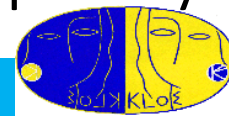
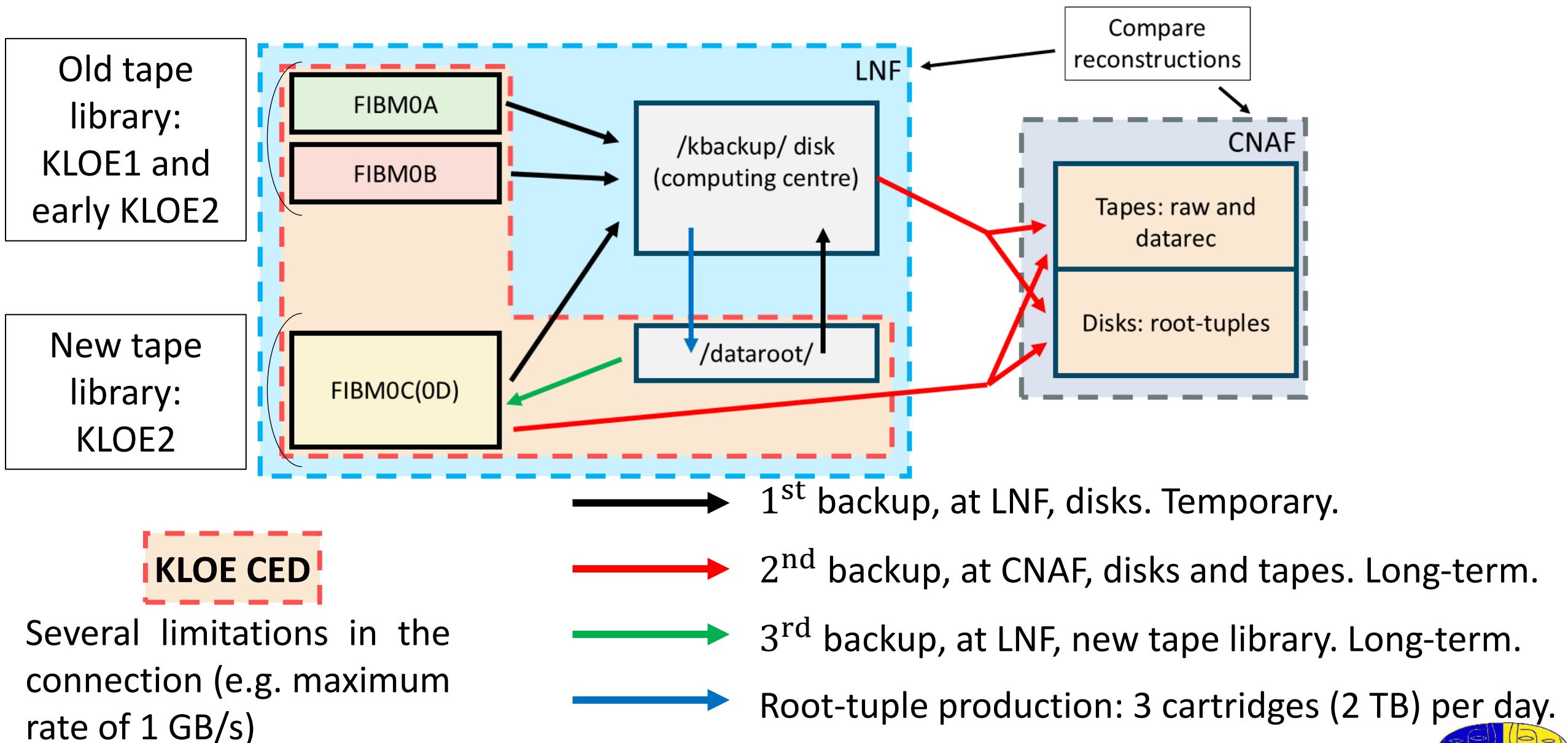


Current computing scenario



KLOE1 and KLOE2 raw files from FIBM0A

Years	#cartridges	#downloaded	Downloaded size	#cannot download	#not needed
2001-2002	78	45	28 TB	16	17
2004	36	31	19 TB	1	4
2005-2006	77	72	44 TB	2	3
KLOE-2	346	42	45 TB	/	/
Total	537	189	136 TB	19	24

Cannot download: cartridges on faulty stations that put the Library into «Pause» state

Not needed: run numbers outside of the official dataset ranges

KLOE-2 raw files: 365 TB total.



