



iRODS @ CRS4

The GRIDA3 Project

Interoperability of Digital
Repositories
Queen Mary University of London
2-4 December 2009



CRS4 in one slide

- ❑ Interdisciplinary research center focused on computational sciences
 - ❑ **No-profit**
 - ❑ **Operational since 1992**
 - ❑ **Renewable energy, Bioinformatic, Biomedicine, ICT, Energy and Environment, Advanced computing and communications, Network and computing services**
- ❑ Technical staff of ~170 people
- ❑ Turnover of ~13M Euro,
- ❑ ~50% from external funding
 - ❑ **EU/National research project**
 - ❑ **Industrial contracts**



CRS4 at Polaris: a park for the research

CRS4, founded by Prof. Rubbia and Prof. Zanella in 1990

- is part of the **Science and Technology Park of Sardinia (POLARIS)**
- is a focal point of attraction for high-tech industrial research and aims at co-operation with
 - **Industry**
 - **Academic world**
 - **European Scientific Laboratories**



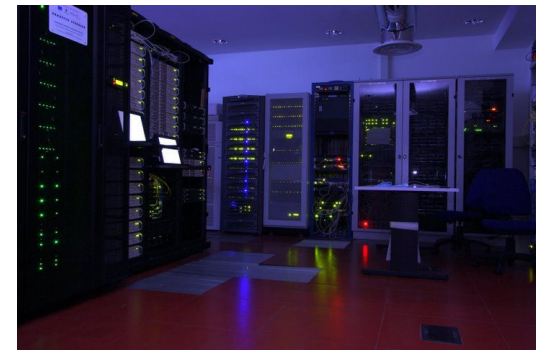


**CRS4 computing center is
the main computing facility
of POLARIS (the second
supercomputing power in
Italy)**

CRS4 infrastructure

Total computing power approx 47 TFlops (Rpeak)

- ❑ HP Cluster 34,6 TFlops (low & medium latency)
- ❑ IBM Cell 2,7 TFlops
- ❑ Sun Cluster 3 TFlops
- ❑ Tesla cluster
- ❑ GPU NVidia cluster
- ❑ IBM Cluster and other resources 3 Tflops

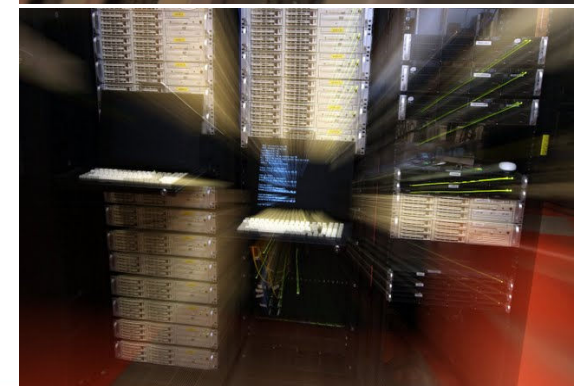
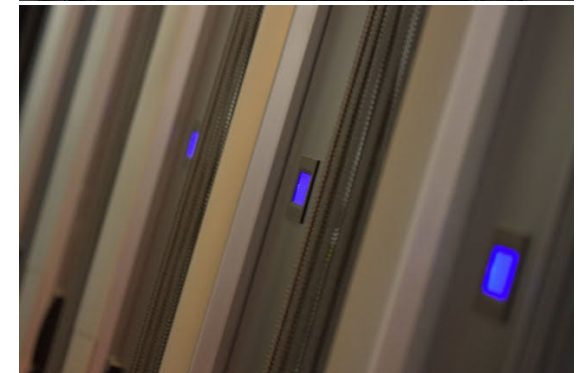
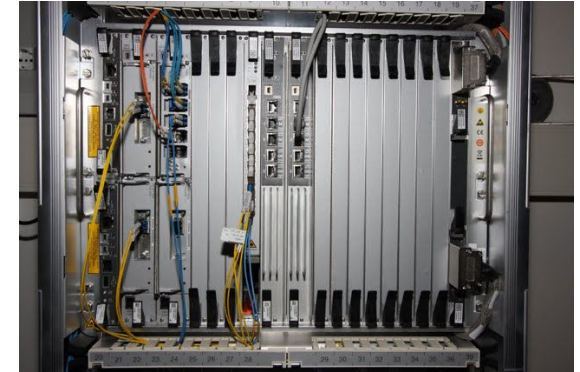


