



GRANI Project

Grid-Enabled Access to a National Archive of Nanostructural Imagery

Presented By Brendan Mauger

[Home](#)[People](#)[Affiliations](#)[Timeline](#)[Outcomes](#)[Image Databases](#)[Related Projects](#)

Welcome

Grid-enabled National Archive of NanoStructural Imagery (GRANI)

GRANI is an [ARC funded Special Research Initiative](#).

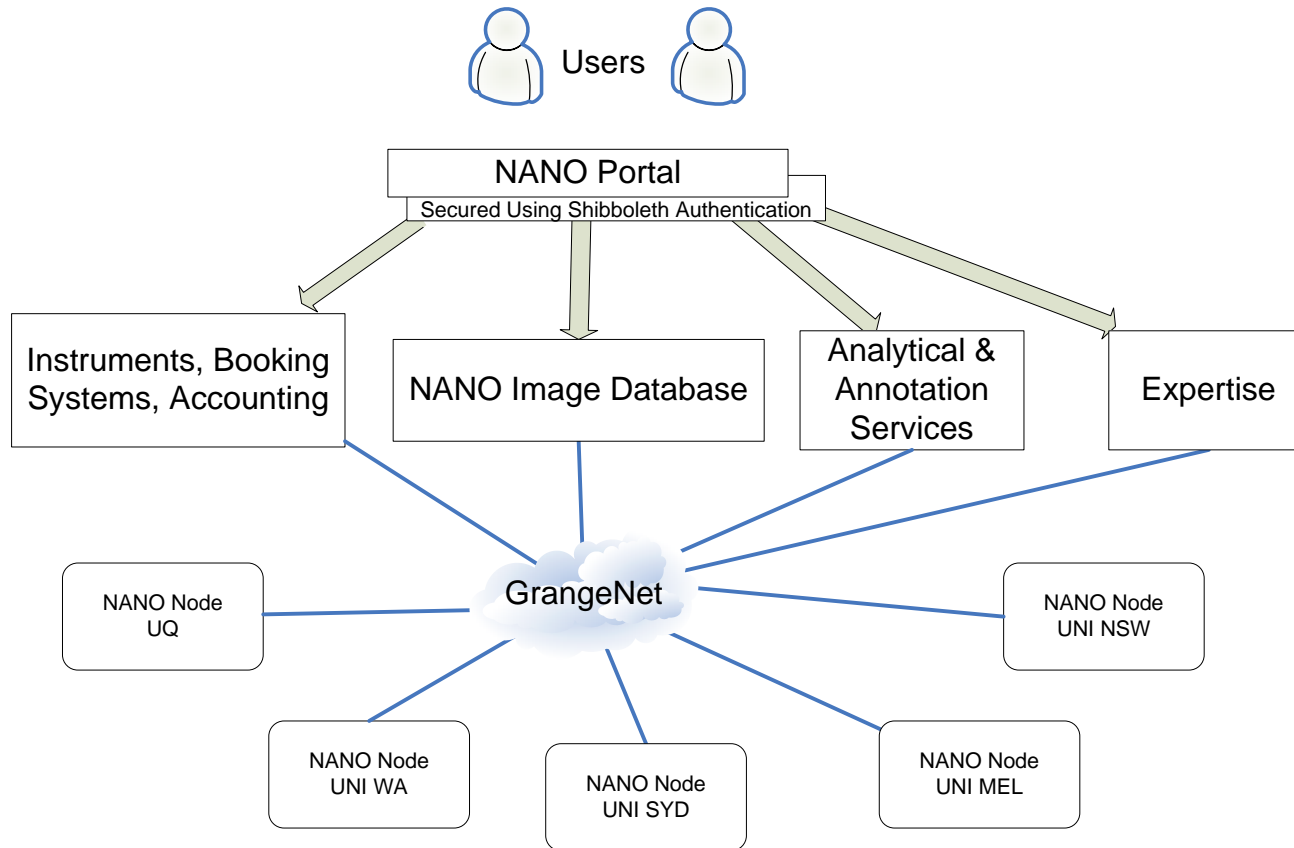
The primary aim of this initiative is to provide the [NANO](#) community with a Grid-aware middleware system that enables the collaborative management and analysis of images and data on a massive scale, by leveraging distributed software components coupled with networked computation and storage platforms.

The NANO community has access to a range of advanced instruments for nanostructural analysis spread across it's [nodes](#). The NANO nodes are connected through the high speed [GrangeNet](#) network. The current network and file sharing technology does not fully utilise the capabilities of the network. This project intends to investigate and ultimately provide a technological solution that will enable the nodes to share their nano-imagery. A distributed data management infrastructure would enable the efficient file sharing and further the development of advanced knowledge mining services.

There is a great demand for software and data management tools that would enable shared, secure image access across the NANO network. The grid-enabled national archive would result in increased collaboration efficiency and reduce costs through reducing the amount of image duplication. An estimated 30% of research and development expenditure is wasted through avoidable duplication.

