

# Status report of the KLOE offline

G. Venanzoni – LNF

**LNF Scientific Committee**  
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# Reconstruction

**Runs 28700 (9 May) to 32928 (8 Nov, 6:00)**

503 pb<sup>-1</sup> to disk with tag OK

484 pb<sup>-1</sup> with tag = 100 (no problems)

476 pb<sup>-1</sup> with full calibrations

455 pb<sup>-1</sup> reconstructed (96%)

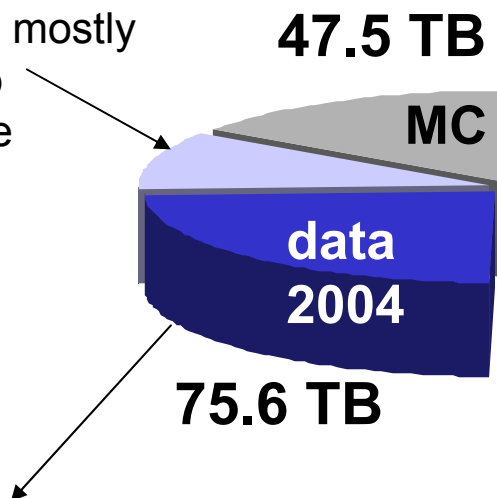
The reconstruction follows the data acquisition  
(each reconstruction jobs last 2h as maximum )

# MC production in 2004

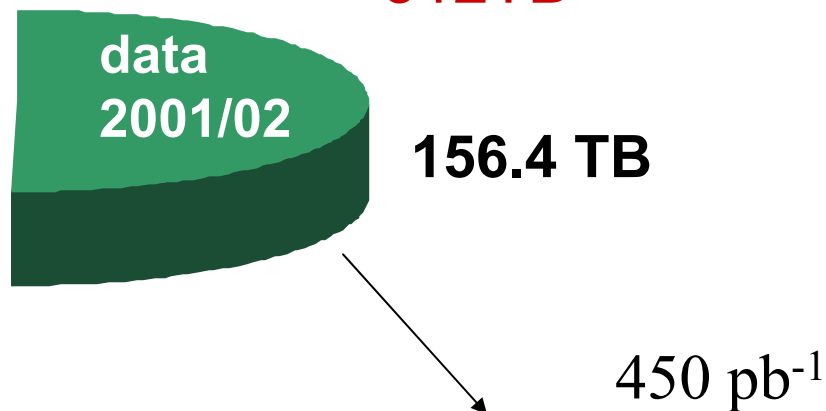
Program	Events ( $10^6$ )	LSF	Time (B80 days)	Size (TB)
$e^+e^- \rightarrow \pi\pi\gamma$	36	6	120	0.8
$e^+e^- \rightarrow \pi\pi\gamma$ (ISR only)	36	6	120	0.8
$\phi \rightarrow \text{rad}$	114	5	480	1.7
$e^+e^- \rightarrow e^+e^-\gamma$	38	0.15	220	0.6
$\phi \rightarrow \text{all}$	252	0.2	1100	6.9
$\phi \rightarrow \text{all (21 pb}^{-1} \text{ scan)}$	29	1	130	0.7
$\phi \rightarrow K_S K_L$	411	1	2100	11.0
$\phi \rightarrow K^+ K^-$	611	1	2620	18.0
Total	1527	-	6890	40.5
$\phi \rightarrow K_S K_L \rightarrow \text{rare}$	62	20*	320 est.	1.7 est.

# Tape Storage (Nov 04)

**Residual space:** mostly  
in use for backup  
and other storage  
services



**Present tape library:**  
**312TB**



450 pb<sup>-1</sup>

## Data 2004 (TB)

RAW	42.7
Recon	28.4
DST	4.5
Total	75.6

## Data 2001/02 (TB)

RAW	101
Recon	51.2
DST data	4.2
Total	156.4

# Present tape storage

## **IBM 3494 tape library:**

- 12 Magstar 3590 drives, 14 MB/s read/write
- 60 GB/cartridge 5200 cartridges (5400 slots)
- Dual active accessors
- Managed by Tivoli Storage Manager

