

# German Site Report

---

Rainer Mankel

DESY Hamburg

HTASC Meeting 9/10-Sep-2004

# GridKa School 2004

- Gridka School  
20—23 Sep 2004
- for postdocs,  
advanced  
undergraduate  
students and  
graduate  
students

9/10-Sep-2004

R. Mankel, German Site Report



**GridKa School '04** 

**20. – 23.9.2004 @ Forschungszentrum Karlsruhe**

organised in collaboration with  
**GridKa Technical Advisory Board (TAB)**

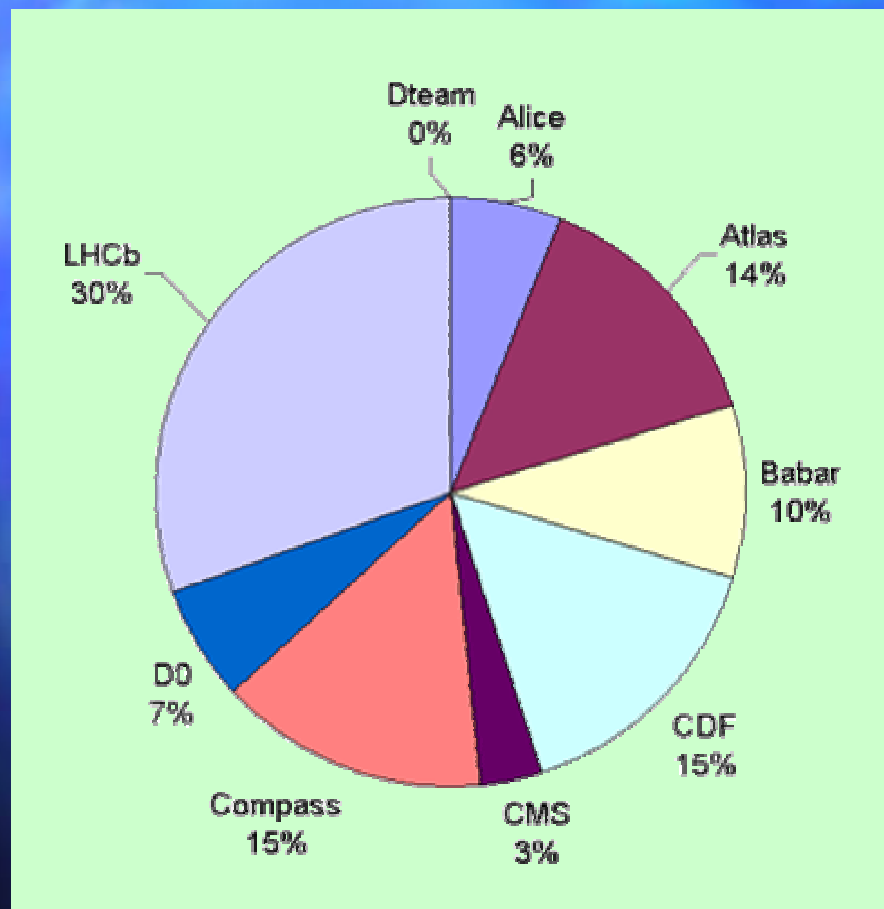
A four day course on  
**Grid Computing for High Energy and Nuclear Physics**  
for postdocs,  
advanced undergraduate students and graduate students

- ◆ A practical guide to Grid Computing ◆
- ◆ High Energy and Nuclear Physics Applications on Grids ◆
  - ◆ Building local Grid clusters ◆

Details and online registration at <http://www.gridka.de>



# GridKa Karlsruhe



- Distribution of Wall CPU time
  - all eight experiments receive substantial shares



# GridKA Karlsruhe

- Major hardware upgrades underway (target: October 2004)
  - CPU: 106 dual Xeon + 36 dual Opteron nodes
  - Resulting CPU Power:

97x dual PIII, 1,26GHz	97 kSI2k
64x dual PIV, 2,2 GHz	102 kSI2k
72x dual PIV, 2,667 GHz	130 kSI2k
267x dual PIV, 3,06GHz	534 kSI2k
36x dual Opteron 246	90 kSI2k
Total: 536 nodes, 1072 processors, 953 kSI2000	