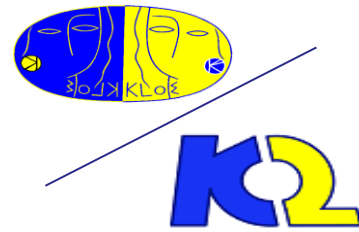
KLOE1 DSTs from FIBM0A

Years	#cartridges	#downloaded	Downloaded size	#cannot download
Data DSTs	66	62	30 TB	4
MC DSTs	70	66	34 TB	4
Bhabha	99	96	62 TB	3
Total	235	224	126 TB	11

Out of 128 DST cartridges, around 90% have been reconstructed as root-tuples (~ 3 cartridges per day). There are also 200k «UFO» files which have been reconstructed as 8k root-tuples, stored in Liverpool.



Data on tape at CNAF



- **Raw data**

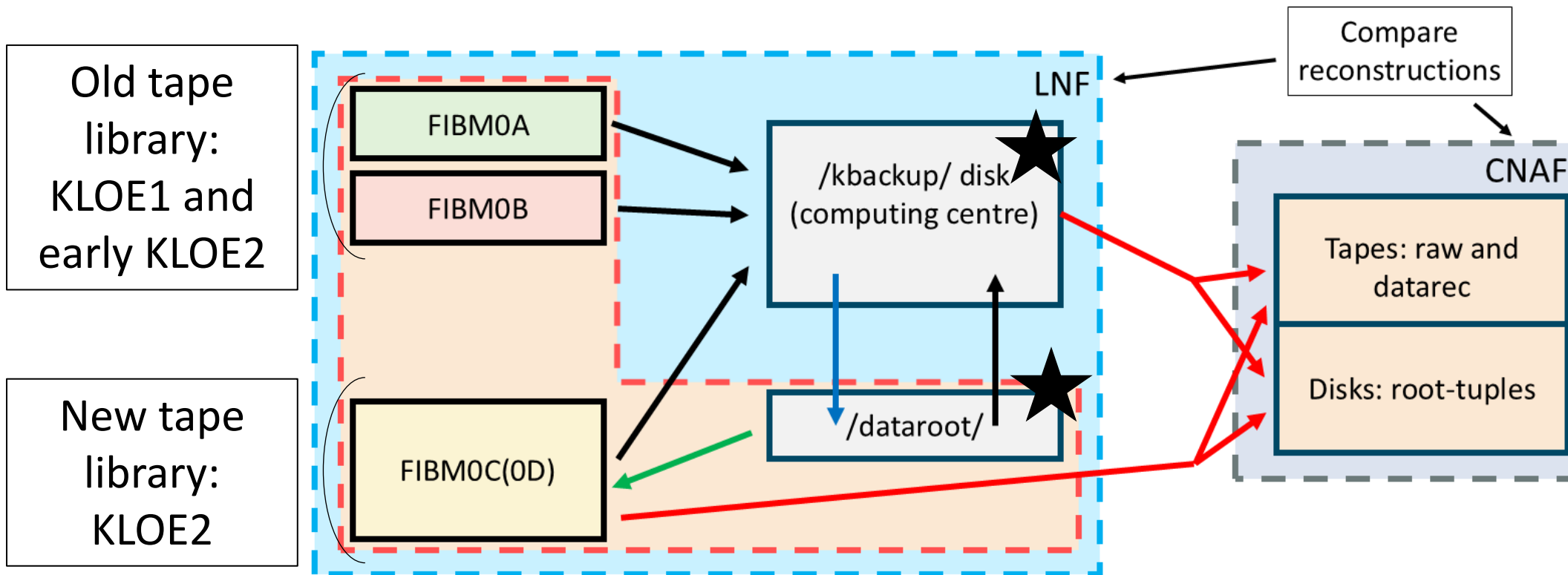
Sample	Data volume	Data @ CNAF
KLOE 2001-2002	80 TB	11 TB
KLOE 2004-2006	113 TB	103 TB ⁽¹⁾
KLOE-2 runs 71539 - 76154	291 TB	274 TB
KLOE-2 runs 76155 - 95098	2.4 PB	607 TB
(Datarec + others)		400 TB
		Total: 1.4 PB

