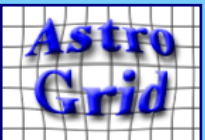


AstroGrid

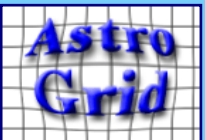
<http://www.astrogrid.org>

- The Project
- The Virtual Observatory
- Technical Progress



the project

- Consortium of seven UK institutions
- PPARC/EU funded e-science project 2001-2004
- Partner in European AVO project
- Founding member of IVOA
(International Virtual Observatory Alliance)



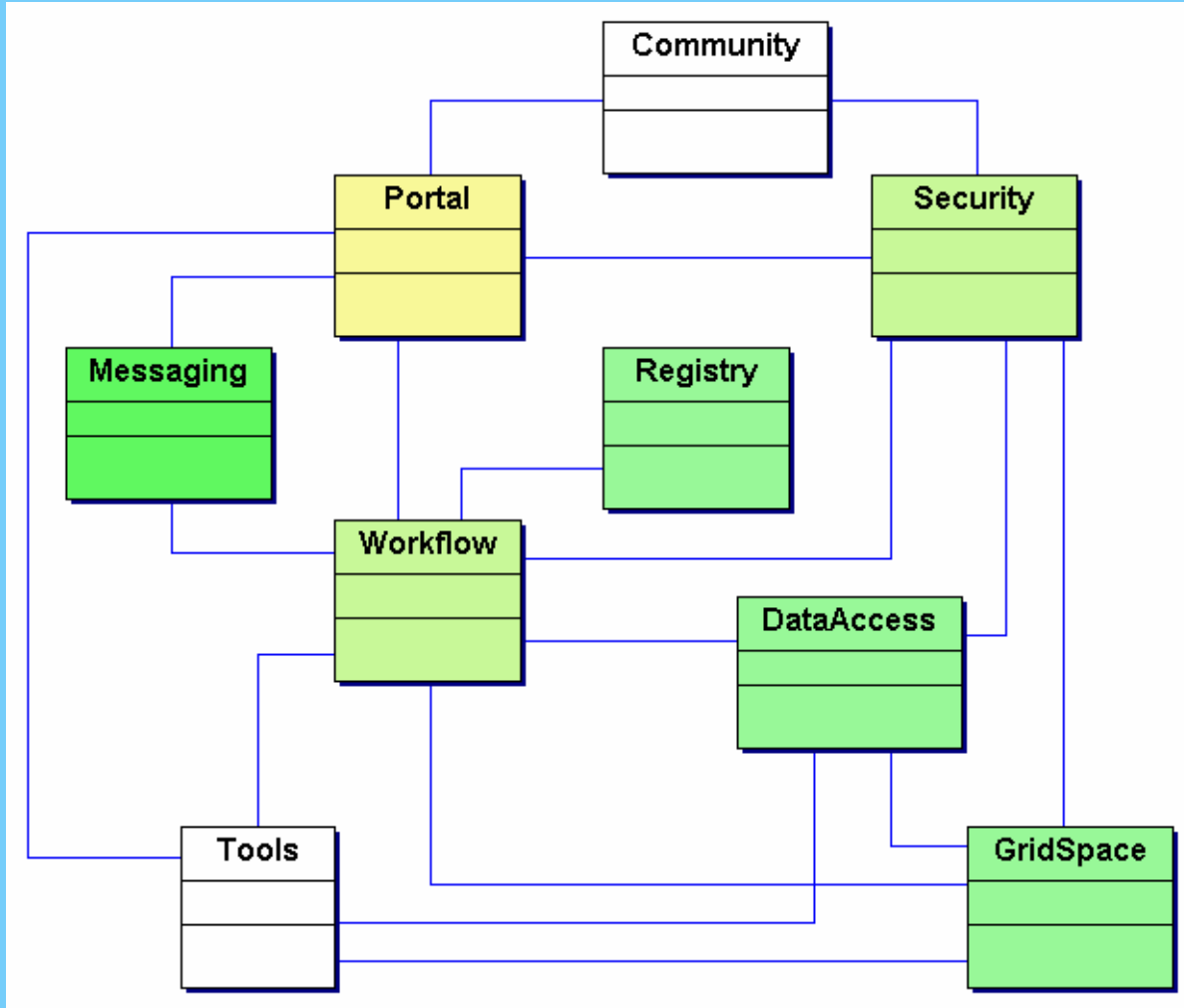
goals

- working system of daily use to scientists
- infrastructural toolkit for data services
- service and resource registry
- physical resource grid for key UK data centres
- exemplar user interface
- *set of datamining tools*

