DAQ update :

- Configuration DAQ computers
- microTCA

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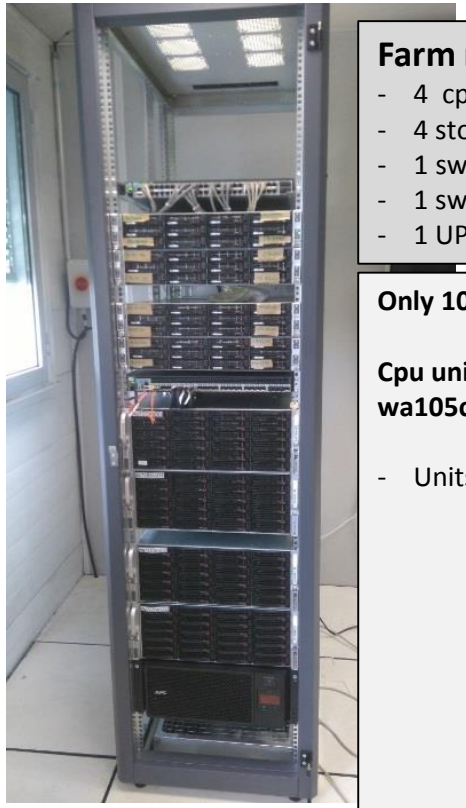
DAQ racks installation

10 Gb CERN Network for computing center (EOS, etc ..)

Farm DAQ

Proximity DAQ

Fiber connection :
- 30 m length distance in between the farm and the proximity rack
- 2 x 10Gb rate : link aggregation in between 2 optical switches



Farm rack composed by :
- 4 cpu modules with 4 units
- 4 storage servers : total space 192TB
- 1 switch HP Procurve 6600 24xg → 2 x 10 Gb
- 1 switch HP Procurve 6600 48g 4 xg
- 1 UPS APC 6kW

Only 10 cpu units available

Cpu unit name :
wa105cpuxxyy : - **xx** cupunit id
- **yy** module of **xx**

- Units available :
  - wa105cpu0000
  - wa105cpu0001
  - wa105cpu0003
  - wa105cpu0100
  - wa105cpu0102
  - wa105cpu0103
  - wa105cpu0201
  - wa105cpu0202
  - wa105cpu0203
  - wa105cpu0300

Storage server name :
wa105ssxx: - **xx** unit id
- Units available :
  - wa105ss00 ,
  - wa105ss01
  - wa105ss02
  - wa105ss03
  - wa105ss04

Proximity rack composed by :
- eventbuilder composed by a storage servers (48 TB)
- 1 switch HP Procurve 6600 24xg → 2x10Gb
- White rabbit unity
- Cosmics counters crate/computer
- 4 x microTCA crate linked by fiber channel
- 1 UPS 2kW

X4

Storage system configuration

SUPERMICRO : 4 CPU 4cores/cpu - 12GB
1 port 10Gbit SFP+
24x2TB (Old HD : WD2002FYPS / 3Gb/s)
(for info : 10 HDs in these 5 SS was dead)

Test configuration : Denis Pugnere did this test (thanks)
5 configurations has been tested :

- 3 partitions x 7 HDs in raid5
- 2 partitions x 11 HDs in raid6
- **3 partitions x 7 HDs in raid6**
- 4 partitions x 5 HDs in raid5
- 1 partition x 22 HDs in raid5

Fastest R/W config →

Final configuration : 1 partition system + 3 partitions x 7 raid6

- system : 2 disk in raid1 equipped with the SLC 6
- 3 x raid_0 : 7 disks in raid6 of 10TB available/partition
- 1 disk in Hot Spare

In Conclusion :

- Choose raid6 for a safety reason (old HDs)
- 30TB available / Storage system

Raid5 : 1 space disk lost for reconstruction
Raid6 : 2 space disk lost for reconstruction → but safety improved

CPU configuration

SUPERMICRO : 4 units

each unit : 16 cores / 24GB memory
2 port 1Gbit Ethernet
2x500GB
Scientific Linux CERN : version 6.8
Raid 1 disk configuration

Goal of cpu units :