(from H. Marten)

# GridKA (cont'd)

- Hardware upgrades (cont'd)
  - Disk space: + 40 TB netto (2/3 SCSI/fc, 1/3 SATA/fc)
  - Tape library: + 100-200 TB
- GridKa introduces **dCache** as mass storage caching layer
  - strong demand from experiments
  - not based on a regular HSM (OSM, Enstore), but TSM
  - most of the data inventory already in dCache

# DESY

---

- WAN connection has been upgraded to 1 Gb/s
- DESY participates actively in the EGEE project
- DESY contribute **data-handling expertise** to the grid (SRM/dCache)

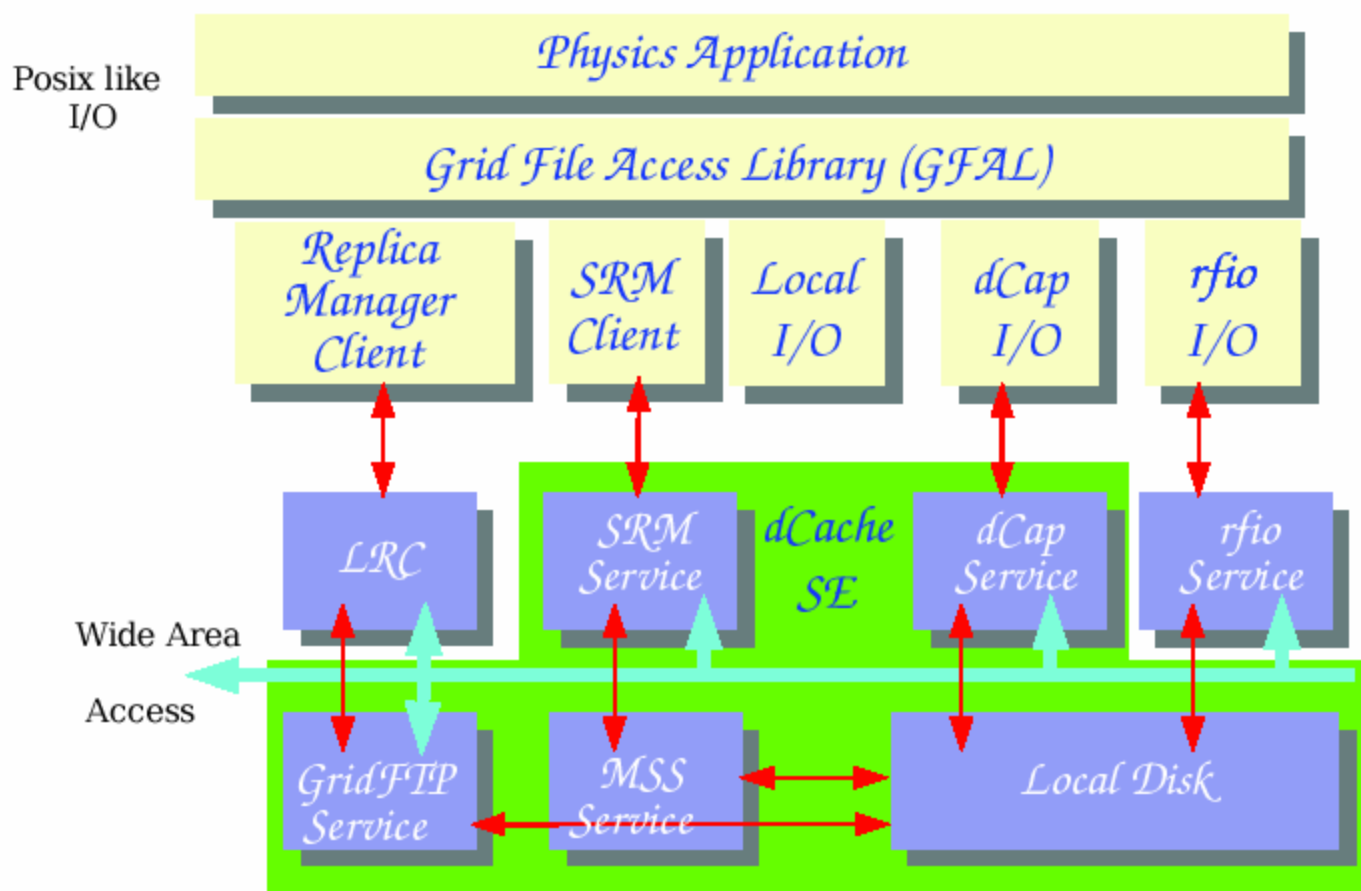
# dCache

- dCache has become a standard mass storage component of the grid
  - joint development of **DESY & FNAL**
- dCache fully supports the **SRM access layer**
  - also disk-only files possible now
  - basis of a special dCache storage element in LCG2
    - permits WAN access to tape library
- dCache is base of a **powerful storage element (SE)** of LCG2



