BABAR Computing Operations

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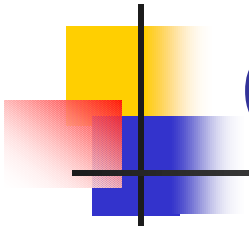
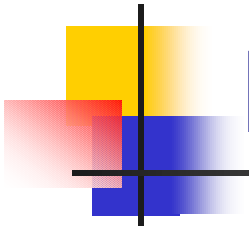
BABAR Computing Coordinator

February 16, 2002



Outline

- BABAR Resource Overview
- Prompt Reconstruction
- Simulation Production
- Skimming
- Kanga Production
- Analysis
- Outlook



Resources at SLAC

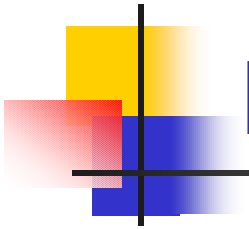
- CPU
  - 900 Sun Netra T1 (440 MHz)
  - 512 VALinux dual-CPU PIII (866 MHz)
    - Spontaneous rebooting problems have been big headache in summer and fall reprocessing
  - ~100 assorted servers
    - Mostly Sun multi-CPU machines (move to Linux servers in 2003)

Resources at SLAC (cont.)

- Disk

Usage	Amount (TB)
Objy data/MC	25
Kanga data/MC	10
Data staging	6
OPR servers	10
MC servers	3
Data/MC Import/export	5
General analysis space	5
Total	**64**

Plus ~20 TB for data until summer



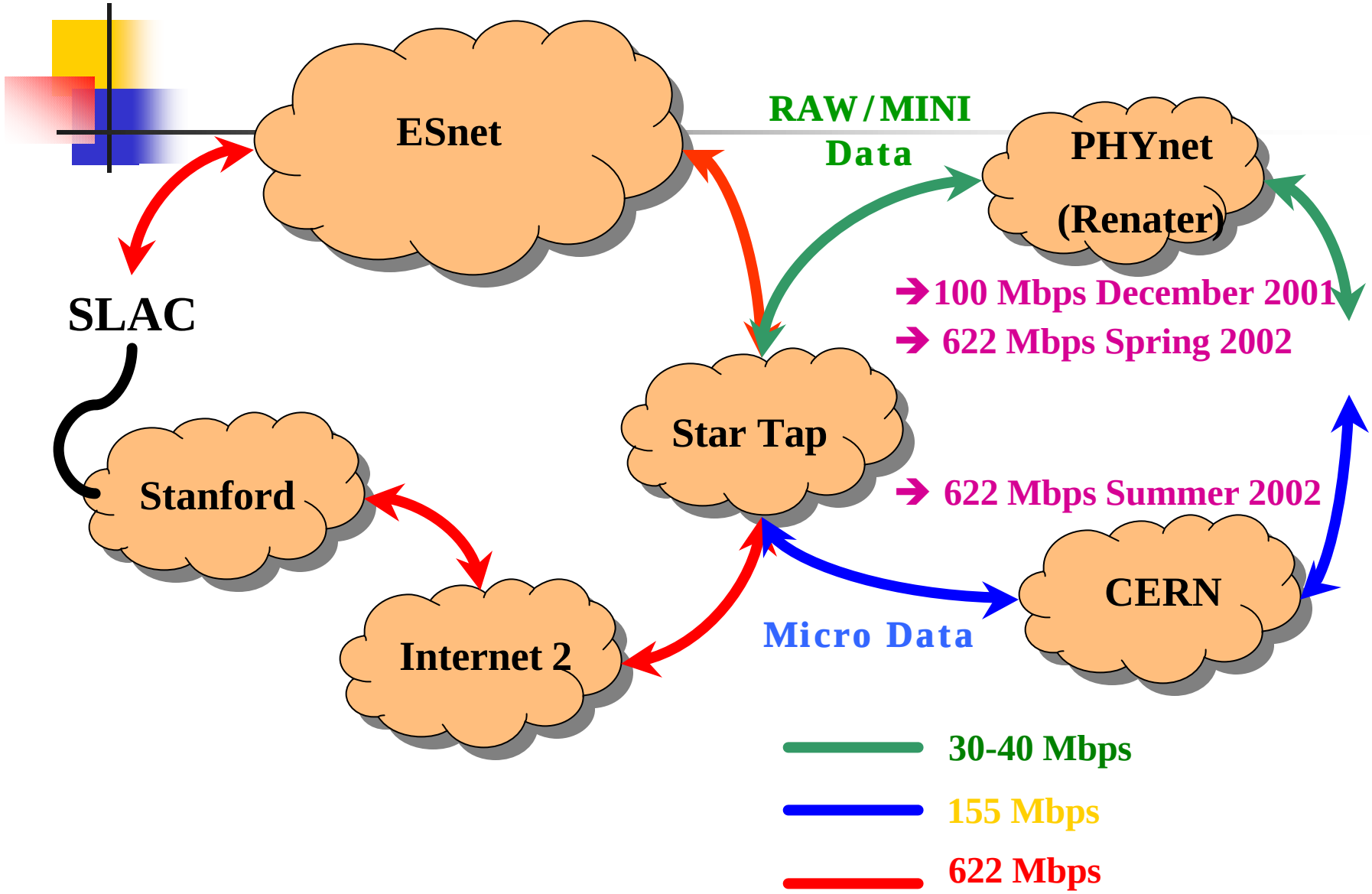
Resources at IN2P3 (France)

