



CC-IN2P3 3D Service Review

LCG 3D Workshop - Barcelona - April
2009

▶ CC-IN2P3 3D Service Review



- ▶ Hardware
- ▶ 3D clusters
- ▶ Storage review
- ▶ AMI status

Hardware : Cluster nodes



- ▶ Dell PowerEdge 1950 III Bi-proc quad-Core (ie : 8 cores)
 - ▶ Intel XEON E5440 2.83 GHz (2*6 MB cache)
 - ▶ 16 GB RAM (2*8 GB)
 - ▶ 2 SAS disks [15k rpm] of 300 GB
 - ▶ 3 Gb/s SAS RAID controller
 - ▶ Mb Ethernet dual-port card
 - ▶ QLogic 4Gb/s FC dual-port card
 - ▶ redundant power supply

▶ 3D - Clusters - Atlas



- ▶ frccin2p3_crs_atlas
 - ▶ 4 nodes
 - ▶ 2 databases :
 - ▶ dbatl.in2p3.fr
 - ▶ dbami.in2p3.fr
 - ▶ 1 ASM with external redundancy
 - ▶ Storage 4 TB

▶ 3D - Clusters - LHCb



- ▶ frccin2p3_crs_lhcb
 - ▶ 2 nodes
 - ▶ 1 databases :
 - ▶ dblhcb.in2p3.fr
 - ▶ 1 ASM with external redundancy
 - ▶ storage 4 TB

- ▶ Pillar Axiom 500
 - ▶ 1 SAN slammer (controller)
 - ▶ 5 FC bricks
 - ▶ 1 brick = 11 FC disks of 450 GB [15 000 tpm]
in RAID 5 [+1 spare disk]
- ▶ dual FC attachment to each cluster nodes

Storage : Orion tests

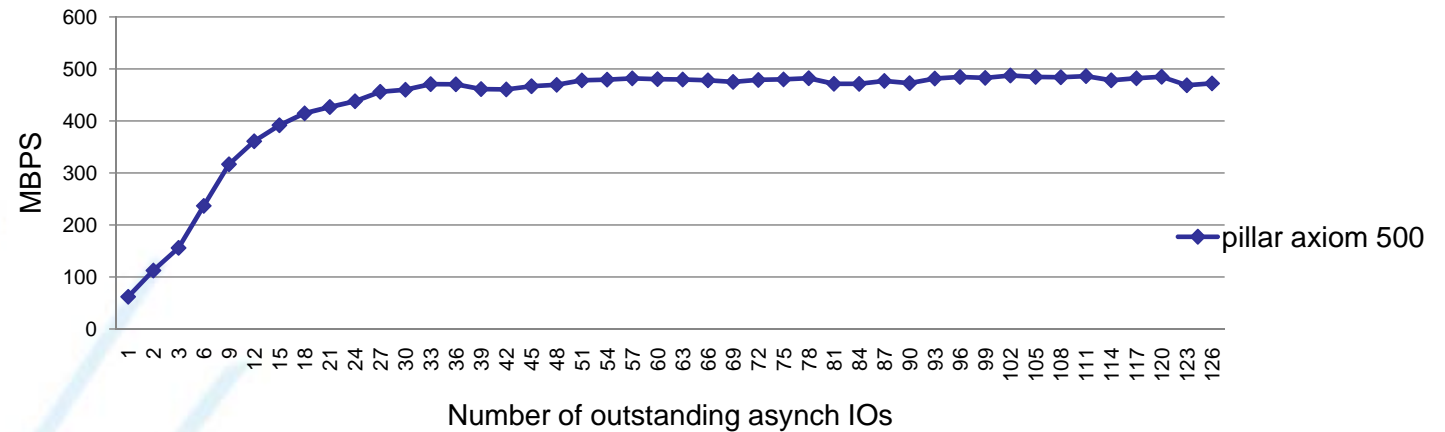


3D Configuration

- Read only mode
- Random I/O workload
- 22 disks [4 TB]

