



Life-Sciences Virtual Research
Community Workshop
Paris, 28 June 2010

Italian Life Sciences Initiatives



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italian grid
infrastructure



Outline

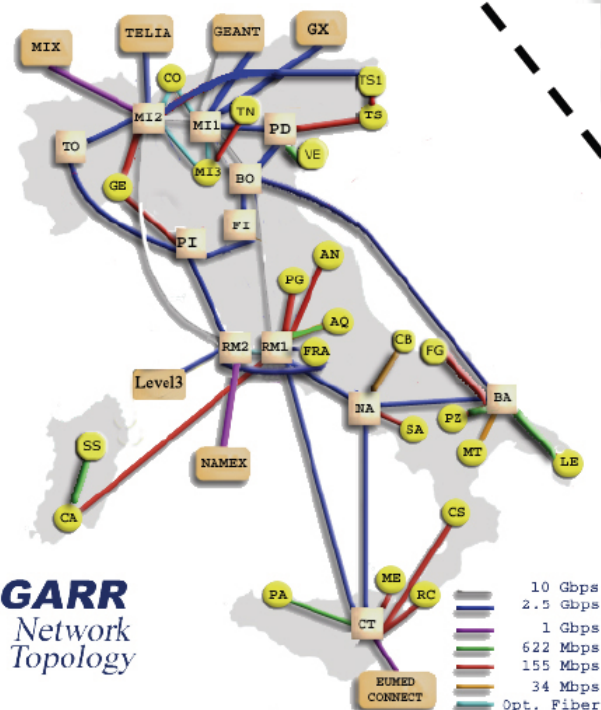
- IGI Resources available for Life Sciences:
 - CPUs, Storage
 - Services
 - Man power
- National and International current Life Sciences projects
- Proposals for the organisation of the European Life Sciences community



The Italian e-Infrastructure

(interoperable with common communication protocols)

The Network



The Grid



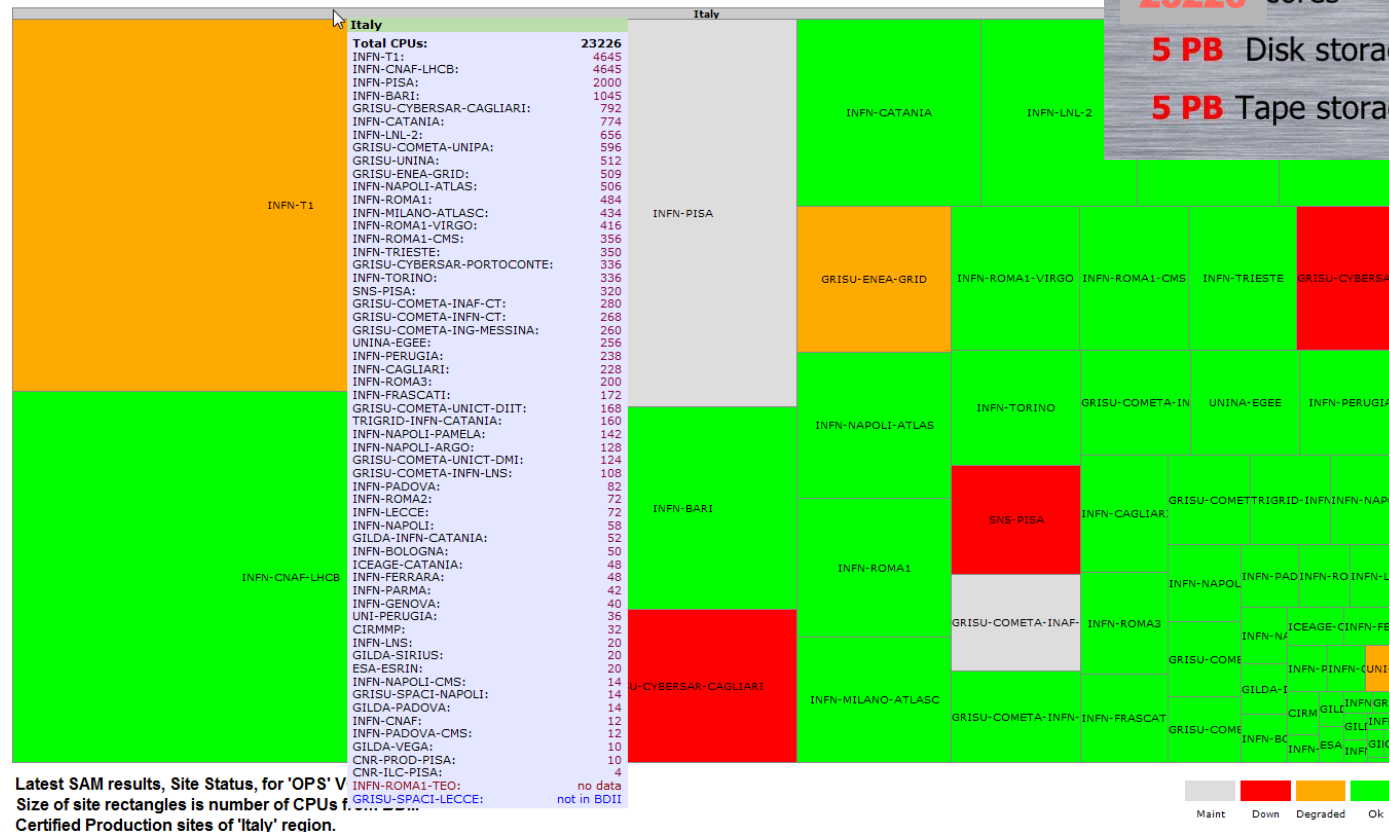
Catania, Workshop Finale dei Progetti Grid del PON "Ricerca" 2000-2006 - Avviso 15/5, 10-12.02.2009



