T0003 Release

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TERAPIX – IAP

Outline

- Timeline
  - QualityFits (QF)
  - Stacks
- Disk Space
- CPU
- Problems
- Archive
- Improvements
- T0004

Timeline

- Datatransfer : October 1st 2005
  - 12578 files to dispatch on 7 nodes (PI : 4 – LS : 3)
- QFin : October 7th– November 4th 2005
- Hardware/Software issues :
  - Patch ldac, spica file reference bug, square images …
  - Dbspica phot_c, instrument missing fields
  - Mix3 crash, NFS broken
- Stack : December 6th 2005 – January 2nd 2006
- Bonus Stack : January 4th – January 20th 2006
- VeryWide : Standby

QualityFits

- One month : October 7th– November 4th 2005
  - 1 QF per partition (mix)
  - 400 QF/day average rate
  - Pix : 50 minutes per QF : 28 QF/day/node => 112 QF/day
  - Mix : 20 minutes per QF : 144 QF/day/node => 432 QF/day
  - Assuming 100% CPU, no crash, data uniformly spread

  => theoretically : 544 QF/day
- Schedule :
  - Theory : 22 days
  - Facts : 31 days (22 d + 6 d due to crash + 3 d due to data)

Stacking

- One month : December 6th 2004 – January 2nd 2005
- Extra stacks : January 2nd – January 20th
- Release made on 2 nodes (mix4/mix6) : 626 stacks
  - Scamp : 22 days per node
  - Swarp : 8 days per node
  - Sextractor and QFout : each 1 day per node

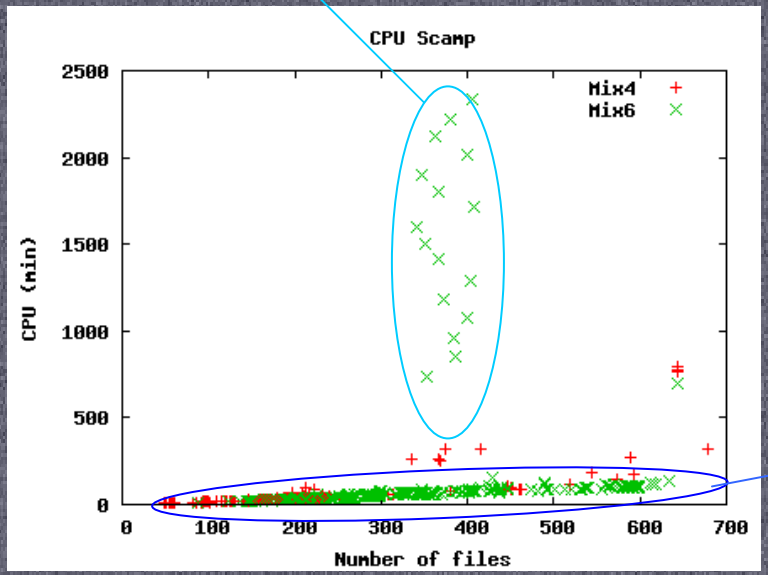
  => 32 days per node
- 626 Stacks : 64 days
  - Deep : 20 (5 d + 12 d) => 28 %
  - Wide : 250 (12 d + 3 d) => 25 %
  - Pre-Wide : 356 (28 d + 1 d) => 47 %

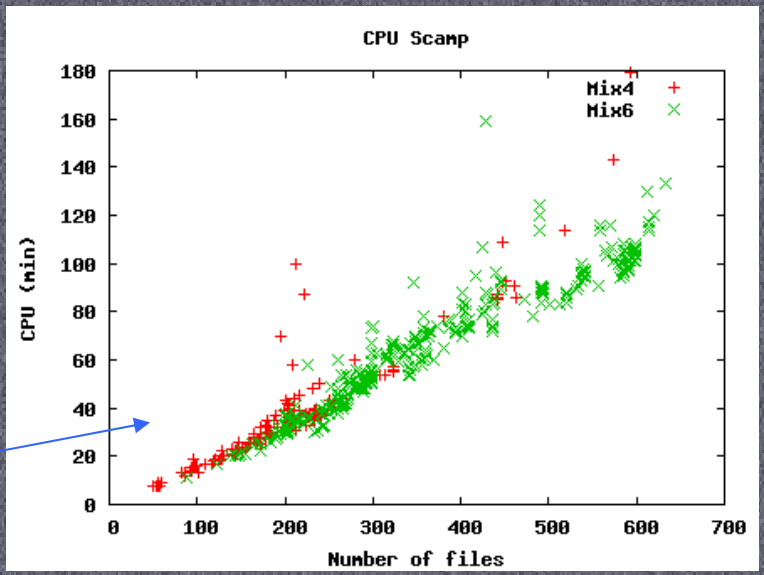
Disk space (CFHTLS)

