Computing Closeout

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Outline

- Support of Studies for Detector TDR.
  - Operations at CNAF & Distributed Computing.
  - FastSim.
  - FullSim.
  - Production.
  - Supported OS, Releases.
  - Collaborative Tools, SuperB Web Site.

- Designing the SuperB Computing Model.

- PON GRISU'.

- Next Steps.

Operations at CNAF & Distributed Computing

- CNAF has currently a central and unique role in SuperB computing effort.
  - A position for supporting SuperB has been approved and will be opened soon.
  - Additional hardware resource have been requested.

- CNAF services and configurations have been upgraded:
  - BaBar and SuperB are now autonomous environment in terms of accounting and storage resources.
  - File Transfer Service (FTS) is under configuration between CNAF and IN2P3 to permit mass data transfer.

- Distributed Computing plans:
  - Complete test of Ganga based tools to provide user access to Grid resources.
  - Complete recoding of production job scripts.
  - Add Grid proxy authentication.

FastSim

- See D. Brown's status report in FastSim parallel.

- To do:
  - Fix Si pattern recognition simulation
    - broken since "looper" fix
  - Si striplets
    - need 45 strips, short strips
  - Cluster shape testing/tuning after Brems fix?
  - Energy Straggling model needs improvement
  - Public FastSim Package

FullSim

- See presentations in FullSim parallel for details.

- To do:
  - Implementation of Final Focus magnetic element material.
  - Packaging of Bruno.
    - Need to solve the issue of GDML packaging.
  - Add Diag36 (2 photon background) in Bruno.
  - Collect validation plots from sub-detectors.

- Other issues:
  - Migration to new releases of Geant4
    - Need a user case and a validation step.
  - Runtime job configuration has hit the limit of standard G4 mechanism. Need a new solution: python ?

Next Productions

- FastSim:
  - Nothing pending. A large τ request has been anticipated.
  - Please submit requests ahead of time.
    - It takes 10 days to be ready
  - Requesters must define a validation sample and validate it before bulk production.
    - Bulk production will start only after positive validation report.
  - We'll start recruiting shifters soon.

- Background studies with FullSim:
  - plan is to start a production next week to have it analyzed by Elba meeting.

Supported OS

- Stop SL4 support on May 31, 2011.

- Keep supporting SL5, both 32 and 64 bits.

- Start support of SL6, 64 bits.

- Software build also on Mac-OSX, but it is not packaged and released.
  - Some technicalities to be solved, miss manpower to do it. Any Mac lover wants to volunteer ?

Releases

- Start having regular release builds.

- Test release every two months.

- Production release every six months, built on top of previous test release + bug fixes.

- FastSim & FullSim releases will be staggered by one month.

Collaborative Tools

- A suite of tools:
  - Alfresco Document Manager: http://sbdocserver.pd.infn.it:5210/alfresco
  - Indico: http://agenda.infn.it/categoryDisplay.py?categId=36
  - Wiki: http://mailman.fe.infn.it/superbwiki/index.php/Main_Page
  - Mailing lists: https://lists.infn.it/sympa/lists/csn1/SuperB
  - Web site: http://web.infn.it/sbuser/

- Integration of these tools has to be improved.

- See Stefano's presentation on Alfresco.

Web Site

- Transition to LDAP authentication completed.

- «How to join us» page modified.

- SuperB Documents section has been substituted with links to Alfresco Repository.

- Division leaders and subsystem responsibles should provide input on content and provide material.

- Need to identify a webmaster.

«How to join us» Web Page

- Describe the procedure to join SuperB and getting a LDAP account and eventually also a CNAF account.
  - The LDAP account grant you access to the Collaborative Tools (SuperB Web Site, Wiki, Alfresco Document Repository, SVN)
  - A CNAF account is needed if you want also contribute to software developments or data analysis.
  - If you want to be allowed to submit jobs on the GRID you need also to join the SuperB VO.