# dCache & Grid

## *LCG Storage Element : File access*



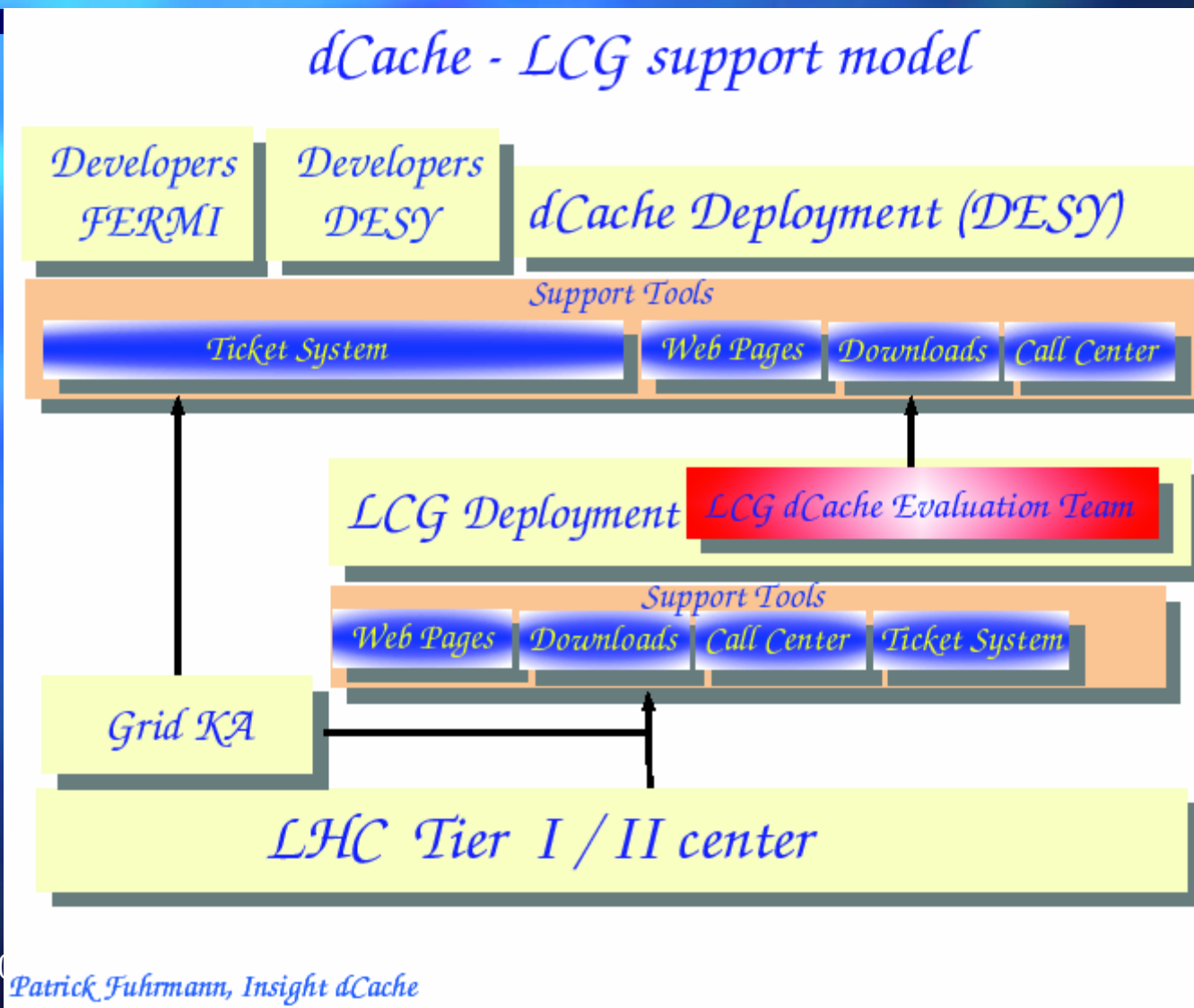
Source : Michael Ernst 18/5/2004

9/10-Sep-2

Patrick Fuhrmann, Insight dCache



# Support Model for dCache in Grid



# Grid at DESY

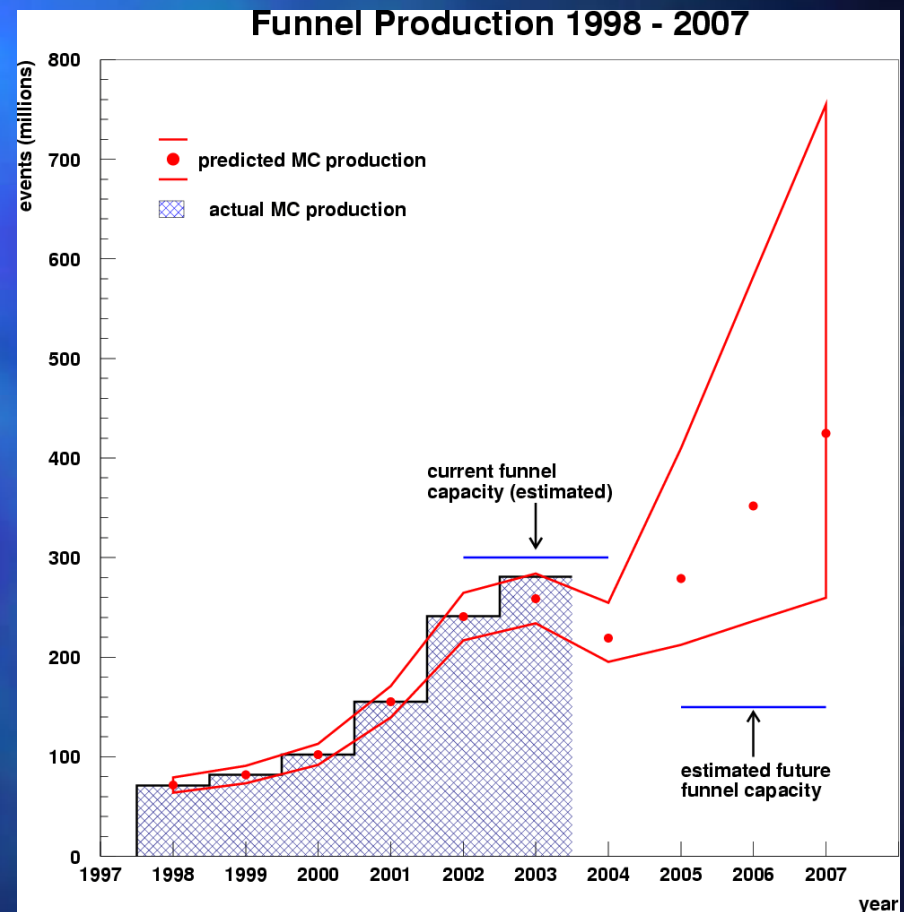
- Core site based on LCG2 is operational
  - officially registered with LCG2
  - ~20 dual-Xeon systems
  - just migrating to LCG2\_2\_2
- Serves as core-site for HERA experiments
  - hosts VOs of H1, ZEUS, ...
  - hosts also some resources for CMS (Uni-HH)

# Grid in HERA experiments

- Much progress since last HTASC meeting
- Closer look at **ZEUS**
- Also H1 working on grid-based MC production