CRS4 infrastructure

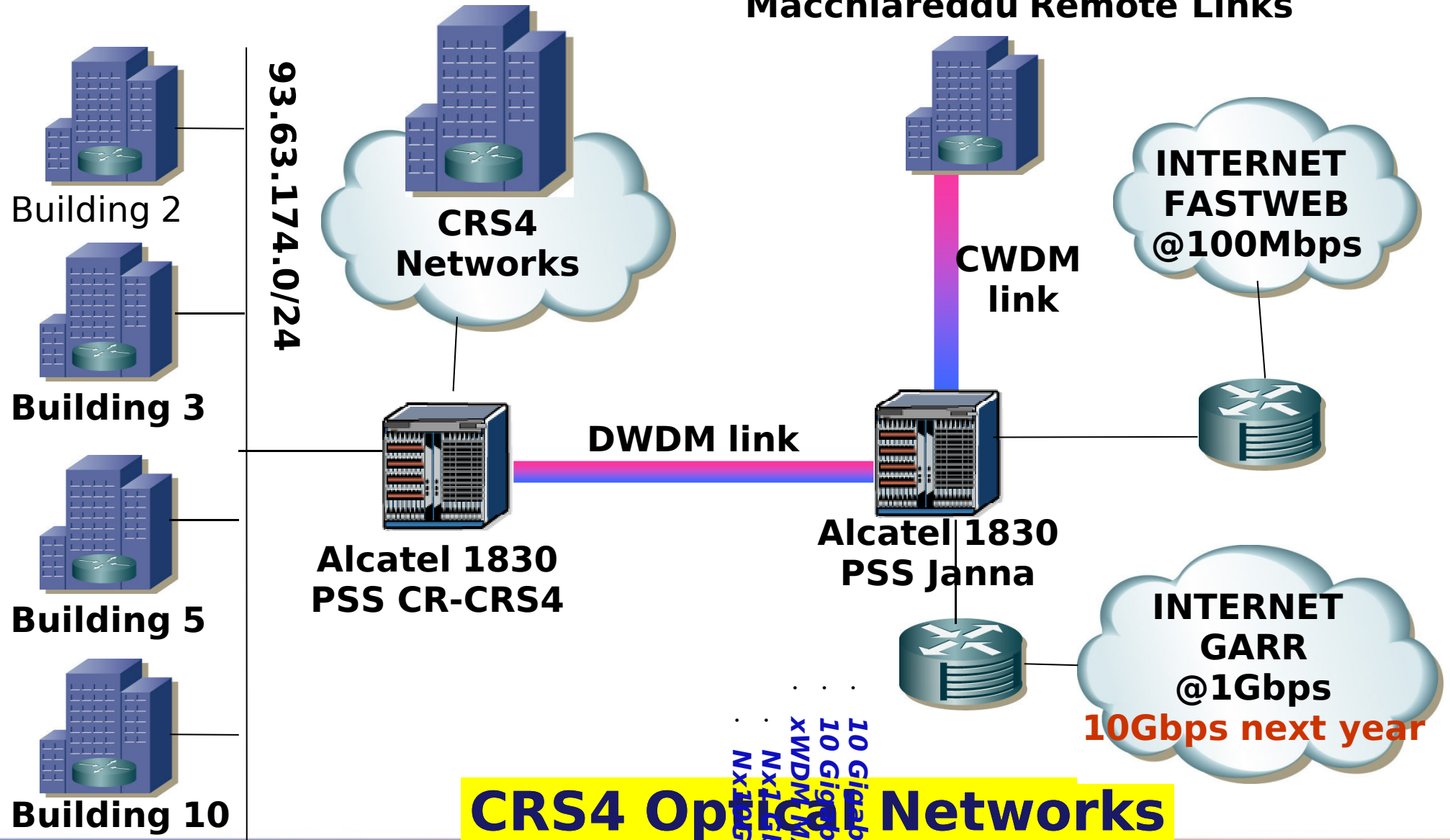
- **Disk space approx 1,2 PB**
 - Sun StorageTek 500 TB
 - cluster space 200 TB
 - File servers 500 TB
- **Backup space approx 800TB**
- Lan infrastructure with 80Gbps maximum on the backbone
 - 200 10GbE ports
 - 600 10/100/1000 BaseT ports

CRS4 infrastructure

- **Multiple 10GbE links for connection between CRS4 sites in the park**
- **Multiple DWDM 10Gb links on Dark Fiber between the park and Sa Illetta**
- **1Gbps GARR link, 10 Gbps next year**
- **New electric plant**
 - Transformer room, control panel, UPS
- **Computer centre**
 - New distribution panel Cooling system
- **New Power group and UPS**
 - GE da 700 KW, UPS 500 KW



