A PPARC funded project

AstroGrid Intro & Demo

John Taylor

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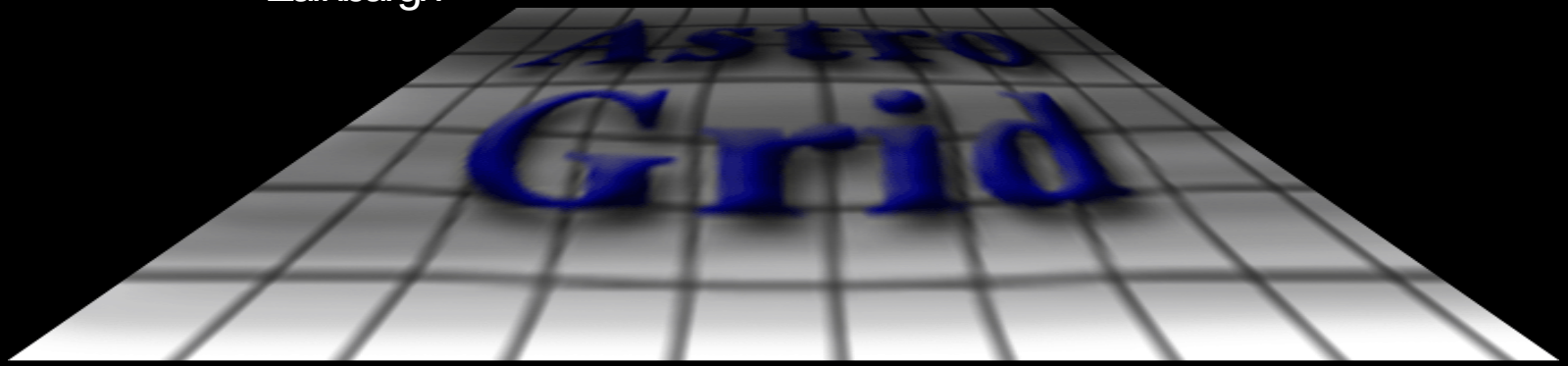
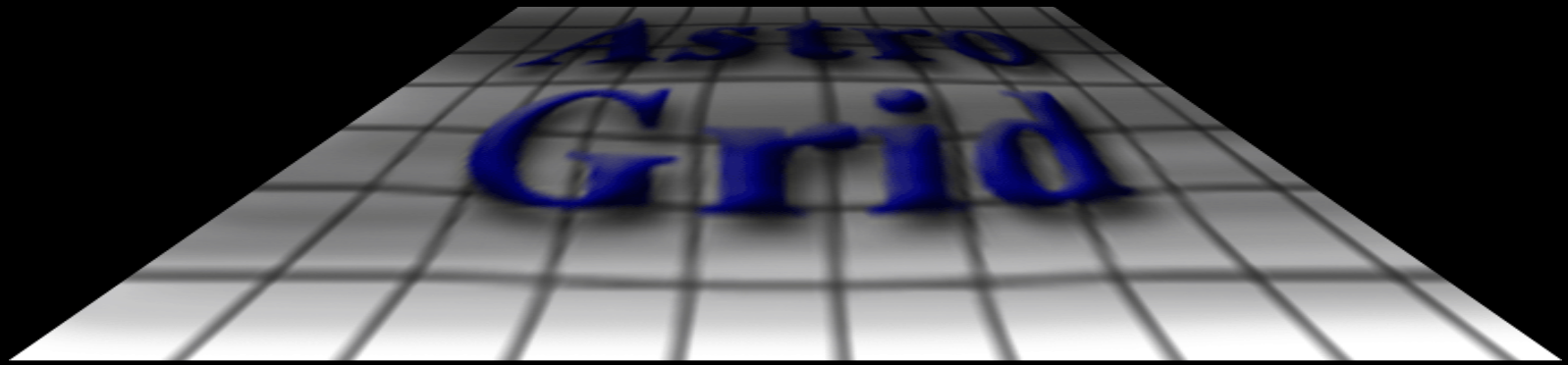
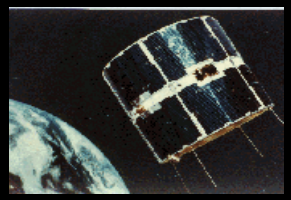


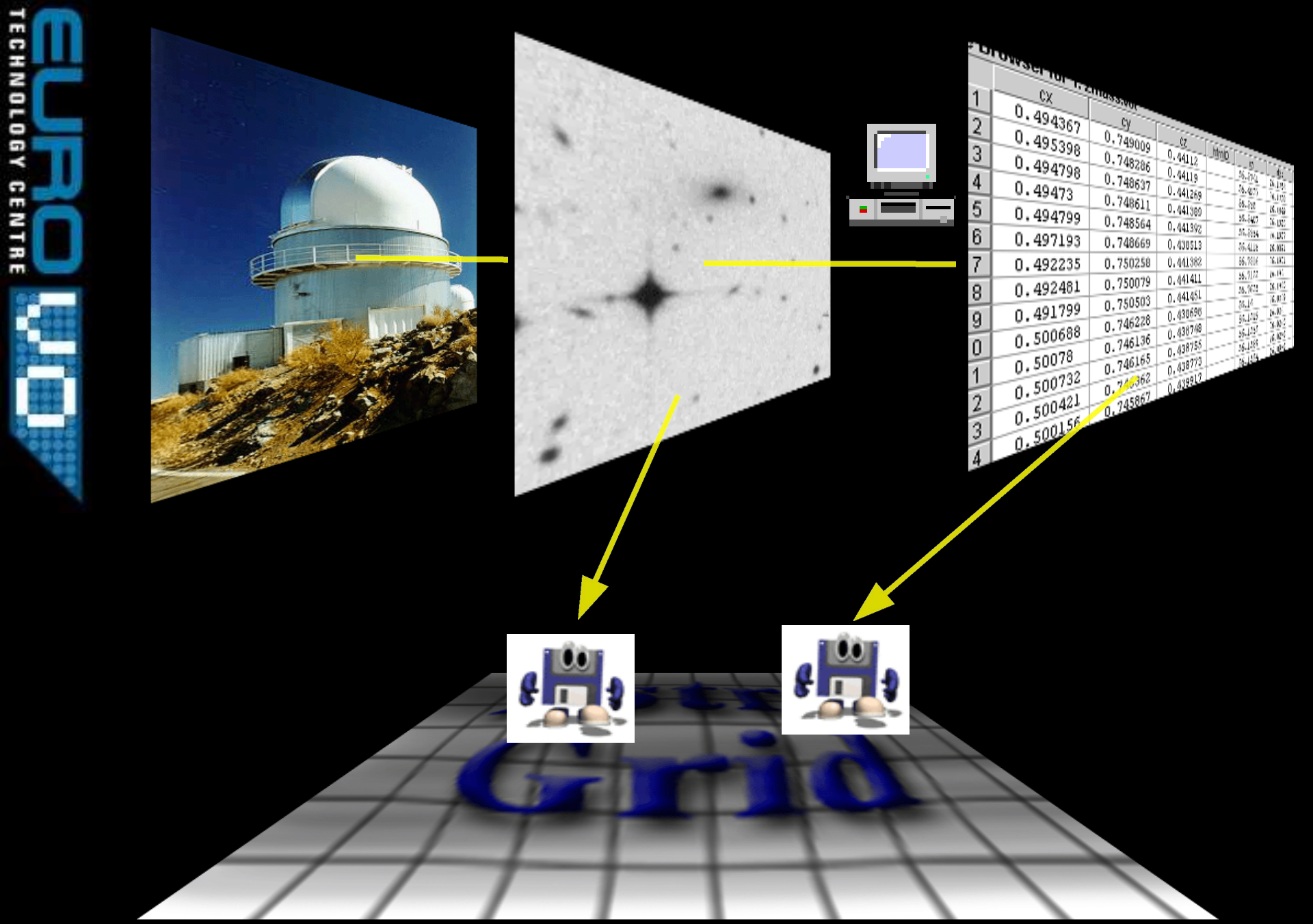
Contents :

