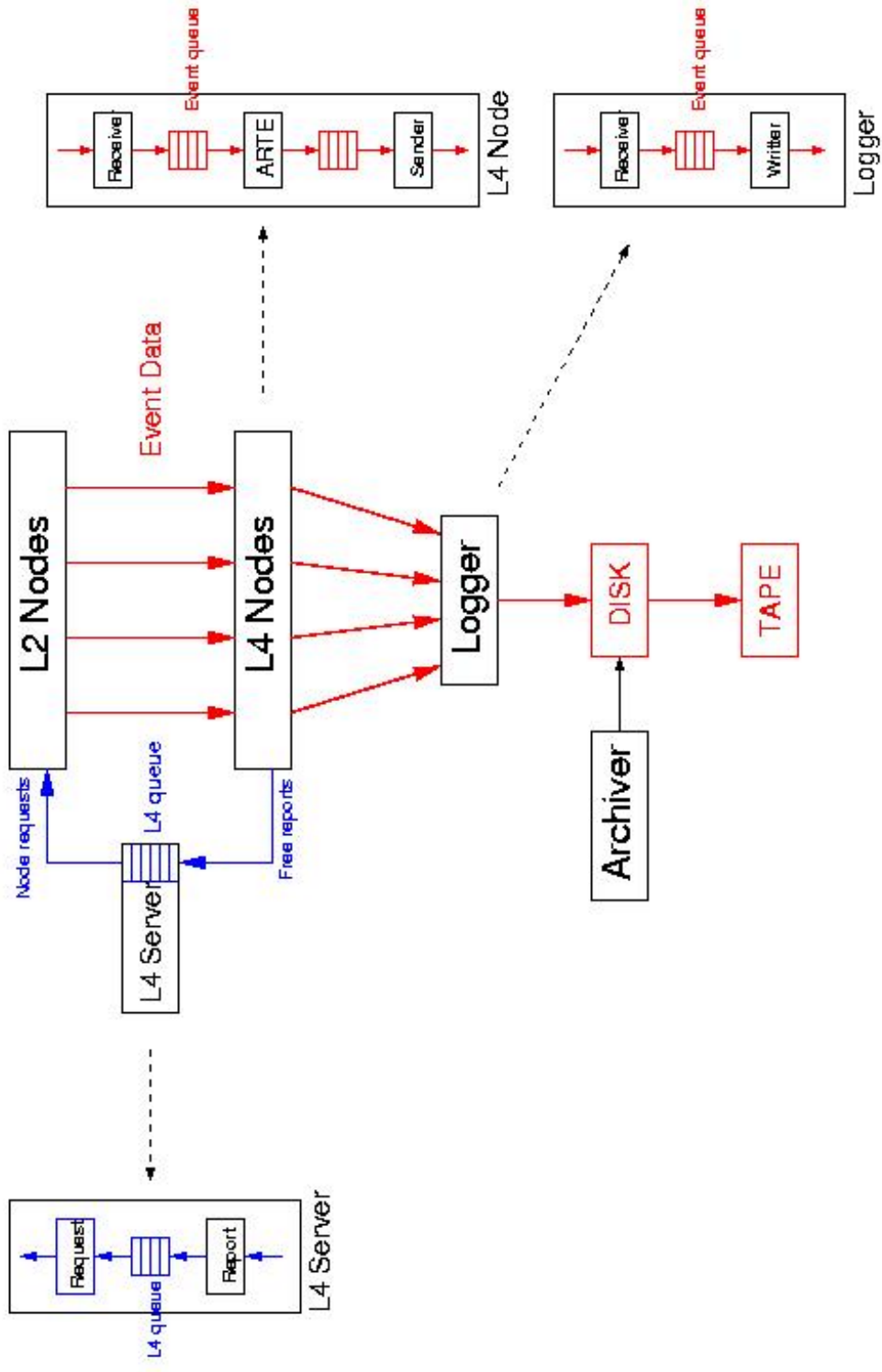


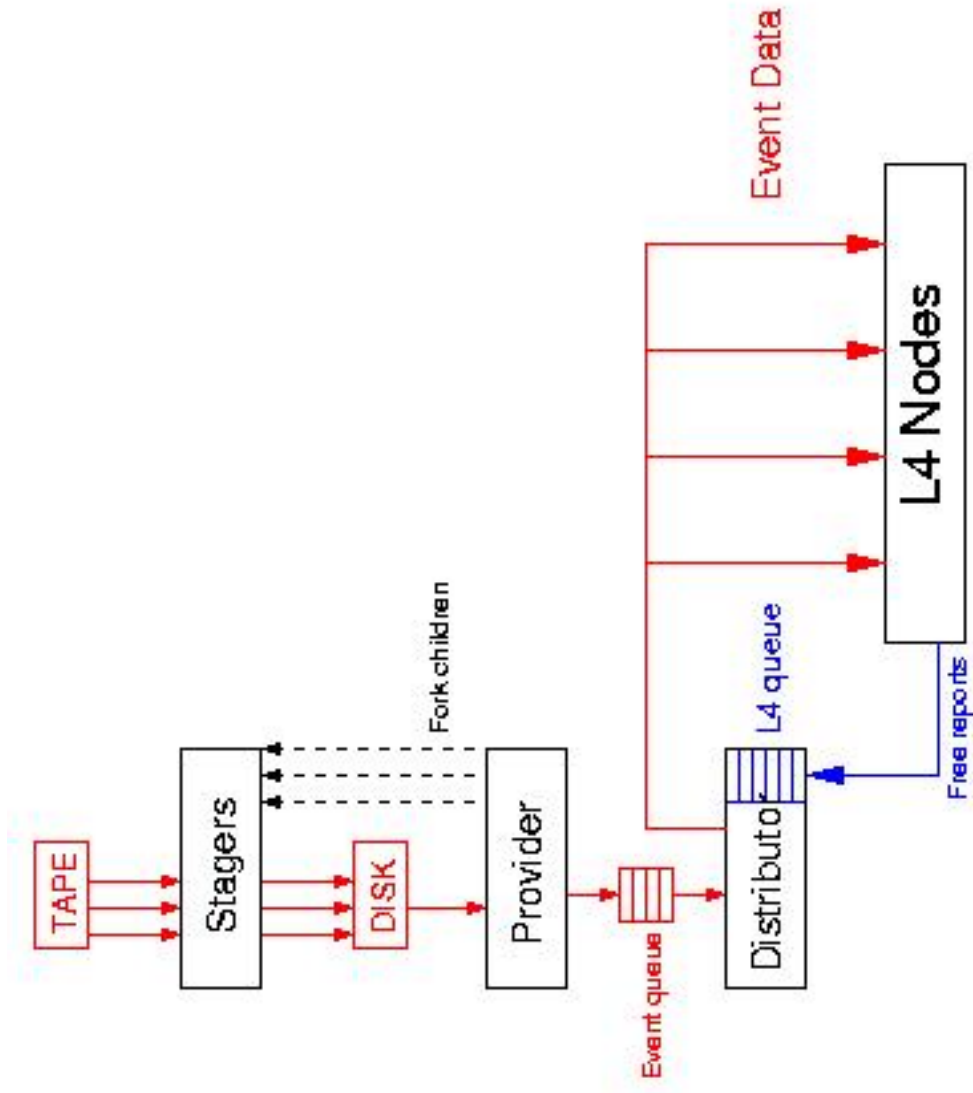
# Reprocessing Status

- Reprocessing machinery
- Status of rp0002 reprocessing
- Problems and solutions

# Data Taking



# Reprocessing



# Reprocessing machinery

- Goal: Make Reprocessing automatic and efficient using vast L4 CPU power
- Use EventProvider/EventDistributor processes to feed the L4 nodes with events
- Use logging and archiving processes
- Use DAQ process manager and Run Control to boot and control all the processes
- Use Online DB caches for loading CnA constants
- Use exactly the same Data Quality Monitoring
- Error Logger and REPRO monitor
- Data taking in parallel is possible

# Configuration for rp0002

- Configuration
  - ARTE-03-08-r5 version
  - Key Tables Revision 13 (14)
    - Problem with VDS alignment found on Feb 16th affecting J/Psi → ee runs and last J/Psi →  $\mu\mu$  runs. Reprocessing resumed on Feb 20th with Key Table Revision 14
  - MINIs kept on disk:
    - /hb/mini/data/REAL/00/exp03/mini/runXXXX/rp0002\_\*
  - V. Rybnikov: Running Reprocessing
  - R. Baghshetsyan: Data Management

# Status rp0002

Run Type	Run Range	# Runs	# Events	Size (GB)
Min. Bias	14543-14654	57	4176617	727
Hard Photon	17100-17112	10	638572	78
Single Lepton	17116-17266	23	4643755	966
J/Psi $\rightarrow$ $\mu\mu$	15820-17180	230	5425495	787
<b>Total</b>		<b>320</b>	<b>14884439</b>	<b>2558</b>
J/Psi $\rightarrow$ ee	15036-17068	372	(16292359)	

