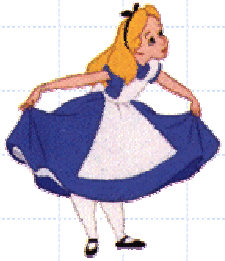
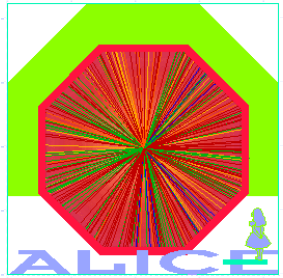


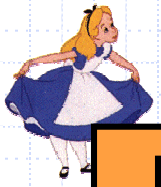


Alice Week Offline Day

F.Carminati

March 18, 2002

The LHC Computing Grid Project Structure



Project Overview Board

Chair: CERN Director for Scientific Computing
Secretary: IT Division Leader

Membership:

Project Execution Board

Chair: Project Leader

Project Management Team:
Chief Architect
Area Coordinators (4-6)
Resource Coordinator

Other members:
Liaison from each LHC Experiment
Liaisons to other HEP Grid projects
Work Package Managers

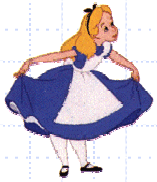
Committee (SC2)

ann, FNAL

:

HC experiment
N EP Division
region represented in the POB
Technology Division
er

son



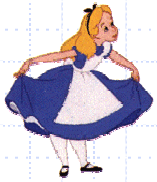
LCG Launching Workshop

- SC2 page
- RTAGs launched
  - Process: Fons, finished
  - Persistency, D.Malone (ATLAS), ongoing
  - Math libs (F.James)
  - Common GRID use cases (F.Carminati)
  - MSS (W.Carena)
- RTAGs proposed
  - 20!!!!!
- EP / SFT group proposed
  - But many questions about it…

The experiments have to get the best, most reliable and accurate physics results from the data provided by their detectors

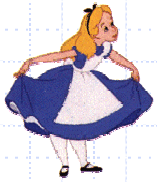
Their computing projects are fundamental to the achievement of this goal