- What's a virtual observatory?
- What do you need to make one?
- AstroGrid – glue for the Euro-VO
- Demo
- Plugging into AstroGrid



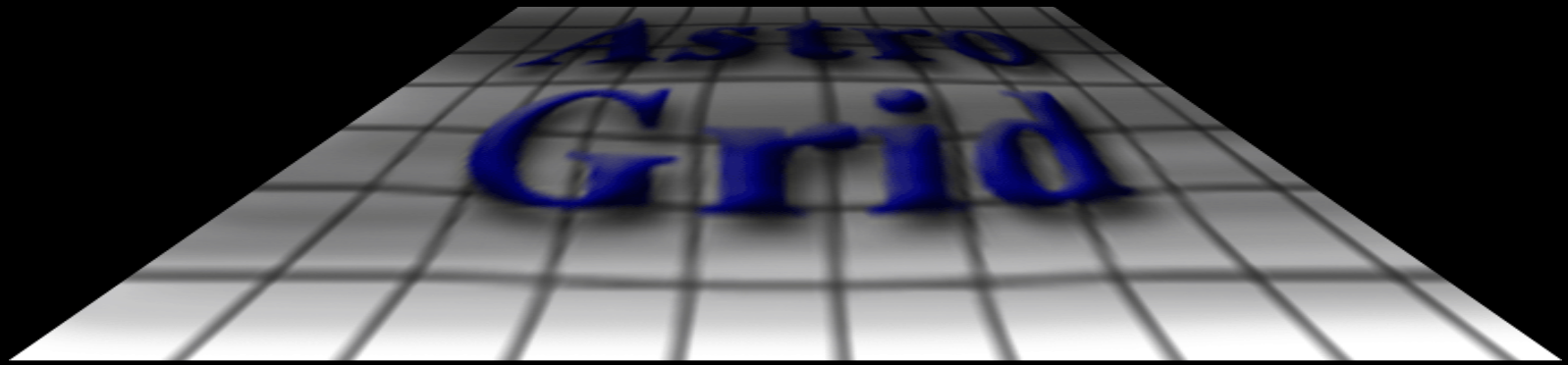


Astro Grid

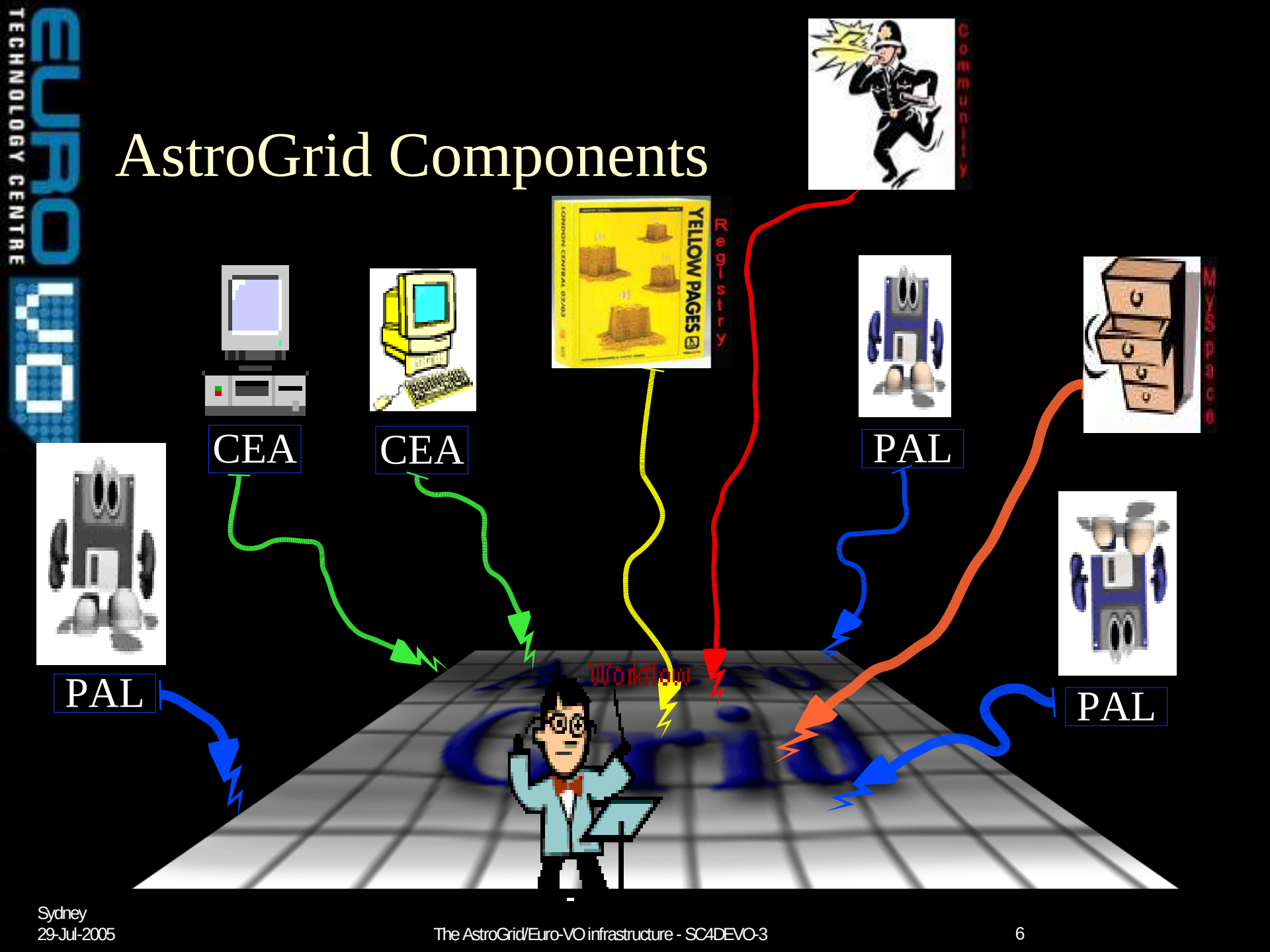

TECHNOLOGY CENTRE
EURO VO
Grid

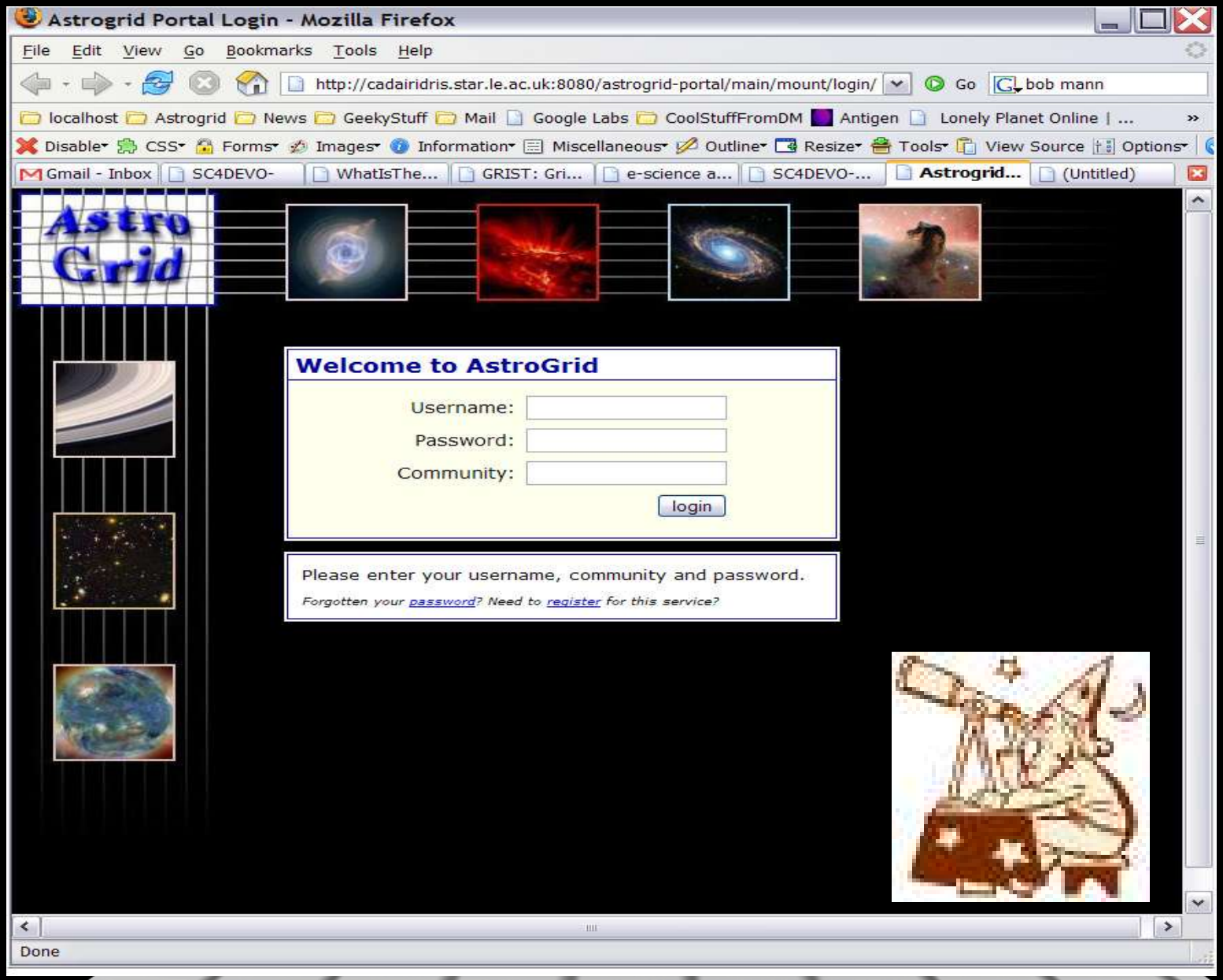
Virtual Observatory

- "The VO vision can be summed up as the desire to make all archives speak the same language – all searchable and analysable by the same tools, all data sources accessible through a common interface, all data held in distributed databases that appear as one."
  Andy Lawrence, 09/2003
- Take all the world's Astronomical data, and all the world's applications and computing power and make it appear that they reside on the user's desktop.

