



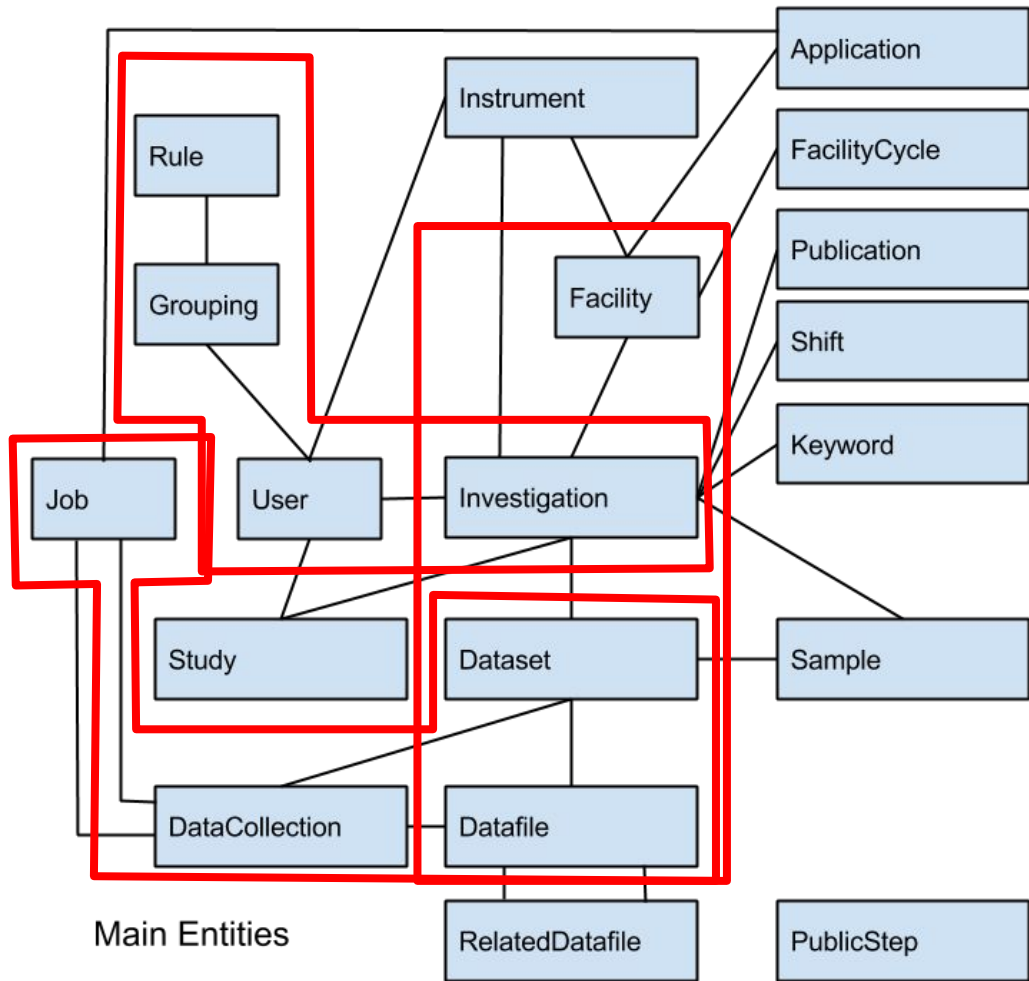
Overview

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Please do interrupt with any questions

The model

- Diagram only shows high level view.
- Many to many on diagram relationships are actually implemented by two many to one relationships