⁽¹⁾ two cartridges lost after the water accident at CNAF

+ **500 TB of files of reconstructed Bhabha (needed for the luminosity)**

- **Tape space @ CNAF: 3.1 PB**
used : 1.4 PB

Problems and solutions

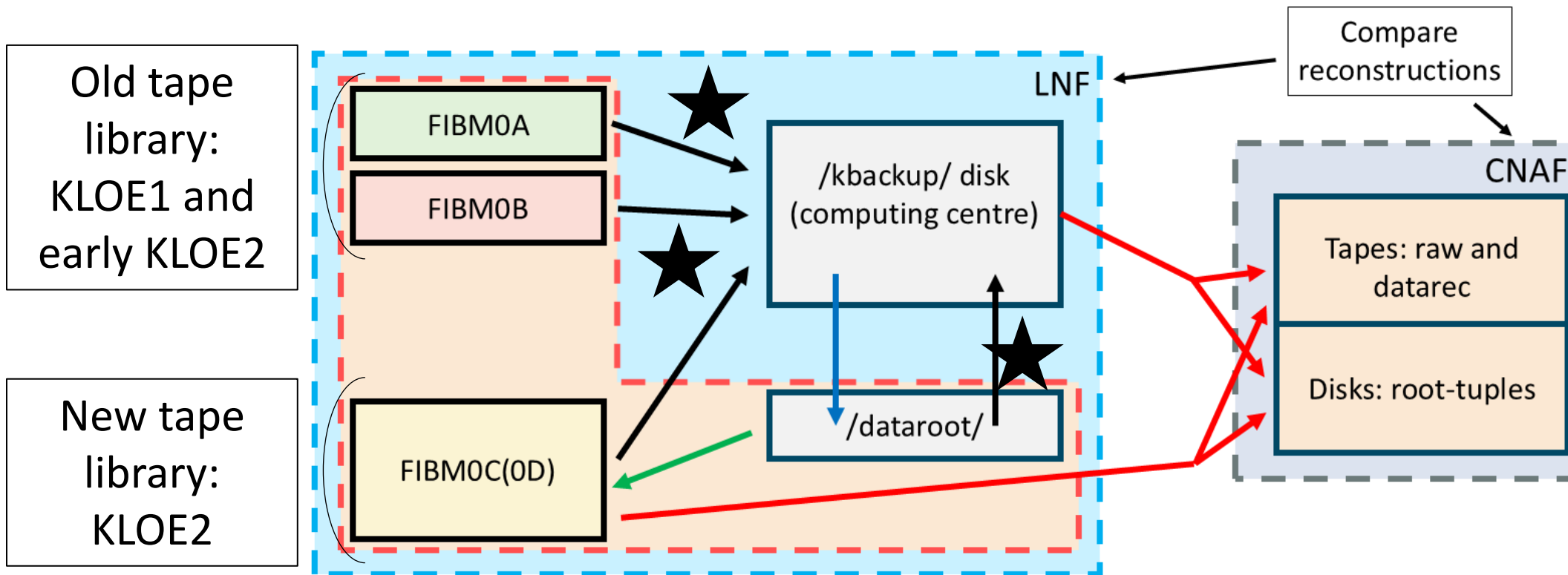


#1. Space on LNF disks is limited: 50 TB remaining on `/kbackup/`.

Solution: we could remove KLOE2 root-tuples to free space after doing an additional backup → copy to new tape library (we need to find out how)