status

- Phase A study completed Dec 2002
- six months into two year Phase B
- team of 26 people (23.4 FTEs)
- spent 1.5M (40% of budget)
- 10,000 lines of code
- working s/w released on schedule

Component Progress

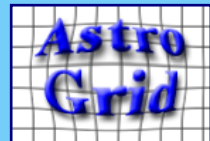


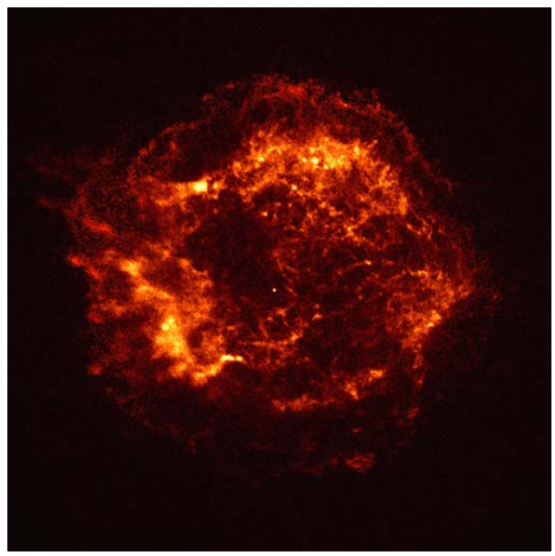
Virtual Observatory : Science Drivers

- multi-archive science
- rare object science
- large database computations
- empowerment

