Server Gerontology in the LHCb experiment

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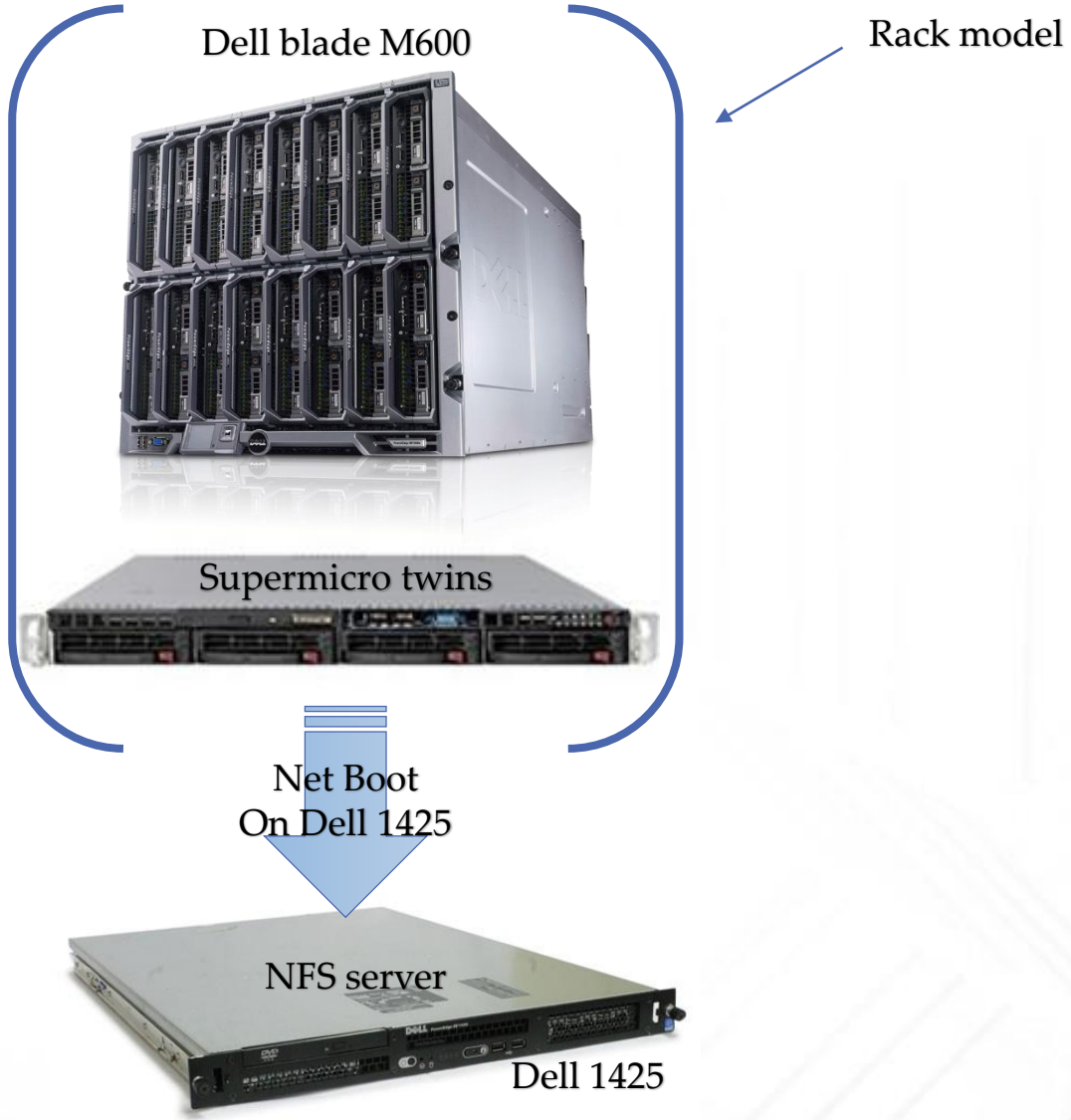**on behalf of LHCb**
SysAdmins Team

What we have and what are the numbers.

- Most of the machines in the infrastructure are Dell, E4, Supermicro and Megware.

- 102 Supermicro Twins **(February 2008)**: Farm nodes.

- 40 Dell 1950 **(May 2008)** : Control nodes.

- 300 Dell blade M600 **(December 2008)** : NFS servers.

- 520 Dell C6100 **(October 2010)**: Farm nodes.

- 100 Quads Supermicro **(December 2010)** : Farm nodes.

- 108 E4 Asus **(April 2012)**: Farm nodes.

- 800 Megware **(Mars 2015)** : Farm nodes.

Infrastructure model in 2009

- In each rack we had machines from Supermicro and Dell blade Net booting on one NFS server.