Datafile

A data file

Uniqueness constraint: dataset, name

From auto generated
documentation

The schema

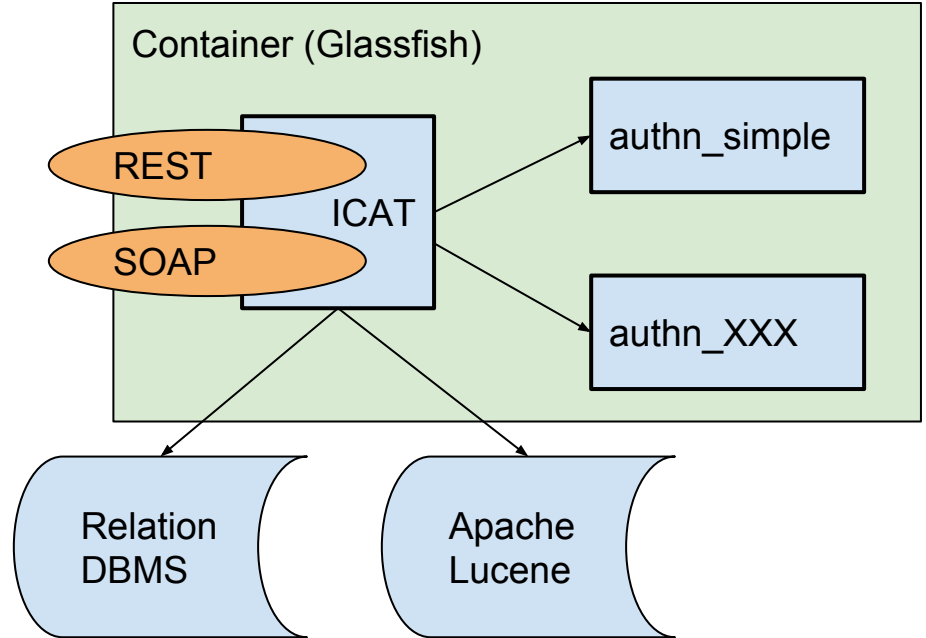
- Entities are identified by an object in the many to one direction and one or more naming fields.
 - For example a Datafile is identified by its Dataset and a name. This also means that a Datafile cannot exist without a Dataset and that it can only be 'part of' one Dataset.

Card	Class	Field	Description
0,*	DataCollectionDatafile	dataCollectionDatafiles	
0,*	RelatedDatafile	sourceDatafiles	
1,1	Dataset	dataset	The dataset which holds this file
0,*	RelatedDatafile	destDatafiles	
0,*	DatafileParameter	parameters	
0,1	DatafileFormat	datafileFormat	

Field	Type	Description
name	String [255] NOT NULL	A name given to the file
fileSize	Long	Expressed in bytes
location	String [255]	The logical location of the file - which may also be the physical location
checksum	String [255]	Checksum of file represented as a string
doi	String [255]	The Digital Object Identifier associated with this data file
description	String [255]	A full description of the file contents

ICAT Server

- Java EE application inside container
- REST and SOAP interfaces
- Pluggable authenticators
- RDBMS and Lucene
- Rule based authorization



- Generic calls to:
 - Write
 - Update
 - Search
 - Delete

Code using REST API from Python

```
from icat import ICAT
icat = ICAT("http://localhost:8080")
session = icat.login("simple", {"username":"fisher", "password":"fisher"})
facility = {}
facility["name"] = "Test Facility"
entity = {"Facility":facility}
fid = session.write(entity)[0]
session.search("SELECT f.name, f.dataset.name from Datafile f")

[[u'LIC.txt', u'ds1']]
```

Equivalent SOAP (for search) in Java

```
List<Object> r = icat.search(sessionId, "SELECT f FROM Datafile f INCLUDE f.dataset");
for (Object o : r) {
    Datafile df = (Datafile) o;
    System.out.println("'" + df.getName() + "' '" + df.getDataset().getName() + "'");
}
```

'LIC.txt' 'ds1'

JPQL

Compare JPQL:

```
SELECT f.name, f.dataset.name from Datafile f
```

With SQL:

```
SELECT f.name, s.name from DATAFILE f, DATASET s WHERE f.dataset_id = s.id;
```

```
+-----+-----+  
| name   | name |  
+-----+-----+  
| LIC.txt | ds1  |  
+-----+-----+
```