The LCG project was set up to help them all in this task



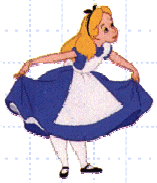
GRID project evolution

- DataGRID testbed
  - DataGRID portability
- GGF4, OGSA
- HICB, HIJTB, GLUE



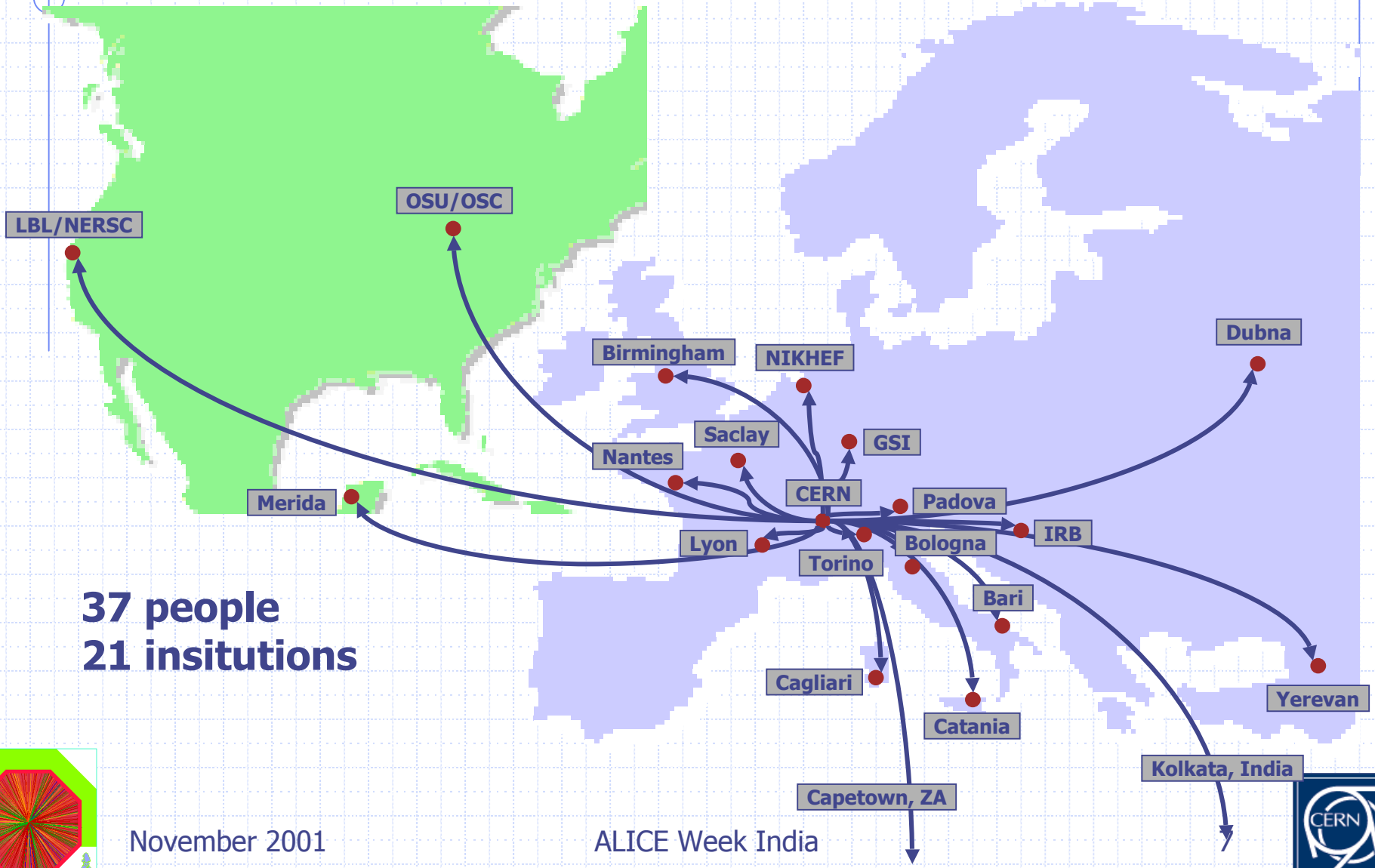
LHCC review

- This time we had quite a good review
  - F.Ferroni the reviewer for Offline
- Probably no point will be raised
- Big expectations for
  - AliEn, PROOF