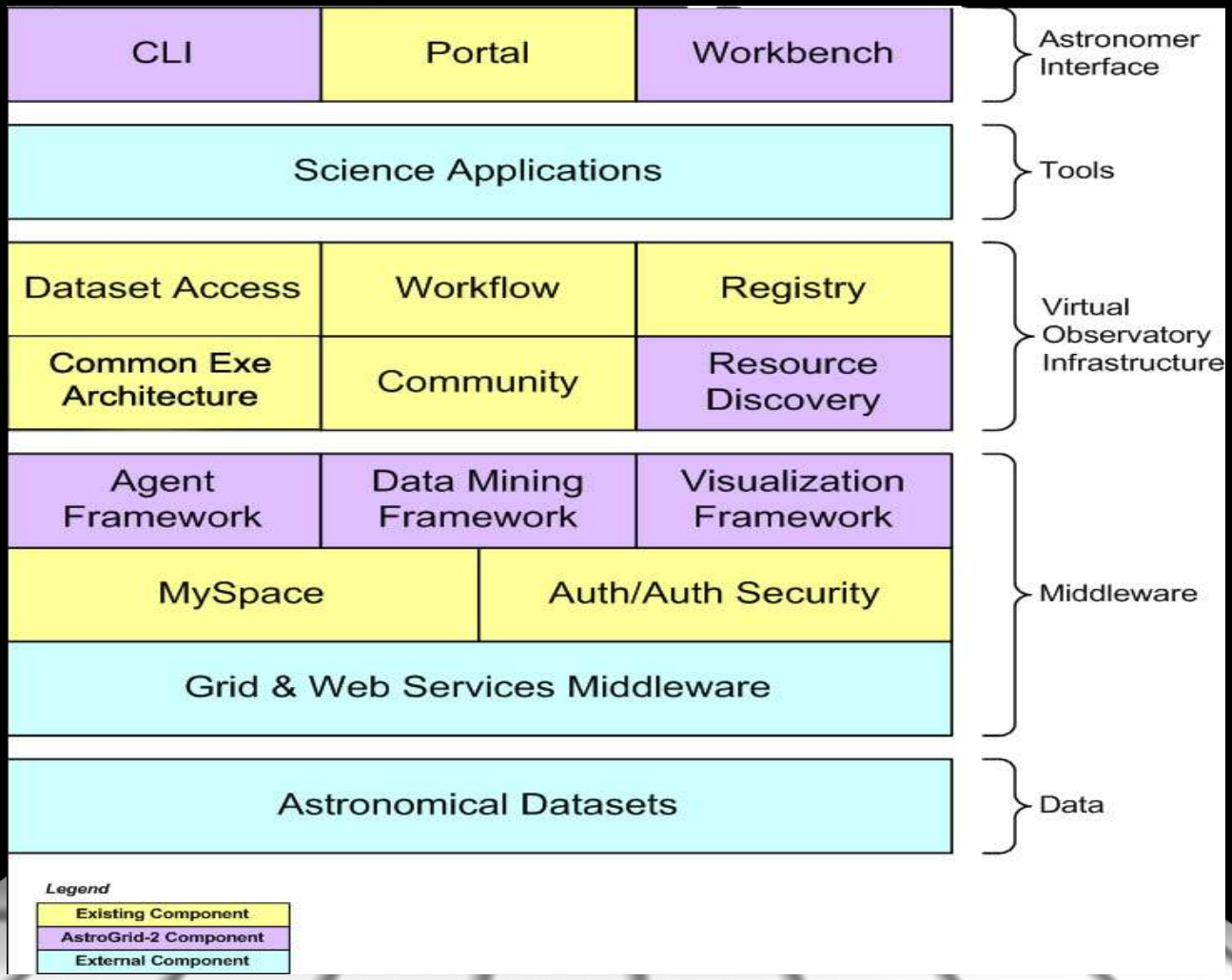


AstroGrid Components



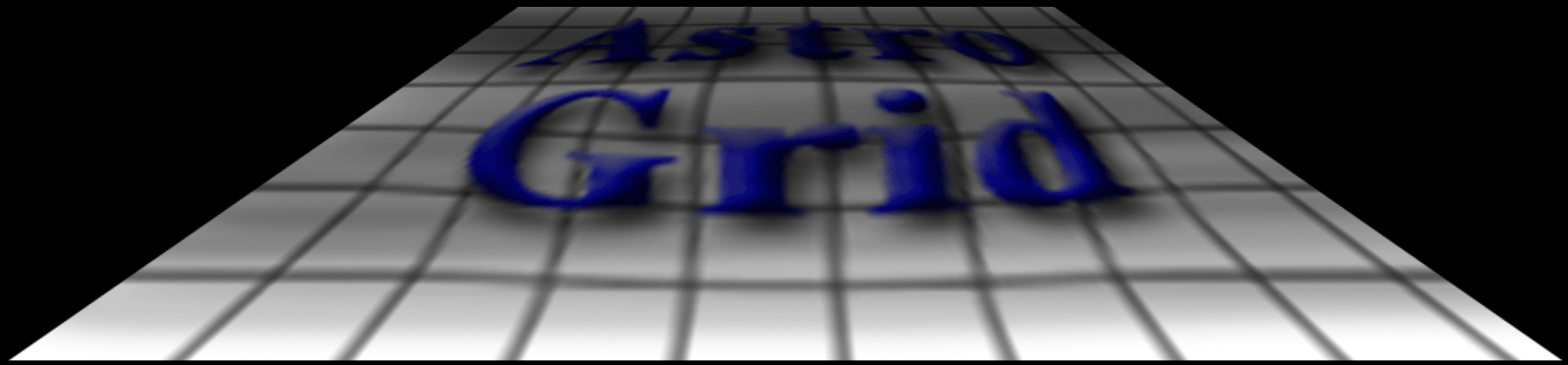

Astrogrid Portal Login - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://cadairidris.star.le.ac.uk:8080/astrogrid-portal/main/mount/login/
Go
bob mann
localhost Astrogrid News GeekyStuff Mail Google Labs CoolStuffFromDM Antigen Lonely Planet Online | ...
Disable CSS Forms Images Information Miscellaneous Outline Resize Tools View Source Options
Gmail - Inbox
SC4DEVO-
WhatIsThe...
GRIST: Gri...
e-science a...
SC4DEVO-...
Astrogrid...
(Untitled)
Astro Grid
Welcome to AstroGrid
Username:
Password:
Community:
login
Please enter your username, community and password.