Rule Based Authorization

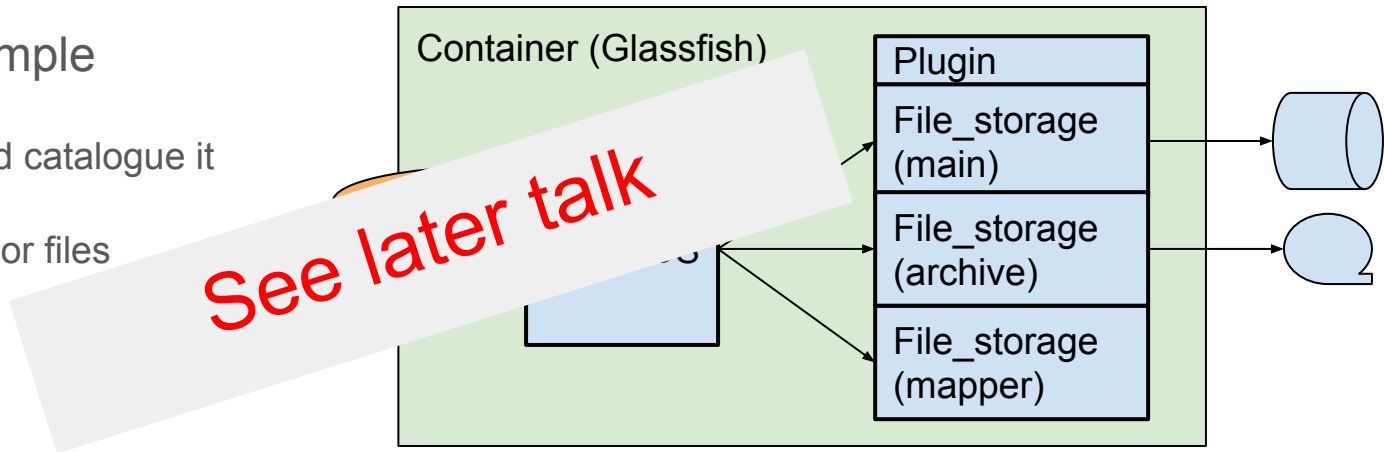
- Rules to implement a policy
- Such as:
 - All data is public after n days
 - All investigation records are public
 - Those users related to an investigation can read and their related Parameters
- JPQL SELECT statements define a View.
- Can also define permissions for those in a “group”