Computing Resources

81% from INFN + 19% from other partners

GridMap – Visualizing the "State" of the Grid



IGI INFRASTRUCTURE IN NUMBERS



54 sites

1100 users

23226 cores

50 VOs

5 PB Disk storage

13k job/year

5 PB Tape storage

10 application domains

5% available for Life Sciences
→ 1200 CPU-cores



Services

- IGI is hosting central services for 4 Life Sciences related VOs (multiVOs and dedicated WMS, LFC, Hydra keystores, etc.):
 - **bio**: initially created for the Grid.it Biology group and other life sciences applications, 69 users, 28k jobs/1.2 CPU.years in 2010
 - **libi**: Laboratorio Internazionale di BioInformatica project (see dedicated talk later on), 18 users, no jobs in 2010
 - **tps.infn.it**: INFN research project developing an innovative TPS (Treatment Planning System) for hadron therapy, 6 users, 95 jobs/4 CPU.months in 2010
 - **enmr.eu**: global VO serving the EU-FP7 project eNMR (see dedicated talk later on), 192 users, 270k jobs/210 CPU.years in 2010



Man power

- Human resources allocation is planned in IGI as below
- If IGI approved by MIUR (Italian Ministry for Education and Research) 1 FTE could be available for Life Sciences activities

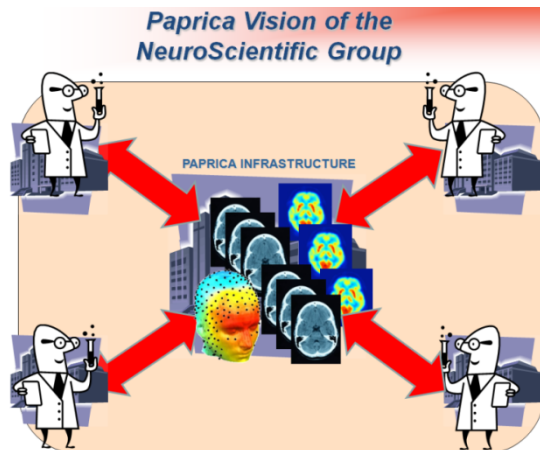
UNIT	Permanent FTEs	Temporary FTEs
User Support	5	0,2
Operations management	21	4,0
Research and planning	8	0
Middleware release	5	0,5
Training	5	0
Application porting	4	0,5
Administration and public relations	5	0
Coordination	6	0
TOTAL	60	5,2