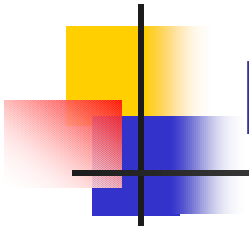
- ~200 CPUs (mostly Linux) for BABAR use
- All Micro data and MC on disk or staged from HPSS (no Kanga)
- Bulk (raw and mini) data being transported (~10% done)

New Tier A sites at INFN & RAL

- INFN (Italy)
  - Reprocessing to be done at site in Padova – 10 fb^{-1}/month, beginning July 1
    - Testing and copying of raw data starting now
  - Full analysis capability with Objy to start with move of site in 2003
- RAL (Rutherford, UK)
  - 6 TB of Kanga available now, rest by April
  - Full capability with Objy by the end of 2002

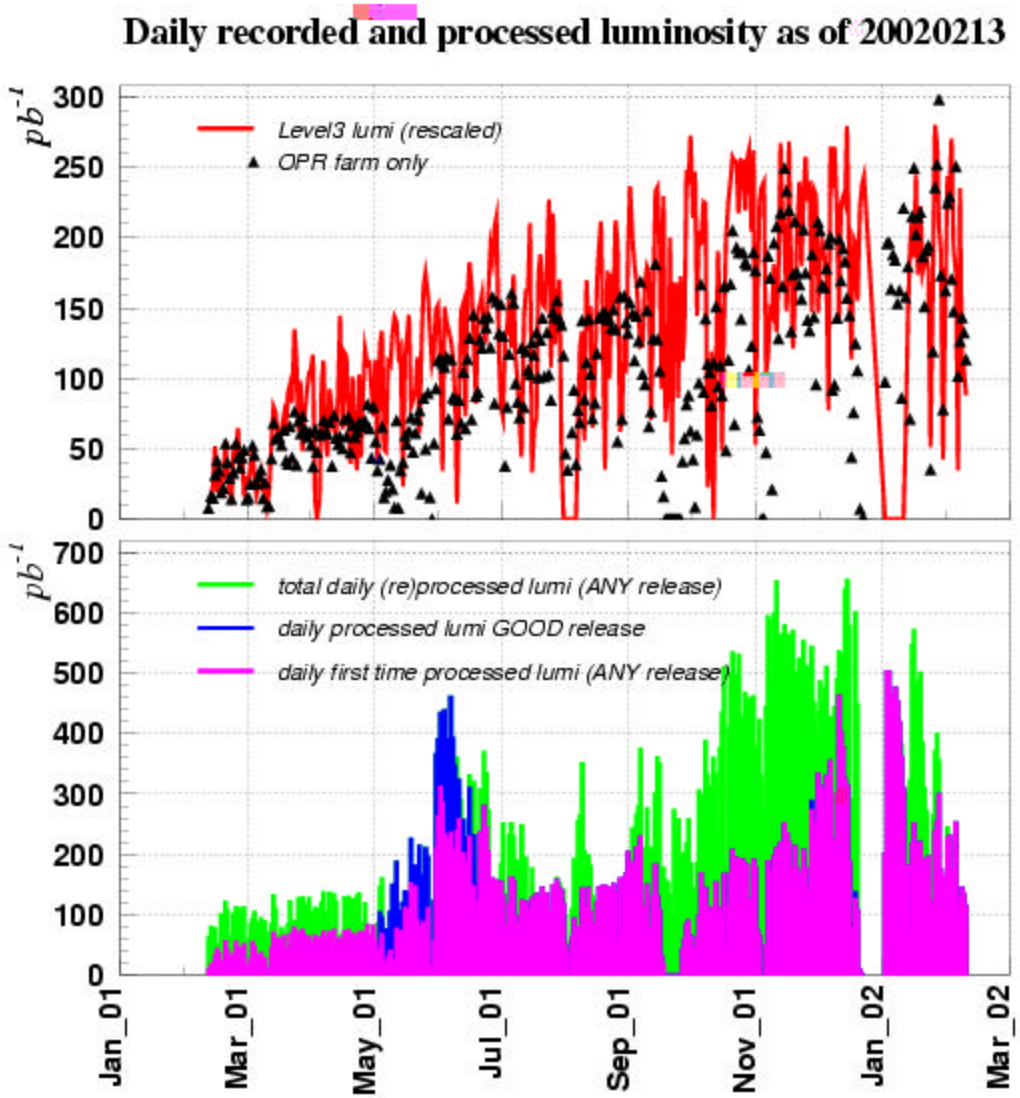
Network Connection between SLAC and IN2P3