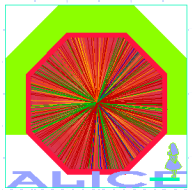


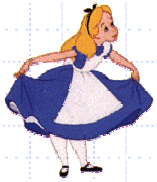
ALICE GRID resources

http://www.to.infn.it/activities/experiments/alice-grid



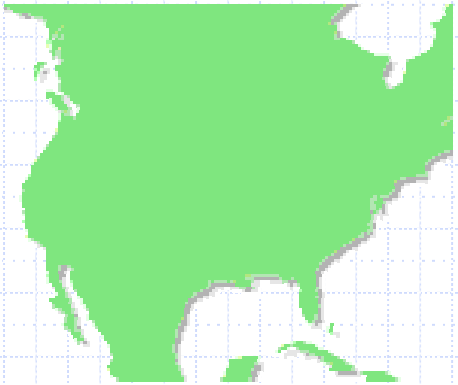
37 people
21 insitutions

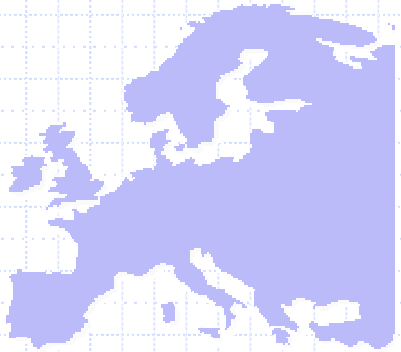


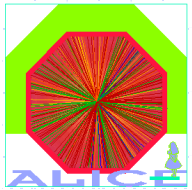


AliEn as a meta-GRID

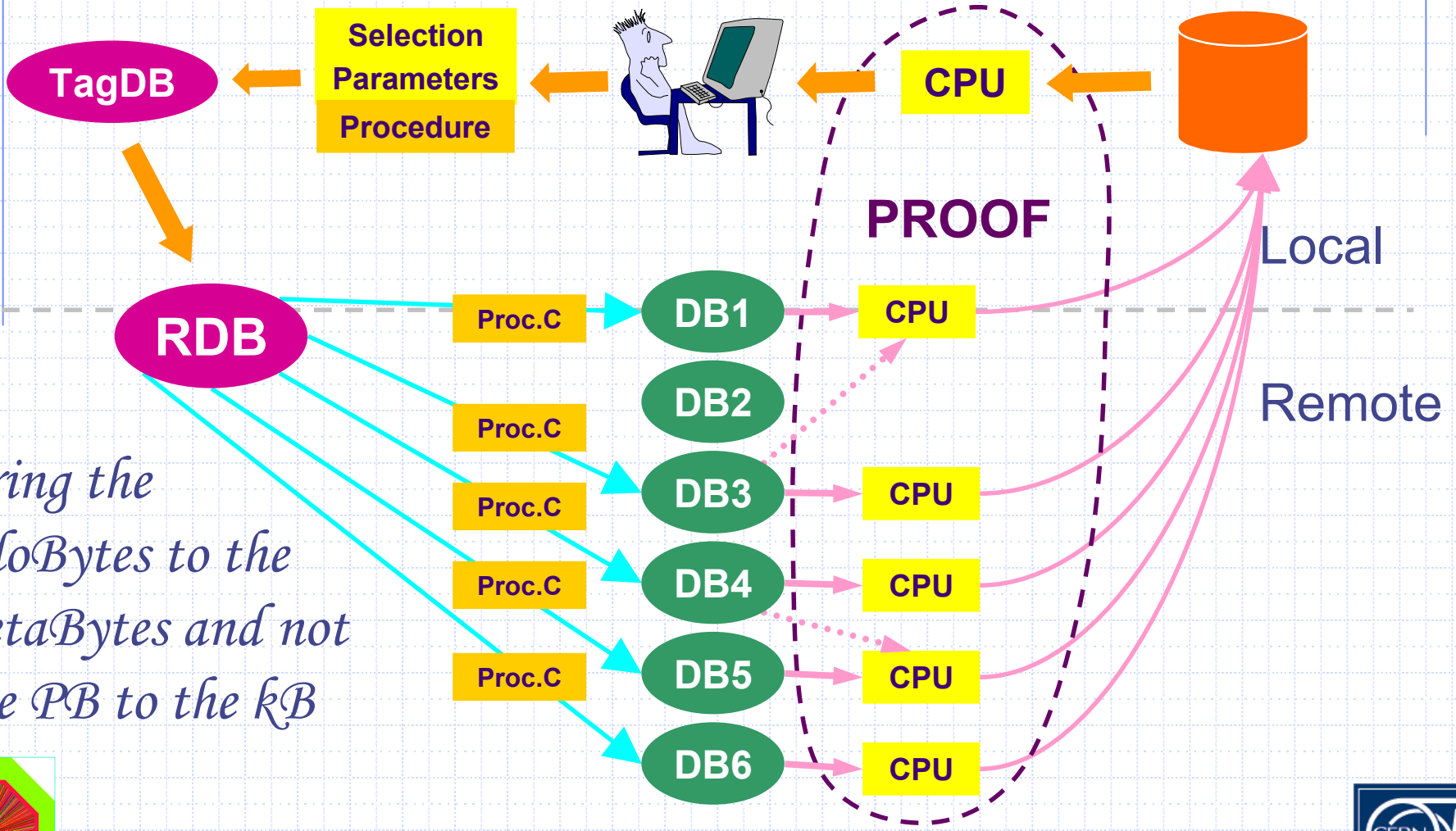
AliEn User Interface		
iVDGL stack	AliEn stack	EDG stack



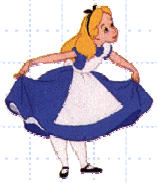




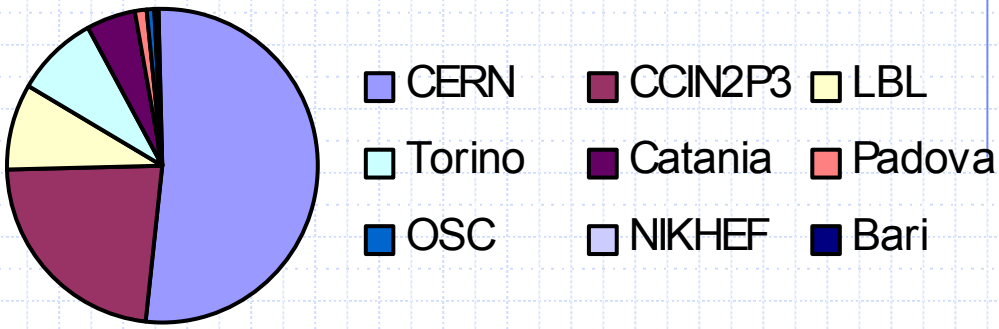
DataGrid & PROOF



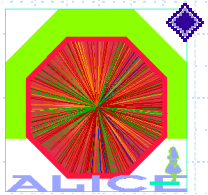
Bring the kiloBytes to the PetaBytes and not the PB to the kB