Problems and solutions

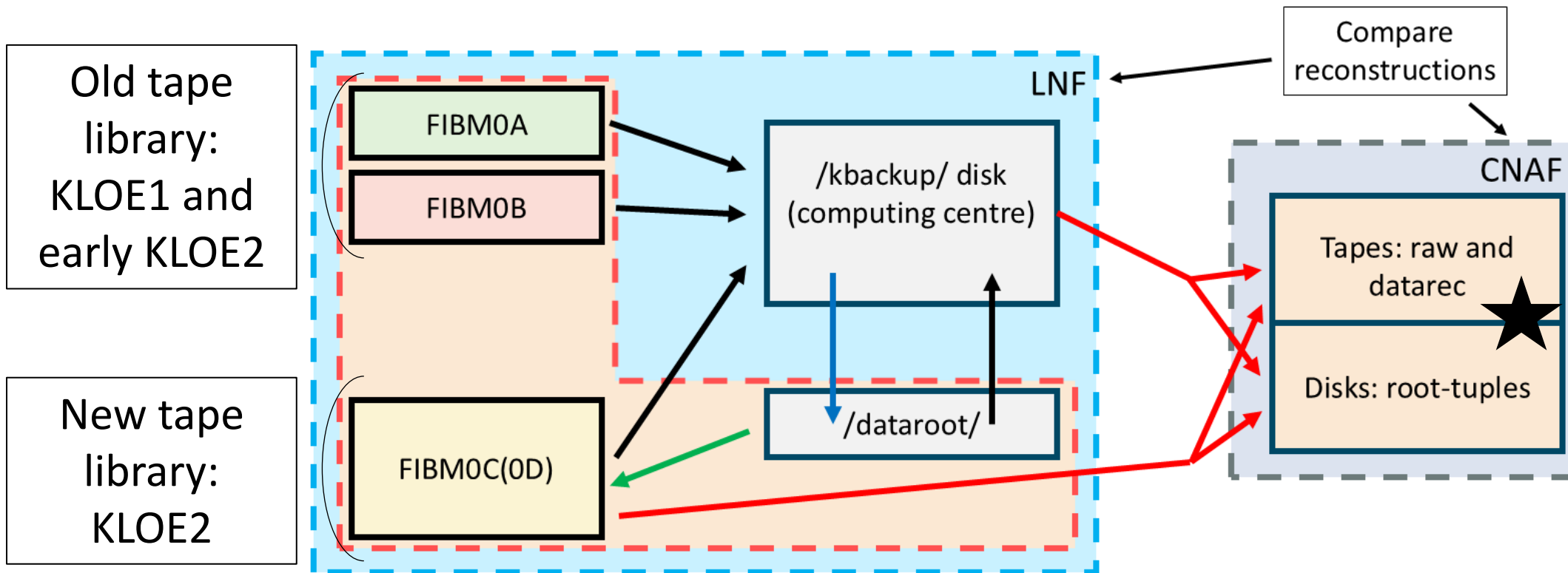


#2. Transfer rate to /kbackup/ is limited: $20 \text{ MB/s} \equiv 1 \text{ GB/minute}$

It was faster than this (8 GB/min) until June, then slowed down. Assumed to be due to limited space → solved if we keep 150 TB always free