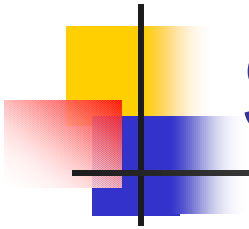




Prompt Reconstruction

- Reprocessing of 99/00/01 data completed in January (average rate of 500-600 pb^{-1}/day towards the end)
- PR now running with 175 mono-CPU Linux machines. Rate is ~250 pb^{-1}/day and keeping up with data.
- Stephen will discuss PR development plans


Daily recorded and processed luminosity as of 20020213
pb^{-1}
300
250
200
150
100
50
0
Level3 lumi (rescaled)
OPR farm only
pb^{-1}
700
600
500
400
300
200
100
0
total daily (re)processed lumi (ANY release)
daily processed lumi GOOD release
daily first time processed lumi (ANY release)
Jan_01
Mar_01
May_01
Jul_01
Sep_01
Nov_01
Jan_02
Mar_02

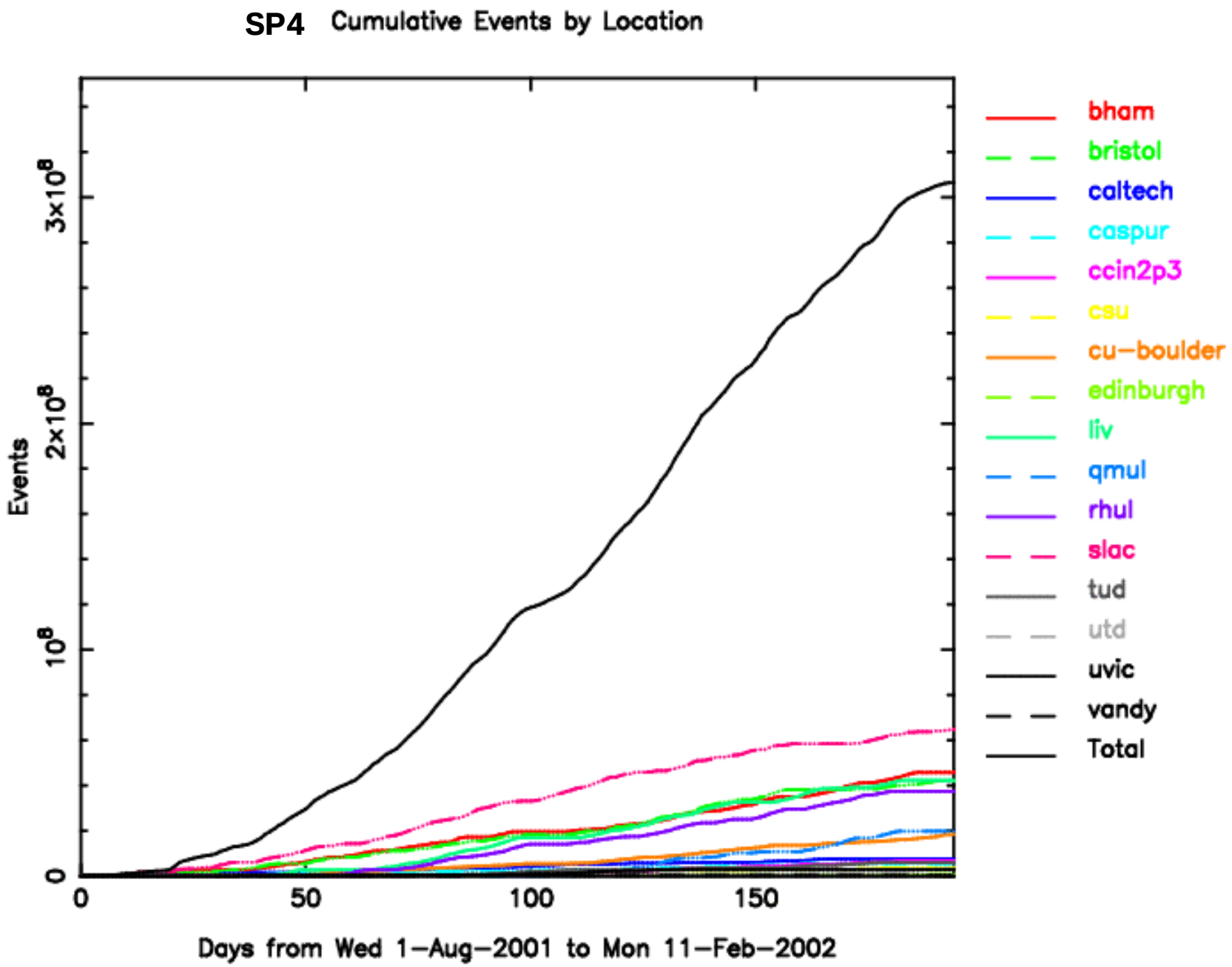


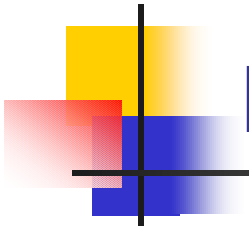
Simulation Production

- Production done at SLAC and 15 remote sites and exported back to SLAC
- “SP3” (old processing) was 75M events (1/2 luminosity of data)
- “SP4” will be ≥500M evts (≥data luminosity)
- SP4 MC for 2000 data done
- 2001 SP4 nearly finished

} 300M events

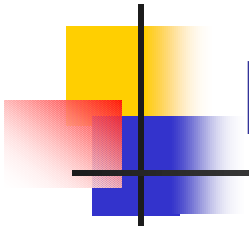
- 2002 SP4 will begin soon


SP4 Cumulative Events by Location
Events
3x10^8
2x10^8
10^8
0
0
50
100
150
Days from Wed 1-Aug-2001 to Mon 11-Feb-2002
bham
bristol
caltech
caspur
ccin2p3
csu
cu-boulder
edinburgh
liv
qmul
rhul
slac
tud
utd
uvic
vandy
Total