Information From: [The ARC Funding Application](#)

GRANI Objective



Node Specific Overview



Users

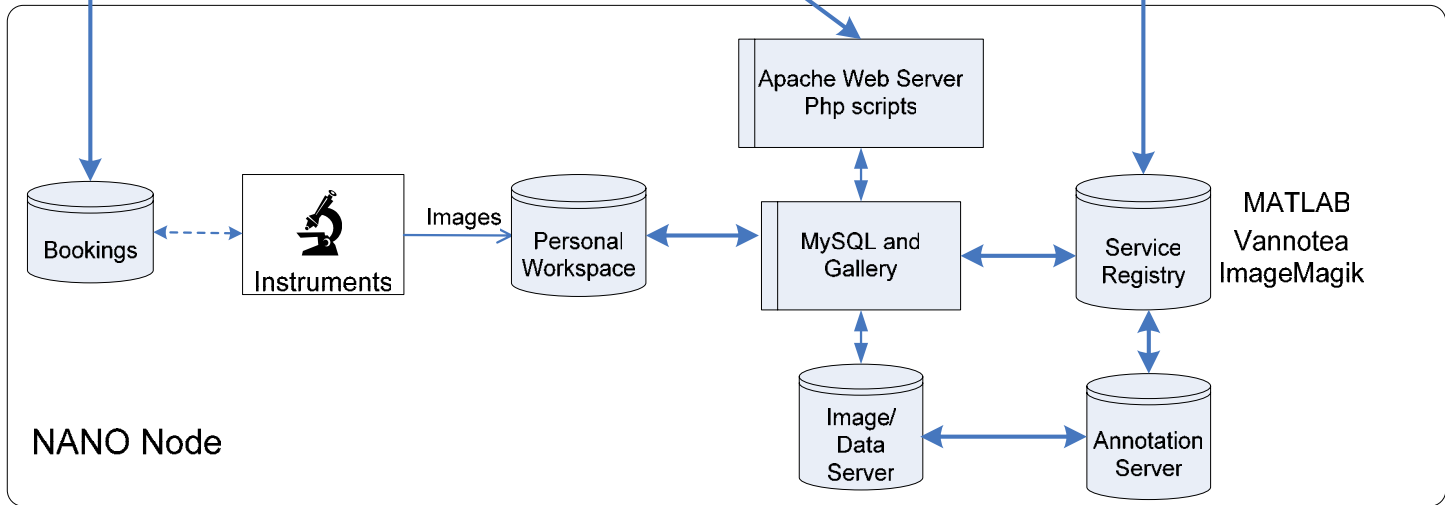
NANO Portal
Secured Using Shibboleth Authentication

