EUChinaGRID project

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EGEE04 - External Projects Integration Session

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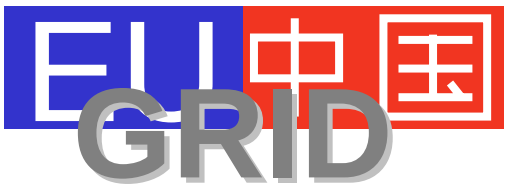
Why GRID & China

- China is one of the fastest growing economies in the world with a specific program for GRID (CNGRID).
- Many Scientific collaborations are already active between European and Chinese Researchers (LHC, Astroparticle, Biology, etc.)
- EGEE GRID Middleware can be seen as a sort of common platform which can be the baseline for interconnecting GRIDs worldwide.



EUChinaGRID : Interoperability and Integration of Grids between Europe and China

- EUChinaGRID will make a step forward supporting the creation a pilot intercontinental Grid infrastructure which will:
  - strengthen the existing scientific collaborations (LHC, ARGO-YBJ, NBP).
  - promote new collaborations in eScience between Europe and China.
- To reach this objective several activities are planned:
  - Support of network interoperability (IPV4/IPV6)
  - Interoperability of services between CNGRID and EGEE
  - dissemination & training.

Participants

1	**Istituto Nazionale di Fisica Nucleare (IT) (coordinator)**
2	**European Organisation for Nuclear Research CERN (CH)**
3	**Dipartimento di Biologia - Università di Roma Tre (IT)**
4	**Consortium GARR (IT)**
5	**Greek Research & Technology Network (GR)**
6	**Jagiellonian University – Medical College, Cracow (PL)**
7	**School of Computer Science and Engineering – Beihang University Beijing (CN)**
8	**Computer Network Information Center, Chinese Academy of Sciences – Beijing (CN)**
9	**Institute of High Energy Physics, Beijing (CN)**
10	**Peking University – Beijing (CN)**

Status, Timescale & Budget

- Negotiation phase ended.
- Contract will be signed in november ’05.
- 24 Months duration starting on 1st January ’06.
- EU Contribution of 1,300,000 €.
- A total of 495 Person Months (325 Funded).