Re-skimming with New Physics tags

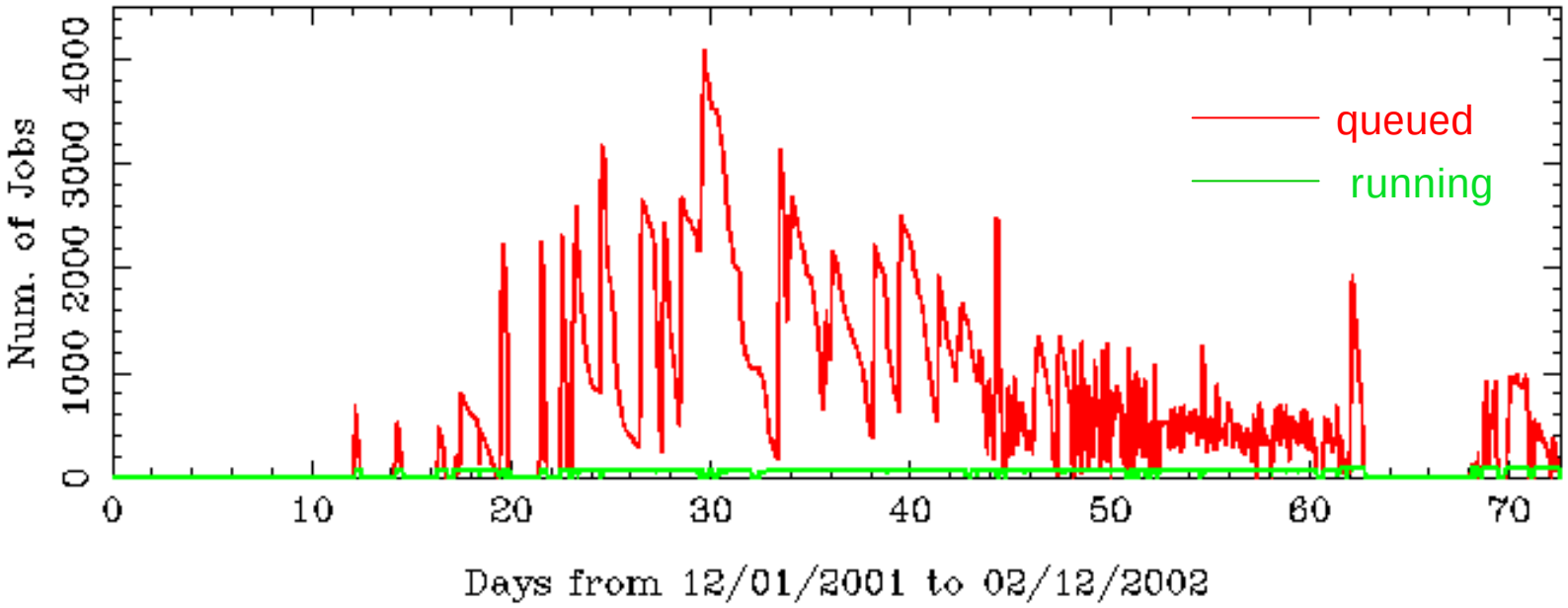
- Re-skimming the reprocessed data to use new physics skims (available October)
  - MC re-skimming complete for available MC
  - Data re-skimming starting now (available in May)