# Status rp0002

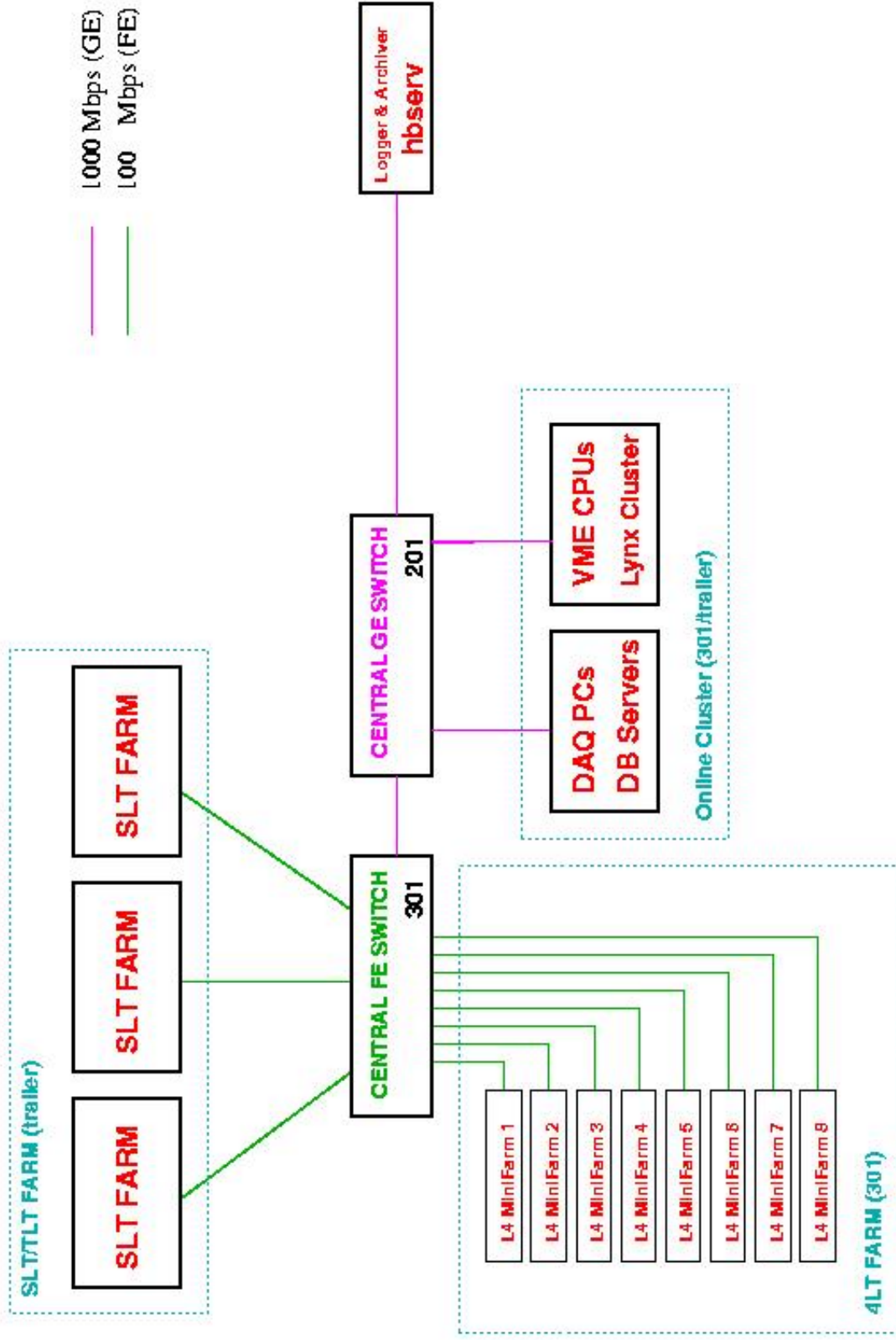
- Performance
  - Time elapsed since reprocessing started: 22 days, 2 hours
  - Time reprocessing up: 12 days, 23 hours
  - Efficiency: 58 %
  - Average rate: 20 Hz (peak performance 25 Hz)
- Average Event Processing time: 3-7 secs.
  - PID (20%), Ranger (20%), Matching (10%), RICH (30%)