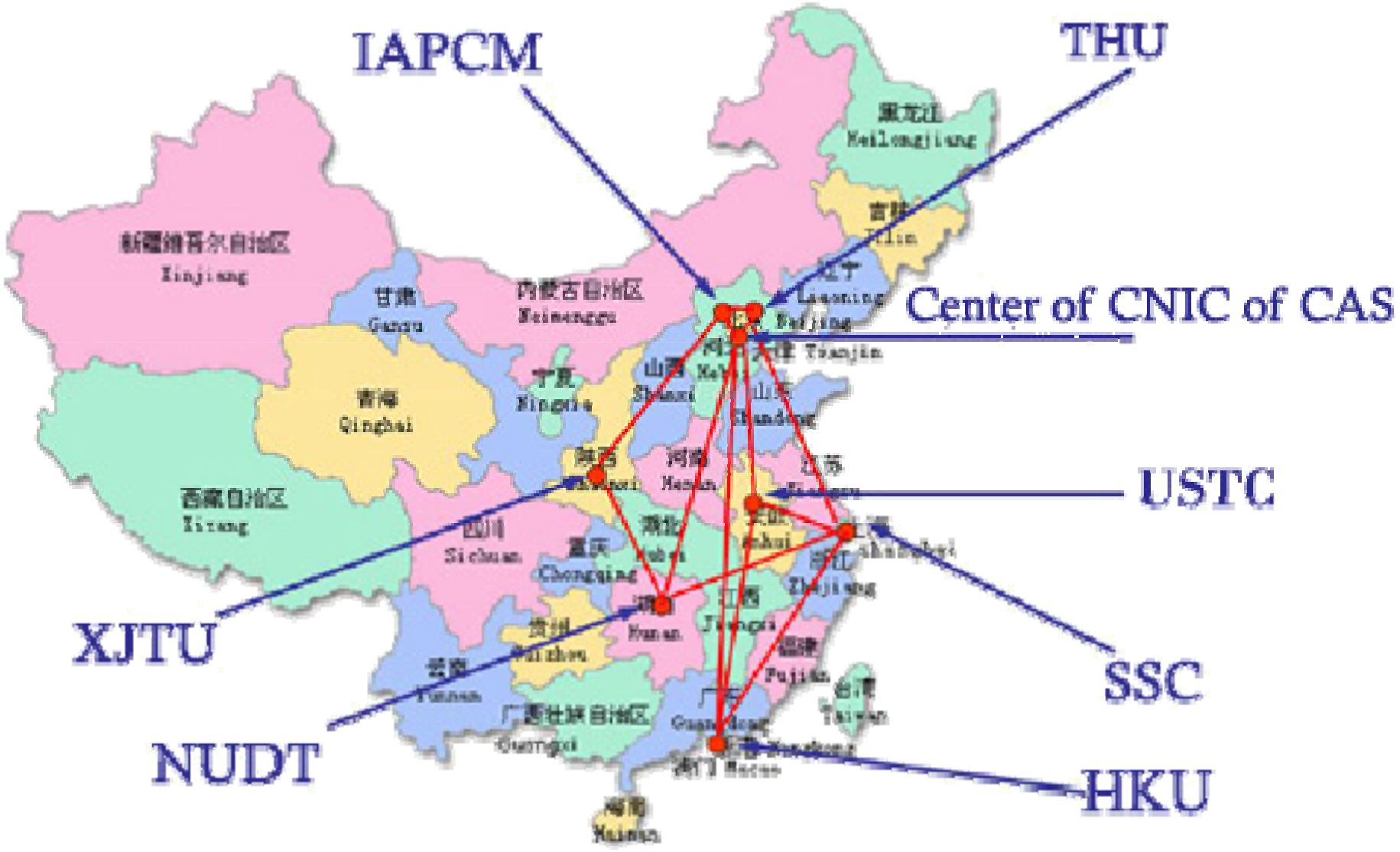
EUChinaGRID WP's

- WP1 – Management
- WP2 – Network provisioning
- WP3 – Pilot infrastructure
- WP4 – Applications
  - EGEE applications (LHC, Bio, etc.)
  - ARGO-YBJ and Gamma Ray Bursts
  - Never Born Proteins
- WP5 – Dissemination and Training

General schetch

- Middleware: EGEE middleware will be used with Chinese specific additions and modifications.
- Infrastructure: the EGEE and CNGRID infrastructures will be used.
- Applications: EGEE applications (LHC) and other pilot applications will be supported.
- Training & Dissemination: Joint activities with other projects are foreseen (Grid@Asia, BELIEF, etc.) with possible synergies.

CNGRID



ARGO – YBJ Laboratory

Unique High Altitude Cosmic Ray Laboratory (4300 m a.s.l., Tibet, P.R. China), 90 km North to Lhasa.

Chinese-Italian collaboration.

The Experiment data rate to be transferred is 250 TB/Year requiring a steady transfer rate of the order of 100 Mbps to Beijing and from there to Italy.

Never Born Proteins

- The number of natural proteins on Earth, although apparently large, is only a tiny fraction of the possible ones:
  - with 20 different co-monomers (the 20 different natural amino-acids), a polypeptide chain with 60 residues (n=60) can exist in 20^{60} different chain structures.
  - In nature, we have around $10^{13\text{-}14}$ different proteins, so that the ratio between the possible and the actual number is staggeringly large.
- This means that there is an astronomically large number of proteins that have never been seen on Earth - an incredibly large number of “never born proteins” (NBP).
- In particular, the present research in the field is based on a computational approach to study a large library of NBP (10^9 protein sequences) to the aim of clarifying the structural principles that characterize them and of selecting a reasonable number of sequences which can potentially give rise to stably folded proteins.