...can all be done now

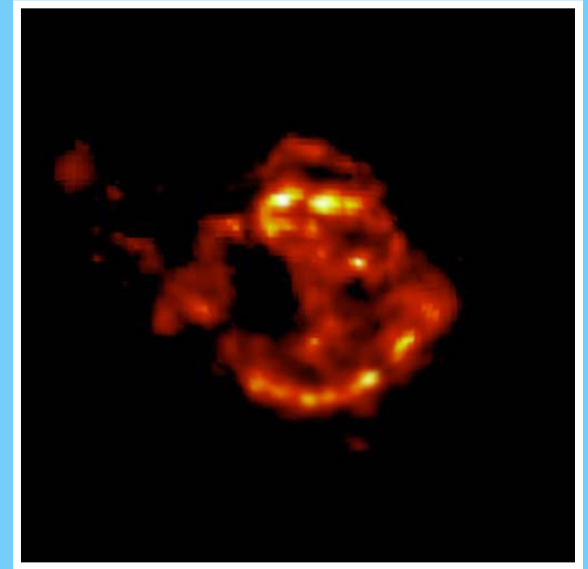
...aim is to *make it easy*



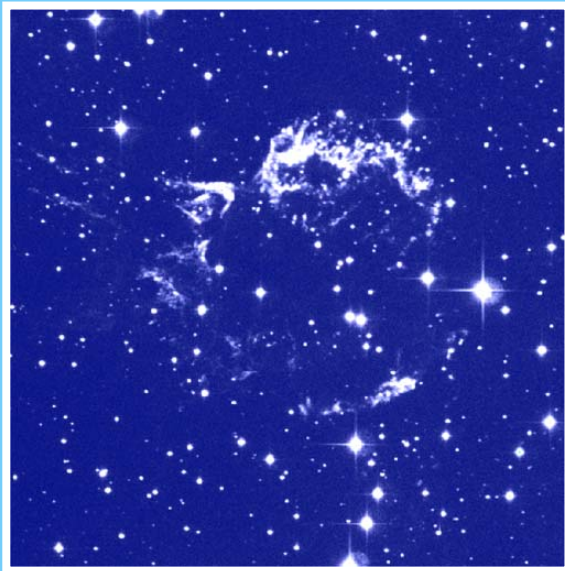


Shocks seen in the X-ray

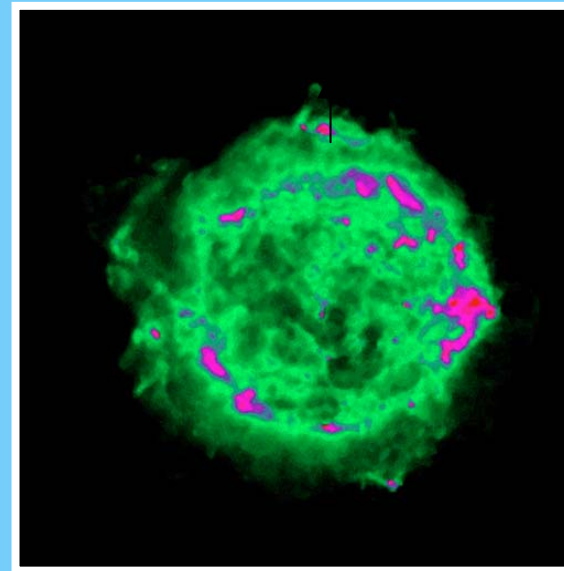
multi- λ
views of a
Supernova
Remnant



Dust seen in the IR



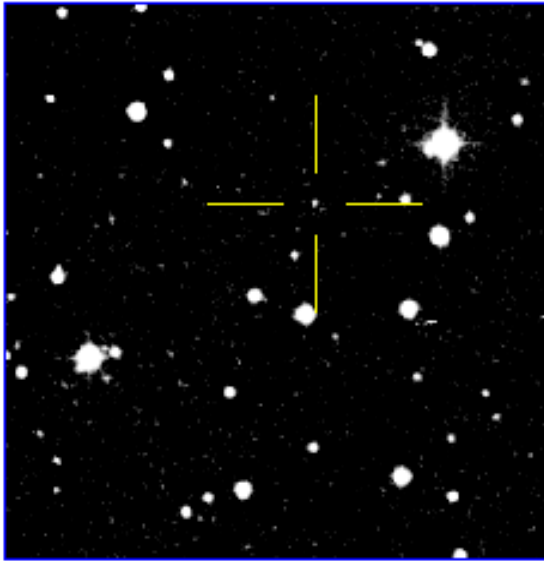
Heavy elements
seen in the optical



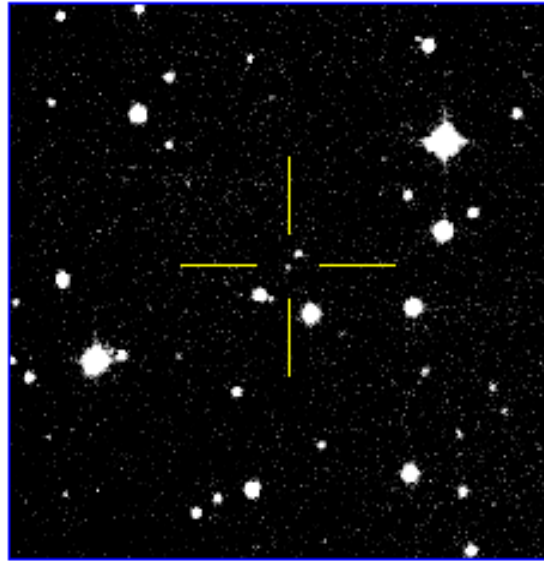
Relativistic electrons
seen in the radio