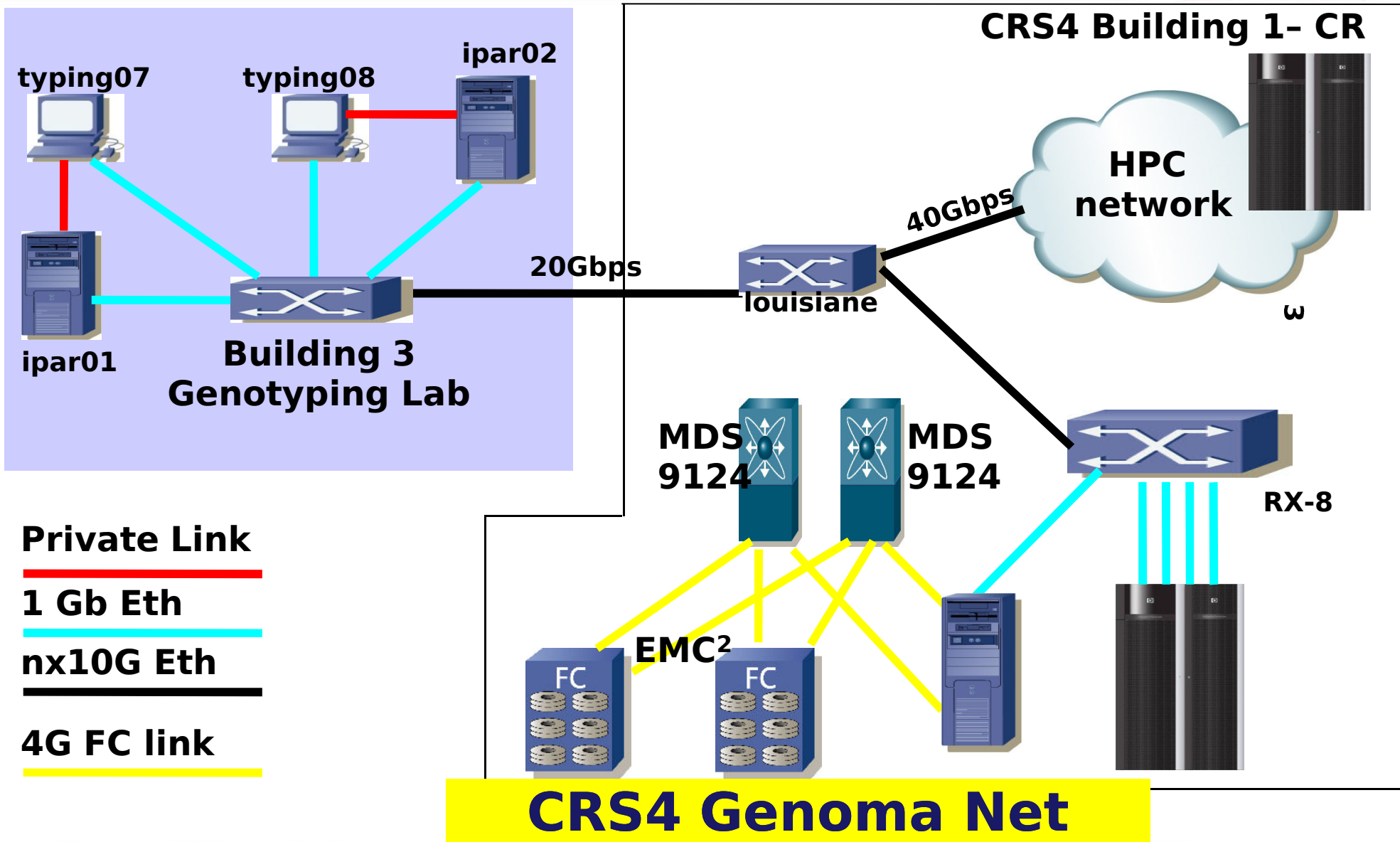
Macchiareddu Remote Links



CRS4 Optical Networks

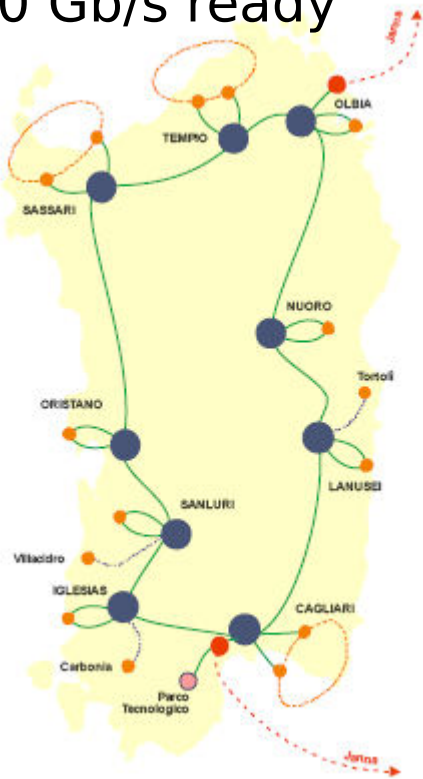
10 Gigabit Ethernet
10 Gigabit Ethernet
XWDM MAN Link
Nx1.5 Gbps
Nx1.5 Gbps