# Status rp0002

- Inefficiencies
  - Problems during night not recovered until the morning
  - SMC state transitions when changing run
    - Problem in DQ gatherer not yet understood
  - TAPE Robot down
  - DB servers
    - DB caches corruption
    - Speed and reliability of CnA constants loading limited by DB server performance: Implement rpm multithreading
  - Problem in **Logger Writer** process (fixed)



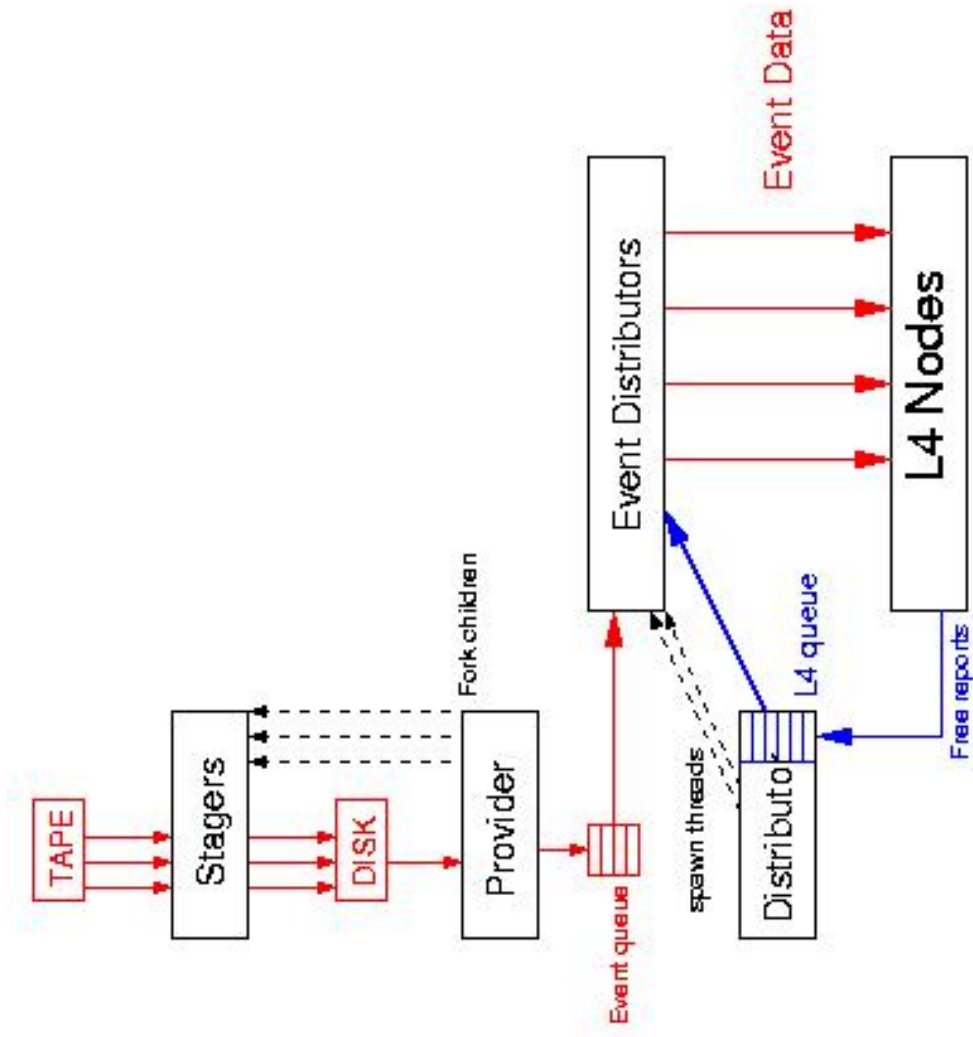
# HERA-B NETWORK INFRASTRUCTURE



# Status rp0002

- Other problems
  - Data Quality Database
    - Corruption of DQ Histogram Database
    - Workaround: periodic reset of DB and provide DQ histograms in root files
- Room for improvements
  - Reprocessing rate limited either by:
    - Event Processing time in ARTE (30 Hz for 6 sec/event)
    - CPU power of event distribution and logging machine
      - Dedicated machine
      - Successful reprocessing tests done in new machine
    - EventDistributor process (25 Hz)
      - Improve event transmission protocol
      - Introduce multithreading

# Event Distribution



# Summary

- The reprocessing machinery is providing a framework which allows to reprocess the data as fast as we took them (limited by event reconstruction time).
- Current performance 1-2 million events/day
- The reprocessing machinery is using the online resources used for data taking, so
  - Any improvement in Run Control, Event Distribution, Event Reconstruction, Data Quality, Logging, Archiving ... will be used in the next data taking period