**Maximum capacity: 312 TB** (5200 cartridges)

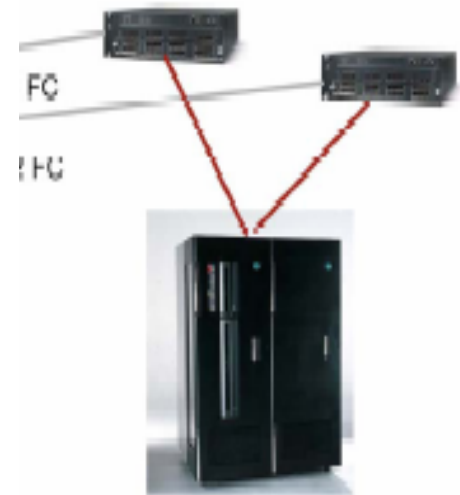
# New Tape storage:

## **Additional IBM 3494 tape library**

- 6 Magstar 3592 drives: 300 GB/cartridge, 40 MB/s
- Initially 1000 cartridges (300 TB)
- Slots for 3600 cartridges (1080 TB)
- Remotely accessed via FC/SAN interface

Mechanical installation completed.  
Now under test

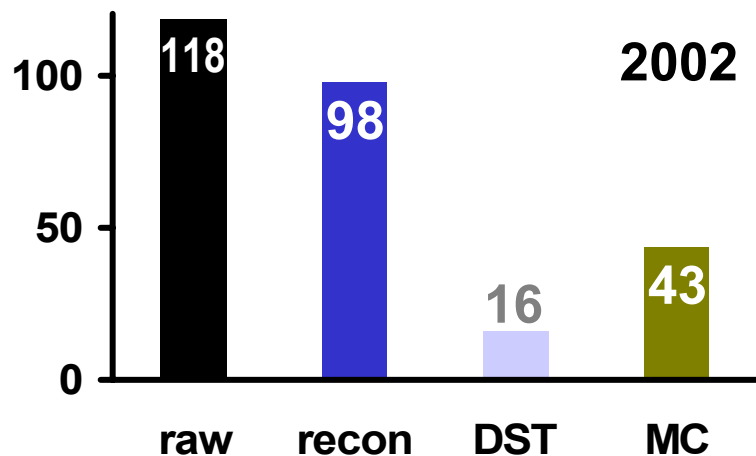
LNf CS Site



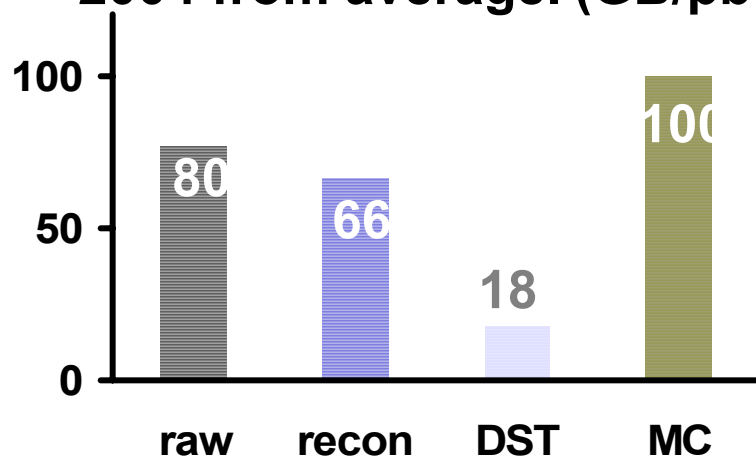
New KLOE Library

# Specific data volume

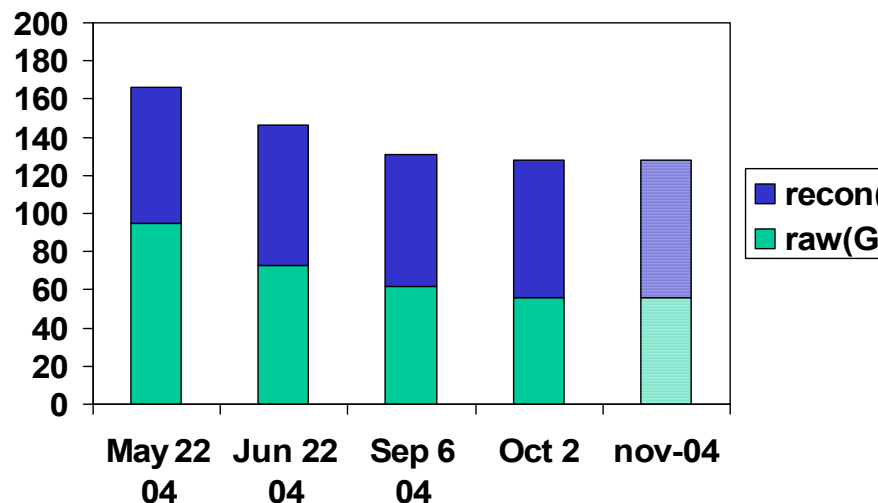
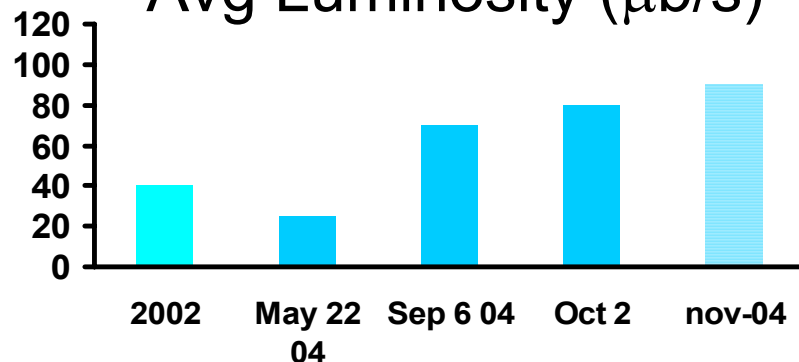
Stored vol. by type (GB/pb<sup>-1</sup>)



2004 from average. (GB/pb<sup>-1</sup>)