Forgotten your password? Need to register for this service?
Done

Building a VO - Layer Diagram



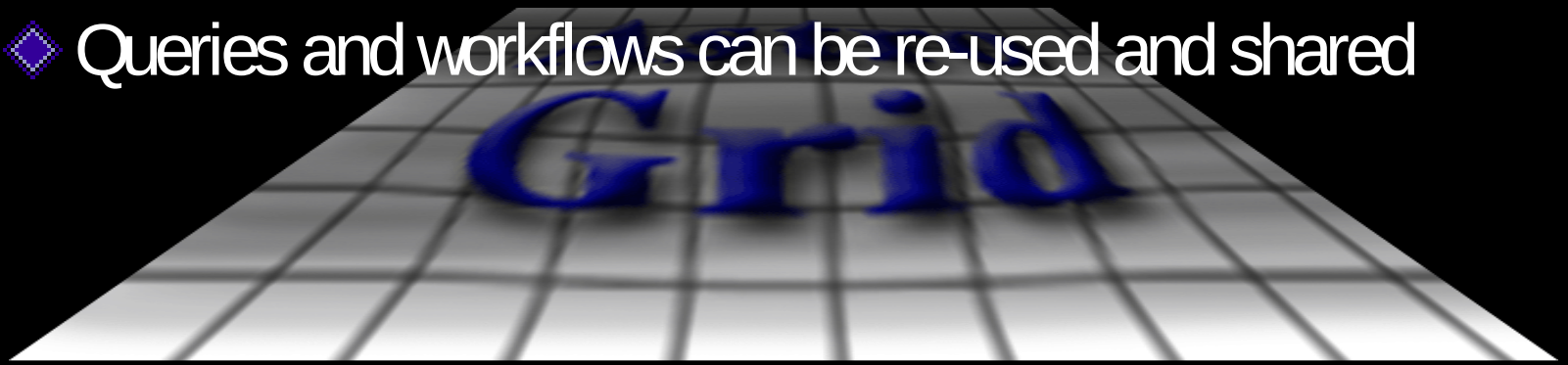
Locating data and applications

- IVO-standard registry
- Registries *harvest* from each other
- Xml-based query language ADQL

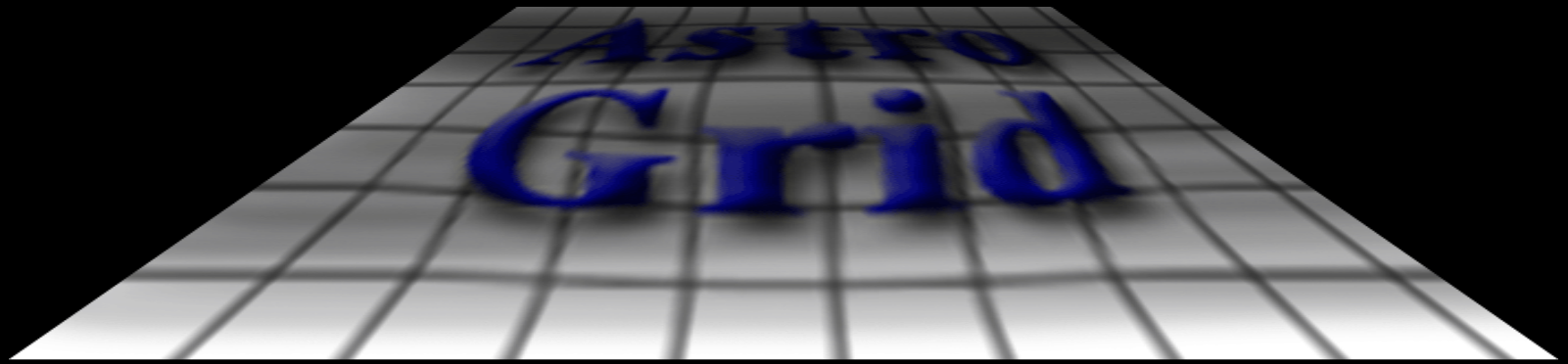


Workflow

- Orchestrate services
- Queries and workflows are designed using the portal – other clients on the way
- Work is run remotely and asynchronously
- Archives searched and results manipulated
- Results are stored in a virtual file system
- Queries and workflows can be re-used and shared



Demo

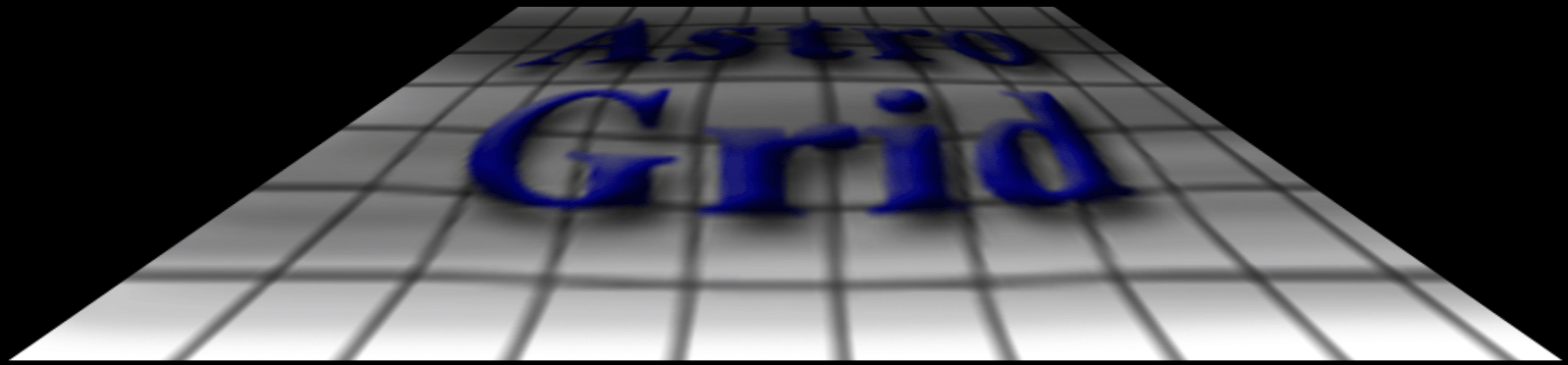


What now?