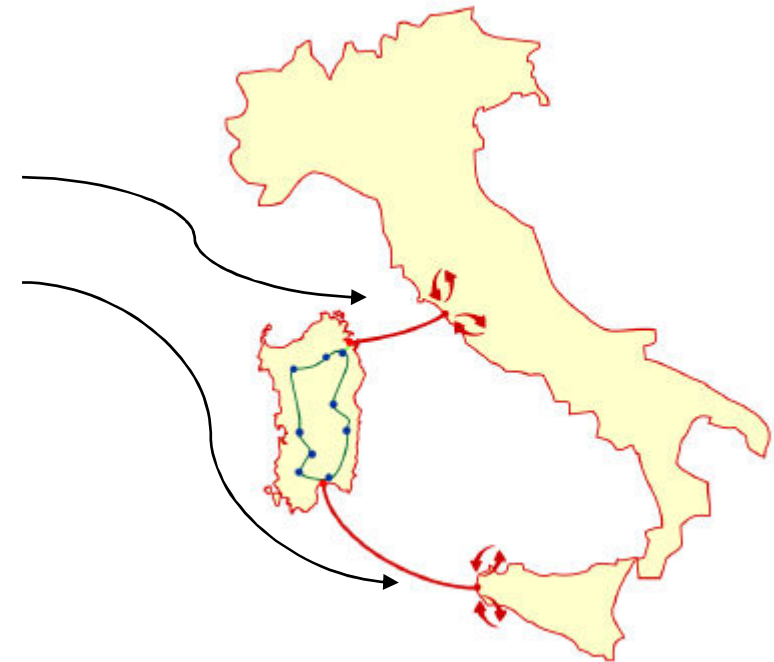


RTR-R Sardinian Research Network

- DWDM Network 2.5 Gb/s
- 10 Gb/s ready



GARR X
JANNA dark
fiber





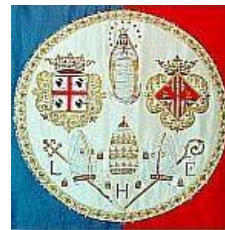
The GRIDA3 Project

- **GRIDA3** (Shared Resources Manager for Environmental Data Analysis and Applications) is an interdisciplinary project funded by the Italian Research Ministry
- **provide a *holistic description of environmental problems*** and practical answers to questions of central importance,
- **is an advanced *problem-solving tool*** for the integration, through a computing portal, of
 - **human know-how,**
 - **simulation software**
 - **instrumentation and resources for data communication**
 - **storage, visualization, and computation.**