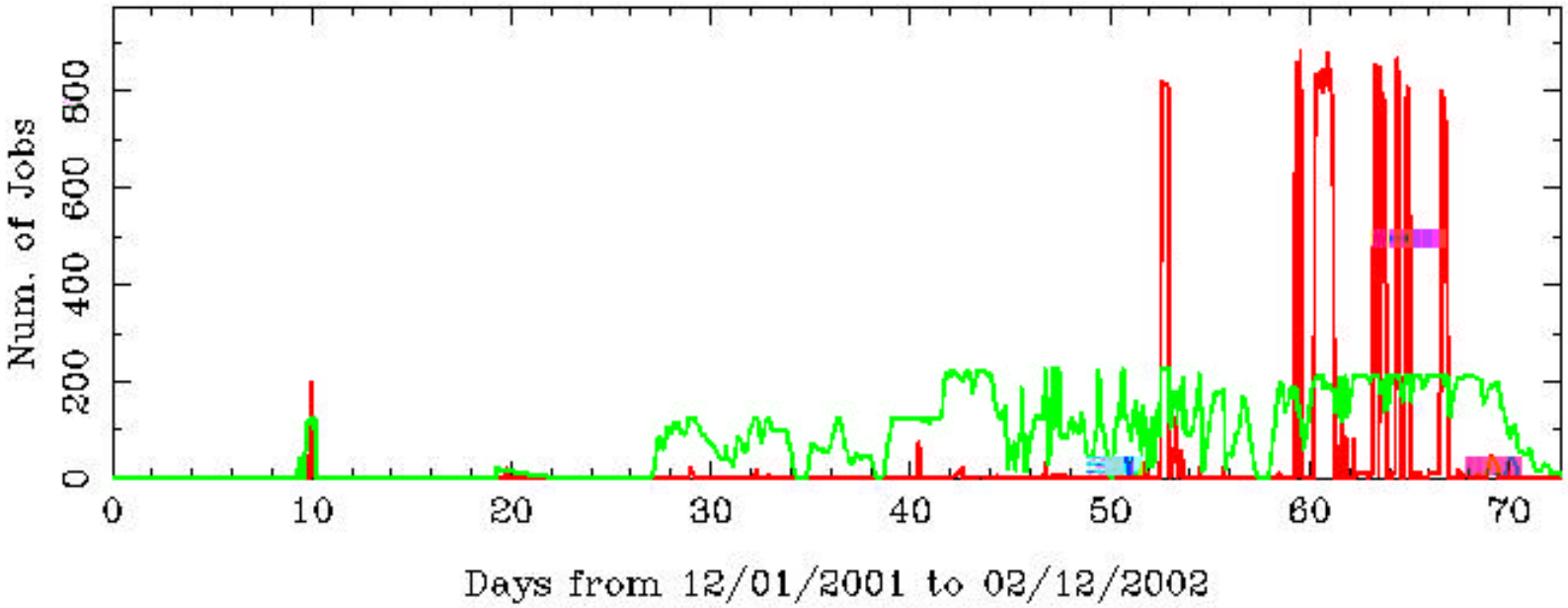
Kanga Production

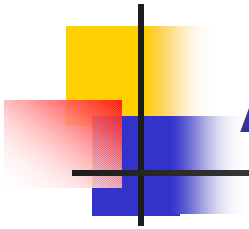
- Kanga requires considerable resources:
  - Objy $\rightarrow$ Kanga conversion: >~ 50 Linux CPUs
  - 10 TB of disk space and rising
  - 3 FTEs for production and development
- Data and MC Kanga production now caught up
- Kanga data and analysis at RAL by April 2002