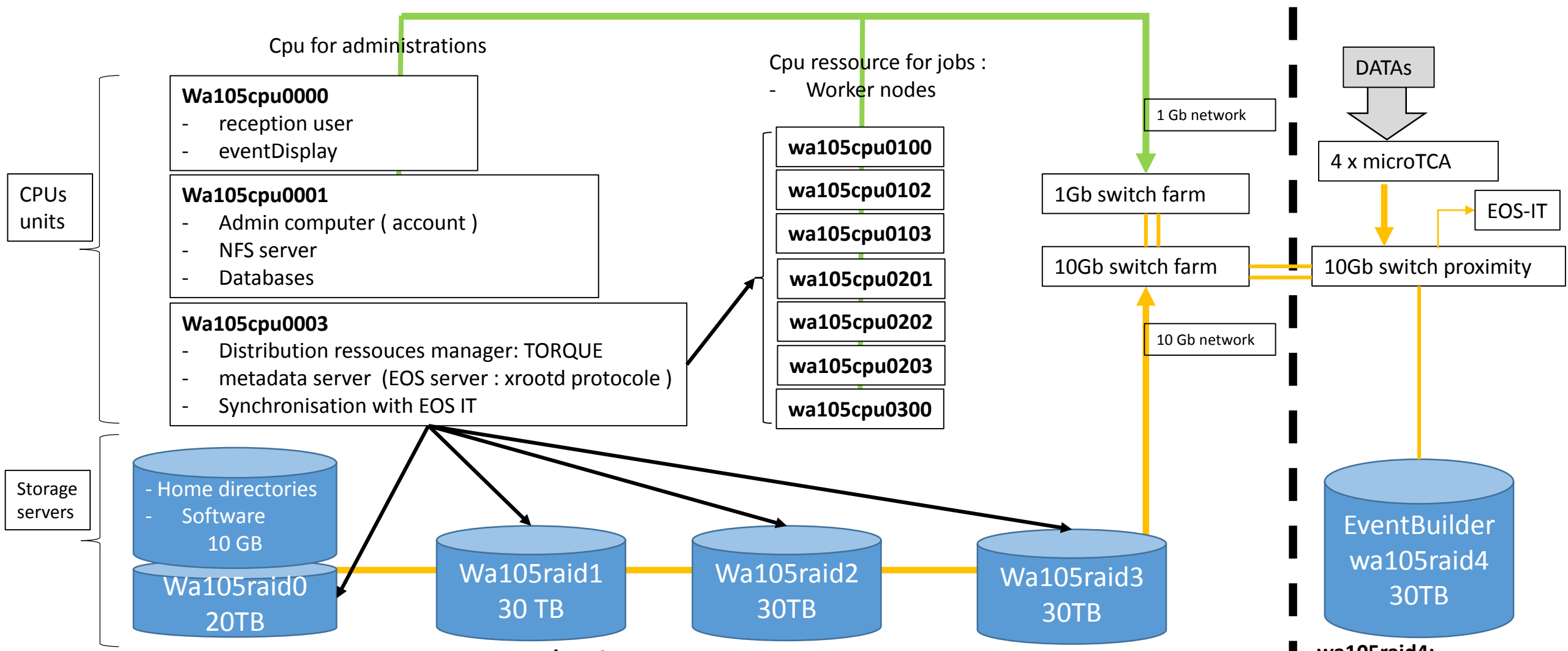
Wa105cpu0000:
- reception user
- eventDisplay

Wa105cpu0001:
- Admin computer (account)
- Backup
- NFS server
- Databases
- Web server

Wa105cpu0003:
- Distribution ressouces manager: TORQUE
- metadata server (EOS server : xrootd protocole)
- Synchronisation with EOS IT

- **wa105cpu0100**
- **wa105cpu0102**
- **wa105cpu0103**
- **wa105cpu0201**
- **wa105cpu0202**
- **wa105cpu0203**
- **Wa105cpu0300 :**
  - Cpu ressouces

General DAQ computing design

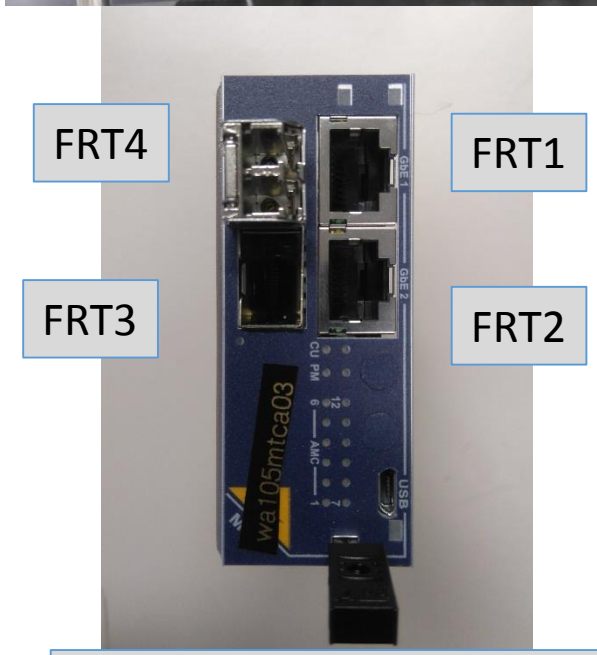


Home directories :
- access from any wa105 computers
- Using : /home/<login>
- 10 TB available

Storage/Analysis strategy:
- Data → microTCA --> EventBuilder store raw data file in wa105raid4
- Script move raw data from EvtBld to the metadataserver
- Batch job (ressouce cpu given TORQUE) to do the analysis)
- Send raw/analysis data files to EOS-IT

wa105raid4:
- Access: any computers
- /eth/wa105raid4/
- NFS connection

microTCA



uTCA designation :
FRT1 , FRT2 : 1GB network
FRT3 , FRT4 : 10GB network

Connections :

2 x 1 GB link :

- For natview software
- Website (ip address)

Optical link fiber : to be configured

USB : serial link 9600/8/1/N/XON-XOFF

Designations/IP :

Wa105mtca01 / 10.11.40.142
Wa105mtca02 / 10.11.40.143
Wa105mtca03 / 10.11.40.144
Wa105mtca04 / 10.11.40.145

TODO :

- Fiber link configuration with AMC board