needles in a haystack

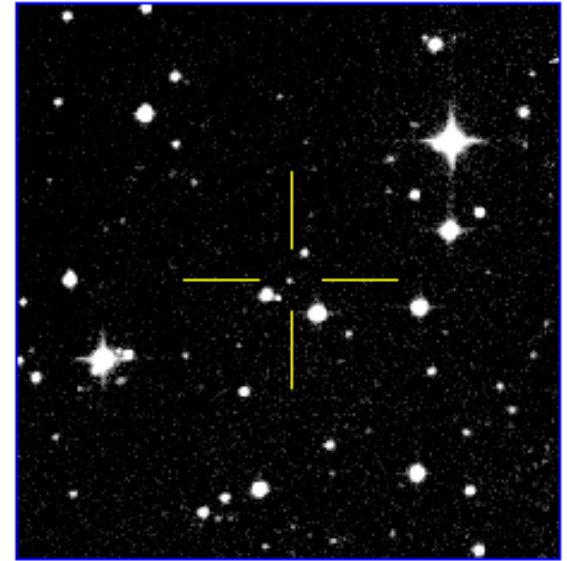
Hambly et al 2001



1951



1987

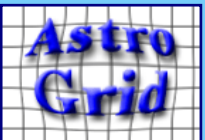


1994

- faint moving object is a *cool white dwarf*
- may be solution to the *dark matter problem*
- but **hard to find** : one in a million
- even harder across multiple archives

the Virtual Observatory concept

- Aim to make all archives **speak the same language**
 - all searchable and analysable by the same tools
 - all data sources accessible through a uniform interface
 - all data held in distributed databases that appear as one
 - archives form the Digital Sky
 - advanced new analysis and visualisation tools
 - eventual interface to real observatories



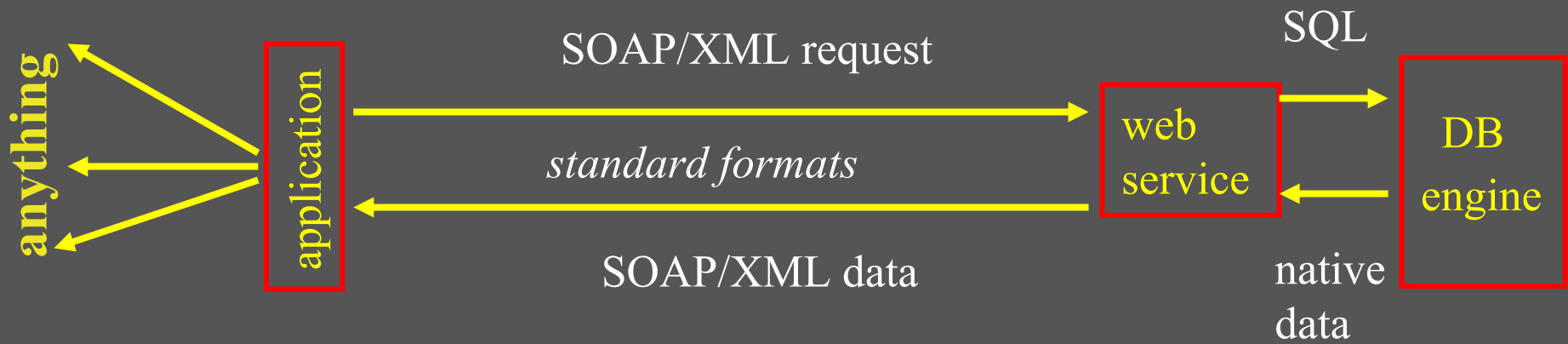
the future : data services

- VO : geometry
 - not a warehouse; not a hierarchy; not P2P
 - small set of service centres + large popn of end-users
- VO : content
 - not software monolith : framework + standards
 - back and front ends : data services and user tools