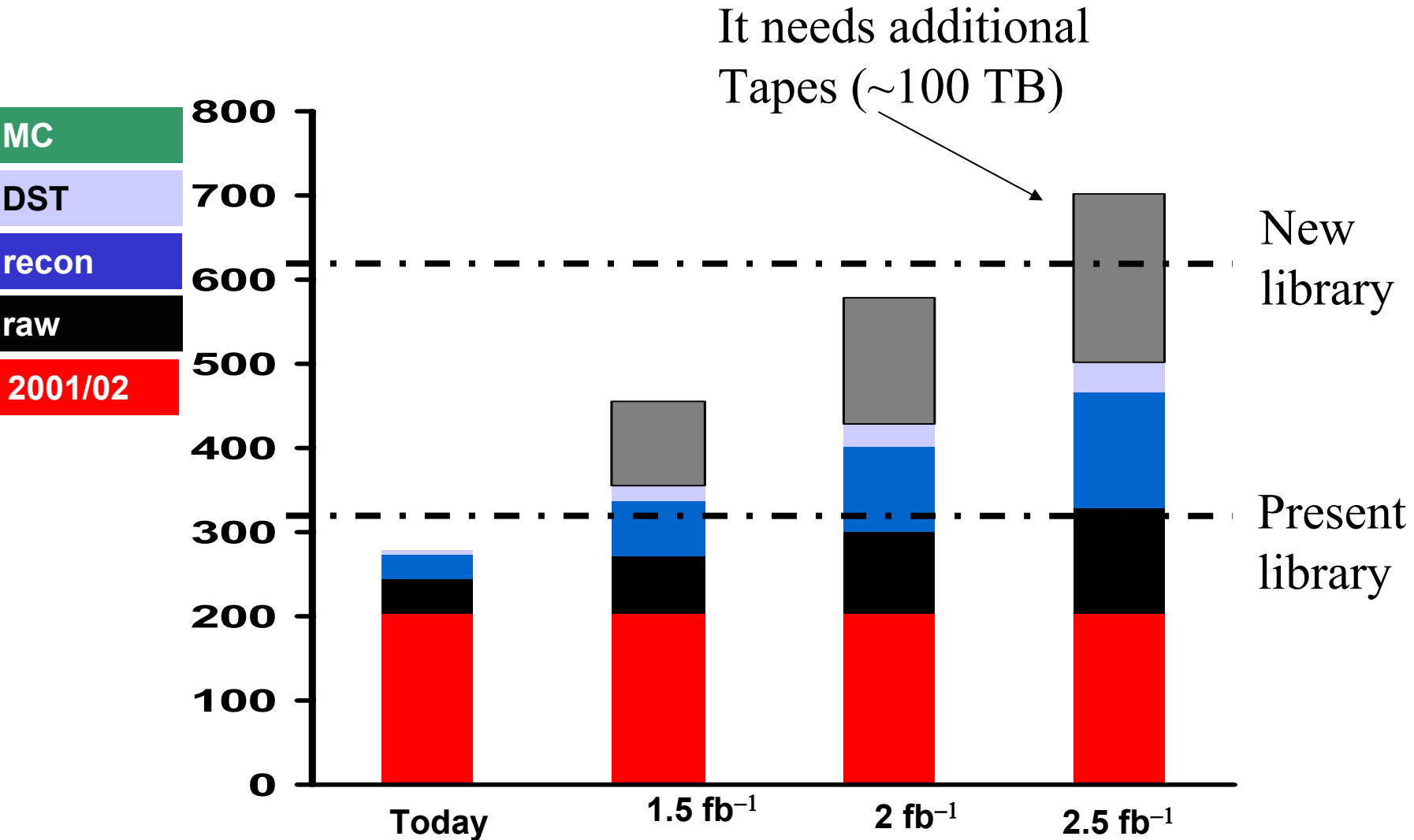


Avg Luminosity (μb/s)



The fighting against bckg allowed us to fit with data flow expectations

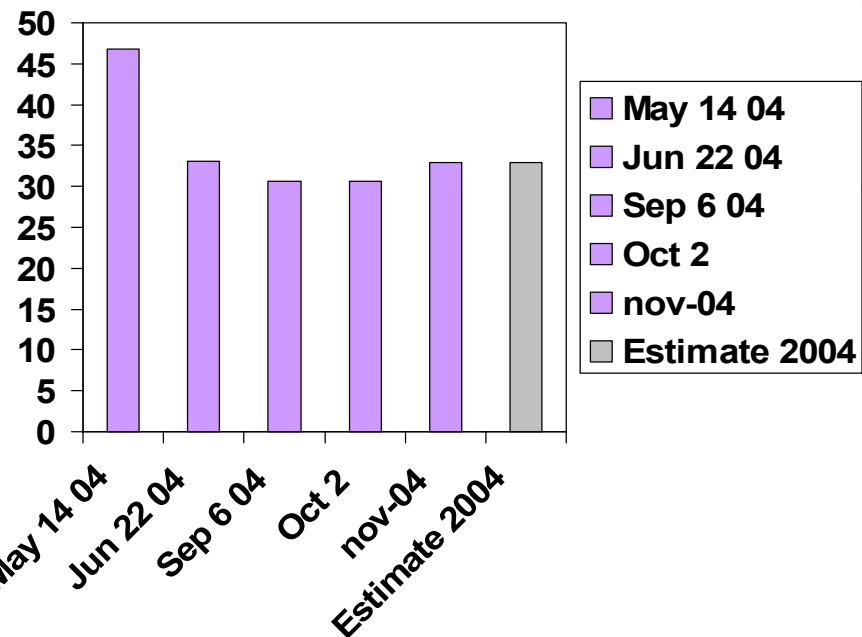
# Estimate of Tape library usage (TB)



