

WP8 - Demonstration

ALICE – Evolving towards the use of EDG/LCG
- the Data Challenge 2004



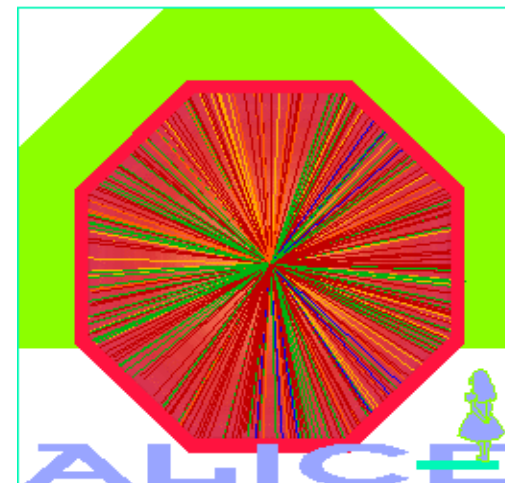
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for the Alice-Grid team
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Outline

◆ ALICE & its Offline Framework:

AliRoot

- ◆ Running on EDG/LCG
 - **Software installation**
 - **(multi)Event simulation on EDG – demo n. 1 – with GENIUS**
- ◆ Strategy for the Data Challenge
 - **evolving to AliEn + LCG – demo n. 2**

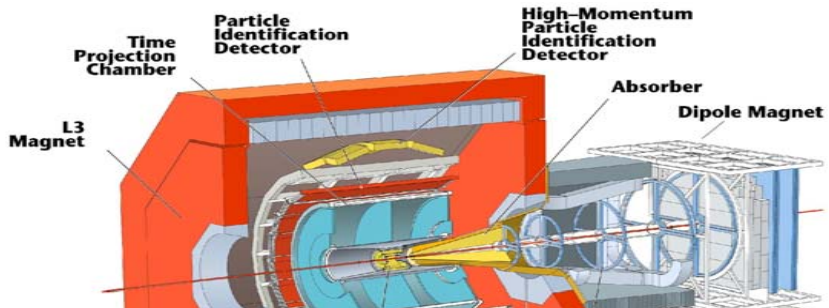


◆ Conclusions

Approach:

- maximize resources
- provide uniform access

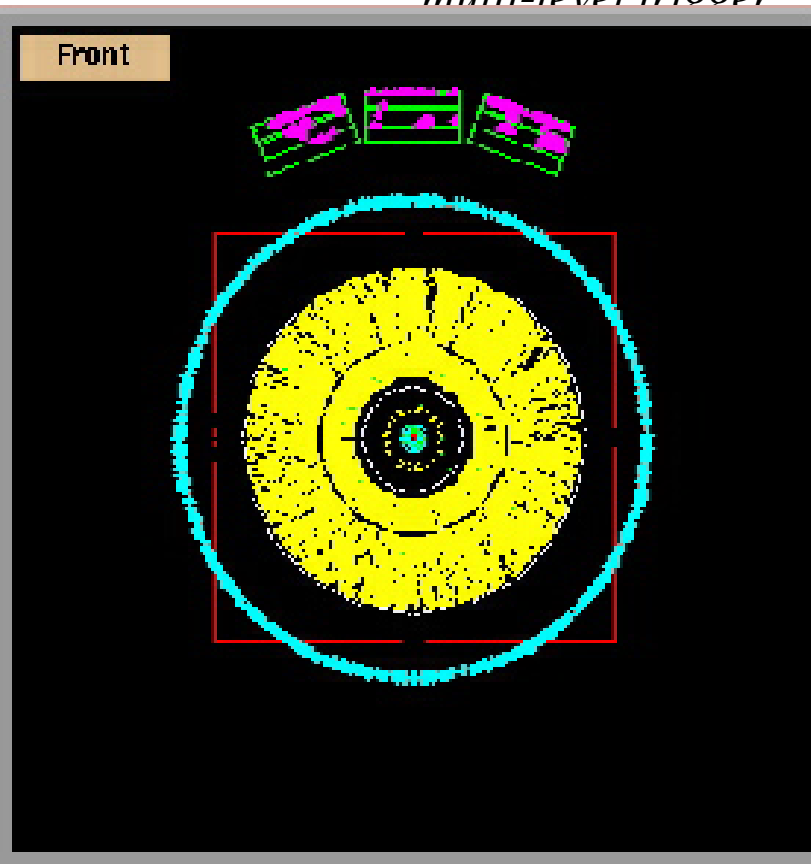
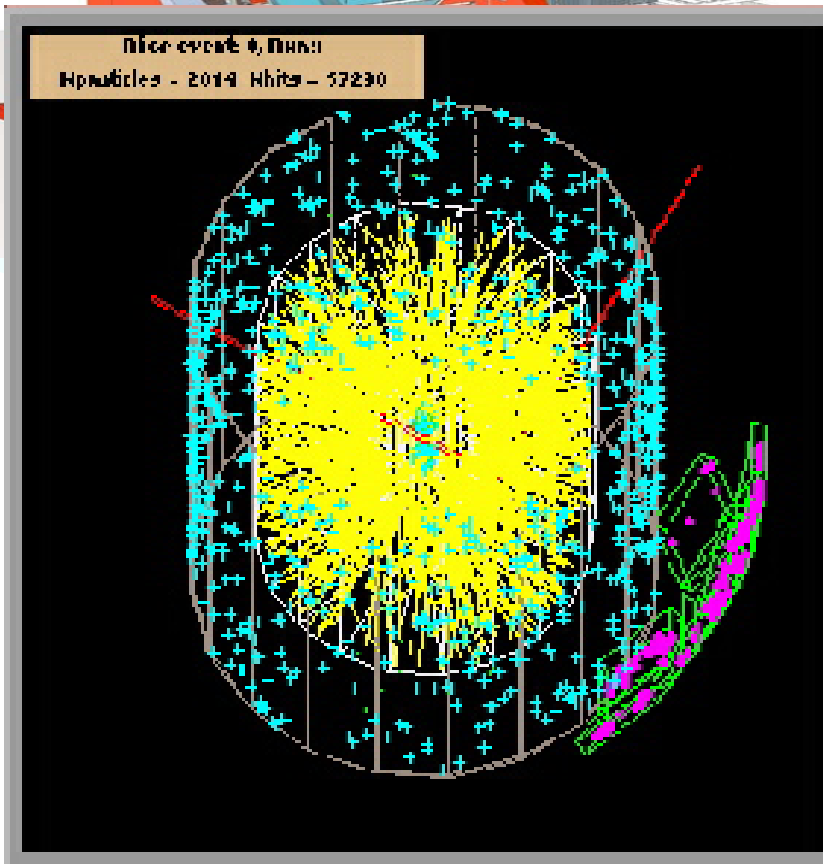




Alice collaboration

online system

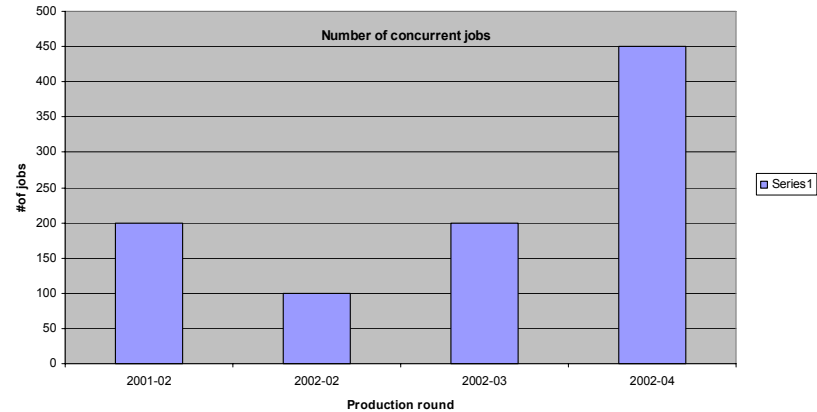
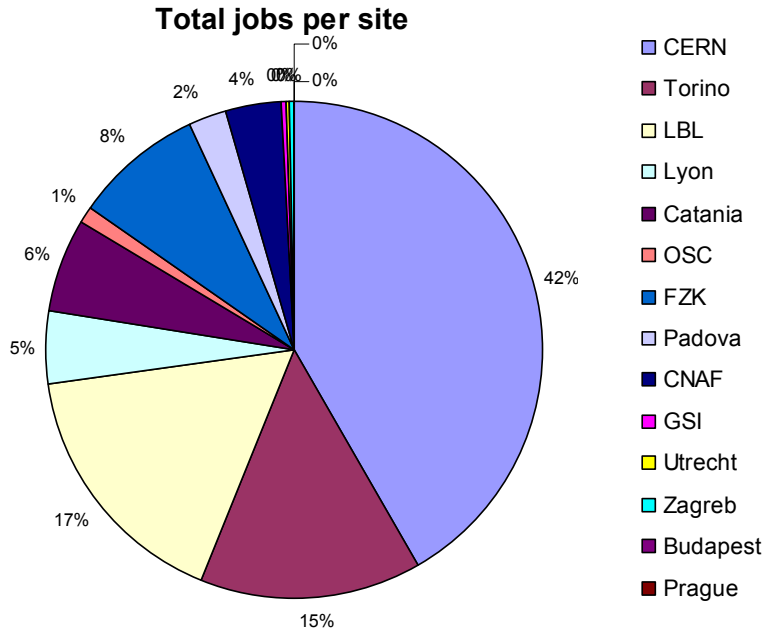
multi-level trigger