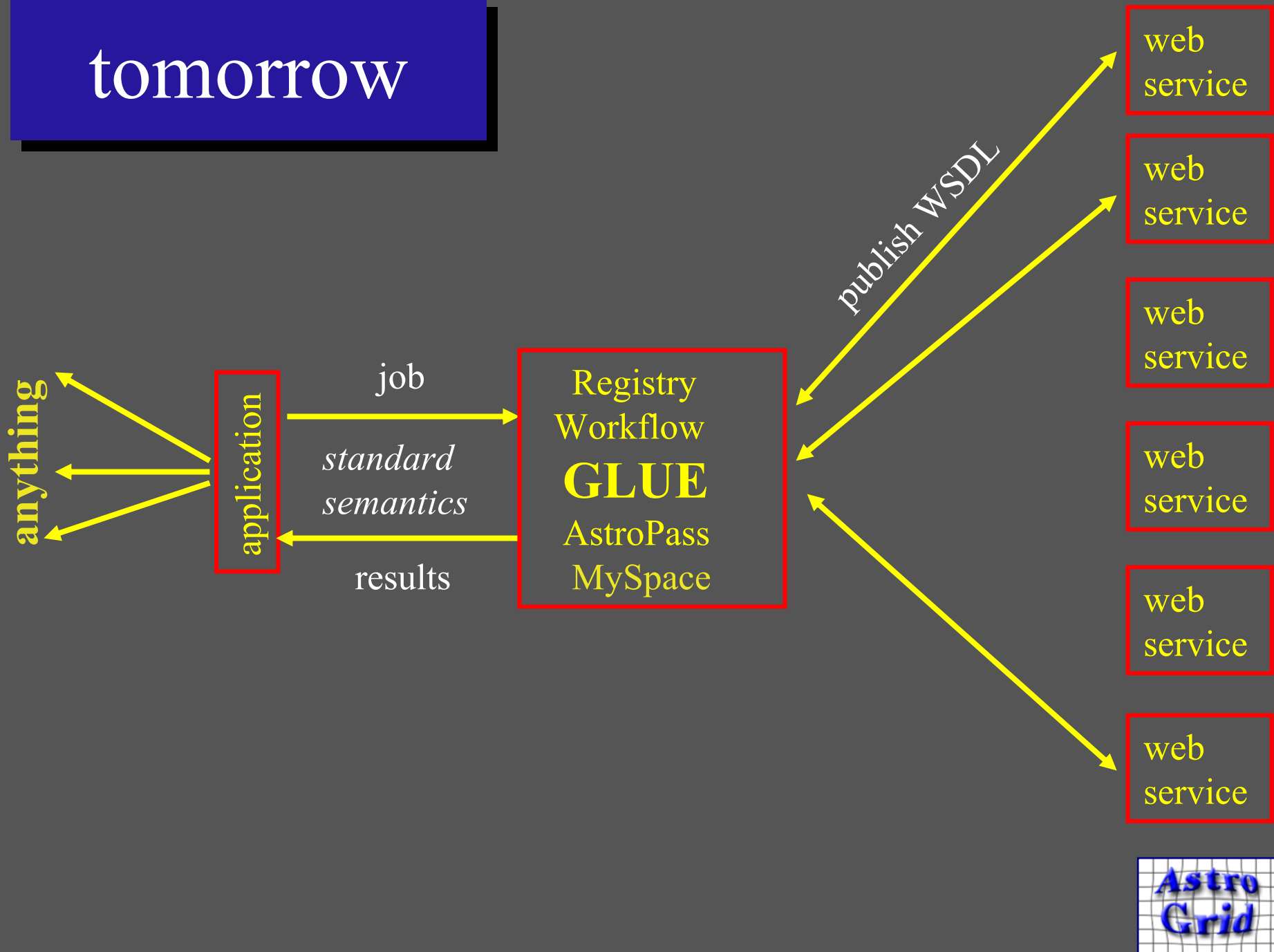
yesterday



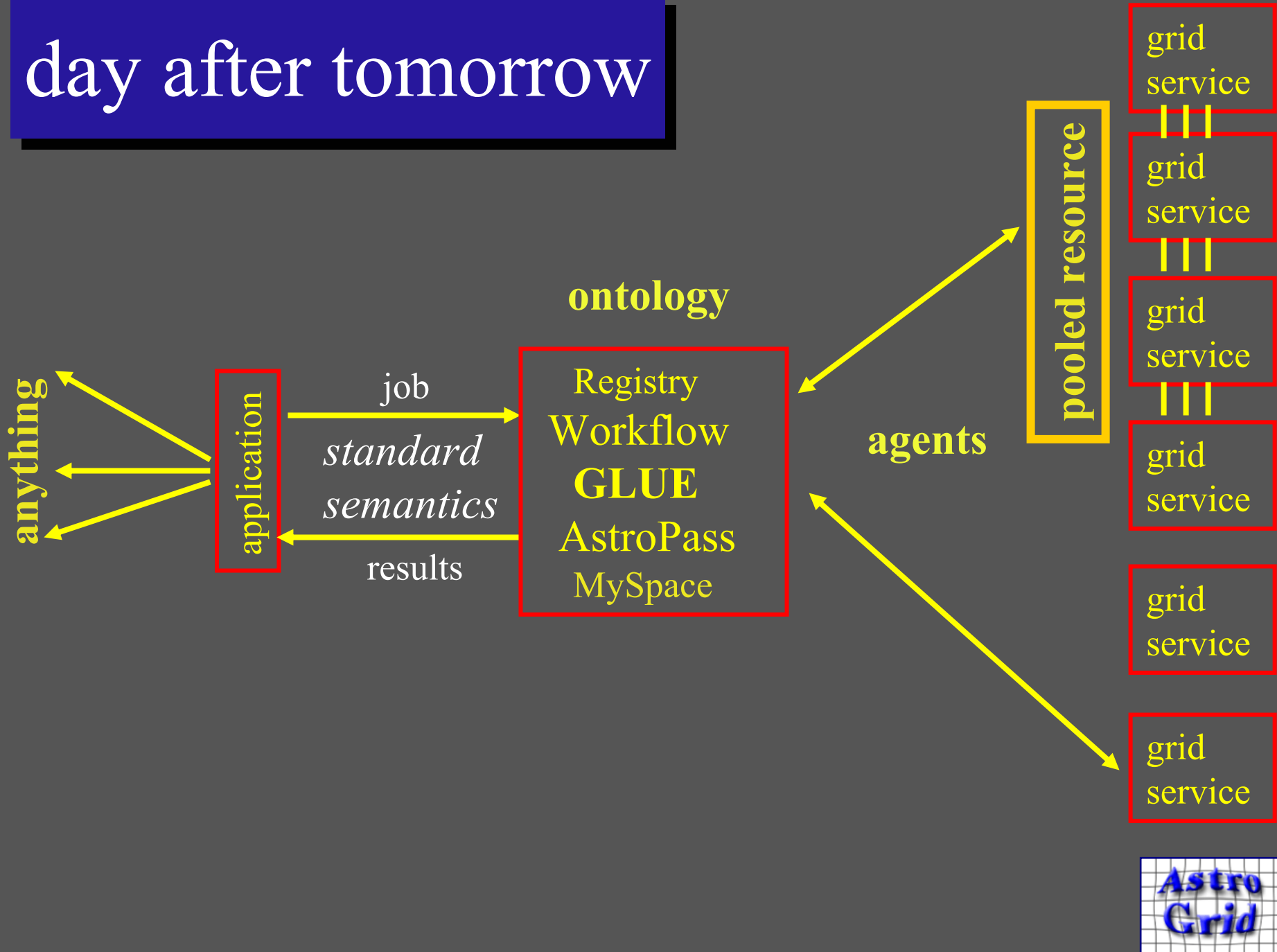
today



tomorrow

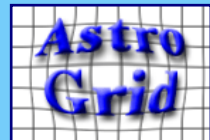


day after tomorrow



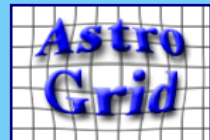
Progress : standards

- IVOA process modelled on IETF
- table data
 - V1.0 standard (VOTable) in daily use
- binary arrays
 - proposed standard (SIA)
- resource and service metadata
 - V0.8 standard (RSM)
 - no standard for provenance yet
- semantics
 - Strasbourg UCDs taken as working standard
 - draft replacement standard under debate



Progress : data exchange

- 2003 : building with web services
 - dozens of SOAP/WSDL services in operation
 - not just for data access : infrastructure built on web services
- 2004 : re-engineer with OGSA services
 - experimental grid services deployed so far
 - demo-ed with client in Sydney, data in Manchester, visualisation algorithm in Melbourne.