- AstroGrid Release 1 is up and running **now**

http://www.astrogrid.org/release

http://wiki.astrogrid.org/bin/view/Astrogrid/ReleaseV1Pages



Contacts and info

- Edinburgh:
  - John Taylor jdt@roe.ac.uk (general info, getting an account, installing the software)
  - Bob Mann rgm@roe.ac.uk (collaborations, VOTech DS6 Lead)
  - Martin Hill mch@roe.ac.uk (dataset access)
- Background Info on AstroGrid
  - http://www.astrogrid.org
- Download the Euro-VO AstroGrid software from:
  - http://software.astrogrid.org

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Integrating tools into AstroGrid

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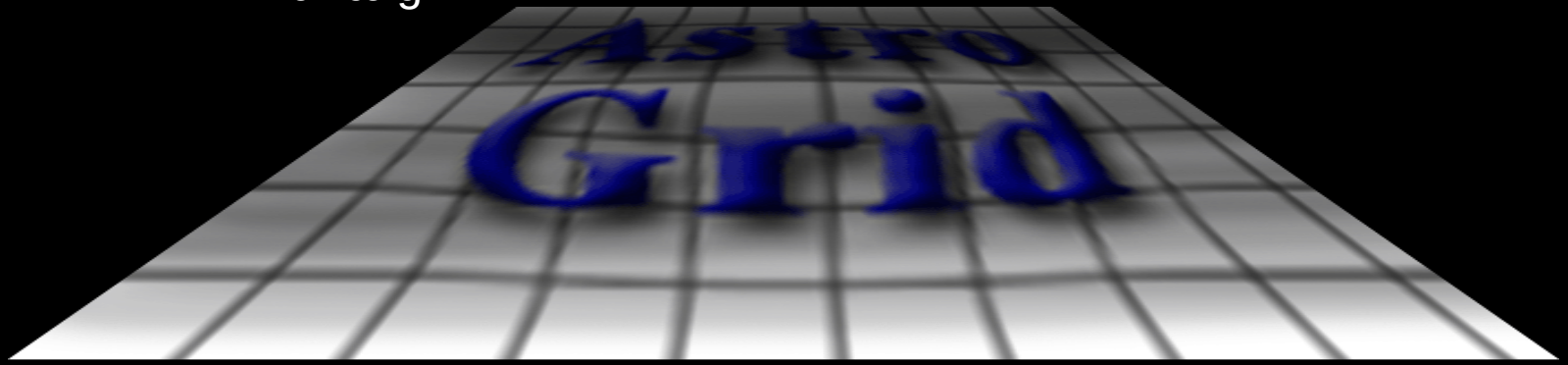
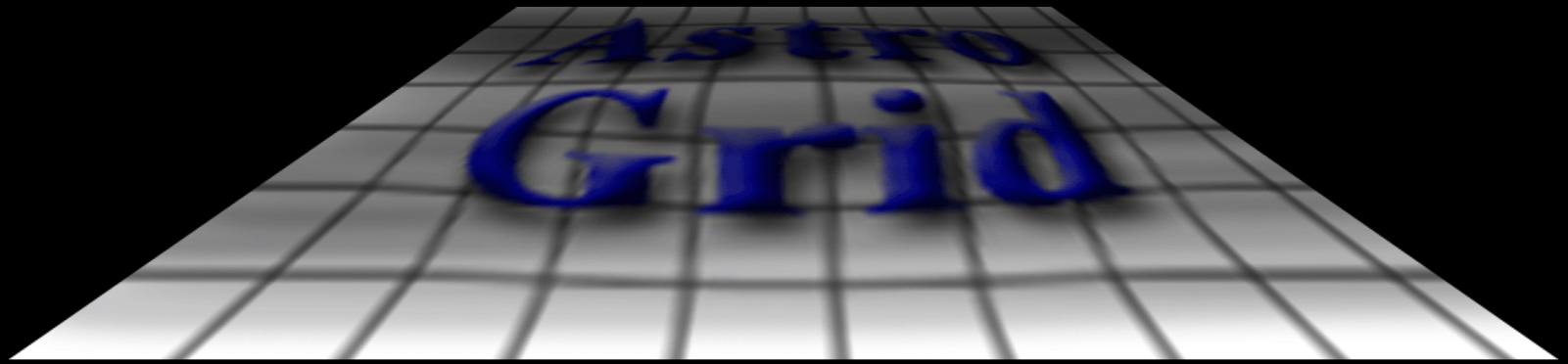


Classes of Tool

Server-side – e.g. xmatch, moviemaker, pixel-z

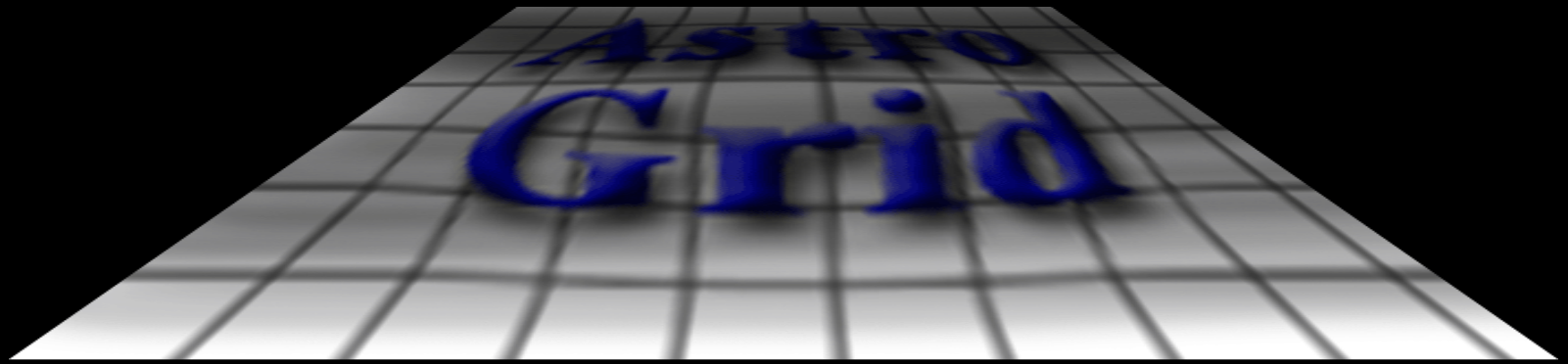
Client-side – e.g. Topcat, Aladin, VizIVO