Life Sciences projects

- National projects

- **LIBI** has been extended until September 2011 → 0,5 FTE from INFN-Bari until October 2010, gradually decreasing until the end of the project
- **LITBIO**: Laboratory of Interdisciplinary Technologies in Bioinformatics → until September 2010
- **CNR-BIOINFORMATICS**: CNR Interdepartmental Bioinformatics research activities in 12 different CNR institutes in all Italy.
- **PAPRICA** (Piattaforma nazionale ad Alte Prestazioni per la Ricerca Industriale e la pubblica Amministrazione) is a 22M€ project planning several activities related to Biomedical sector, 3 years starting in 2011, if approved:
 - services for virtual neuroimaging and system biology markers study for Alzheimer's disease
 - HPC services for radiotherapy and radiobiology
 - services for interactive visualization and analysis of microscopic biomedical images
 - virtual reality services enhanced with highly interactive 3D representation of biomolecular systems



	CENTRO
1	IRCCS-FBF
2	Fondazione SDN
3	Seconda Università di Napoli
4	UNIFOGGIA
5	IRCCS Casa Sollievo della Sofferenza
6	IRCCS-TROINA
7	Maat-g
8	IRCCS-Bonino Pulejo



Life Sciences projects

- International projects:
 - “eNMR: Deploying and unifying the NMR e-Infrastructure in System Biology”
 - is a EU FP7 project ending in October 2010
 - 50% of effort provided by the Italian partners INFN and CIRMMP (5.8 FTEs)
 - other partners are BCBR (NL), BMRZ (DE), EMBL-EBI (UK)
 - “WeNMR: A worldwide e-Infrastructure for NMR and structural biology”
 - is the eNMR follow-up, it will last until October 2013
 - 33% of the effort from INFN+CIRMMP (3.1 FTEs)
 - 3 additional partners from NL, UK and Germany
 - extension to SAXS scientific community (via EMBL-Hamburg)



Proposals

- Do we need a European structure for grid-related Health and LS communities ?
 - Yes to promote excellence in LS projects.
- What would be its role ?
 - Promote standard security system and API interface to the Grid network.
- Who would be the targeted user communities ?
 - Institution with very intensive research goals. (eg. INFN, CNR, ASI, ecc.)
- What would be the supporting infrastructures ?
 - Integrate the infrastructure available from the Italian main Institutions (INFN, ENEA, CNR, ASI, University computer centers ecc.) and the future projects financed by Italian Ministry of Research (MIUR)
- How would it be organized and how would it interact with the existing initiatives ?
 - The organization will be based on EGI and by the Life Science Committee



Proposals

- All this has been widely discussed in the past, e.g. the slides below are taken from Diana Cresti talk at the SSC workshop of Athens in May 2009

SSC Activities

U-E-1. User Forum Support
U-E-2. Coordination of SSC activities (2)
U-E-3. Event Organisation
U-E-4. Grid Planning & MCB
U-E-5. Coordination of User Tech Support
U-E-6. Coordination of Informational and High-level tools
U-E-7. Documentation Review Coordination
U-E-8. Coordination of Training
U-E-9. Services for new communities & Front Desk coordination (2)

	SSC	EGL.org coord	Central body
User Forum		U-E-1, U-E-2, U-E-3	UFSC
Grid Planning		U-E-2, U-E-4	MCB
User Tech Support		U-E-5 O-E-4, O-E-14	distributed
Hi-lev tools / Gateways		U-E-2, U-E-6	
Document / Training		U-E-7, U-E-8	SSC?
Front Desk		U-E-2, U-E-9	SSC?