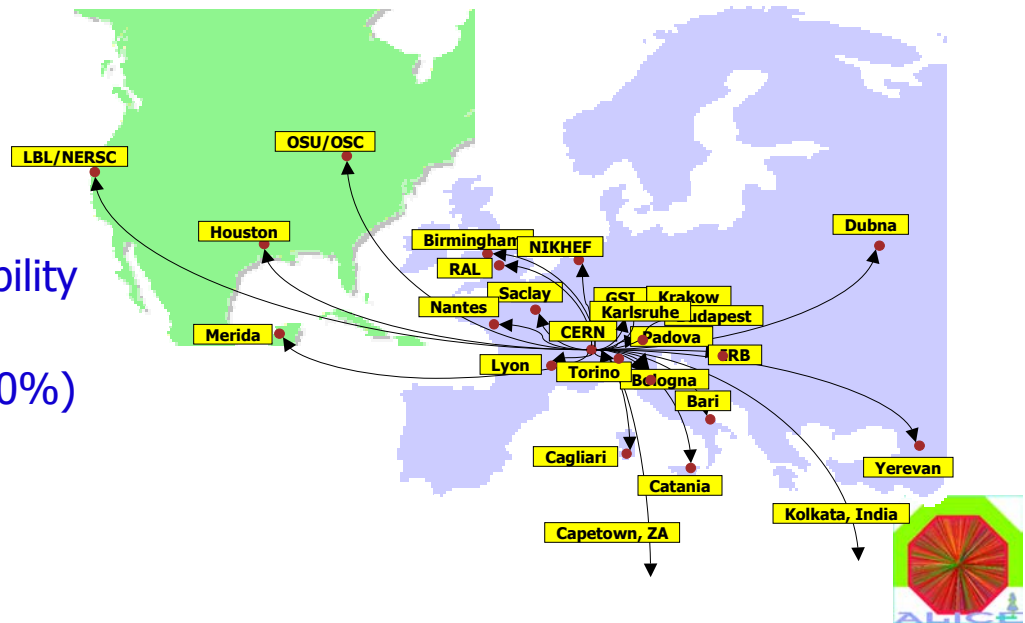
*data recording
offline analysis*



AliEn activity: the ALICE Physics Performance Report (2001-2003)



- ◆ 32 sites configured
- ◆ 5 sites providing mass storage capability
- ◆ 12 production rounds
- ◆ 22773 jobs validated, 2428 failed (10%)
- ◆ Up to 450 concurrent jobs
- ◆ 0.5 operators