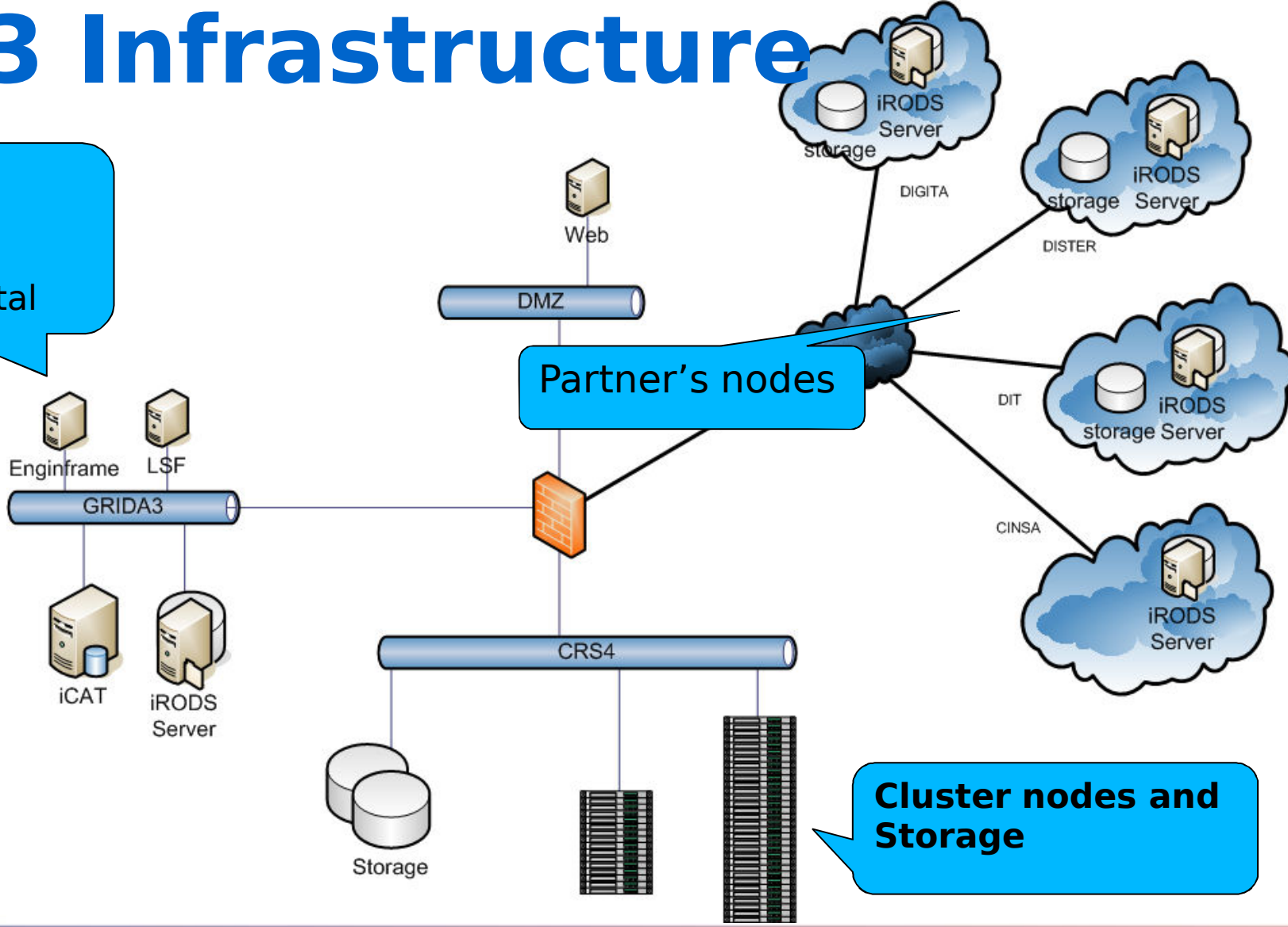
The GRIDA3 Project

- **GRIDA3** will provide *Grid* infrastructure for collaborative work, built for the sharing of data and applications located at multiple sites