Presenter: GERD BEHRMANN (NDGF)

Session Classification: Storage (I)

Contribution ID: **21** Type: **not specified**

EMI Storage Evolution

Wednesday, 6 July 2011 15:15 (25 minutes)

Presenter: PATRICK FUHRMANN (DESY)

Session Classification: Storage (I)

Contribution ID: **23** Type: **not specified**

DataManagement in LHC experiments

Wednesday, 6 July 2011 17:00 (25 minutes)

Presenter: BONACORSI, Daniele (BO)

Session Classification: Storage (II)

Contribution ID: **24** Type: **not specified**

HDFS and Remote Xrootd in a CMS Tier2

Wednesday, 6 July 2011 15:40 (25 minutes)

Presenter: Dr BOCKELMAN, Brian

Session Classification: Storage (I)

Contribution ID: **25** Type: **not specified**

Discussion

Wednesday, 6 July 2011 16:05 (25 minutes)

Presenter: ALL

Session Classification: Storage (I)

Contribution ID: **26** Type: **not specified**

Discussion

Wednesday, 6 July 2011 17:50 (1 hour)

Presenter: ALL

Session Classification: Storage (II)

Contribution ID: **27** Type: **not specified**

The SuperB Accelerator Control System - Plans and R&D Status

Tuesday, 5 July 2011 14:30 (40 minutes)

!CHAOS is a new project under development at INFN aimed at the design and validation of a new paradigm of control system for particle accelerators that goes beyond the so called standard model. The key points of the new development are the high level of abstraction of services and components, the implementation of high-performance software technologies for the continuous distribution and storage of data, a new topology allowing high scalability of services and performance, an intrinsic redundancy of components avoiding any point of failure. The talk will present the !CHAOS design concept, the preliminary results, the future research
program and the plans in the perspective of SuperB project.

Presenter: CATANI, Luciano (ROMA2)

Session Classification: Machine Control System/ETD/Online

Contribution ID: **28** Type: **not specified**

ETD/Online for the SuperB Detector - Plans and R&D Status

Tuesday, 5 July 2011 15:10 (40 minutes)

This talk will give an overview of the proposed Electronics, Trigger, Data Acquisition and Online (ETD/Online) system for the SuperB detector and the associated R&D activities. The current baseline design will allow up to 150 kTriggers/s and 75kByte event size with negligible dead time (<=1%). It builds upon lessons learned in the BaBar and LHC experiments and implements simple, fully synchronous front-ends, a scalable ROM and back-end architecture and utilizes commercial off-the-shelf components where possible.

Presenter: Dr LUITZ, Steffen (SLAC)

Session Classification: Machine Control System/ETD/Online

Contribution ID: **29** Type: **not specified**

Discussion

Tuesday, 5 July 2011 16:00 (30 minutes)

Open discussion of areas of joint interest, common R&D, etc.

Session Classification: Machine Control System/ETD/Online

Contribution ID: **30** Type: **not specified**

Experience and future prospects of Lustre at a large Tier 2 site

Wednesday, 6 July 2011 17:25 (25 minutes)

Presenter: ALEX MARTIN (QUEEN MARY, UNIVERSITY OF LONDON)

Session Classification: Storage (II)

Contribution ID: **31** Type: **not specified**

Accelerator Computing Infrastructure & Controls R&D Introduction

Tuesday, 5 July 2011 14:00 (30 minutes)

The SuperB Accelerator complex requires a large amount of computing tools mainly dedicated to three different purpose: implementation and maintenance of documentation and project management; beam simulation and controls; data monitors, presentation and correlation with the experiment. In the mean time those tools require identification, security, accessibility for large and international community. This is an opportunity to develop new concepts in accelerators controls and realize a new computing infrastructure. Requirements, preliminary ideas and structure design will be presented.

Presenter: MAZZITELLI, Giovanni (LNF)

Session Classification: Machine Control System/ETD/Online

Contribution ID: **32** Type: **not specified**

Computing Resource Estimates for SuperB

Monday, 4 July 2011 17:00 (30 minutes)

Presentation of SuperB computing resource estimates based on an extrapolation from the BaBar computing model. Added 20.9.2011 (Steffen): Please note that cost numbers in the talk are incorrect (based on a typo in the spreadsheet). Please refer to the updated spreadsheet for the correct numbers.