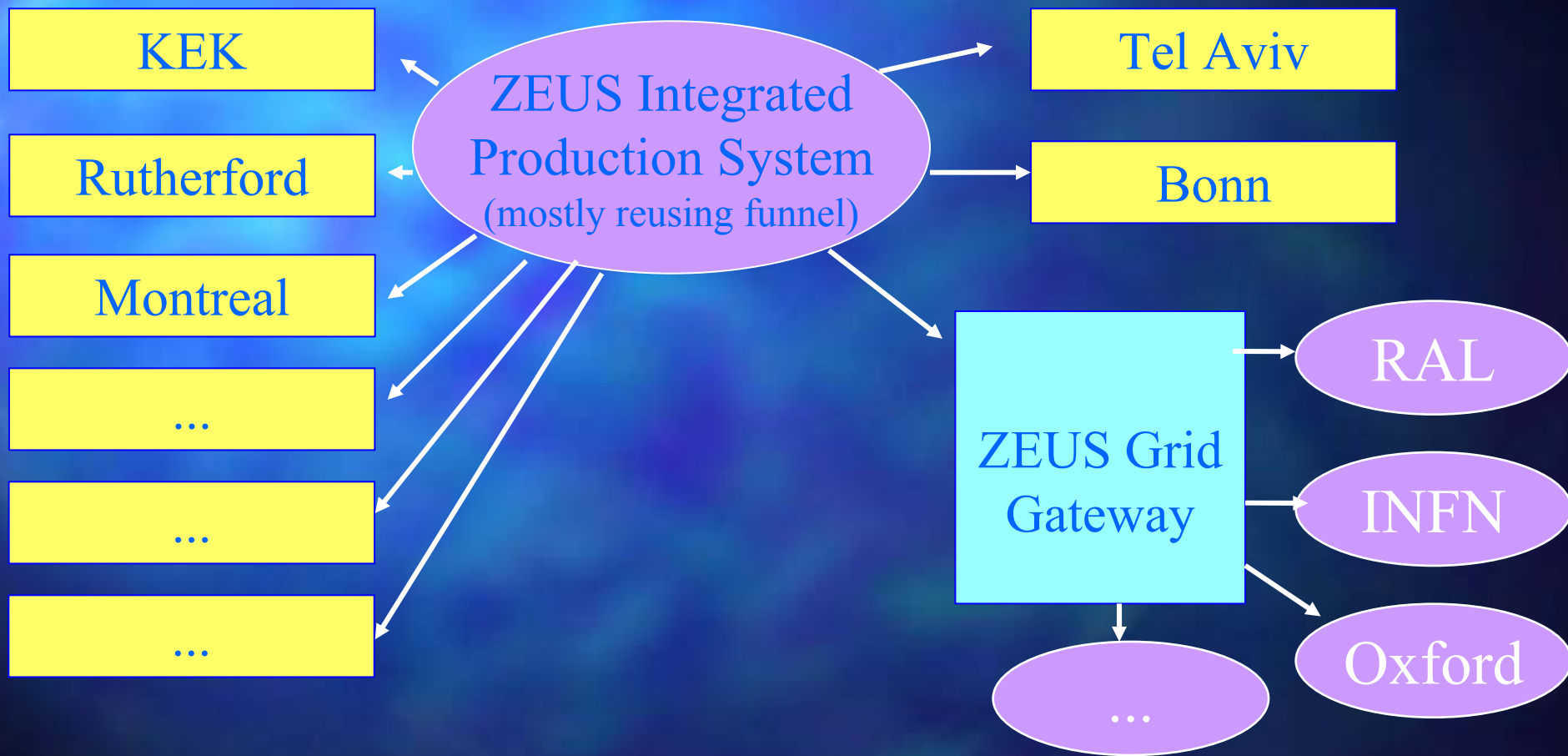
# ZEUS Grid

- Main motivation: HERA-II driven MC production demand
- Paradigms of resource sharing are changing
- Need the grid
- At the same time, keep the "traditional" production sites (funnel)