across federated domains, public and private.
- **Project Partners:**



GRIDA3 Infrastructure

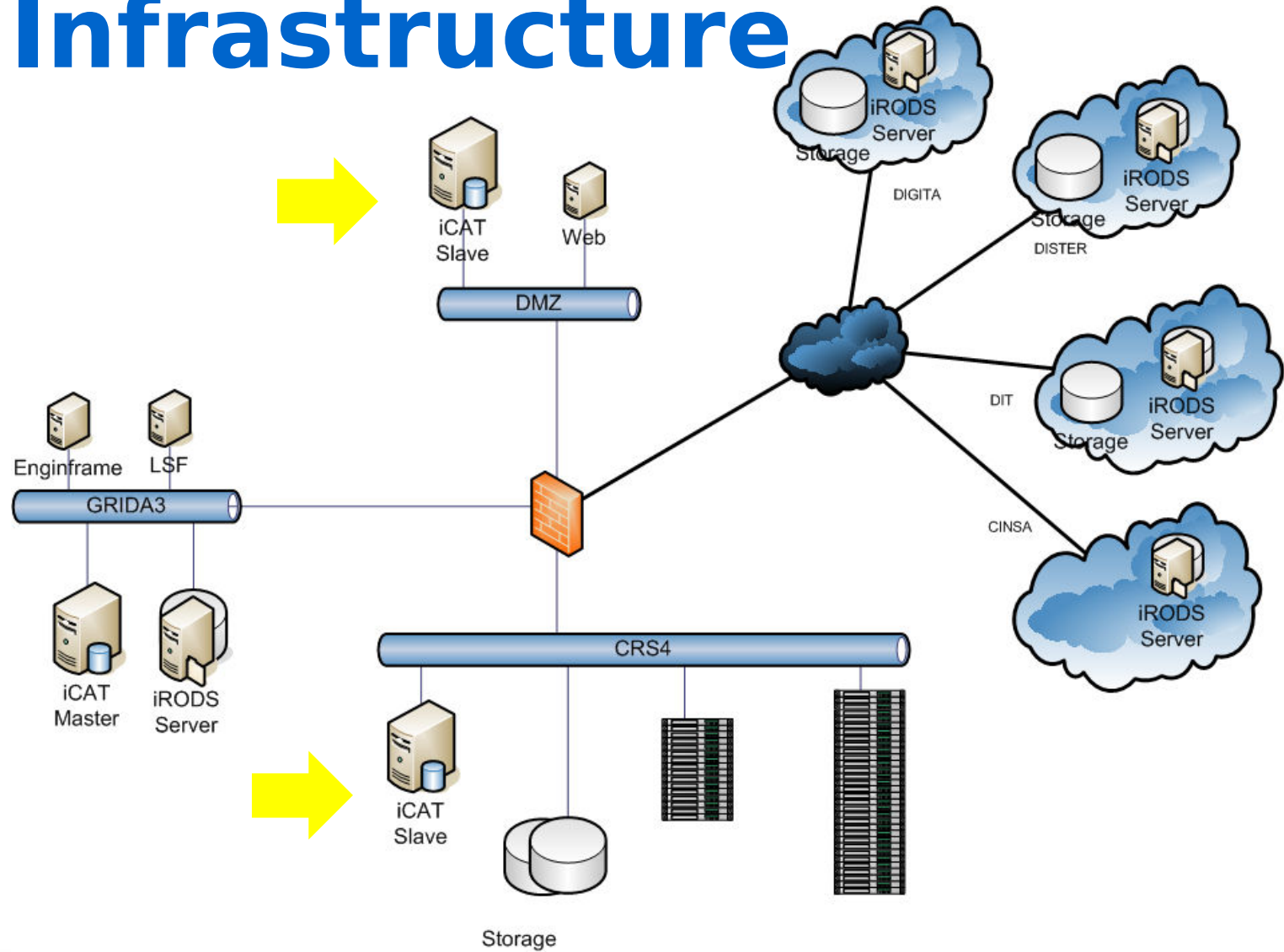
Grid Portal
 .Accounting
 .Job submission
 .Application portal



