New ideas for next phases - Project definition

Ch. THEISEN for the DAQ WG

Project definition

Agata/ProDef/July10/0.7

AGATA

Advanced Gamma Tracking Array

PROJECT Definition

Phase 1

GSI Phase

- See next presentation by N. Kurz

- Remarks concerning the DAQ hardware :
  - Scale existing system for more detectors
  - Keep existing software
  - 22 out of 26 pizzas we have will have their warranty expired in 2011
    - → New pizzas
    - → Detector rate specifications
  - disks, KVM and switches lifetime is much longer
    - →Scaling + maintenance
  - Maintenance and support

Possible new developements

Remote Control Room (RCR)

Goal : full DAQ monitoring, access to GUI's and continuous video connection

Cannot replace shifts !

- Engeneers : spy, user's support…
- Physicits : selected aspects of experiment monitoring…

Todo : detailed feasibility study; legal aspects related to the video connection. Remote control tools deployments (VPN, …); host laboratory hardware configuration.

Graphics Processing Unit (GPU)

- R&D ongoing at Legnaro (Enrico Calore) for implementing PSA algos on GPUs
- One should keep an eye on GPUs and more generally CPUs evolution which may improve the performances of the system.

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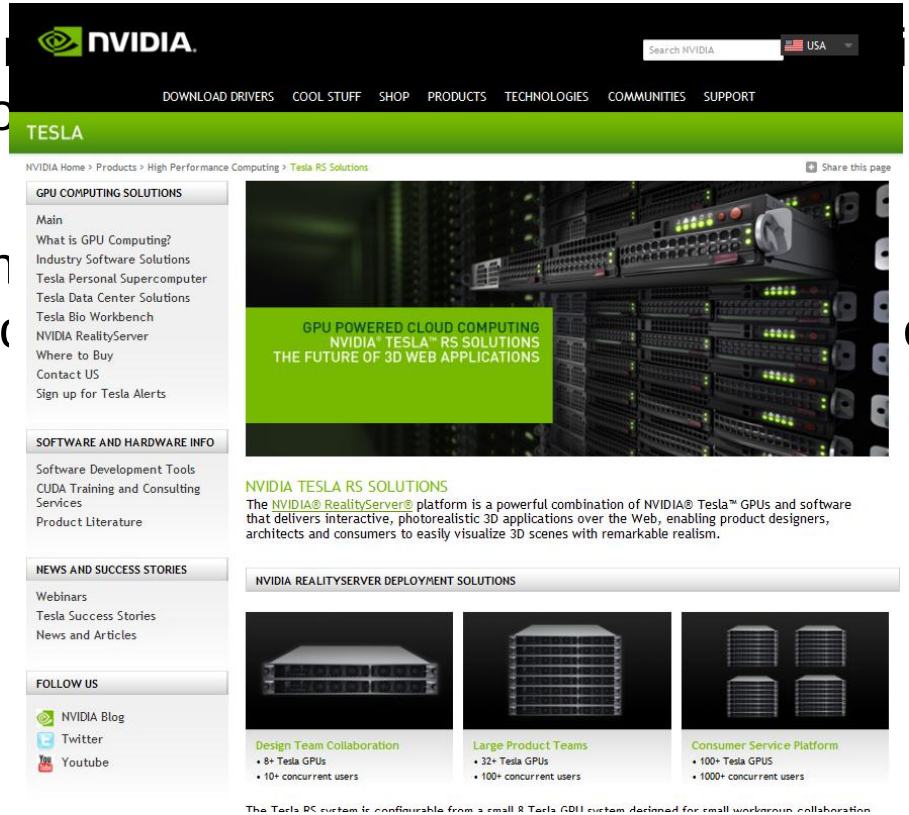

Narval2.0

- This new version should be released by ~2012 and will include, among many new features:
  - Enhanced stability using a new buffer system.
  - Improved communication with external third party systems (ancillaries in particular)

OpenCL.

- Using this programming standard, software can be compatible with many architectures (including GPUs) and can therefore benefit from its performances. Algorithm should therefore migrate to OpenCL. See http://www.khronos.org/opencl/ for details.

Agata Data Replay Center (ADRC)

- The idea of an ADRC is twice:
  - Provide a “small” computing center for data analysis with the same environment as the AGATA DAQ.
  - DAQ developments: perform developments and validation of new algorithms, study new computing techniques (GPUs, Power6, Cell, Wii …). Perform real size test of new software versions (Narval, ADF, PSA …); algorithm benchmark. Prototype new DAQ architecture…
- A “low cost” ADRC may be installed using hardware recycled from AGATA and/or elsewhere.

Todo : evaluate

- Needs (not a competition with grid)
- hardware and infrastructure needed.

Note :

The DAQ project definition strongly rely on actual electronics knowledge. Any new electronics design can impact strongly on the DAQ, which details should be revised accordingly.