Mixed – RSV, Google-Earth



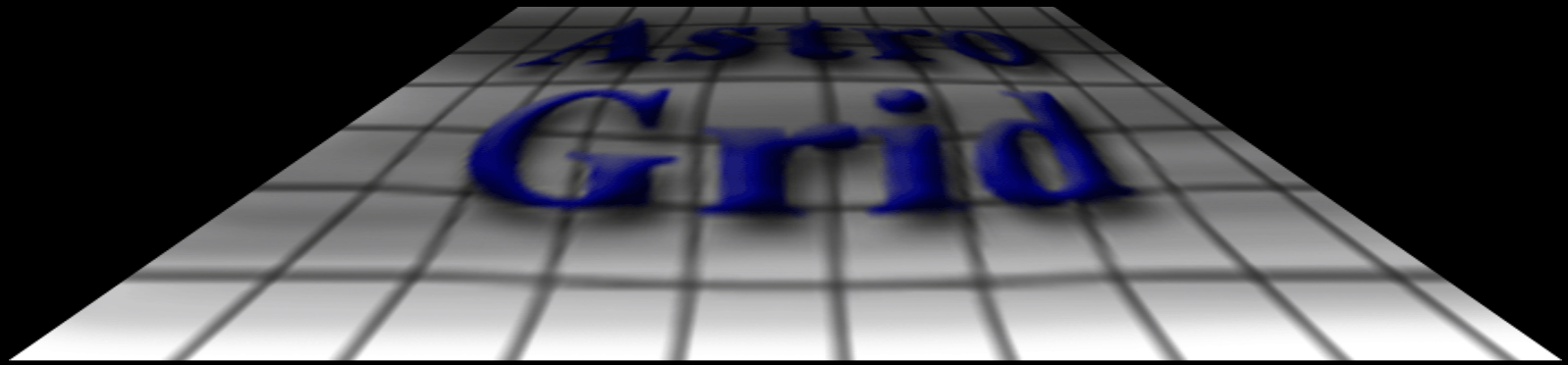
Pure Client Side tools

- Just send and receive data from VOSpace
- Could also query databases or start CEA apps?
- No custom server side application required or bespoke communication protocols

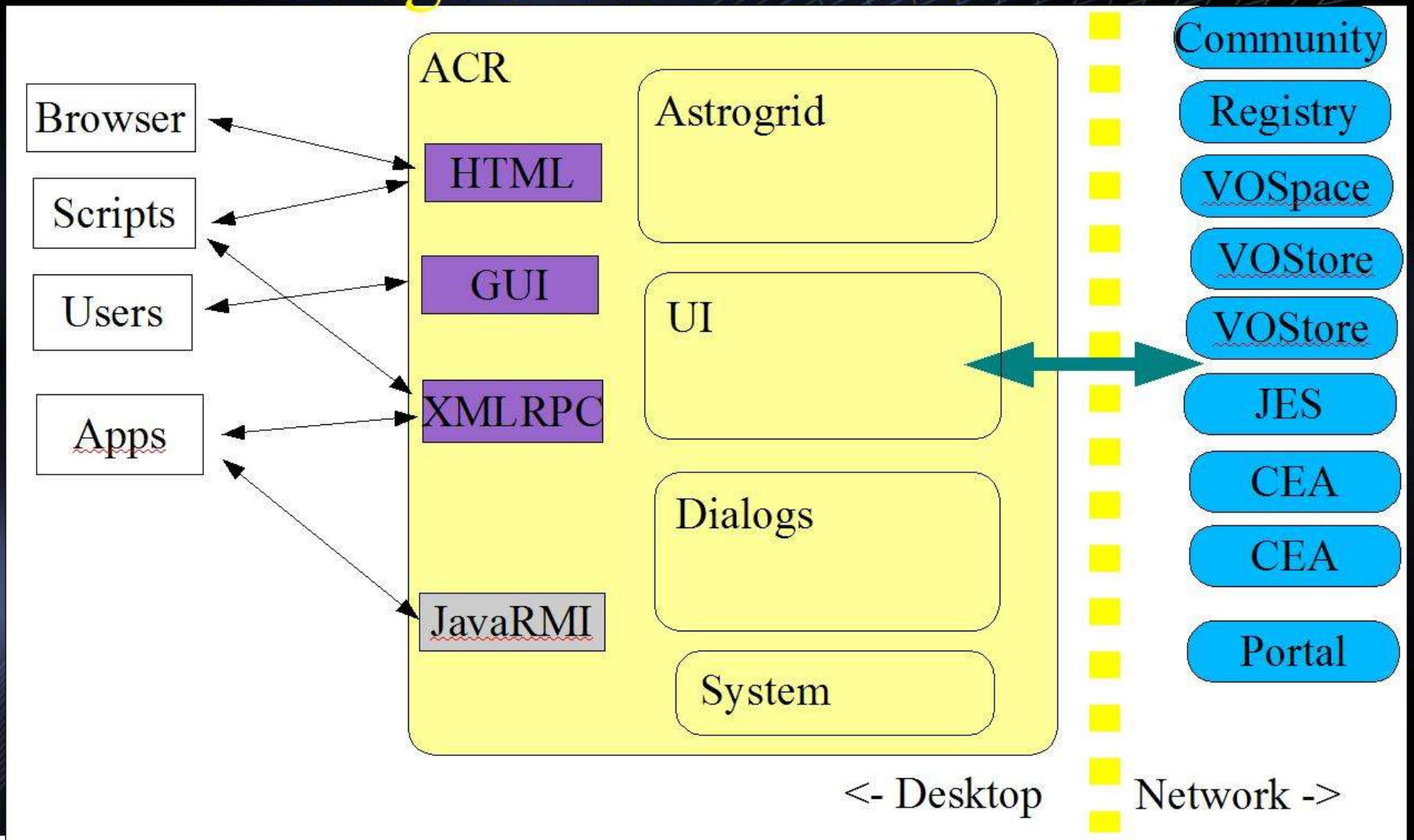


Communicating with AG components

- SOAP interfaces
- AstroGrid client delegates (Java only)
- AstroGrid Client Runtime (ACR)