*Overall it adds 420 TB @ 2.5 fb<sup>-1</sup>*

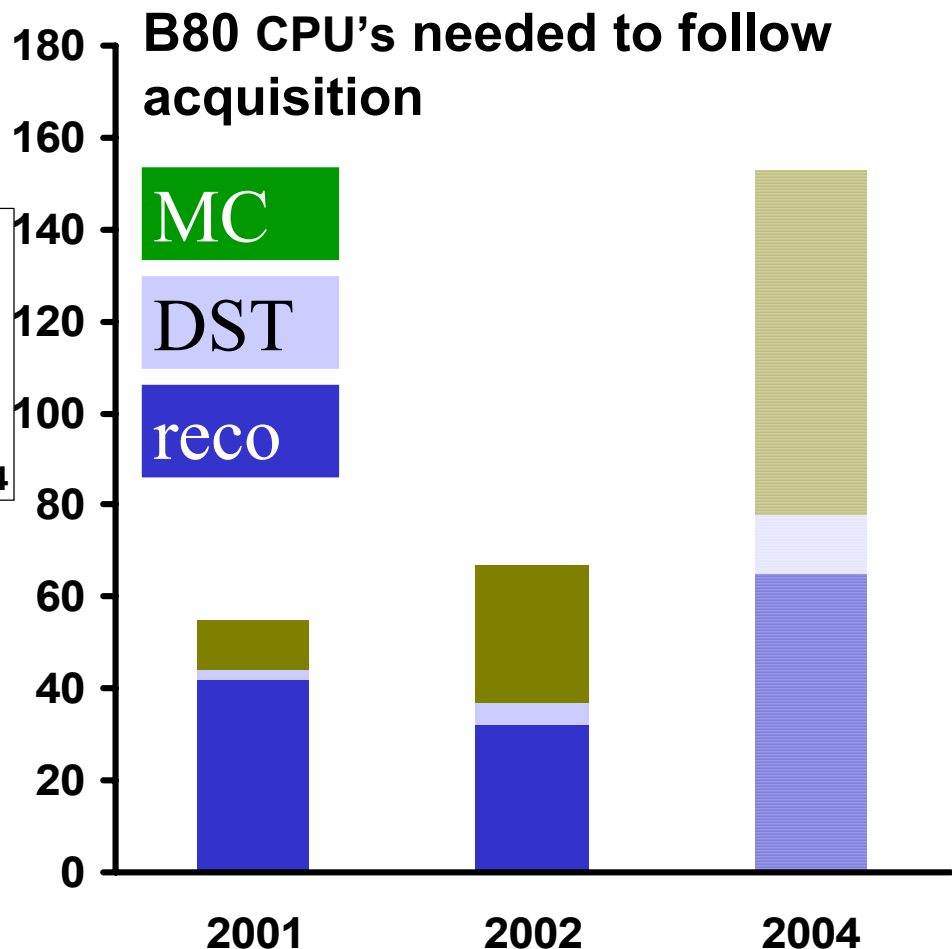


# CPU TIME



*same level of background of 2002  
was assumed for 2004 estimate*

**CONFIRMED with Data Taking**

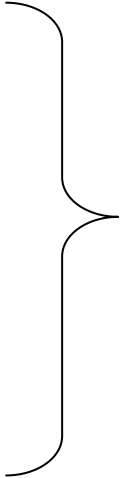


**196 CPU's installed**

# CPU resources:

➤ 10 IBM p630 servers: 10×4 POWER4+  
1.45 GHz (equivalent to **100** (40×2.5) B80  
CPU )

➤ 23 IBM B80 servers: **92** CPU's



- “Online” data  
Reconstruction and  
calibration
- DST and MC  
production
- Reprocessing

CPU allocation flexible. Simply redefine queues with  
LoadLeveler

➤ 10 Sun E450 servers: 18 B80 CPU-  
equivalents

(8 dismissed on Oct 11)

# CPU Required for offline tasks

Other tasks		Reprocessing data 2001/02	MC 04 (1 fb <sup>-1</sup> )
	<CPU> (ms/ev)	25	375
	# events (10 <sup>9</sup> )	28.4	3
	Time (B80 days/CPU)	<b>8400</b>	<b>13000</b>
	Calendar days (assuming 80 CPU)	<b>~100</b>	<b>160</b>

9 Months for reprocessing & MC production of 1 fb<sup>-1</sup>  
with 80 CPU

# Disk resources

## Current recalled areas

Production	<b>0.7 TB</b>
User recalls	<b>2.1 TB</b>
DST cache	<b>12.9 TB</b> (10.2 TB added in April)

**2001 – 2002**

Total DSTs

**7.4 TB**

Total MCDSTs

**7.0 TB**

**2004**

DST volume scales  
with  $\mathcal{L}$

**3.2 TB added to AFS cell**

**2.0 TB available but not yet installed**

Reserved for testing new network-accessible storage  
solutions

# Conclusion & Outlook

## ➤ Data reconstruction:

- We Keep up with data taking (70 B80 CPU)

## ➤ Data reprocessing:

- We want to reprocess 2001/02: more compact sample and with refined selection/reconstruction routines.

## ➤ MC for 2004 data:

- Minor modification:
  - Add the new interaction region in GEANFI.
  - Complete machinery for inserting the machine background events produced with the random trigger.
  - Refinement of the detector responses
- MC production of additional  $3 \cdot 10^9$   $\phi$  decays ( $1\text{fb}^{-1}$ )

## ➤ Tape storage:

- Additional 300 TB with the new library (612TB in total)
- They are sufficient to store up to 2 fb<sup>-1</sup> of collected data & MC