Data Kanga Production



MC Kanga Production

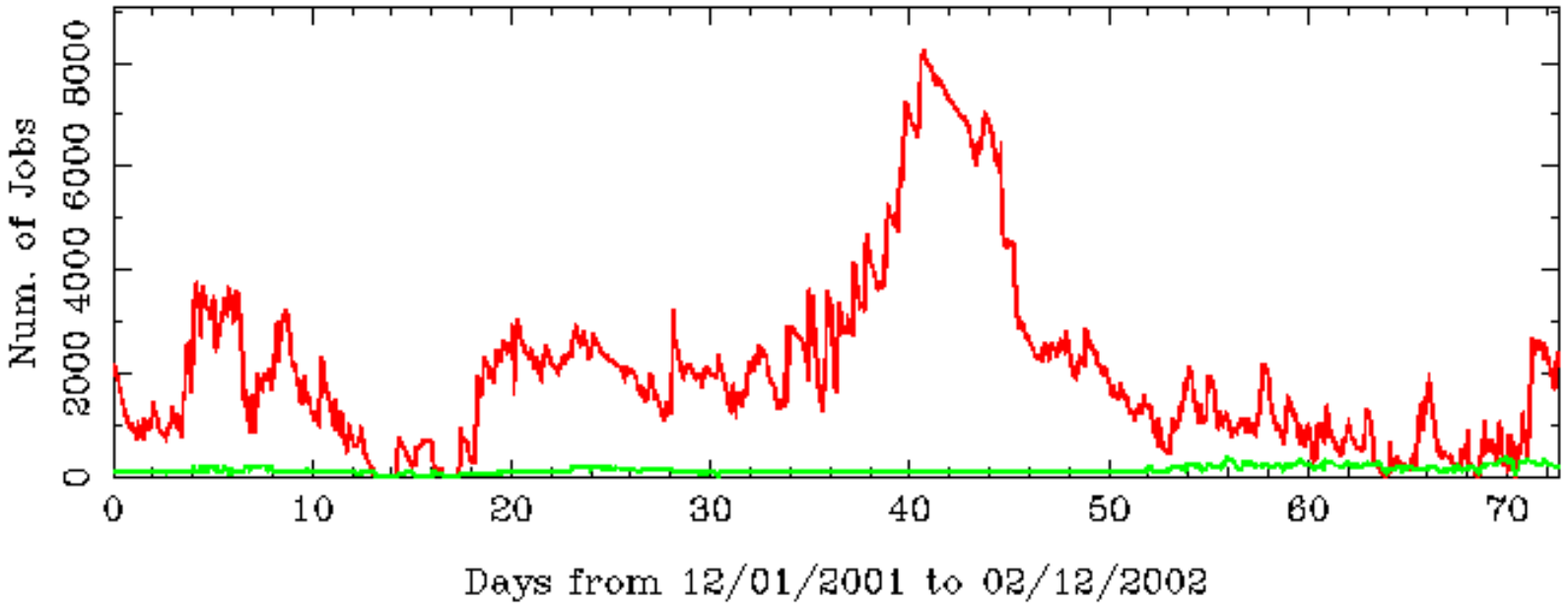




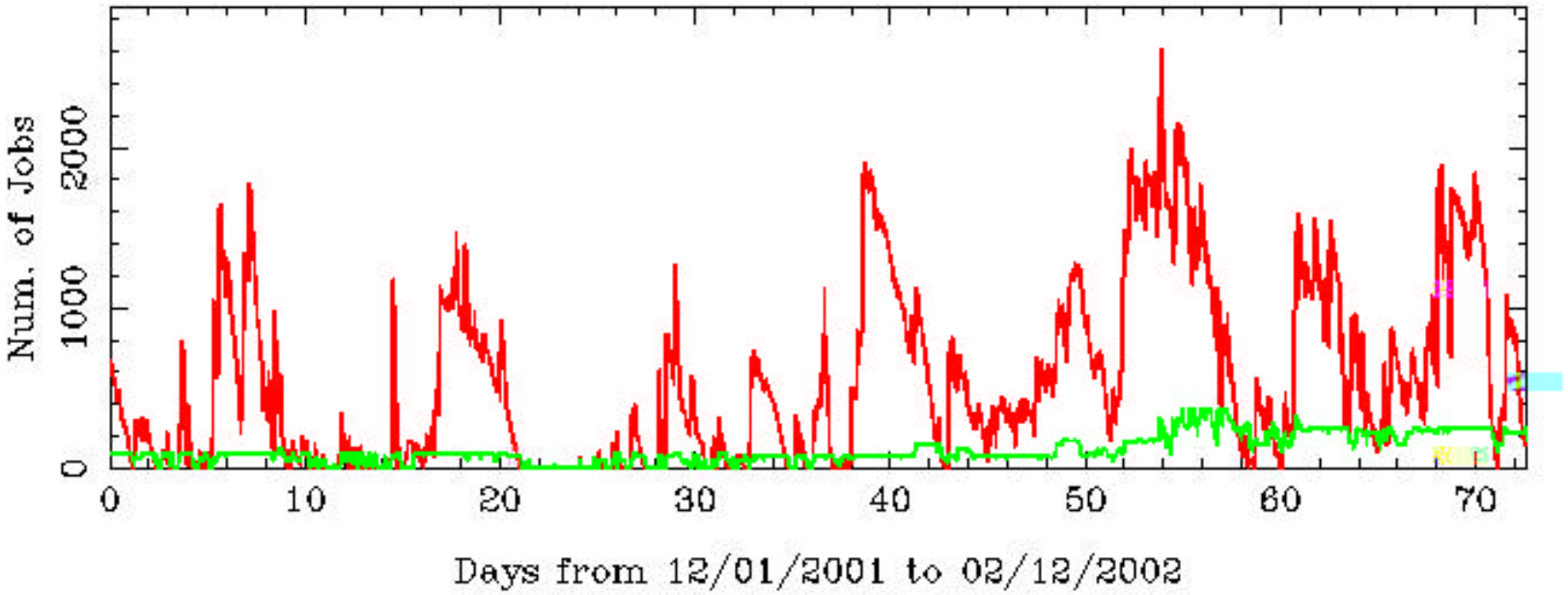
Analysis at SLAC

- Three main batch queues
  - Kanga analysis
    - ~250 CPUs (Sun & Linux)
  - Objy analysis
    - ~250 CPUs (Sun & Linux)
  - General queues (~50% BABAR)
    - ~200 CPUs (Sun & Linux)

