Ukrainian Academic Grid Initiative (UAGI)

Status and outlook

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Size:

West <-> East
~ 1250km

North <-> South
~ 850km

Population:

~ 46 millions

National Academy
of Science of Ukraine:

About 100 Institutes
and laboratories

Regional GRID centers
Academic network - UARNET

Pionier -> GEANT

2.5 (10) Gbps

2.5 (10) Gbps

At the beginning of grid activity in National Academy of Sciences of Ukraine (end of 2004)

- Deficiency of any grid resources in Kiev
- In Kharkov Institute of Physics and Technology (KIPT) grid-site working through very slow modem link to Dubna, Russia (within CMS collaboration).

Ideas and goals of BITP initiative group for grid in Ukraine

➢ Large scale numerical simulations and data samples analysis (not for HEP only)

➢To start from grid-sites in BITP and KNU integrating them to AliEn-grid.

➢ To propagate intensively idea and outstanding prospects of grid for fundamental research in NASU (Government and Parliament)
keeping in mind and demonstrating many other applications beyond high energy physics (biology and medicine, astrophysics and astronomy, business and finance, etc.).

➢ To activate and unite experts and enthusiasts of other institutes and sciences who are interested in developing grid in their institutes and creating UAGI.

➢To foster grid-site in BITP as the seminal one for NASU grid infrastructure

➢ To establish contacts and collaboration with world grid community

➢ To transform UAGI into UNGI in near future

These efforts were initially supported by NASU and eventually we have found out an understanding and modest financial support of governmental stuctures.

❑ Concept of developing grid infrastructure in NASU was officially approved

❑ Academic grid committee representing wide spectrum of scientific activities was established
❑ In 2005 we were funded - **1 million hrivnas (~$200K)**
❑ This year - **3M hrs**
❑ UARNET - **25M hrs** for main and local optical fiber lines during last two years
❑ Next year we expect **6M+ hrs** for developing branchy grid infrastructure in NASU

At present

• Ukraine is a member of WLCG (MoU signed 26 June 2006)

Ukraine, Ukrainian Tier-2 Federation	Pledged	Planned to be pledged			
	2006	2007	2008	2009	2010
CPU (kSI2K)	320	600	800	0	0
Disk (Tbytes)	25	65	100	0	0
Nominal WAN (Mbits/sec)					

• BITP has optical fiber connection (*academic network UARNET*) – 100Mbps (to be amplified to 1 – 2.5 Gbps), internal network (100Mbps) with 250 links for PCs,
computing cluster (farm) contains 20 dual CPU nodes (Xeon 3GHz, 2GB/CPU RAM), storage ~ 12TB, we are planning to increase these figures

• BITP grid-cluster passed through all tests of AliEn-grid and has been already included in AliEn-grid infrastructure as entirely operating grid-site with ~ 50 jobs running daily

• Grid-clusters in other Academic Institutes in Kiev, Kharkov and Lvov are under construction

This year

the first segment of academic grid network connecting sites of the NASU institutes and KNU

Bogolyubov institute for theoretical physics

Kharkov institute of physics and technology

Institute of microbiology and genetics

Main astronomic observatory

Kiev National University

Lvov institute of condensed matter physics

Institute of cell biology and genetic engineering

expected resources of the segment:

about 200 CPU
(for each 1GB (or more) RAM**)**
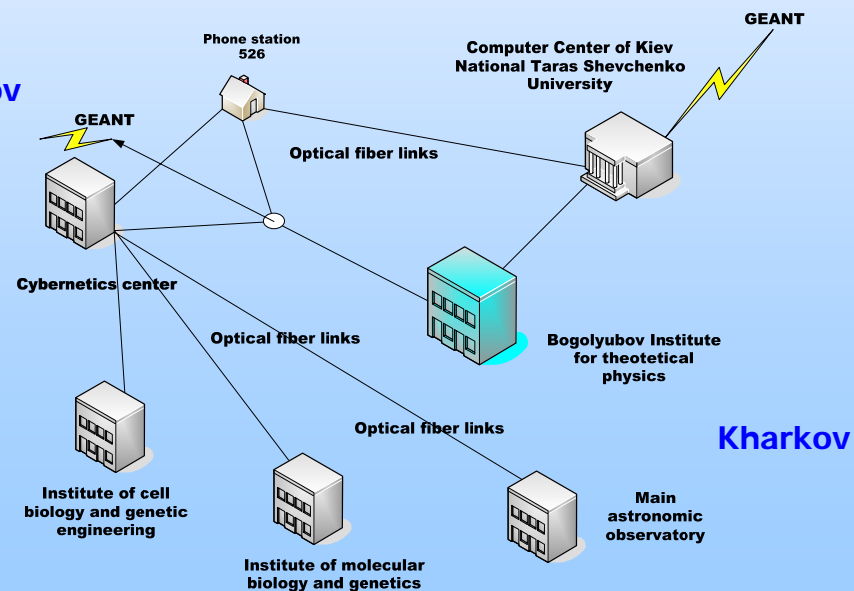**total SE capacity 30 – 50 TB.**

Next year

We are planning to enlarge this UAGI segment

Institute of cybernetics (NASU),
Institute of scintillating materials (NASU),
Kharkov National University,
Institute of nuclear research (NASU),
Institute of physics (NASU),

...

All Institutes participating in UAGI are interested in integrating to WLCG and give their computing resources to ALICE and CMS. In future the Institutes will enter other grid VOs (their scientific interests)

✓Astronomy and astrophysics

✓Bioinformatics

✓Biology and medicine

✓Solid state physics and application

We are sure we'll have in nearest future significant progress in creating Ukrainian grid infrastructure and fruitful collaboration with world grid community