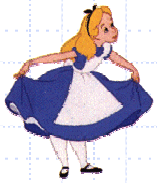


HI PPR Production Summary

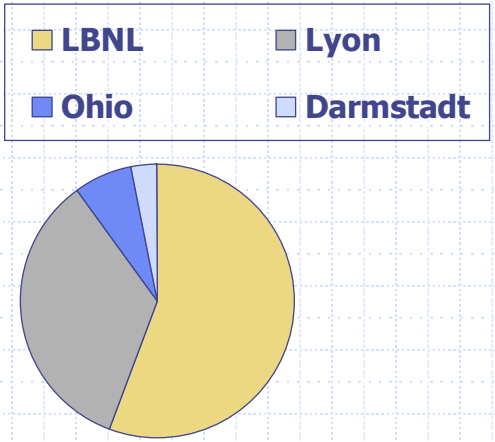


- Entirely AliEn based!
- >5500 jobs validated (~24h each)
- 13 clusters actively used in production, 9 remote sites
- GSI, Karlsruhe, Dubna, Nantes, Budapest, Bari, Zagreb, Birmingham are joining
- Hijing param 8000/4000/2000 dN/dy
- Hijing centrality bins
  - fm: 0-5, 0-2, 5-8.6, 8.6-11.2, 11.2-13.2, 13.2-15, 15-inf.
- HIJING + Jet/Photon Trigger
  - Minimum Transverse Momentum: 25, 50, 75, 100GeV



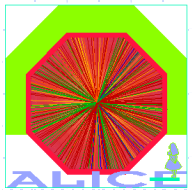


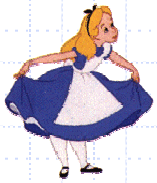
Other productions



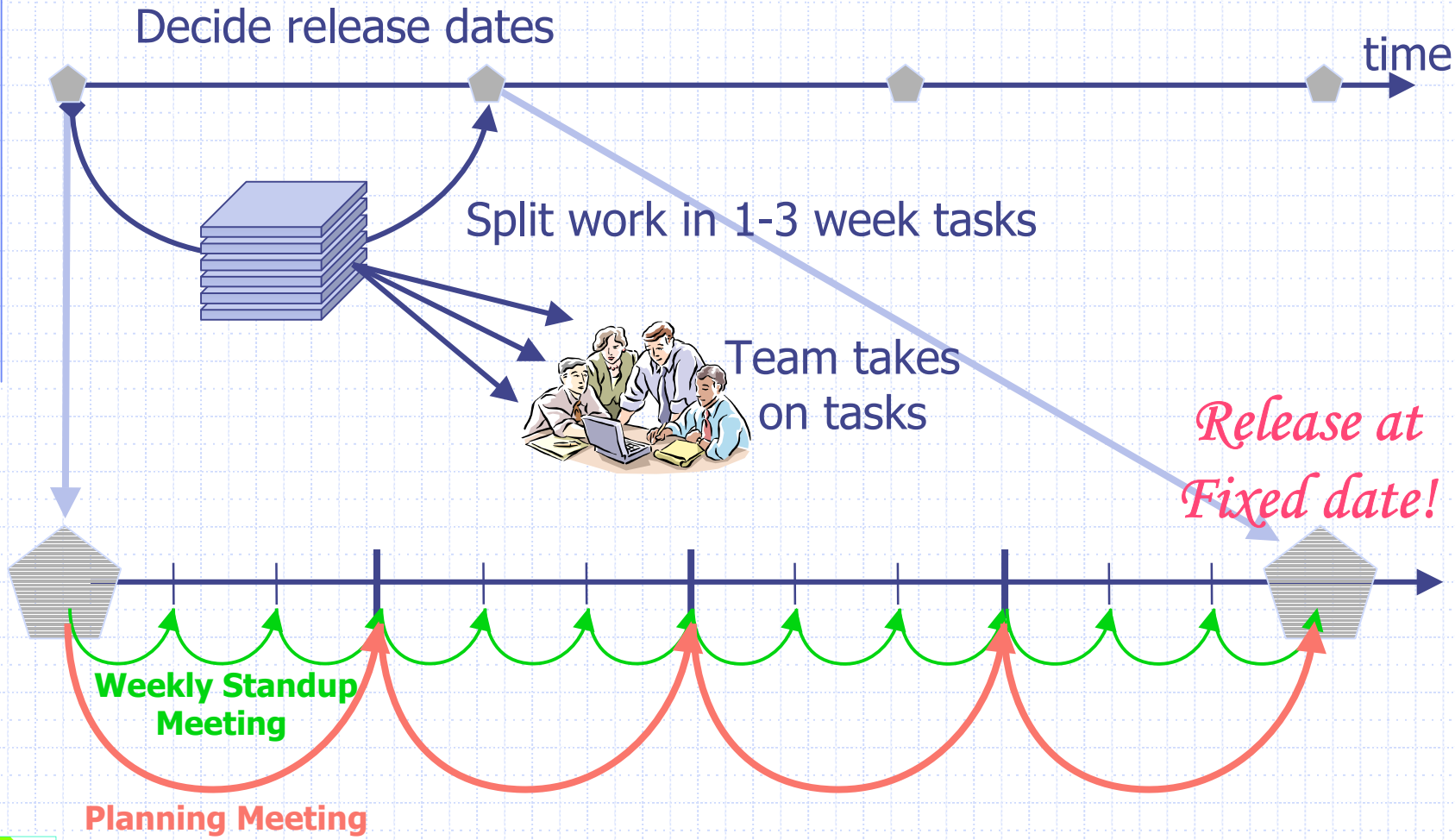
- EMCAL production
  - Design and optimisation of the proposed EM calorimeter
  - Entirely AliEn based
  - Decided, implemented and realised in two months
  - 2000 jobs, 4000h CPU