AliRoot on EDG: Event Simulation



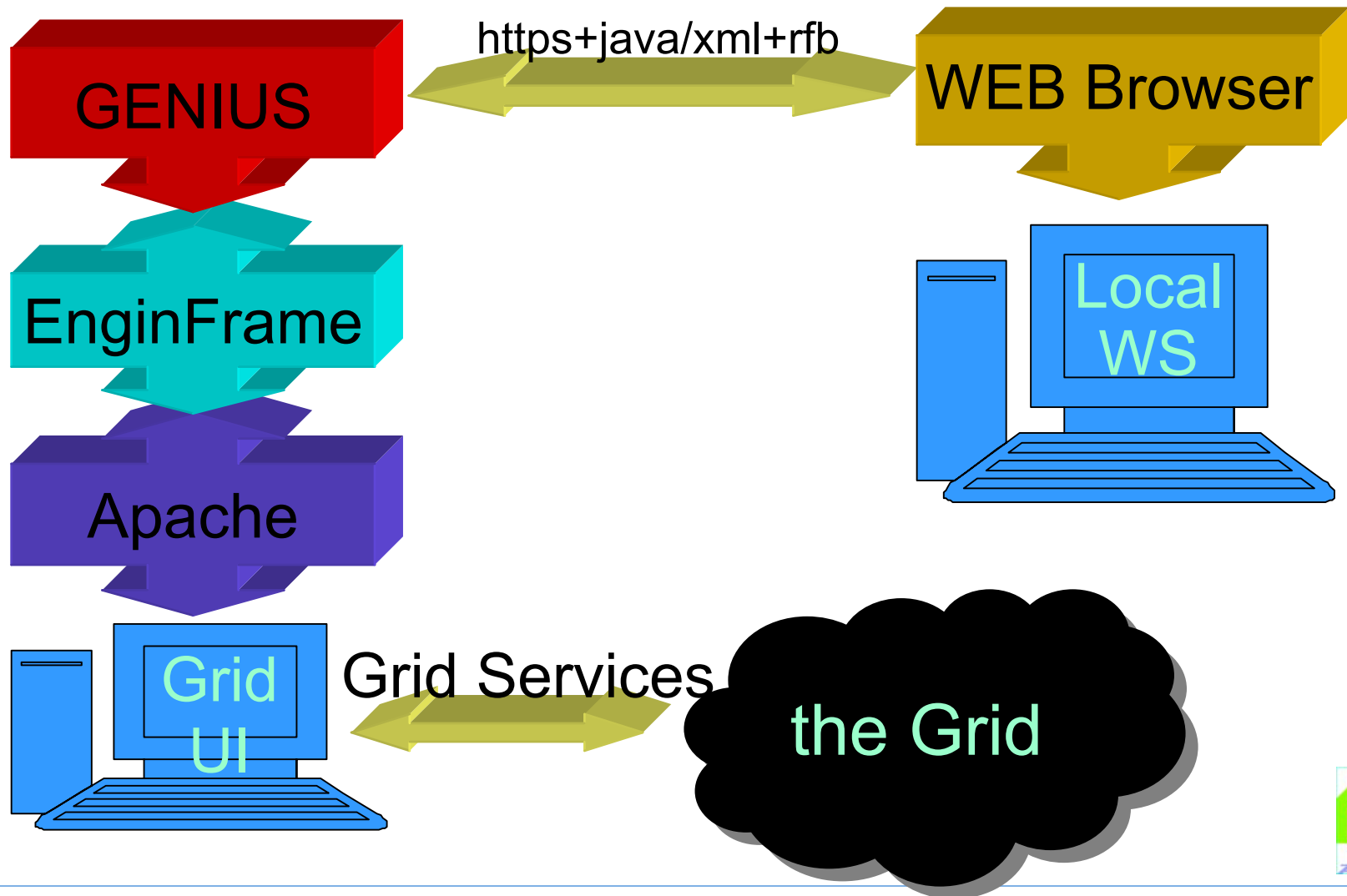
- ◆ Typical job for **1** central Pb-Pb event at the LHC energy (2288 TeV):
 - 84,000 primary particles from Event Generators (HIJING)
 - Transport + Digitisation: 12h on a 2.4 GHz CPU, > 500 MB RAM
 - Output: about 2 GB, with new I/O many files (1/detector/simulation stage)
 - Reconstruction: ITS+ TPC
- ◆ For this demo (time constraints) – show functionality
 - Simulate few peripheral events, with 100 primary tracks each
 - Register output in the ReplicaCatalogue
 - Retrieve output & Display Event (pseudo-interactively)