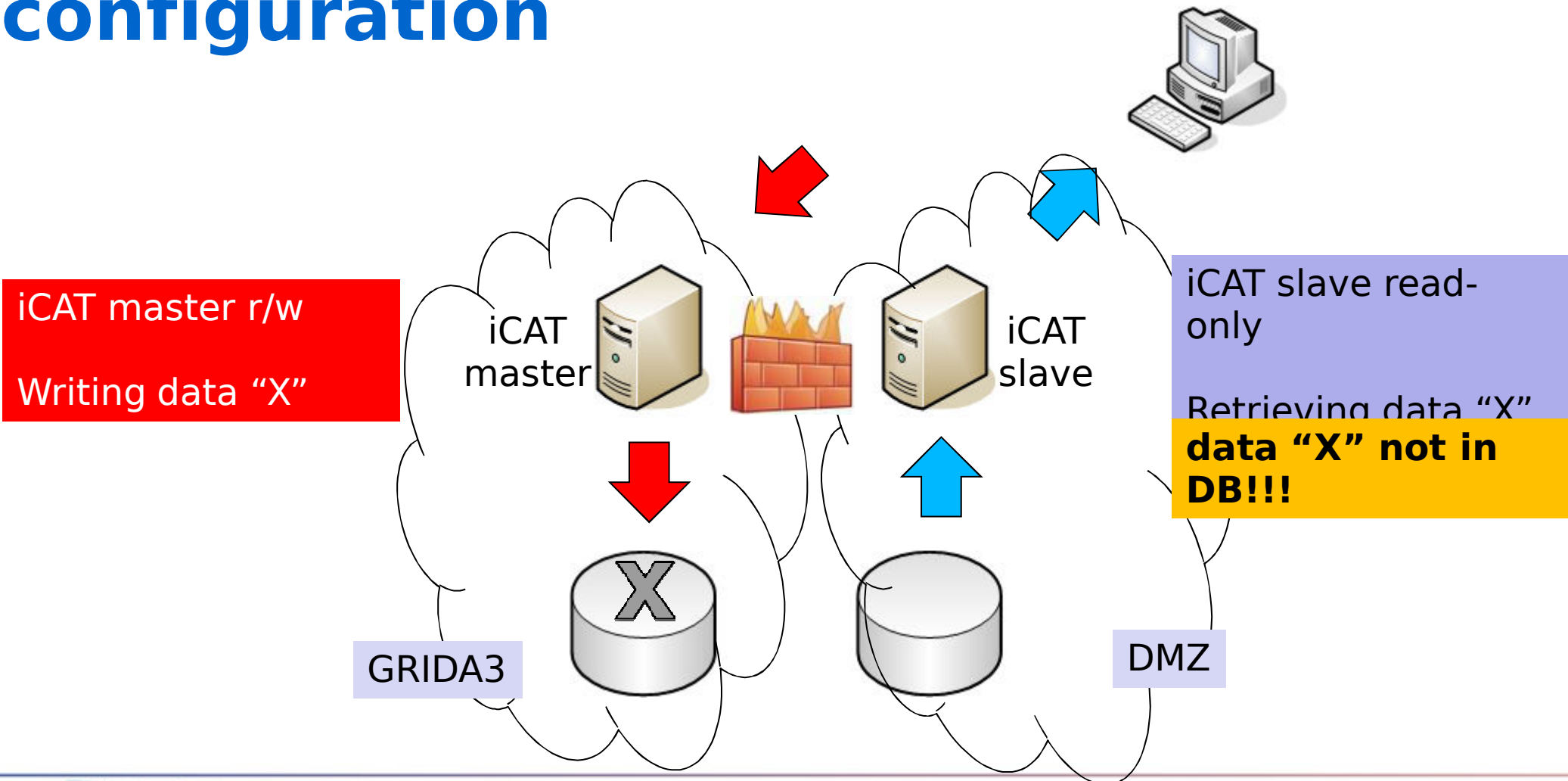
Cluster nodes and Storage

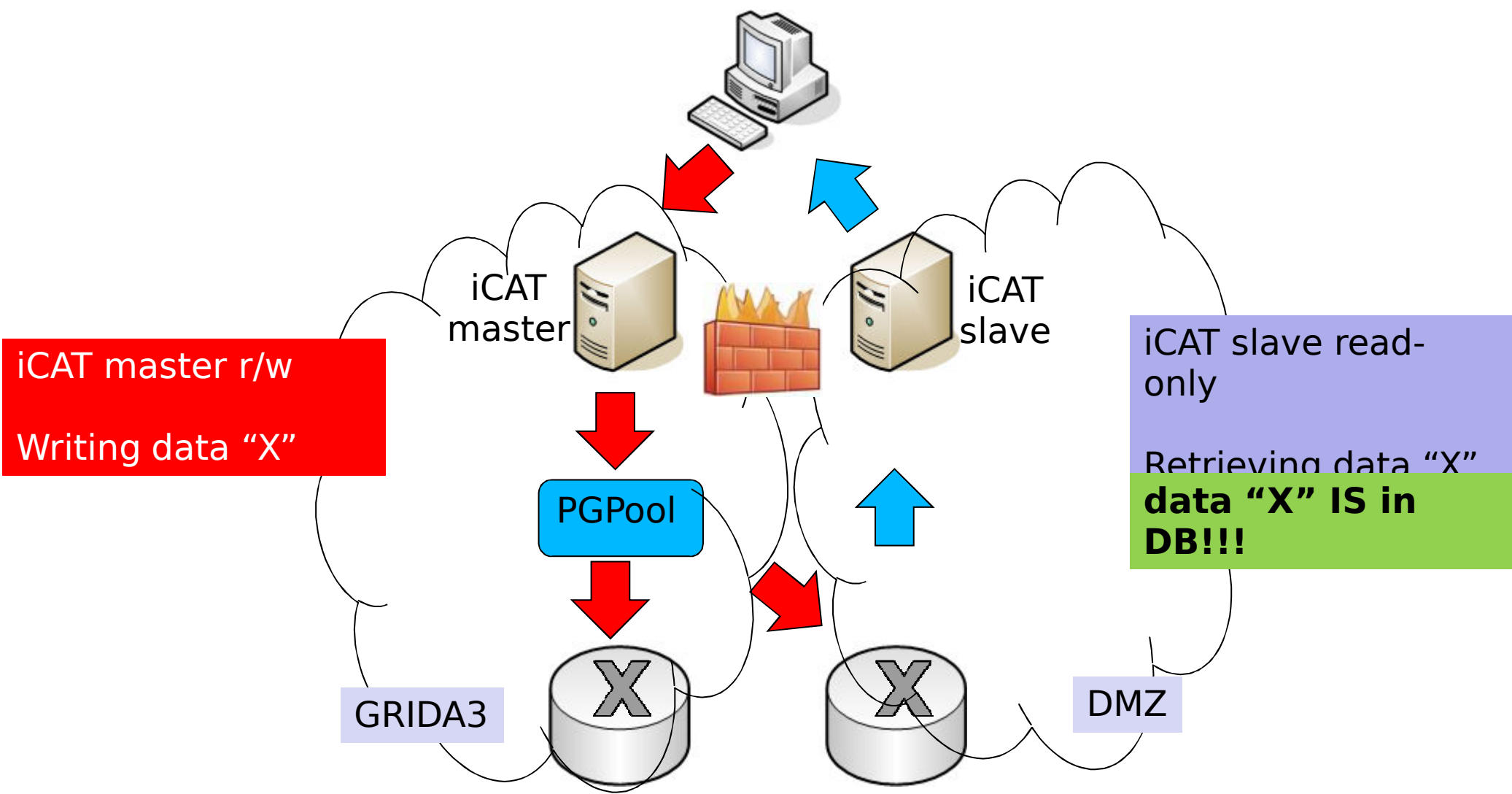


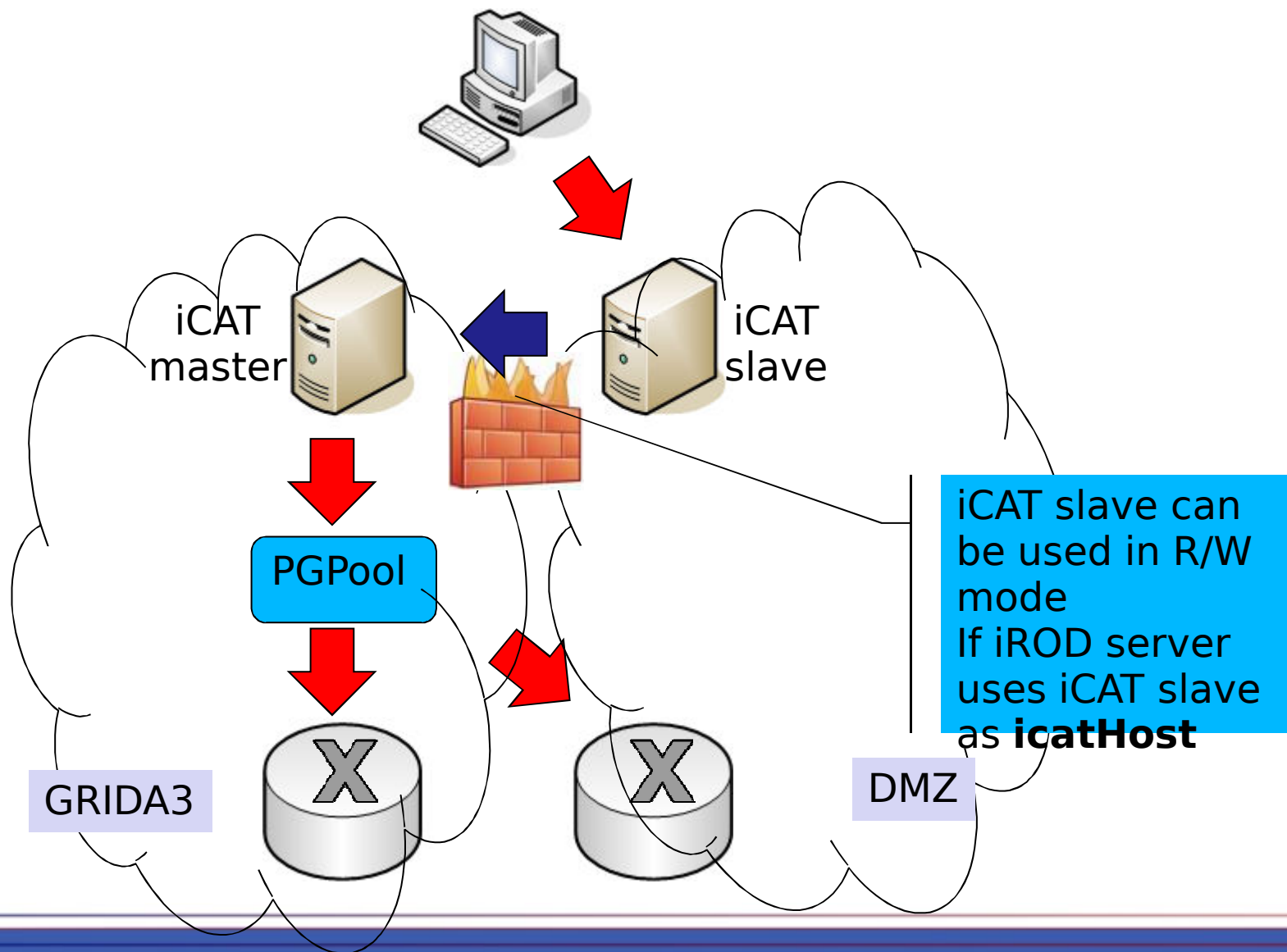
GRIDA3 Infrastructure



Data syncing with M/S configuration







Thanks for your attention

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