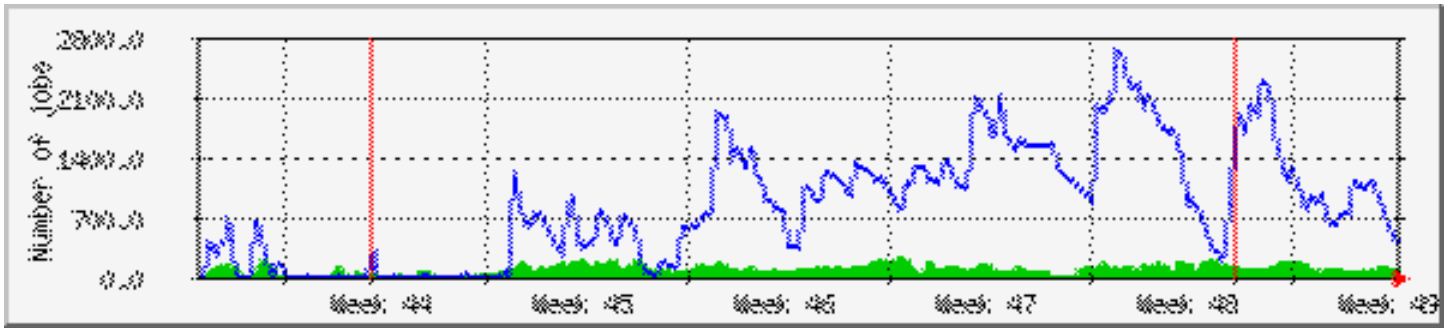
Objectivity Analysis Queue



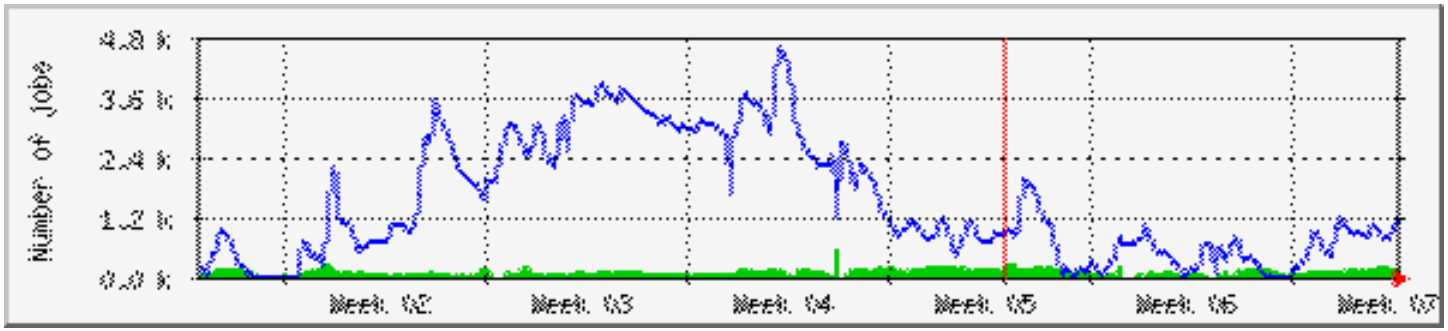
Kanga Analysis Queue



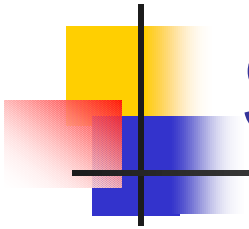
Analysis at IN2P3 from November



End of 2001



Beginning of 2002



Summary and outlook

- Lots of activity
- CPU-power strained since summer because of VALinux reboting problems
- Situation improving and new CPUs due by summer
- Next reprocessing to start July 2002