- The page has the link to the «New SuperB user registration Form».
  - Form should be filled by your Institutional Contact.

- In addition, users who want a CNAF account have to print, fill, and fax to CNAF another form linked to the page.

Development of the Computing Model

- Until the Computing TDR:
  - Work on R&D projects.
  - First design of the computing model.

- First two years after the Computing TDR:
  - A preliminary version of a fully-functional system is built and validated via dedicated data challenges.
  - Finalize the computing model.
  - The collaboration can start using it for detector and physics simulation studies.

- Remaining time before the start of the data taking:
  - Further extensive test and development cycles to bring the system to its full scale.
  - Acquisition and deployment of dedicated computing resources.
  - Consolidation and validation of the distributed computing infrastructure.

R&D Projects

- After the Ferrara Computing Workshop, a document listing the R&D projects relevant for us was written.
  - It will be our starting point.
  - We'll revise it and upload it to Alfresco.

- P. Elmer has accepted to chair bi-weekly meetings on R&D activities.
  - Every meeting will focus on a subset of projects.

- R&D projects are an opportunity to attract computing experts to SuperB.
  - Try to exploits synergies with other experiments.

Some of the R&D Projects

- Exploitation of multi/many core system architectures:
    - Benchmarking of HEP typical applications.
        - Start from BaBar ones.
        - Investigate possibility of exploiting LHC developments.
    - Understand how to exploit different level of parallelism (event or more fine–grained).
    - Benchmark existing parallel HEP applications and investigate their re-use within SuperB.

- Distributed Storage:
    - Testing new storage technologies and new infrastructure implementation.
        - Wide Area Network distributed storage infrastructure.
        - Affinity job scheduling.
    - Effort mainly in data access (analysis use case) and data placement for a distributed Tier1.
    - Technologies under evaluation: hadoop, lustre, xrootd, ceph.

- Distributed computing:
    - Design a distributed computing framework, possibly fully integrated with national Grid initiatives.
    - Support of multi-thread programming and distributed data storage
        - Integration of multi/many core CPU (and eventually GPU) in distributed context.
    - Support of Cloud and/or Grid infrastructures.

PON Grisu'

- Public-Private Laboratory managed by a group of public (INFN, Universities) and private (small & medium companies) partners located in Campania, Puglia, Calabria and Sicilia.
  - Grisu' stays for "GRIglia del SUd" (South Grid).

- Advantages for SuperB:
  - Access to additional manpower and hardware resources.
  - Help in developing computing tools useful for the project.
    - Areas: Cloud Computing, Parallel Computing, Virtual Machines, Distributed Storage, Hardware & software Monitoring, 3D Graphics, Network Services.

- Advantages for private companies:
  - Access to public hardware resources.
  - Help in building company know-how.
  - Commercialization of products developed by the Laboratory.

- Private partners will not be exposed to Babar/SuperB code

- Next steps:
  - Submit the proposal to create the Laboratory(mid March). DONE !
    - > 60 partners, INFN, universities, CNR, ENEA + >40 small & medium companies.
  - Have the proposal approved (end 2011).
  - Present a set of projects (SuperB is one of them) and ask for public funding.
  - If everything goes well, first money should be available by end 2012.
  - Note that this will not be the source of the bulk of the computing money for SuperB.

Next Steps

- Keep supporting TDR activities:
  - Limited developments driven by user request and tools clean-up.
  - Productions upon request.

- Collaborative tools and website:
  - Improve website (need a webmaster & input from the community).
  - Integrate/link various tools into/to the website.
  - Start using Alfresco as document repository.

- Start the design of the project computing model.
  - Start/keep working on the various R&D projects.
  - Will have two computing workshop:
    - North Italy in July (3 days).
    - Attached to the meeting outside Italy (2 days).

- Need to attract more manpower in the computing.
  - There is plenty of interesting things to do.
  - New entries are much welcome to contact me for working opportunities.