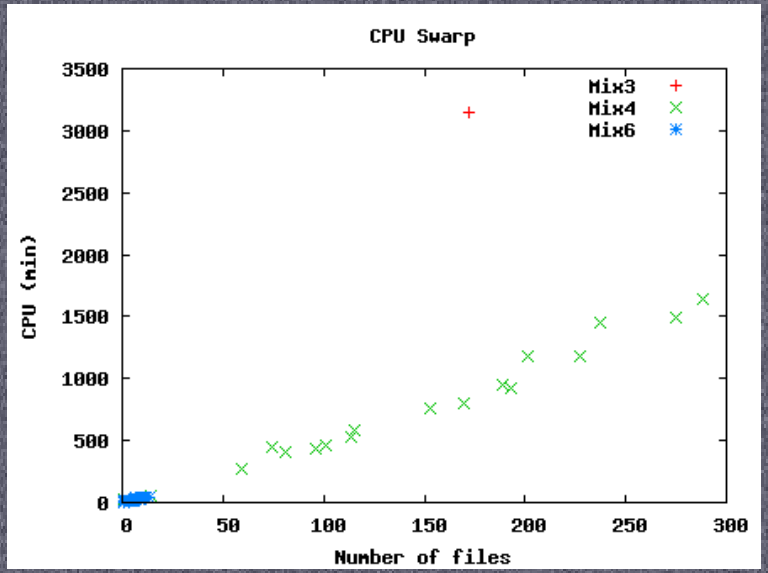
- QF output disk space : 0.350 Gb => 4 Tb
- Total output disk space : 2.5 Tb
  - Deep : 1 Gb => 20 Gb
  - Wide : 0.8 Gb => 200 Gb
  - Pre-Wide : 0.7 Gb => 250 Gb
  - VeryWide : 0.6 Gb => 2.3 Tb
- Number of files : 10^6 files
  - Scamp average : 300 ldac
  - Swarp average : 10 files