# The Gateway Concept

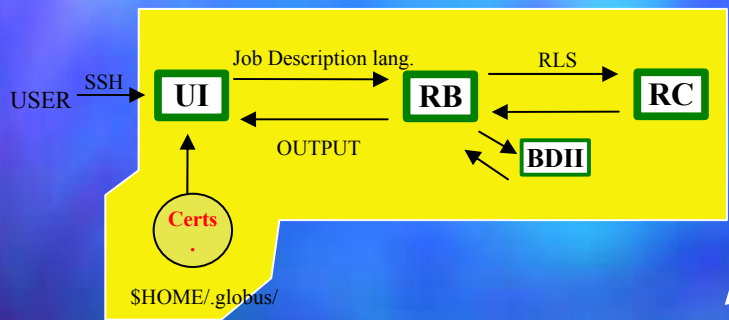


# Advantages of the Gateway Solution

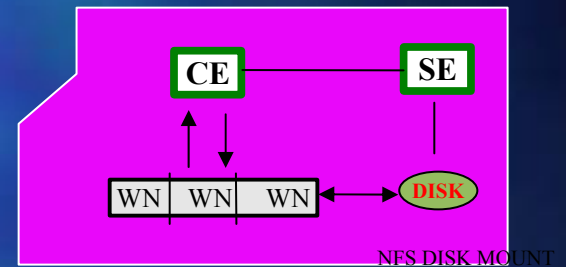
- **Transparent integration** of traditional production system & grid
- Physicist does not need to care whether his jobs run on funnel site or grid site
- **Re-use** most of existing ZEUS-specific central middleware
  - user interfaces, data management, DQM, monitoring, statistics

# Structure for a ZEUS Grid

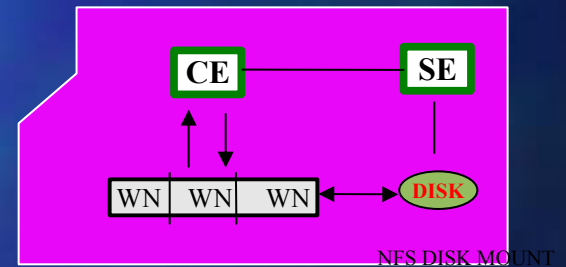
## Core services (DESY)



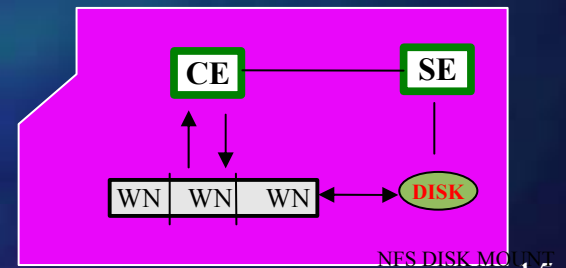
## Grid site 1 (RAL)



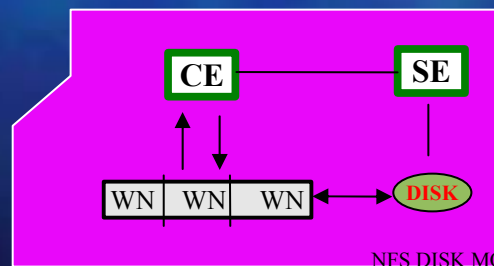
## Grid site 2 (INFN)



## Grid site 3 (Bonn)



## Grid site 0 (DESY)



9/10-Sep-2004

German Site Report

...

# ZEUS Grid Software Status

- Whole MC production suite commissioned under LCG2
- Inventory of binaries, constants & scripts managed within Replica Catalog
  - beyond "tarball" stage
- ~120000 events produced (14000 at RAL)
- Grid-produced samples pass standard DQM & are in use for physics analysis
- Complete automation of production within reach



# ZEUS Grid: Site Status

- Sites presently accepting the ZEUS VO: DESY, Univ. Hamburg, RAL, Krakow, INFN (Bologna, Padova, Ferrara, Bari, Catania,...)
- Sites in preparation: Oxford, Scotgrid, Univ. Bonn
- Other ZEUS groups with access to grid resources: Louvain, MSU Moscow, Nikhef, Tel Aviv, ...