Progress : Registry

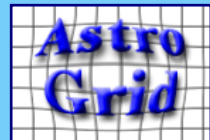
- prototype Registry working
- populated with real metadata by hand
 - only a few services so far
- defined by XSD, queried via XQUERY
 - DB2 database soon
- automatic harvesting next

Progress : single sign-on

- AstroPass based on Globus CAS
- preliminary design so far
- first implementation end of 2003

Progress : MySpace

- transparent virtual file space
 - intermediate results storage for end-users
 - shared system space for participating data centres
 - collaborative space : end-user file sharing
- works via XML registry and web services
- working version of MySpace Manager
 - to be installed at each data centre
- working version of MySpace Explorer
 - user view and partial control of filestore
- transfer by HTTP; soon by GridFTP



Service name <http://mySpaceServer10:8080/axis/services/MySpaceManager>
 Explorer path /JaneDoe [\[Close\]](#)
 Current item
 Selected action
 Selected item

[Browse Registry](#)
[Data Query](#)
[Browse MySpace](#)
[Job Monitor](#)
[Tools](#)
[Logout](#)

AstroGrid BookMarks /JaneDoe/serv1/

File Name	Size	Type	CreationDate
<input type="checkbox"/> MySpaceFolder1		MySpaceFolder	21/08/2003
<input type="checkbox"/> MySpaceFolder2/MySpaceFolder3		MySpaceFolder	22/08/2003
<input type="checkbox"/> JaneDoe.leicester.JESLeicester01.74893247.xml	51KB	VOTable	21/06/2003
<input type="checkbox"/> JaneDoe.leicester.JESLeicester01.874690134.xml	91KB	VOTable	21/08/2003
<input type="checkbox"/> JaneDoe.leicester.JESLeicester01.548930136.xml	77KB	VOTable	21/08/2003
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<input type="checkbox"/> JaneDoe.leicester.JESLeicester01.846789043.xml	32KB	VOTable	21/08/2003
<input type="checkbox"/> JaneDoe.leicester.JESLeicester01.234524446.xml	14KB	VOTable	21/08/2003
<input type="checkbox"/> JaneDoe.leicester.JESLeicester01.142367563.xml	44KB	VOTable	21/08/2003
<input type="checkbox"/> JaneDoe.leicester.JESLeicester02.423323326.xml	94KB	VOTable	21/08/2003
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AstroGrid BookMarks /JaneDoe/serv2/

File Name	Size	Type	CreationDate
<input type="checkbox"/> MySpaceFolder1		MySpaceFolder	21/08/2003
<input type="checkbox"/> MySpaceFolder2/MySpaceFolder3		MySpaceFolder	22/08/2003
<input type="checkbox"/> JaneDoe.leicester.JESLeicester02.423323326.xml	94KB	VOTable	21/08/2003
<input type="checkbox"/> JaneDoe.leicester.JESLeicester02.459890467.xml	43KB	VOTable	21/08/2003

Progress : Job/Work Flow

- DBMS - VOTable interfaces
- internal message queue system : AstroMQ
- workflow construction tool : not yet
 - looking at Triana

Progress : science tools

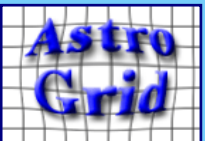
- wrapping, adapting, sharing...
- Image viewing : Aladin (Strasbourg)
- Source extraction : ACE (AstroGrid)
- results plotting : VOPLLOT (India)

Delivered by June 2003

- key international standards
- basic engine room components
- preliminary interface and contents
- public software demonstrations
- OGSi experiments

Planned for Jan 2004

- engine room continued
- larger range of data contents
- scientist useable system
 - feedback from community beta testers
- further international demos



FIN