Astrogrid Common Runtime



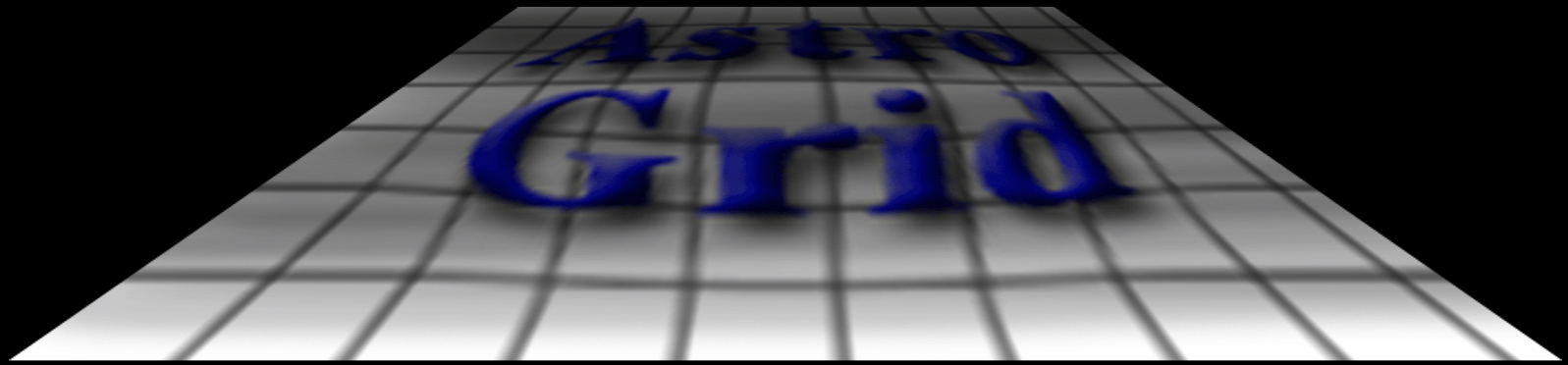
Noel Winstanley - nw@jb.man.ac.uk

Example Code - Java

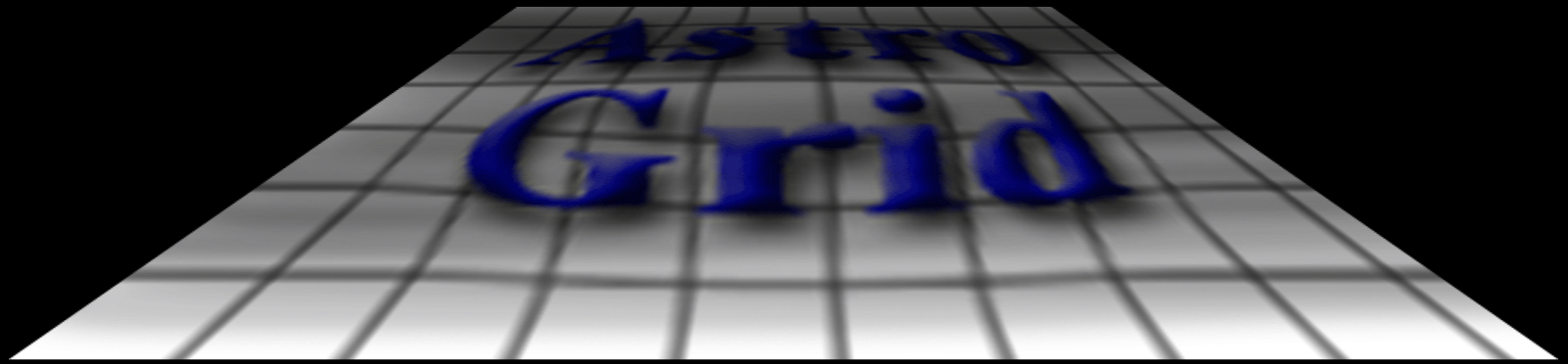
```
serviceURL = new URL("http://127.0.0.1:8001/xmlrpc");
xmlrpc = new XmlRpcClient(serviceURL);
Vector args = new Vector();
args.add("Browse");
args.add(Boolean.TRUE);
String fileURL = (String) xmlrpc.execute
("dialogs.resourceChooser.chooseResource", args);
```

Example Code - Python

```
s = x.Server("http://127.0.0.1:8001/xmlrpc")
resource = s.dialogs.resourceChooser.chooseResource
("Select a file",True)
```

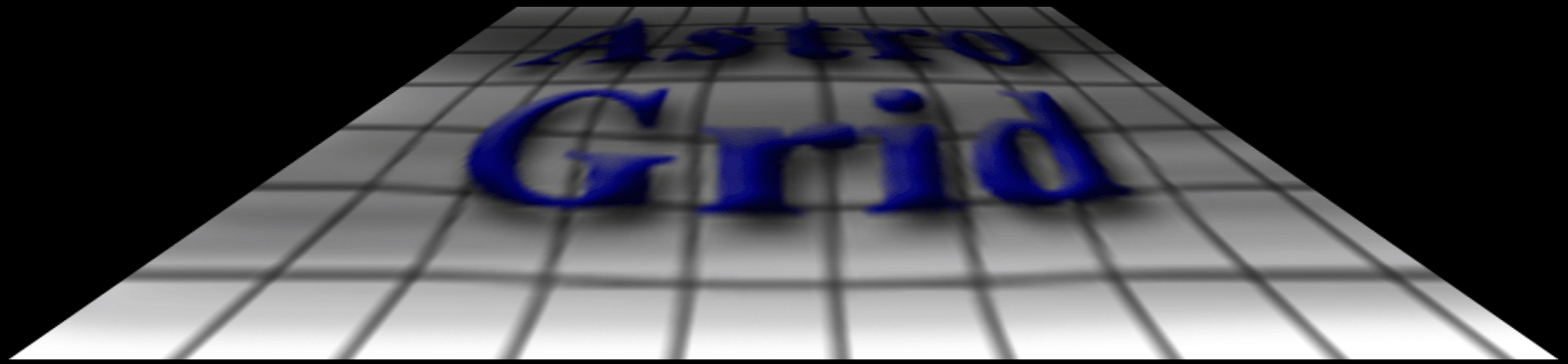


Demo – xmdv tool



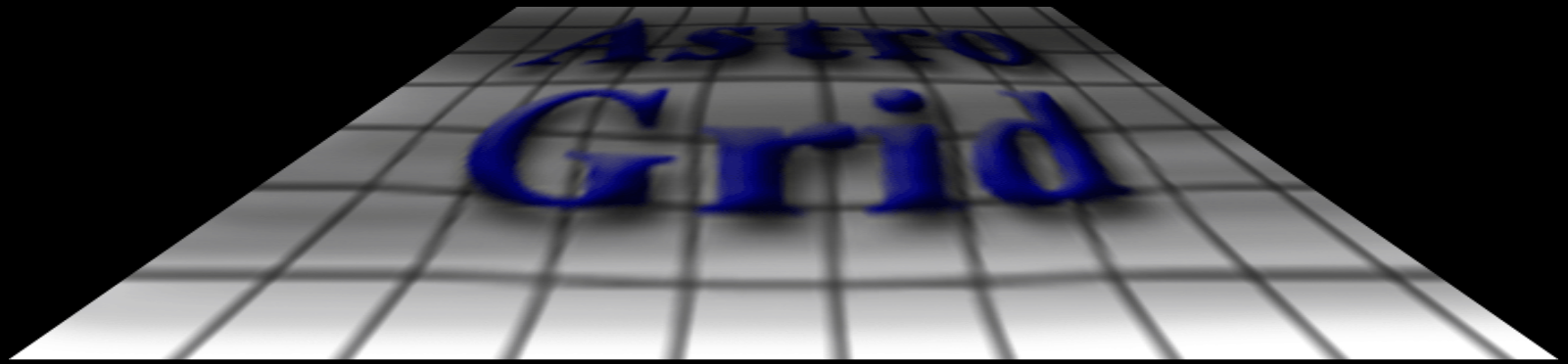
Data format issues

- Each tool will have own data format
- Astronomers love VOTable
- XSLT from VOTable to custom



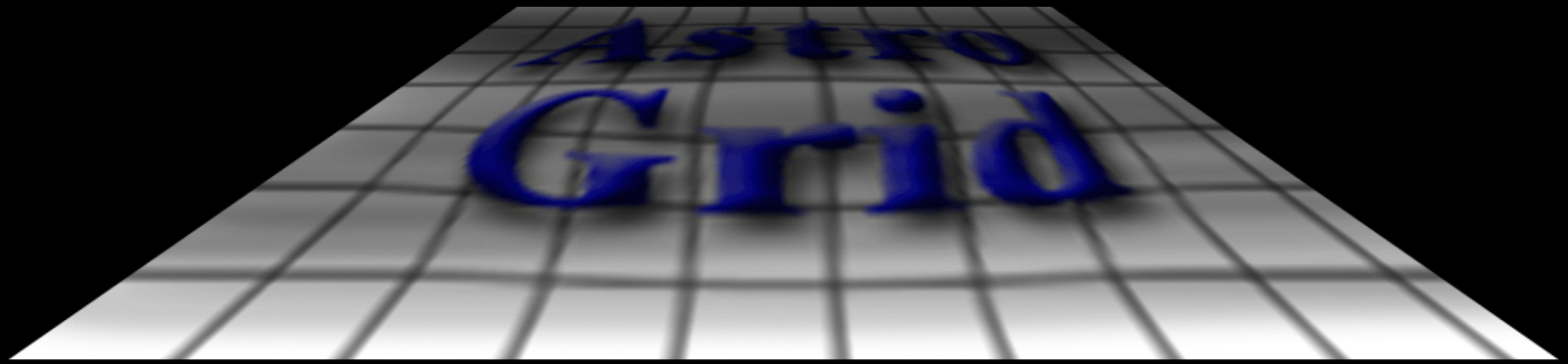
What next?