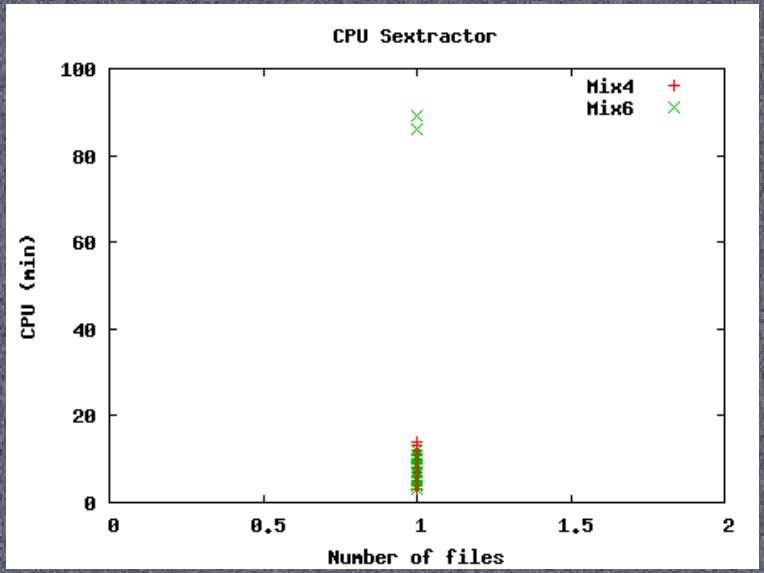
PreWide 14:20 +52:30

CPU

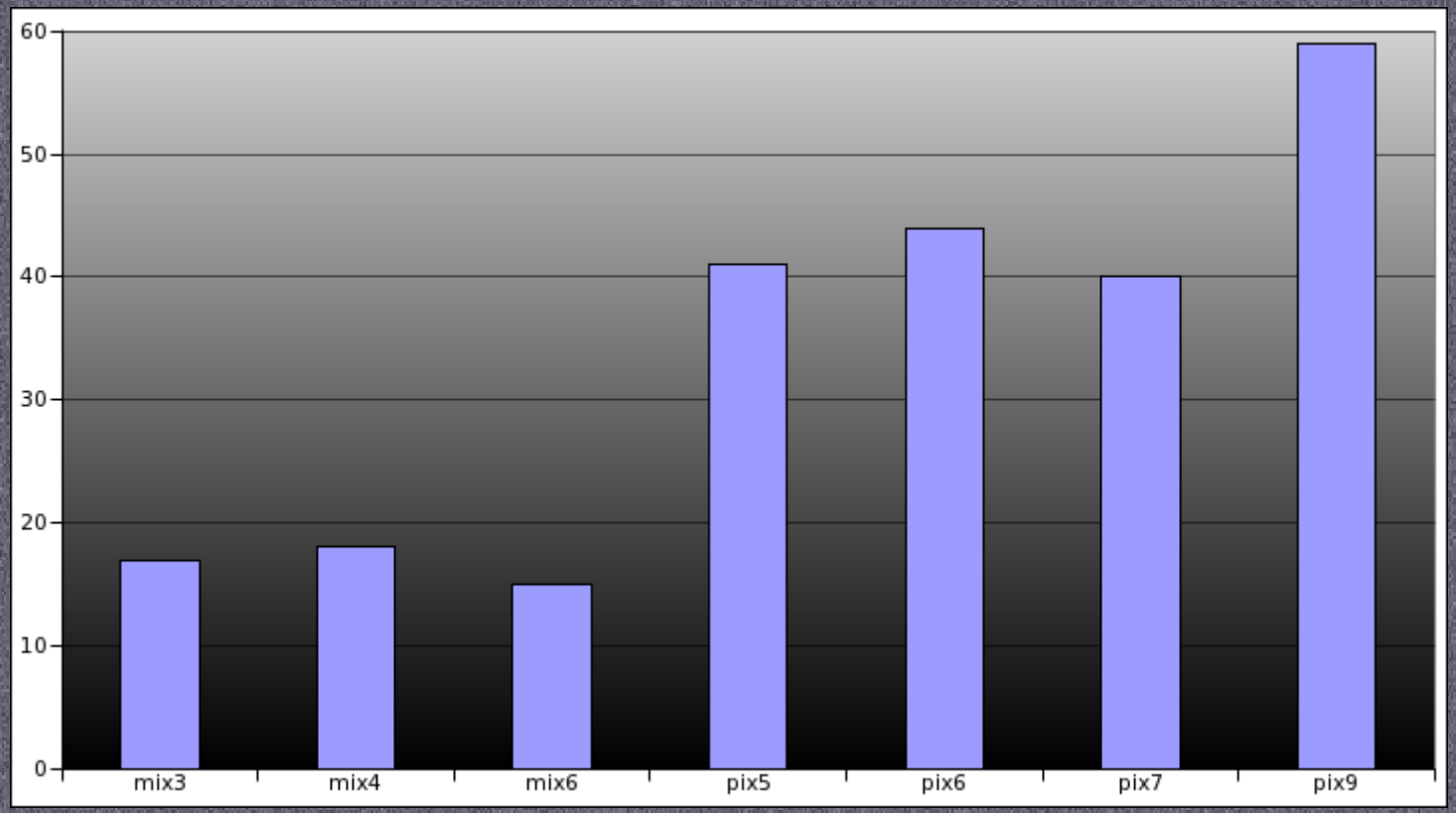








QF CPU



- Mix : 11500 QF (90 %)
- Pix : 1200 QF (10%)
- Including mix5 would have saved 5 days (22 to 17 d)

Problems

- Hardware :
  - Node crash (mix6 exception)
  - Clix crash
  - Partition unmount : raid, /home/nis/pipeline
  - NFS => scp, output disk access, web interface
- Software
  - Spica tests
  - Dbspica auto-increment fields
- Processing politics
  - Skyprobe, fits keywords, output files

Archive

- Ldac repository :
  - 160 Gb
- QFin disk : 13000 * 300 M => 4 Tb
- Stack disk space : 6.5 Tb
- Scripts transfert node -> fcix
- Dbspica T0003 backup
- Web Interface replication

Improvements

- Testing new software
  - Pix3/pix4
  - Limitations files / RAM / CPU
- Software
  - Spica, Scamp, QF, dbspica
- Hardware
  - XFS, Gentoo, NFS
  - Reliability before performance
- Timeline : T0003 = 6 months !

QFin	Lost	Stacks	Stacks - Lost	Lost
October	November	December	January	February

T0004

- Prepare release (disks space)
- Timeline schedule
- Solving problems instead of patching
- Get faster :
  - Hardware stability !!!
  - Add more computing nodes
  - Data management (scamp, moving stack from node to node)
- Spica steps per node :
  - QFin : 32 to 21 days
  - Deep, Wide, PreWide : 32 to 25 days
  - VeryWide : 25 to 10 days
- Quality control (estimators for automatic ranking)

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