The GENIUS Web Portal



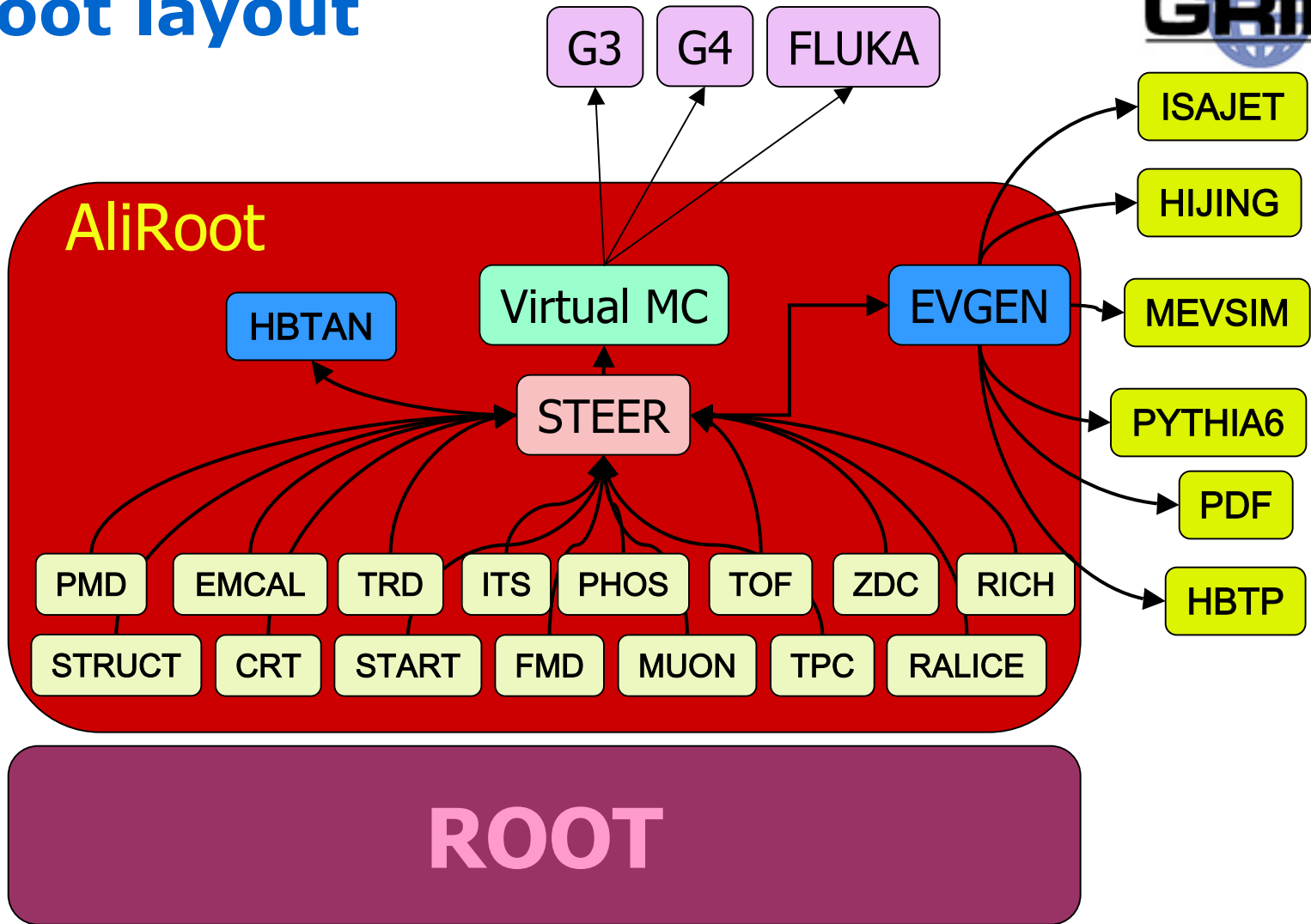
- ◆ **Grid Services from a WEB Portal: anywhere and anyhow**