Dell blade M600

Rack model

Supermicro twins

Net Boot
On Dell 1425

NFS server

Dell 1425

Racks model in 2011

Dell blade M600

We have added 8 Racks

Dell C6100

Supermicro twins

+

Supermicro quads

Net Boot
On

Net Boot
On

NFS server

Dell 1425

NFS server

Dell M600

Rack model 2016

Dell blade M600

Dell C6100

E4 Asus

Megware

Supermicro

Net Boot On

NFS server

Dell 1425

Dell M600
NFS server

Processing model changed

- Since the beginning the Net boot was used in our infrastructure

- In 2011 the need of more storage capacity pushed us to use the local Sata connectivity of the worker nodes (rootfs is still on NFS).
  - I/O load is very low (2 streams (1 read/ 1 write) of about 10 MB/s only))

- We have added 2000 desktop (cost!) disks to the farm servers which permit us to continue using the same material.

NEW NEEDS

+

NO BUDGET

=

PLAN B

Recycling

How to deal with the old hardware ?

- One of the oldest server we still have in production in our infrastructure is the DELL 1950
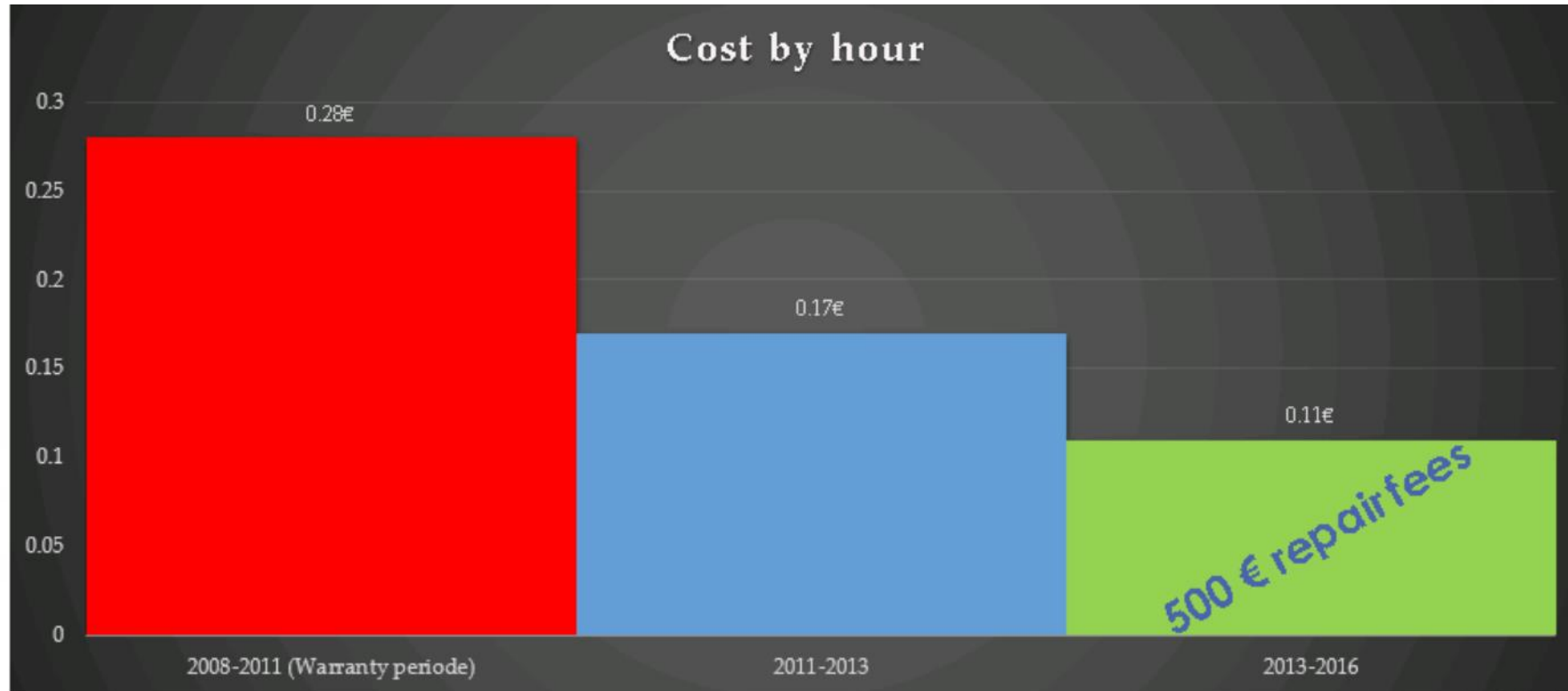
PCIe Training Error: integrated RAID

Network card

- Buying some Network cards from alternative/broker suppliers (Ebay) and spending couple of hour to change them.

Dell 1950

Conclusion

- The way of managing the old hardware can have an important impact on the budget of any organization.

- Spending time on issues analysis can increase life cycle of hardware.

- The more difficult it's to find the right balance between the manpower and the budget.