- VOTech to provide (even) easy (ier) to use library to access the ACR
- Lend me your tools
- Make your tools pluggable



Questions for the floor

- What proportion of tools fall into this “pure client side” category?
- Integrate ACR with the filesystem? Any ideas?
- Can we use an ACR-style technique for inter-tool communication?



Closing info

- Contacts:
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  - Noel Winstanley Noel.Winstanley@manchester.ac.uk (AstroGrid Client Runtime author)
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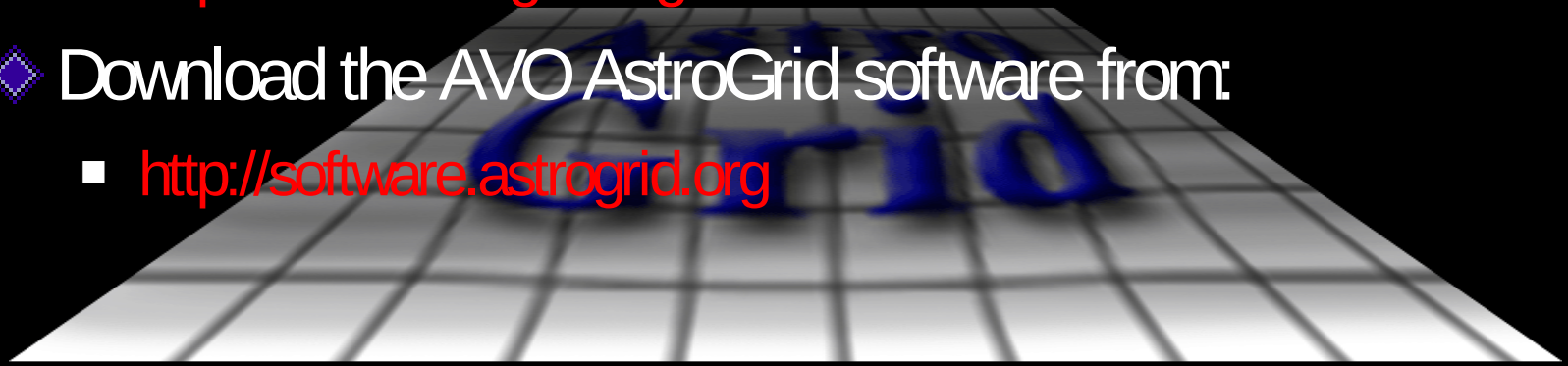
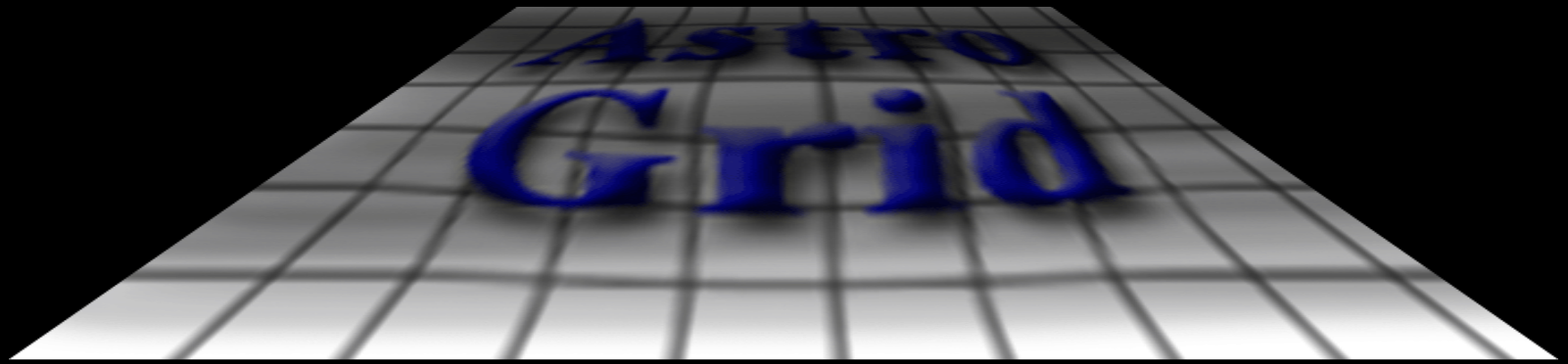
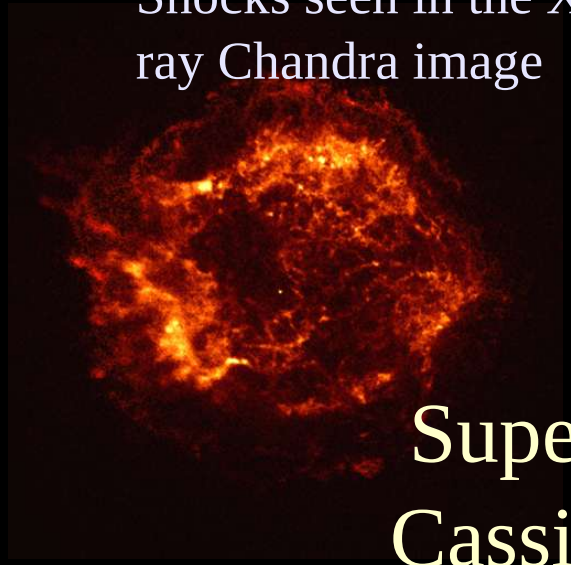


AstroGrid?

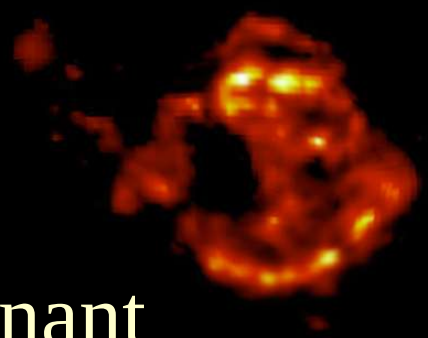
- Duration: Sept 2001 – Dec 2007
  Funding: £7.7M (PPARC)
  Personnel: ~26 (23.4 FTE)
  Goal: Develop VObs Infrastructure
  Deploy UK VObs
  Scope: Astrophysics, Solar, STP, …
  Optical, X-Ray, Radio, …



Shocks seen in the X-ray Chandra image

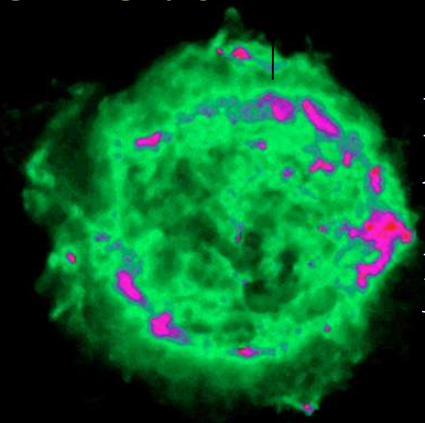


Dust shows in the IR



Supernova Remnant Cassiopeia-A – a 300 year old Supernova

Heavy elements seen in the optical



Mapping e^-s in the magnetic field as revealed by Radio data

Images from Chandra Science Centre