

GridPP

UK Computing for Particle Physics

Instant UI

Chris' concept:

Why not take an emi standard server node,
add the UI package to it, then...
automatically configure it
directly from the Ops Portal with
VomsSnooper?

- This talk is scheduled for 20 minutes, but it won't last that long; it only took me 20 minutes to implement instantUI in the first place...
- OK, it took a little longer to handle the release control and testing, but you get the idea - it's based on work done previously, and reused with a new name.

- This work tries to make life easier for new users or small VOs without large admin resources. I try practical, cheap and easy ways to reduce unnecessary complexity.
- This might help to maintain standards in an era of Flat Cash.
- I focus quite a bit on VO records from the Operations portal because there are a lot of them, they are fiddly to get right in the first place, they change fairly regularly and they are vital for all VOs.

- The basic way for users to submit jobs to the grid is via a User Interface (UI) system. A UI is similar to a basic grid server node (but it runs no services.)
- The complexity of setting up a UI may be off putting for new user or small VOs.
- For example, I had interest in the Grid from a lecturer in Pharmacology / Drug Design in a university in SE, but it fell through because of the set-up difficulty.
 - BTW: drug design/molecule docking uses CPU intensive tasks that are often embarrassingly parallel and produce low volumes of output; an ideal “Small VO” application area.

The basic steps to build a UI are:

- ① Obtain a grid certificate for the user.
- ② Enroll the user in a VO.
- ③ Build a server node using standard site provisioning system.
- ④ Create a user and her dependencies.
- ⑤ Install the UI package and its dependencies.
- ⑥ Create a site-info.def/vo.d suite with data gleaned from ops portal and run Yaim to configure system.
- ⑦ Test the UI with user jobs.

This is onerous, especially for a new VO/user, perhaps at a site with little grid experience. Some steps are necessarily complicated, others are unnecessarily complicated.

Instant UI does not concern itself with steps 1 to 5 (Linux system, user accounts, grid certificates, VO membership and standard package installation). These steps are covered in existing EMI documentation. But Instant UI does concern itself with step (6) - getting VO data from the ops portal and turning it into `site-info.def/vo.d`. This step is unnecessarily complex, error prone and likely to become stale.

It would be good to relieve new users from this task.

A tool (https://www.gridpp.ac.uk/wiki/VomsSnooper_Tools) has been developed to automate the gleaning and formatting of VO data from the operations portal.

It comes with a suite of “use cases”; various little house keeping tasks that it is useful for, such as updating the Approved VOs document or making LSC file etc.

It was a very easy change to add a new use case to dispense with step (6), i.e. the gleaning and formatting the VO data. It is hoped that this will make life easier for small VOs. No new software was needed - just a small shell script to pull existing software together.

- The documentation is available in the GridPP wiki, but I'll step through it briefly.
- https://www.gridpp.ac.uk/wiki/User_Interface_%28UI%29_to_support_approved_VO_s
- To get the new user online, she'll need to obtain a Grid certificate and get enrolled with the VO of her choice. Some details on this are given in the link.
- Admin at the new site will still need to create a SL server and install the EMI UI package and its dependencies. This is outside the scope of the talk, but the steps are covered in detail in the link.

This is where Instant UI makes its brief appearance. First you have to install it. It comes in VomsSnooper. It's available in a Yum repository and these are the coordinates:

```
$ cat /etc/yum.repos.d/sysadmin.hep.ac.uk
```

```
[sysadmin.hep.ac.uk]
name=sysadmin.hep.ac.uk
baseurl=http://www.sysadmin.hep.ac.uk/rpms/fabric-
management/RPMS.vomstools/
enabled=1
gpgcheck=0
priority=100
```

To install and use as root:

```
$ yum install vomssnooper  
$ cd /opt/GridDevel/vomssnooper/usecases/instantUI/  
$ ./installUI.sh
```

That's all there is to it. There are options described in the wiki link, but in its basic form, it will download the VO data for the Approved VOs, format it into a default site-info.def/vo.d, and run yaim to configure the UI. Assuming the user joined an Approved VO, the UI is now available to run jobs.

BTW: As a side effect, you can use the instantUI script to configure the main VO settings for any type of grid server, by commenting out bits of the script. Think of it as a free gift!

- Tests:

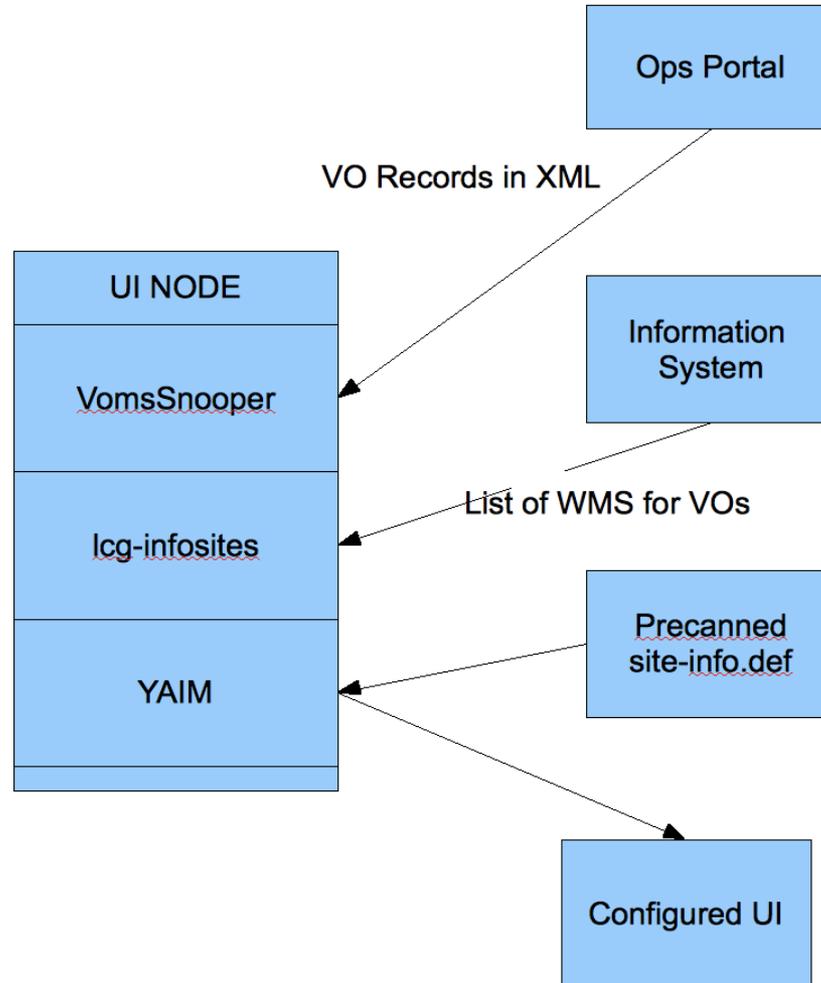
No “wizard” would be complete unless some tests are done to show that it’s up and running. The Instant UI documentation in the wiki link gives the user a small suite of tests to show that grid submission works (or does not).

- Ongoing Maintenance

The VOMS records within the Operations Portal are occasionally edited by VO managers. It's therefore necessary to keep abreast of changes to VOs that concern you and to amend the configuration as necessary. To reconfigure the UI, it is necessary to re-run the `instantUI.sh` script.

The Bill Gates Moment

- I'll show you what `instantUI.sh` does inside.
- It makes some checks that the environment is OK, and cleans up any old cruft from any previous run.
- It downloads the full Ops Portal VOID card records in XML format.
- It uses the XML parser in `VomsSnooper` to format the Approved VOs (at the time of writing) into `site-info.def/vo.d` format.
 - Note: you can customise it here by providing your own VO list in the `vos.txt` file.
- Then `instantUI.sh` uses the `lcg-infosites` command to acquire a list of `WMS_HOST` servers for each vo and merges that into the `site-info.def/vo.d` configuration.
 - Note: this implies the UI must be connected to the Internet.
- Finally, `instantUI.sh` transfers the generated config into position and runs `Yaim`.
- As it's a shell script, you can amend it to do any other VO records house keeping task you can think up.



- As is now clear, the term “Instant” UI was rather optimistic - there is quite a bit of complexity just getting up to the starting point.
- But once it’s done, the actual UI config is very trivial.
- It is work in progress. The most laborious and error prone task has been eliminated as a consideration, but perhaps more steps are needed to further simplify the run-up process.
- But it is likely that such refinements are subject to a law of diminishing return (long hanging fruit etc. etc.) due to changes to the environment.

- The wiki documentation:

https://www.gridpp.ac.uk/wiki/User_Interface_%28UI%29_to_support_approved_VO_s

- VomsSnooper:

https://www.gridpp.ac.uk/wiki/VomsSnooper_Tools

- Mark Slater's manual procedure:

https://www.gridpp.ac.uk/wiki/Installing_a_UI_for_Grid_Submission

- Grid account set up process :
<https://edms.cern.ch/file/722398/1.4/gLite-3-UserGuide.pdf>
- Tom Whyntie's guide (WIP):
https://www.gridpp.ac.uk/wiki/Using_instantUI_on_a_CERN_SLC6_VM
 - BTW: Tom tested the idea out.

- Yaim set to be reduced or dropped. So, reverse Yaim and reimplement?
- Or puppet integration (as well, instead)?
- What about the run up process; that needs to be simplified too, i.e. H/W, O/S, packages, Unix users, grid certificates, VO membership.
- What about simplified submission mechanisms for neophytes? Do we need a standard for that?

- What about a standard storage manager for neophytes?
- Make the Grid the natural choice for CPU and disk intensive applications (drug discovery/docking is a good example).
- Use to resurrect interest in the Grid within Pharmacology / Drug Design in HE and elsewhere.
- Poss. integration UI Tar Ball (Matt Doidge) and even CernVM work (Tom Whyntie)
- More work required on standards for VO record lifecycle.

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