AliRoot layout



AliEn+LOG

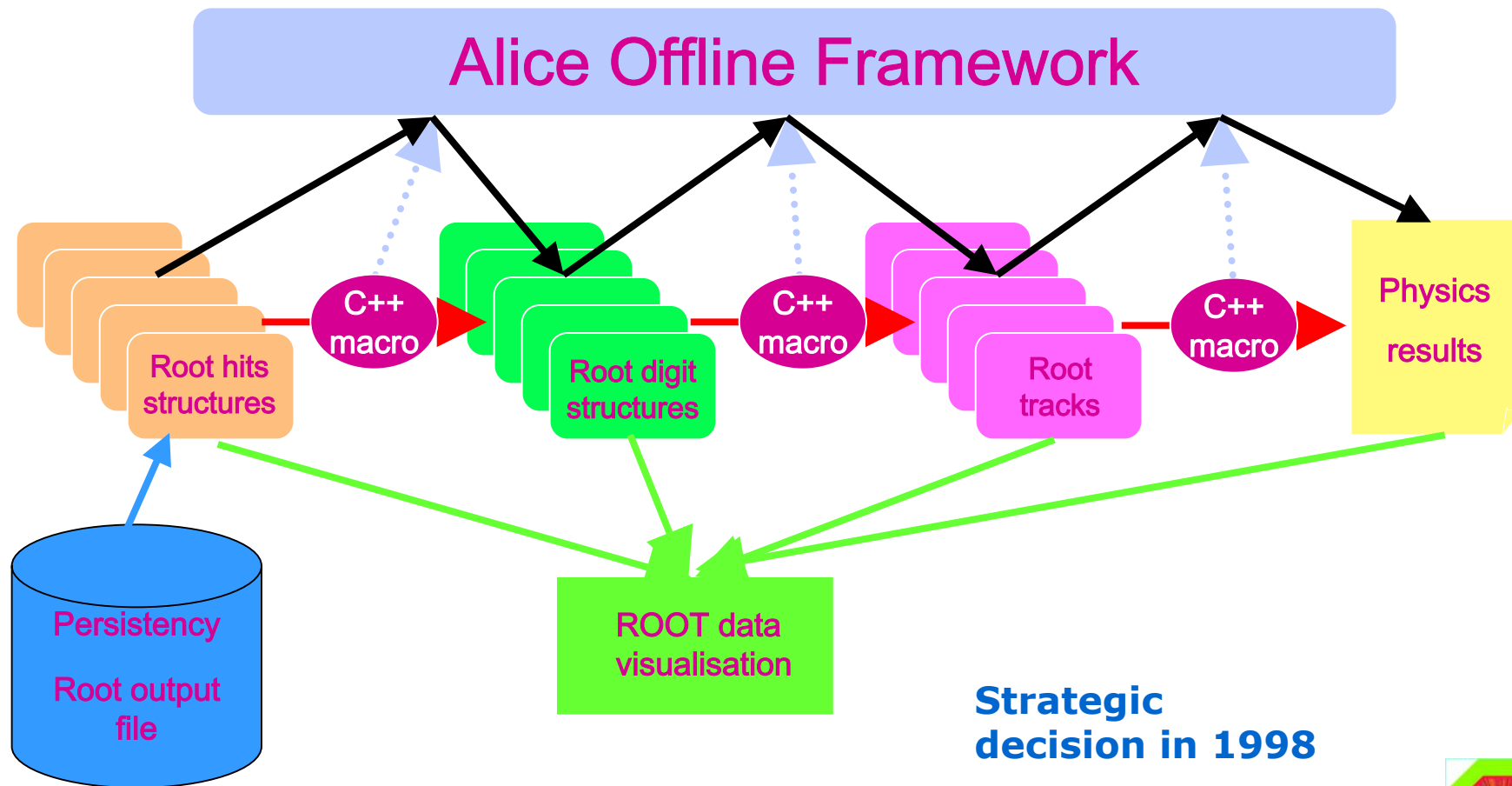


C++: 477kLOC + 225kLOC (generated)

FORTTRAN: 13kLOC (ALICE) + 914kLOC (external packages)



AliRoot Evolution Schema



The ALICE Framework installation



- ◆ Three packages to install (ROOT + geant3 + AliRoot)
 - Code available via CVS servers: **1-click-away install** - download and make
 - **We can install with a Grid job!!!!!! And we do it ☺**
 - **We can modify the code, compile and run on-the-fly ☺**
 - No change in ROOT/geant3/AliRoot to run on a GRID Infrastructure
- ◆ Installation on the EDG application testbed
 - **Re-locatable rpms are generated and published/retrieved**
- ◆ Installation on the LCG-2 Production facility
 - **Source code is downloaded from CVS server(s) and compiled**



ALICE Physics Data Challenges



- ◆ Verify model and computing framework
- ◆ Reduce the “technological risk”
- ◆ Understand physics potentialities of the detector
- ◆ Prepare code for reconstruction and analysis on real data

<u>Period (milestone)</u>	<u>Fraction of final capacity (%)</u>	<u>Physic objectives</u>
<u>06/01-12/01</u>	1%	Phys. performance studies, TPC and ITS reconstruction
<u>06/02-12/02</u>	5%	First test of the complete chain from simulation to analysis for the Physics Performance Report (PPR)
<u>01/04-06/04</u>	10% (200 TB)	Complete chain used for trigger studies. Prototype of analysis tools. Simulated raw data.
<u>01/06-06/06</u>	20%	Test of the final system for reconstruction and analysis.