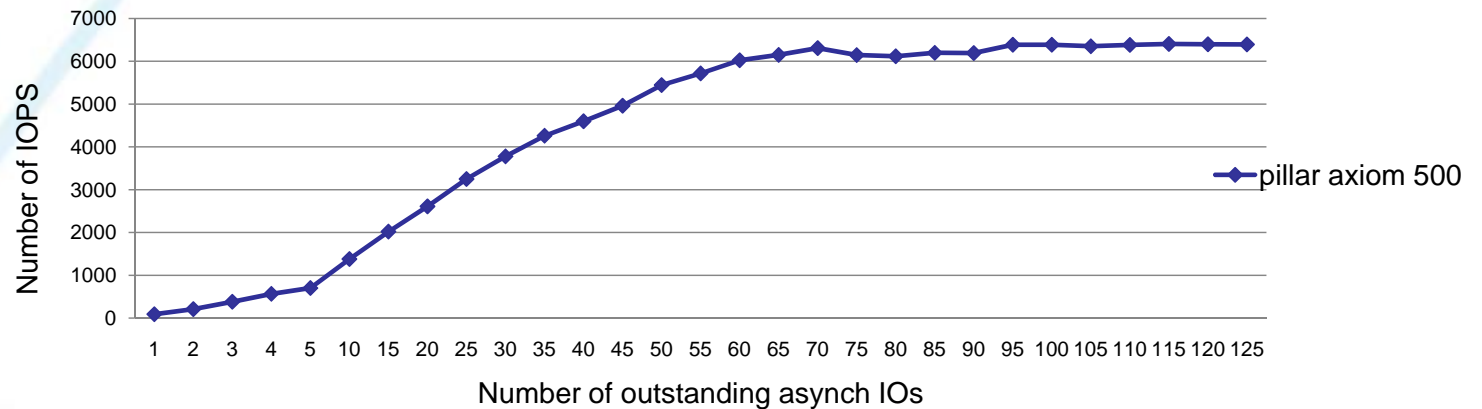
Random Throughput Measurements

MAX : 487.34 MBPS



IOPS Measurements

MAX : 6406 IOPS



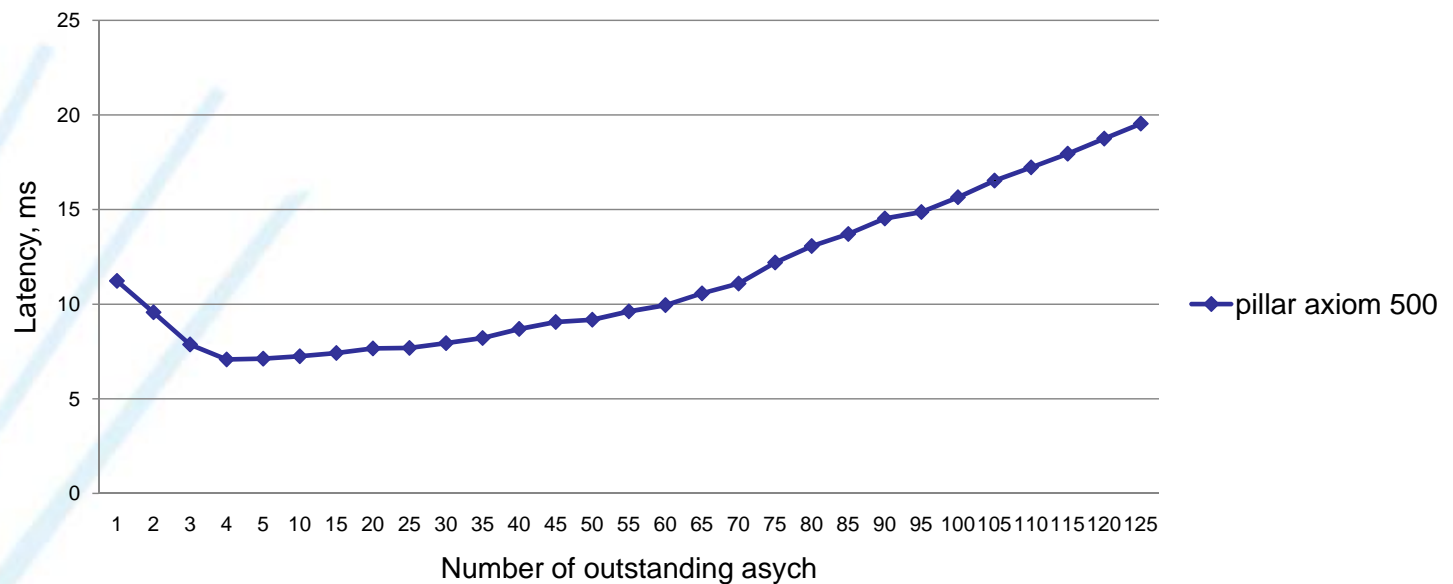
Storage : Orion tests



3D Configuration

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Latency measurements



▶ AMI status



- ▶ November 2008 : start date of the AMI replication project
- ▶ December 2008 : Setting up of a test environment
- ▶ January 2009 : Checking the replication constraints
 - ▶ Some tables did not have any PK
 - ▶ Some objects were generated dynamically by the system [AMI.SYS_xx]
- ▶ March 2009 : Workload test [4 000 inserts per min : 30 times the production load]