Instruments & Booking System

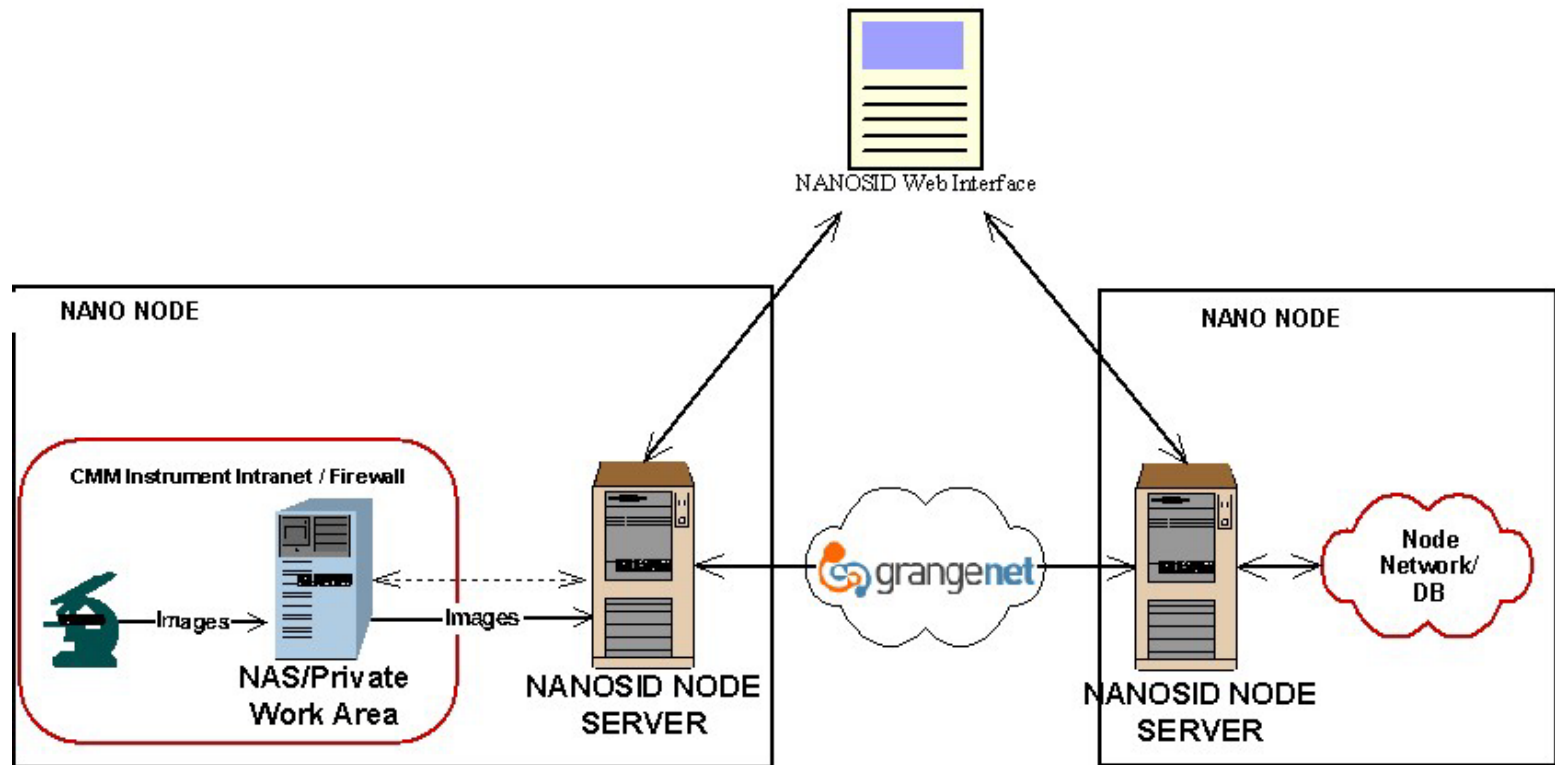
NANO Image Database

Analytical & Annotation Services

Expertise



NANOSID Hardware Infrastructure Diagram



Current Status

- Focussing on JEOL 6460LA (SEM microscope with Analysis Station Software)
- Building software tools to enable:
 - Storage of image and metadata (in XML) to a secure private personal workspace
 - Uploading of images to the server and metadata to a MySQL database
 - Secure Web search, browse and retrieval interface
- Shibboleth to implement authentication and access control

Web Interface Design Progress



NANO IMAGE DATABASE



[Please Logon](#)

Welcome to the **NANO Scientific Image Database**

Please login

Enter your username:

Enter your password:

Login

Created through the [EPAN](#) E-research initiative.



NANO IMAGE DATABASE

User: Lisa

[Home](#)

[My Account](#)

[Search](#)

[My Private Files](#)

[Publish My Files](#)

[View Collections](#)

[Create a New
Collection](#)

[Delete Collections](#)

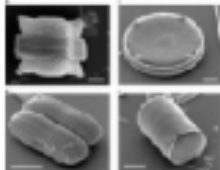
[Assign Privileges](#)

Collection: Alpha

Hosted: <http://localhost/NANOSID/>



<http://localhost/NANOSID/Collections/Alpha/otobothrium2.j>



Gallery

Options

- Add Album
- Add Items
- Edit Album
- Edit Permissions
- Rearrange Items
- Reorder Items
- View Comments

Navigation

[Back to album](#)

Permissions

Each item has its own independent set of permissions. Changing the parent's permissions has no effect on this item, but still grant full access to this item, or vice versa. The most efficient way to use this permission to grant permissions to a specific user, you can add (or remove) the user from the appropriate group.

Owner

This item is owned by user: admin (Gallery Administrator)

New owner

Apply new owner to sub-items

Apply changes

This item has sub-items. The changes you make here can be applied to just this item, or you can apply change into the existing permissions of the sub-items and may be very time consuming if you have many remove users from groups whenever possible. Changes are applied to sub-items by default.

Group Permissions

Group name	Permission	Action
Everybody	[core] View all versions	[core]View item <input type="button" value="Remove"/>
Site Admins	All access	
Group1	All access	All access <input type="button" value="Remove"/>

New Group Permission

User Permissions

User name	Permission	Action
user1	All access	All access <input type="button" value="Remove"/>

New User Permission

- [comment] Add comments
- [comment] All access
- [comment] Delete comments
- [comment] Edit comments
- [comment] View comments
- [core] Add sub-album
- [core] Add sub-item
- All access
- [core] Change item permissions
- [core] Delete item
- [core] Edit item
- [core] View item
- [core] View all versions
- [core] View resized version(s)
- [core] View original version
- [comment] Add comments

Assign
Access
Permissions



Plan

- Get image/metadata storage working at UQ
- Install it at Uni. Of Sydney
- Build single secure Web search interface across both repositories
- Attend next Shibboleth workshop
- Integrate:
 - registry of image processing services
 - annotation services

Longer term

- In parallel with NCRIS
- ‘It would be highly desirable to link the centres to a nationally networked database and capability for interpreting structural data at the nanoscale.’
- Acquire eResearch Implementation Committee funding for ongoing development beyond GRANI
 - Telepresence?
 - Tele-observation
 - Tele-operation
 - Long term archival of images and experiments
 - Services for comparing and overlaying output