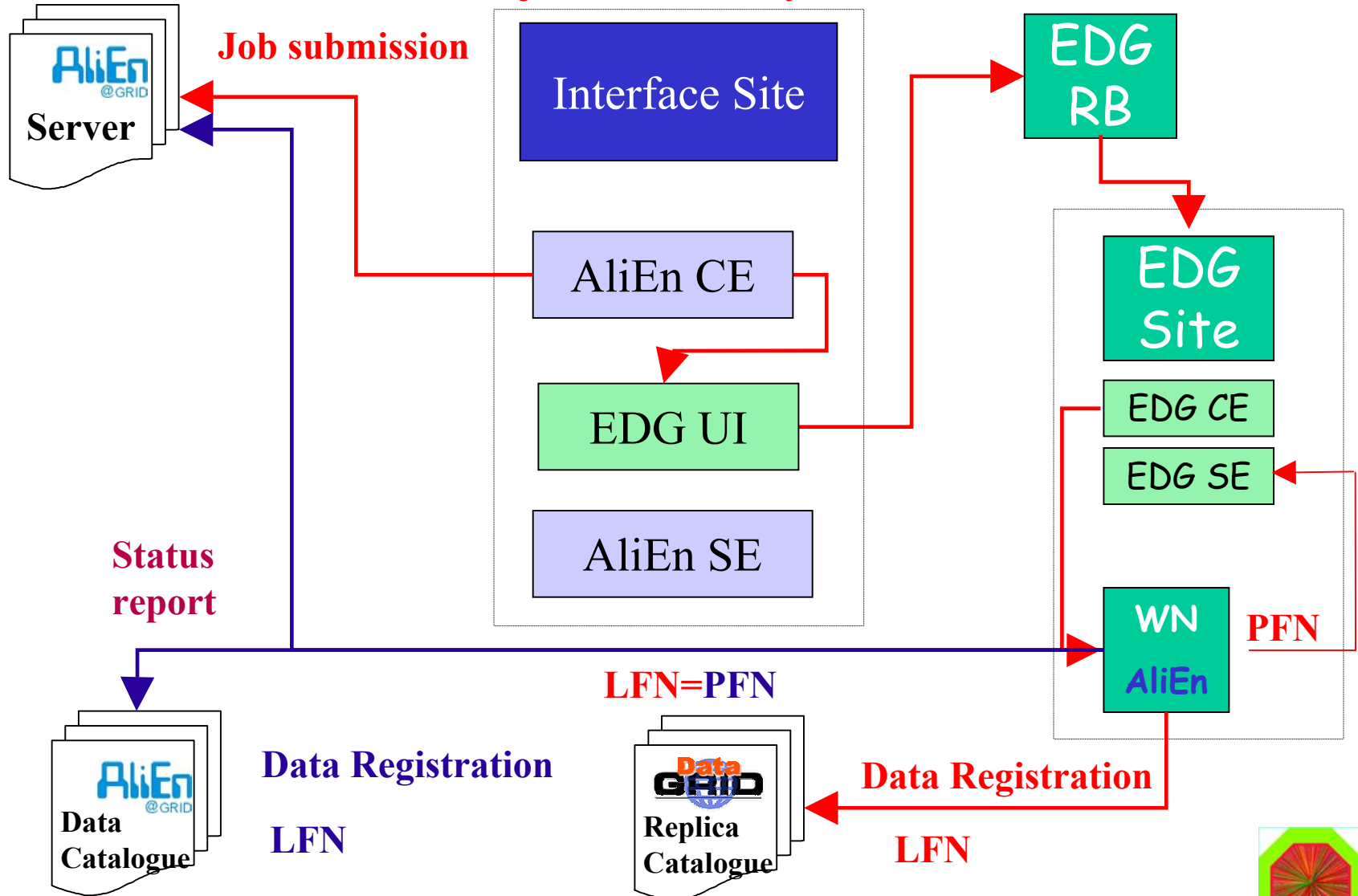
- ◆ Strategy: Maximise use of available resources: LCG + Alice-managed farms
 - **Use AliEn to manage the production**
 - **Access LCG resources through AliEn-LCG interface**
- ◆ Store all data in CASTOR @ CERN
 - Register all data in AliEn Data Catalogue
 - Data generated by LCG must also be registered on the LCG Catalogue



