



# CHIPP Subgroup on Computing for LHC

Goal of today's meeting:

- Inform the CHIPP subgroup
  - on the status of expt's DC and production; LCG, ARDA
- Discuss the issue of our next cluster;
  - What exactly and when should we buy the next slice !
- Information about happenings at CSCS : MoU, computing...

**Christoph Grab, ETHZ**

**Sep. 15, 2004**

# Agenda

- Status of Data challenges and production of experiments
  - Atlas: Orellana
  - CMS : Stickland
  - LHCb: Bernet
  - Alice: (n.n.)
- Status of MoU : CSCS  $\leftrightarrow$  CHIPP (Sawley).
- Status of the present "bridge"-setup in Manno (Volpato)  
status of old machines ;
- The next cluster: Phoenix-cluster (Volpato)
  - presentation of offers
  - discussion of hardware issues :Intel/AMd; 32/64-bit; staging: file-server, CE ...
- Discussion: exactly what HW and when should we buy ??
- Plans of CSCS in Manno (Horizon cluster.... Sawley/Volpato).
- Status NF-funding for Phoenix-cluster – status (Grab)
- Status LCG and ARDA (Feichtinger, Orellana)

# 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).**
- **U.Langenegger (CMS, >=1.10.04)**

**Swiss contingent in LCG (full time at CERN):**

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

# NF Request - Status

- In Feb. 04 we have submitted a request to the National Fond for FORCE money of amount: 128 kFr.
- I have positive answers, BUT no official lettre yet.
- Inofficially **all the money will be available in Oct 2004**

# What do we want?

- To participate in LCG2 , need stability ...
- Do we want to participate in DC ?
  - For large scale production we are not really competitive (DC / LCG2 runs primarily on Tier-1 RC anyway)
  - But for simulation/analysis, a high-quality high-performance stable smaller cluster is very attractive. → mainly CMS ;  
production in progress (for > another 6 months, only partly LCG2)
  - ATLAS ?
  - LHCb : start in may
  - Political statement ?

# Discussion of Hardware ....



# Particle Physics – Czech Republic

## ▣ New equipment (from July 2004), installation

- 49x dual Intel Xeon 3.06 GHz with Hyper Threading – computing elements
- 2x dual Intel Xeon 2.8 GHz with Hyper Threading – frontend
- 3x dual AMD Opteron 1.6 GHz
  - 1 file server (64 bits)
  - 2 computing elements
- Disc array 30 TB, ATA discs, RAID5
- All nodes connected via 1 Gbps
- 3x HP ProCurve Networking Switch 2848

## ▣ New power ~100 kSi2000



# GridKA Karlsruhe

## Major hardware upgrades underway (target: October 2004)

- CPU: 106 dual Xeon + 36 dual Opteron nodes
- Resulting CPU Power:

97x dual PIII, 1,26GHz	97 kSI2k
64x dual PIV, 2,2 GHz	102 kSI2k
72x dual PIV, 2,667 GHz	130 kSI2k
267x dual PIV, 3,06GHz	534 kSI2k
36x dual Opteron 246	90 kSI2k
Total: 536 nodes, 1072 processors, 953 kSI2000	

(from H. Marten)

# GridKA (cont'd)

## ❑ Hardware upgrades (cont'd)

- Disk space: + 40 TB netto (2/3 SCSI/fc, 1/3 SATA/fc)
- Tape library: + 100-200 TB

## ❑ GridKa introduces dCache as mass storage caching layer

- strong demand from experiments
- not based on a regular HSM (OSM, Enstore), but TSM
- most of the data inventory already in dCache

# Comments by A. Rubbia

notes...so we would need offers from Dalc<sup>0</sup>, Dell and HP. I would definitely avoid Transtec and Sun.

>> In addition, I am not convinced one should spend all the available  
>> money (140KCHF?) at once. It should be staged. I would  
>> prefer to start the "bootstrap" with a few nodes with low profile  
.....>

..... what we need for the bootstrap is not a demonstration of "power" but rather a "stable system" even though it is modest and conservative. Hence, I do not like to buy a full system like what you have asked offers for, but would buy individual components with their own maintenance contract. For example:

- ask an offer for a server+RAID. With possibilities of extension.
- ask for an offer of 10 CPU nodes (not necessarily from the same company) with a maintenance contract for those.
- infrastructure (connection, networks, etc..) I thought was provided by CSSC.

I do not think that the maintenance of the CPU nodes must be as high as the one for the server. The server should run 100%. A few CPU nodes can be "kaputt" for a while and we are still in good shape.

The system must be expandable. We could add another 10 nodes later this year. Not necessarily the exact same type of machine or vendor. Obviously we loose some money this way, but we gain in safety, which is what we need right now.

To my mind, the money for the bootstrap should not be used to test various options (for example Opteron..). Personally I would first buy 1 or 2 Opteron for test, run all the software on it and see if it's worth it.

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