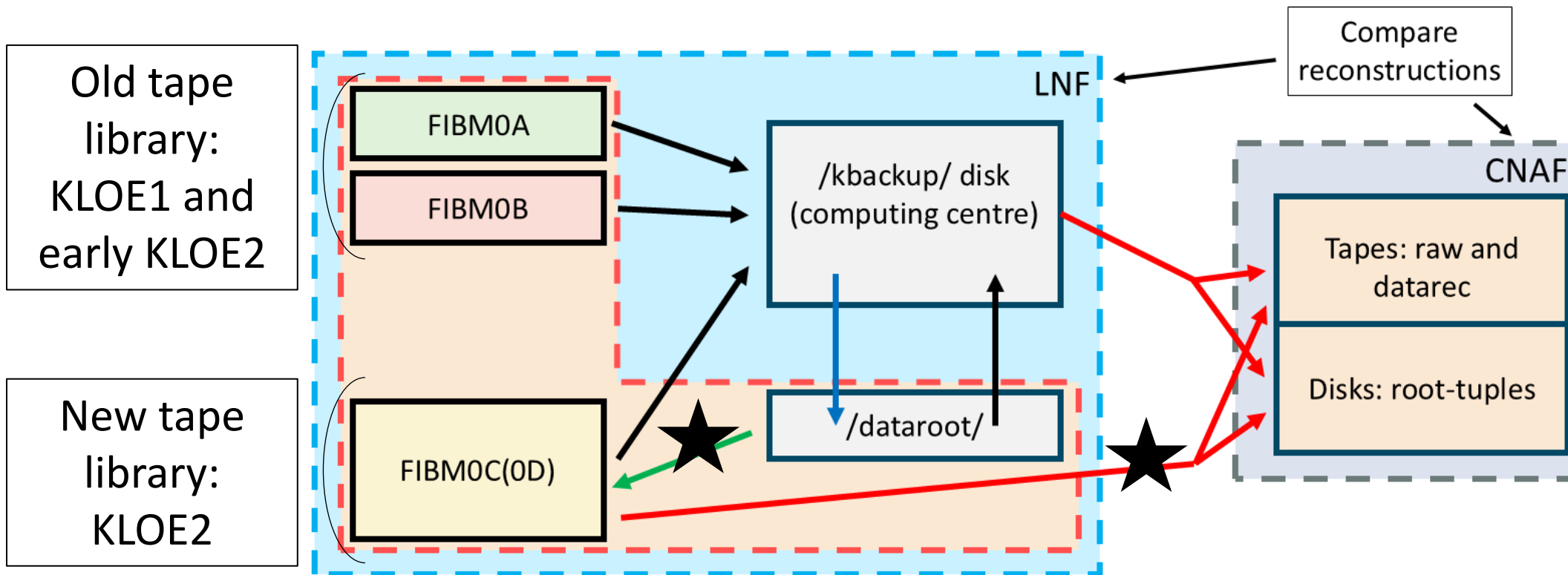
Problems and solutions



#3. Copy at CNAF: the transfer rate is good (16 GB/minute $\equiv$ 1 TB/h); disks are 59% full but the space will be doubled; tapes can be written on but transfer errors are expected for the next 1-2 months because the buffer is full due to KLOE2 files assessment.



Problems and solutions

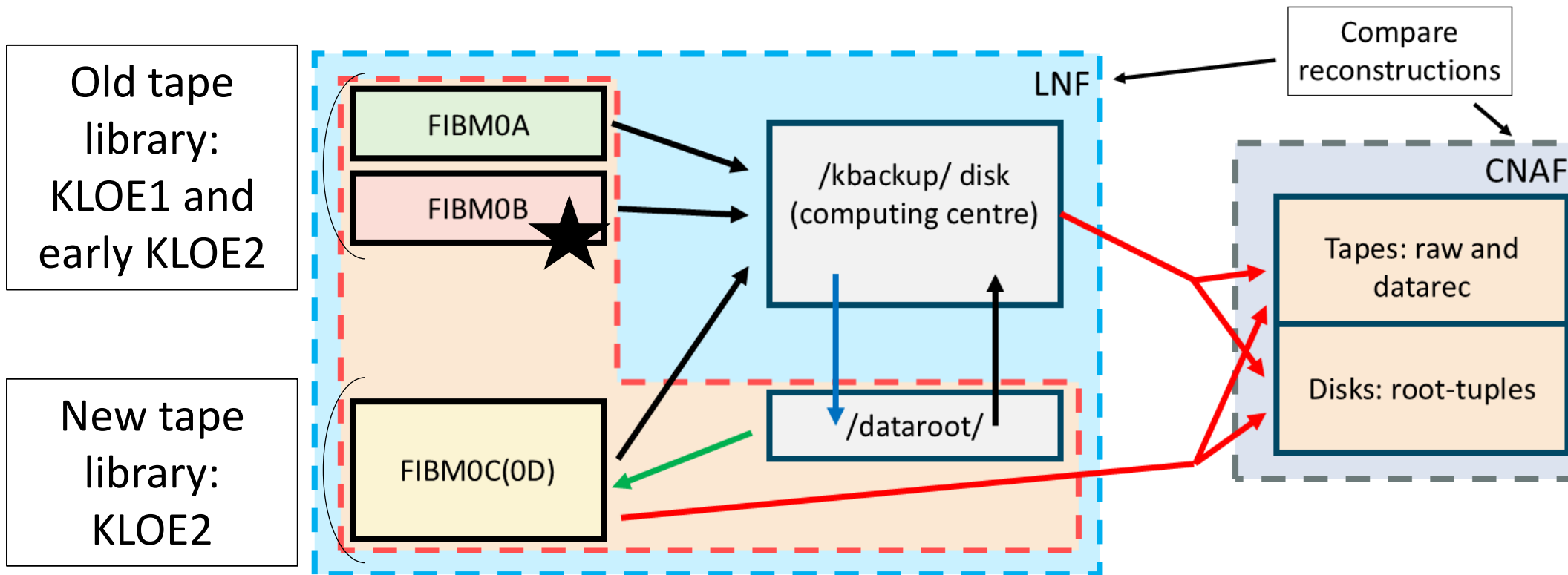


#4. Transfer procedures not tested yet:

- Writing on new tape library (need instructions)
- Direct transfer to CNAF from new tape library (but speed rate from KLOE CED will be limited)



Problems and solutions

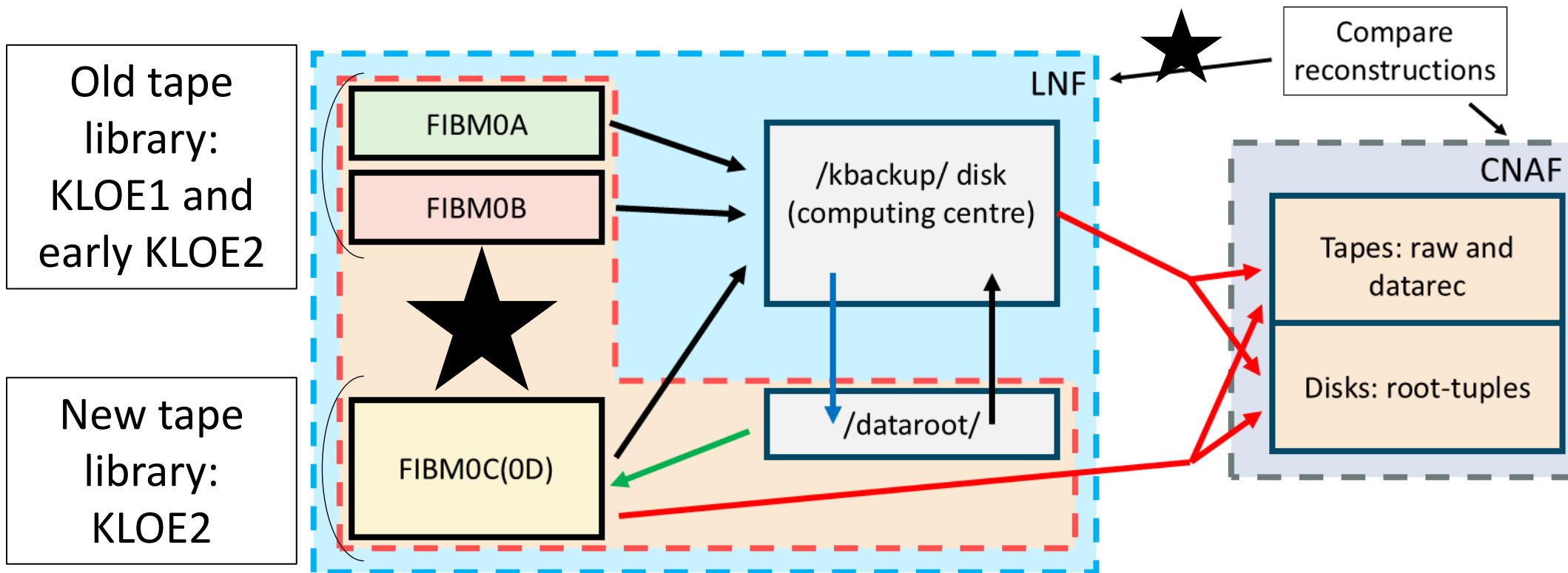


#5. FIBMOB is not accessible yet (50% of all KLOE1 data and around 0.5 PB of KLOE2 raw files). We are in constant communication with Evernex for assistance and we have a repair contract.

Last resort: try to manually insert cartridges in drives and read them.



Problems and solutions



#6. Unstable setup (UPS battery)

- Old tape library depends on many servers/machines, that we also need online to run the reconstruction on IBM
- New tape library is under maintenance



What we will download and transfer in the future

FIBMOB:

- Assumption: we will also need 205 TB from it
- 145 days with current download speed of 1 GB/minute; it would be 18 days with initial speed, but we need to free some space (or acquire more space) on /kbackup/ first

FIBMOC (new tape library):

- Total of 6 PB on all new tape library cartridges (raw KLOE2 files on new tape library are only around 2.6 PB)

Transfer to CNAF:

- Speed of 1 TB/h (bandwidth according to instructions: 20 parallel jobs). Factor 4 less than what CNAF expected