Presenter: Dr LUITZ, Steffen (SLAC)

Session Classification: General Computing Requirements

Contribution ID: **33** Type: **not specified**

Computing Requirements and Crystal Balls

Monday, 4 July 2011 17:50 (30 minutes)

Wild guesses of what might happen in industry and SuperB computing over the next 5-10 years.

Presenter: SALOMONI, Davide (CNAF)

Session Classification: General Computing Requirements

Contribution ID: **34** Type: **not specified**

A Parallelization Exercise

Tuesday, 5 July 2011 09:30 (20 minutes)

Presenter: LONGO, Stefano (PD)

Session Classification: New CPU Architectures, GPU's and Framework (I)

Contribution ID: **35** Type: **not specified**

Discussion

Monday, 4 July 2011 18:20 (40 minutes)

Session Classification: General Computing Requirements

Contribution ID: **36** Type: **not specified**

CMS Computing Resource Planning

Monday, 4 July 2011 17:30 (20 minutes)

The resource planning being done in CMS Computing is taken as an example. The experience in designing, building and running a monthly-granular computing resource spreadsheet is presented. Differences as well as common points with Super-B are highlighted and discussed.

Presenter: BONACORSI, Daniele (BO)

Session Classification: General Computing Requirements

Contribution ID: **37** Type: **not specified**

Performances of some HEP applications

Tuesday, 5 July 2011 09:50 (20 minutes)

Presenter: CIASCHINI, Vincenzo (CNAF)

Session Classification: New CPU Architectures, GPU's and Framework (I)

Contribution ID: **38** Type: **not specified**

Event Processing Frameworks

Tuesday, 5 July 2011 11:00 (20 minutes)

Presenter: Dr ELMER, Peter (Princeton University)

Session Classification: New CPU Architectures, GPU's and Framework (II)

Contribution ID: **39** Type: **not specified**

Physics Simulations on multi- and many-core architectures

Tuesday, 5 July 2011 11:20 (20 minutes)

Presenter: SCHIFANO, Sebastiano Fabio (FE)

Session Classification: New CPU Architectures, GPU's and Framework (II)

Contribution ID: **40** Type: **not specified**

(databases)

Tuesday, 5 July 2011 15:50 (10 minutes)

Presenter: TOMASSETTI, Luca (FE)

Session Classification: Machine Control System/ETD/Online

Contribution ID: **41** Type: **not specified**

Planning of SuperB Computing Infrastructure in Southern Italy

Thursday, 7 July 2011 08:30 (20 minutes)

Presenter: RUSSO, Guido (NA)

Session Classification: R&D support platforms & Action Items Discussion

Contribution ID: **42** Type: **not specified**

Action Items from R&D on new computing architectures

Thursday, 7 July 2011 08:50 (30 minutes)

Presenter: INNOCENTE, Vincenzo (CERN)

Session Classification: R&D support platforms & Action Items Discussion

Contribution ID: **43** Type: **not specified**

Summary from Accelerator Controls / ETD/Online Session and Action Items

Thursday, 7 July 2011 09:20 (10 minutes)

Presenter: Dr LUITZ, Steffen (SLAC)

Session Classification: R&D support platforms & Action Items Discussion

Contribution ID: **45** Type: **not specified**

Action Items on Software Development Tools

Thursday, 7 July 2011 09:30 (30 minutes)

Presenter: Mr CORVO, Marco (PD)

Session Classification: R&D support platforms & Action Items Discussion

Contribution ID: **46** Type: **not specified**

Action items on Distributed Computing

Thursday, 7 July 2011 11:00 (30 minutes)

Presenter: FELLA, Armando (PI)

Session Classification: Action Item discussion and Closeout

Contribution ID: **47** Type: **not specified**

Action Items on Storage

Thursday, 7 July 2011 11:30 (30 minutes)

Presenter: Dr PARDI, Silvio (NA)

Session Classification: Action Item discussion and Closeout