Status Report - Switzerland

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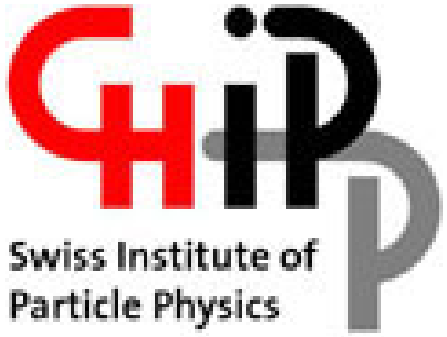
Organisational point

- **In 2004 :**

  We have founded and initiated a new (virtual)

  "Swiss Institute of Particle Physics" : CHIPP

  - Executive board; plenary board; computing board



  - **Assessed the nationwide situation in particle physics theory and experiments together !!**
  - **Written a roadmap for particle physics in CH for present and future**
    (available on web: http://www.chipp.ch/chipp-meet-roadmap.html)

- **Many organisatorial issues are going to be addressed in common:**
  in particular the (LHC-)computing issues → computing board !
  (chair of CHIPP-COB will be HTASC representative).

CHIPP Computing Board

Members of Swiss CHIPP computing board are presently:

Representatives of institutes and expt's (will grow) :

- C.Grab (chair, CMS, ETHZ)
- A.Clark (chair of CHIPP, Atlas, UNI Ge)
- M-C. Sawley (CSCS general manager), G-L. Volpato (CH-LCG)
- A.Bay (LHCb, UNIL; dep. N.Neufeld)
- H.P.Beck (Atlas, UNI Bern; dep. S.Gadomski)
- R.Bernet (LHCb, UNIZH)
- S.Kabana (Atlas, UNI Bern).

Swiss contingent in LCG (full time at CERN):

- F.Orellana (Uni Ge)
- D.Feichtinger (PSI)

Status of our common Swiss Tier-2 at CSCS (Manno)

Situation in Switzerland wrt LCG

- We have setup ONE SINGLE national Tier-2 RC at CSCS in Manno to serve all 3 experiments (Atlas, CMS, LHC);
  - We have a Roadmap to gradually increase capacity till LHC-startup (see details on my last report)

    Status : 1st hardware present (see below)

- Contributing resources to LCG core team in terms of 3 FTE

Status:

- two persons deployed to CERN since Fall 2002:
  - Derek Feichtinger (funded by PSI/ETHZ)
  - Frederik Orellana (funded by Universities, employed by U.Geneva)
- one person fully employed by CSCS exclusively for HEP/LCG.

Status – Prototype cluster at CSCS (1)

Goal was: setup prototype Tier-2 RC at CSCS to join the LCG

- Cluster HW installed in Jan 2003 (= 20 2-CPU Athlons)
- LCG middleware SW installation done (several times)
- versions of experiment's SW installed (CMS, ATLAS, LHCb done)
- LCG1-1_1_3 installed; LCG GD ran their test suite successful.
- → Proof of principle done (Jan.04); AND run production for LHCb.

- HOWEVER : hardware situation is completely unsatisfactory !!!
  - cluster hardware is extremely unstable (temp.problems: CPU, disks..).
  - many attempts to fix hardware failed.
- → THUS: cluster cannot run in production mode.

Current Setup at CSCS

- The initial setup of the 20 dual-CPU Athlon cluster has been abandoned.
  - Hardware given back to institutes for desktop operation
- few machines loaned for temporarily maintaining LCG running status → operational (low capacity) in LCG
- No traditional batch (PBS) operation for the moment
- Plans to setup new Phoenix-cluster
  - Offers for hardware at hand : (Opterons vs Intel, 32 vs 64)
  - acquisition decision imminent
  - expect to be back in full operation in Nov.
- Planning
  - In future CSCS will act as a "provider" for CHIPP.

Comments on prototype cluster (3)

- **Criteria:** LCG required lower limit on size to join officially:

  20x2 CPU + 5 TB disk

- Components bought from small local company (supplier to CSCS) and home-assembled at CSCS, within short period of time.
- No budget existed → cheap solution favoured
  - needed to go around "with the hat" to collect money
  - Note: still no CHIPP money available

- **Lessons learned:**
  - put higher priority on operation as production centre: demands on resources, maintenance contracts, warranty....
  - some minor productions done (LHCb, Atlas, ..)
  - gained some experience in LCG-SW installation ...

Presently : pursue a two line strategy

1) Bootstrap phase: replace present hardware and with high priority setup a new small production cluster : *"Phoenix cluster"*

- to demonstrate reliability and participate in DC
- supply resources to the Swiss physicists for LHC-computing and regain confidence.
- contracting better HW from a major vendor (through CSCS), with warranty; and getting infrastructure from CSCS.
  - Size of this BS-cluster of order (20 2xCPU + FS 5 TB) (→)

2) Longterm: In parallel, prepare everything for acquisition and rollout of the final version, to meet needs at LHC start .

+ Observe developments at CSCS : new Horizon cluster ...

Funding Issues

- Request for funding are submitted now in the name of CHIPP (common for all institutes) via the CHIPP-COB chair.
- In Feb. 04 we submitted a request to the National Fond for (FORCE) money of the amount: 128 kFr to cover the next round of computing hardware acquisition.
- After official approvement, the money will be available in Oct 2004.
- The request contains a specific HW cluster offer as an example, "LINUX HP cluster solution by DALCO", which is a
  - fully integrated rack-solution with terminal-server
  - Including file server

Offers for Phoenix cluster HW

- **System configuration consistent with LCG architecture:**
  - 20 + 1 node dual AMD Opteron Rack system + Terminal Server
  - >= 500 MB/CPU
  - 40 GB + 120 GB local disk / node
  - Gigabit Ethernet
  - 2.5 TB / 5 TB Fileserver, RAID system

- **Transtec:**
  - Cluster: 70940
  - Fileservers: 9770 SFr (3TB), 13360 SFr (5 TB) (less performance)

- **DALCO**
  - Cluster: 68804 SFr
  - Fileservers: 14557 SFr (2.5 TB), 23953 SFr (5 TB)

- **SUN Microsystems:** (very similar, but SCSI disks, better switch)
  - Cluster total : 139 kFr.

MoU between CHIPP and CSCS

- Up to now CHIPP computing was primarily targeted for LHC
  → We want to extend that to all.
- CSCS is committed to develop a strong partnership with CHIPP.
- An MoU between CHIPP-community and CSCS is being drafted to establish a more formal cooperation:
  - CSCS can become the "CHIPP scientific computing centre"; ie. a contractor for computing (HW, M&O, networking, ...)
  - Allows CSCS to play a much more active role
- MoU contains :
  - General framework for cooperation, modus operandi and responsibilities for CSCS and the CHIPP institutes
  - Appendices describe details for individual time periods.

Conclusions

- **Switzerland's participation in "LCG**
  - **integration of CH-Tier-2 into LCG-1 done successfully, but a low efficiency**
  - **first cluster CH-LCG in Manno was of low quality hardware**

  Next:
  - **Replace the Athlon-cluster with new cluster (Opterons)**
  - **participate again in DC of experiments**
  - **Expand hardware continuously ….**

- **Situation with CSCS :**
  - **Enter a new formal cooperation between CHIPP and CSCS, to supply computing to the CHIPP community (not restricted to LHC)**
  - **Strong commitment by CSCS exists; including now one FTE !**

- **Follow roadmap to setup our full Swiss Tier-2 RC at CSCS**