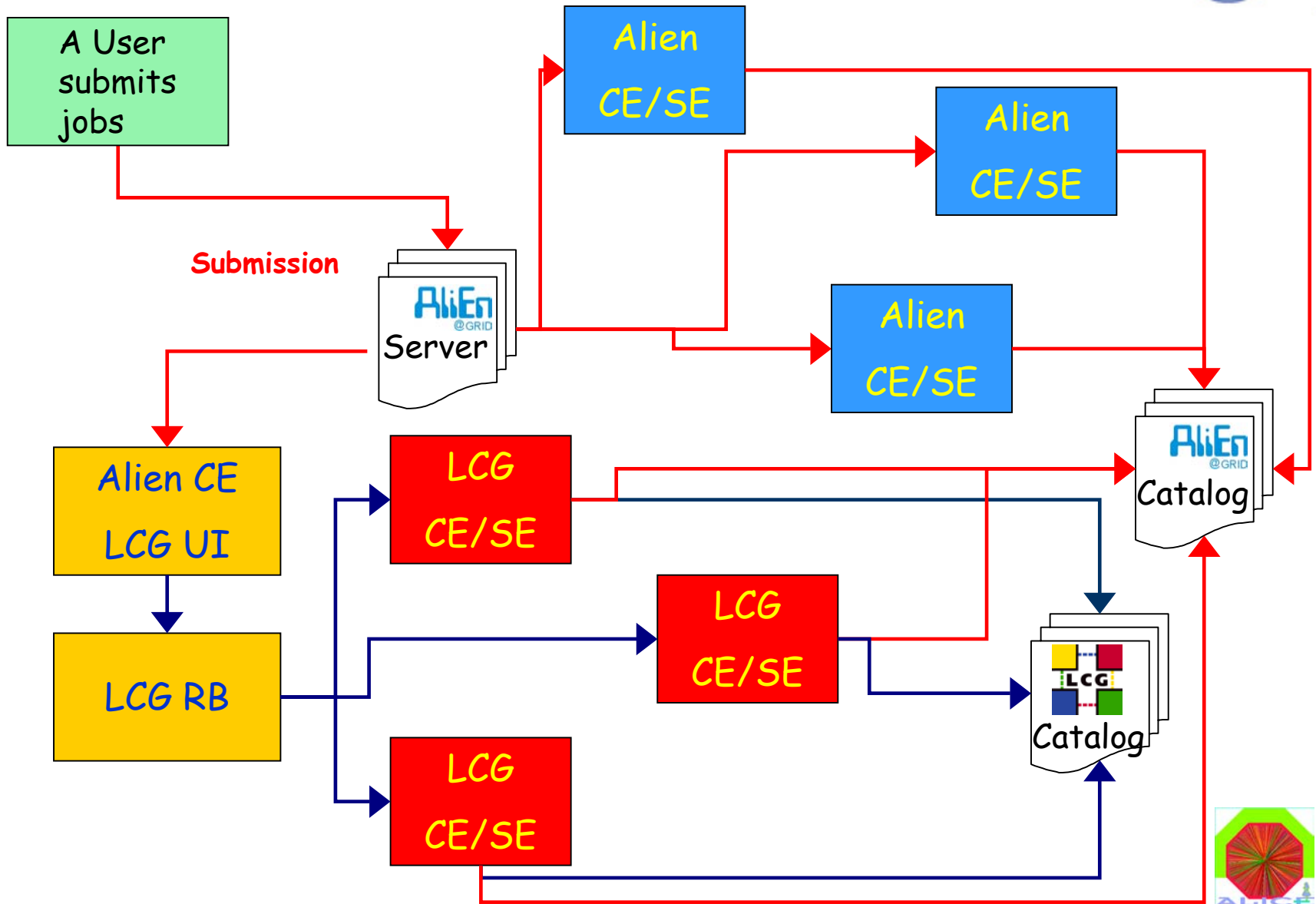
AliEn – EDG Interface



Mar, 11th, 2003: first AliRoot job, driven by AliEn, run on EDG



AliEn & LCG: Data Challenge



Conclusions

- ◆ AliRoot is evolving into a solid computing infrastructure
- ◆ It was managed by AliEn for the Physics Performance Report in 2001-2003, while EDG (v1 & v2) was being developed/tested
- ◆ Data Challenge 2004 is starting, including resources provided by LCG, which are accessed through an interface with AliEn, developed with the support of DataTAG
- ◆ We look forward trying a distributed analysis on a Grid environment...

Thanks to the EDG/LCG teams for their guidance and support in using newly developed GRID services!!!!



AliEn, Genius & EDG/LCG seen by ALICE