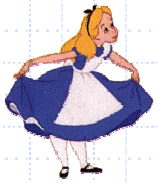
- pp production august 2001
  - ~ 10000 events generated at CERN in CASTOR
  - Transport + TPC digitization
- pp production october 2001
  - Vertex sampling in the diamond
  - > 10000 events – 80 GB in 3 days in Torino transferred to CERN with AliEn in ~20 hours (band-width saturated)
  - Test and tune tracking





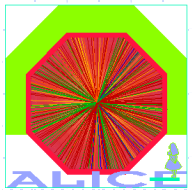
EXplaining Planning in ALICE

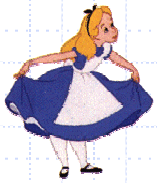




Planning

- We have high-level milestones for technology and physics
  - Data challenges test the basic technology and the functional integration DAQ – Off-line
  - Physics challenges test the functionality of Off-line from the user viewpoint
  - The first physics challenge is providing the results for the Physics Performance Report
- AliRoot is now in its fourth year of life
  - We have a clear view of the high-level requirements for the current system
  - These are expressed in the Computing Technical Report (in preparation, 2Q2002)
- A fine grained planning has been defined
  - Needed to apply flexible development strategy

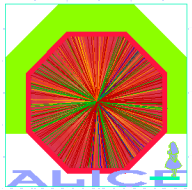


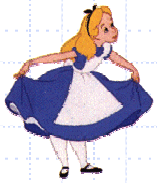


Physics Challenge Milestones

- Determine readiness of the offline framework for data processing
- Verify the computing model

PDC Period (milestone)	Physics Objective
06/01-06/02	First test of the complete chain from simulation to reconstruction for the PPR Simple analysis. ROOT digits.
01/04-06/04	Complete chain used for trigger studies. Prototype of the analysis tools. Comparison with parameterised MonteCarlo. Simulated raw data.
01/06-06/06	Test of the final system for reconstruction and analysis.

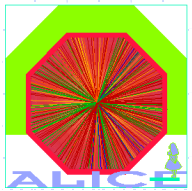


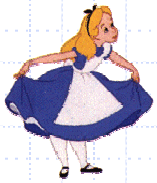


Data Challenge Milestones

- Verify integration of Offline and DAQ
- Assess technologies and models
- Determine readiness of DAQ system

ADC Milestone	Offline milestone
10/2002	Rootification of raw data. Raw data for TPC and ITS.
5/2003	Integration of single detector HLT code, at least for TPC and ITS. Quasi on-line reconstruction at CERN Partial data replication to remote centres.
5/2004	HLT prototype for all detectors that plan to make use of it. Remote reconstruction of partial data streams. *Raw digits* for barrel and MUON.
5/2005	Prototype of the final HLT software. Prototype of the final remote data replication. *Raw digits* for all detectors.
5/2006	Final system.

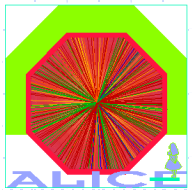


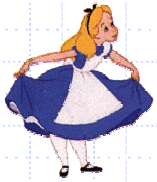


LHC Offline staging

- We have taken into account the new accelerator schedule
- A shift of one year and a correction in the staging corresponds to a ~30 saving (Moore's law)
- These numbers still have large uncertainties that we aim at reducing with data and physics challenges

	cpu & disk ramp-up	***20%***	***30%***	***100%***
ALICE				
resource	***units***	***2006***	***2007***	***2008***
processing	SI95	164,800	247,200	824,000
disk	TB	80	120	400
tape media	PB	0.4	0.6	2.1
tape I/O	MB/sec	250.0	375.0	1,250





Offline Week

- Working week
- Planning on the web