Tom will discuss later



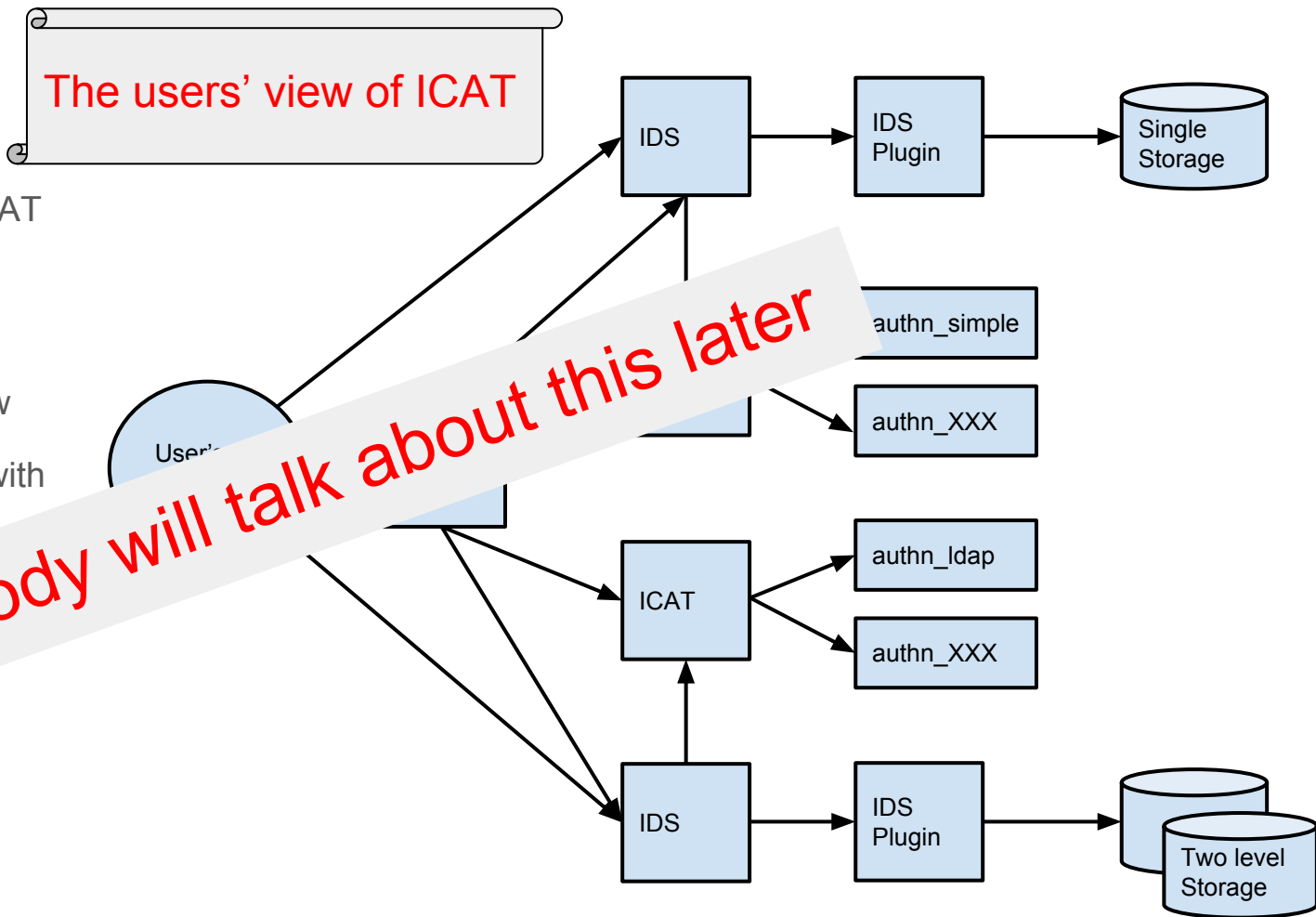
IDS Server

- Conceptually simple
 - Store a file and catalogue it
 - Retrieve a file or files



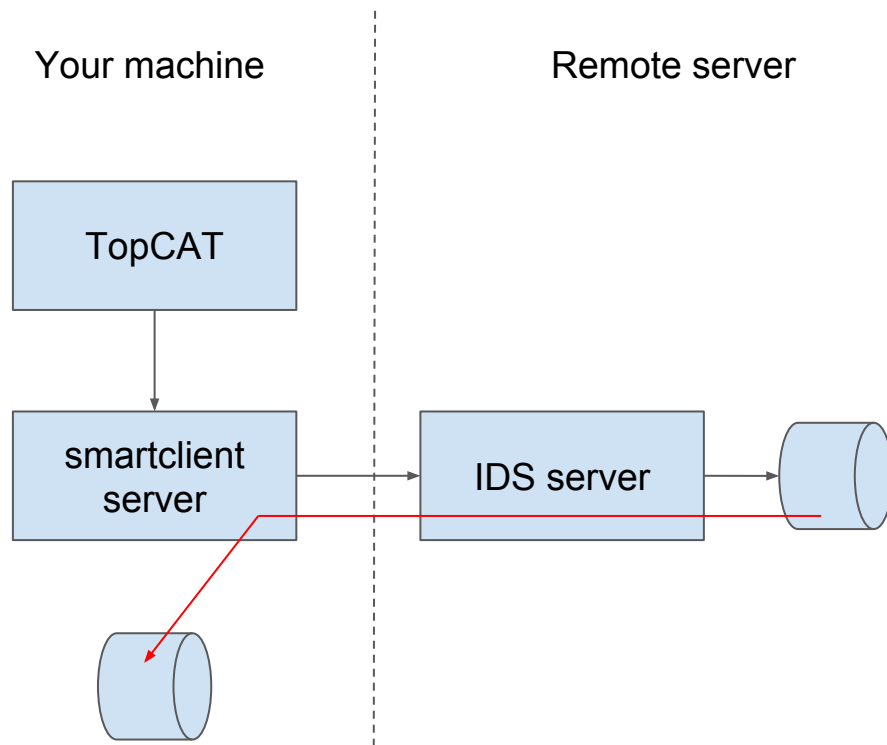
TopCAT

- Interface to multiple ICAT and IDS servers
- Highly configurable
- Facility dependent view
- New interface written with Angular JS
- Makes use of lu
- Download mecha
 - http(s)
 - smartclient
 - various PollCATs
- Pluggable



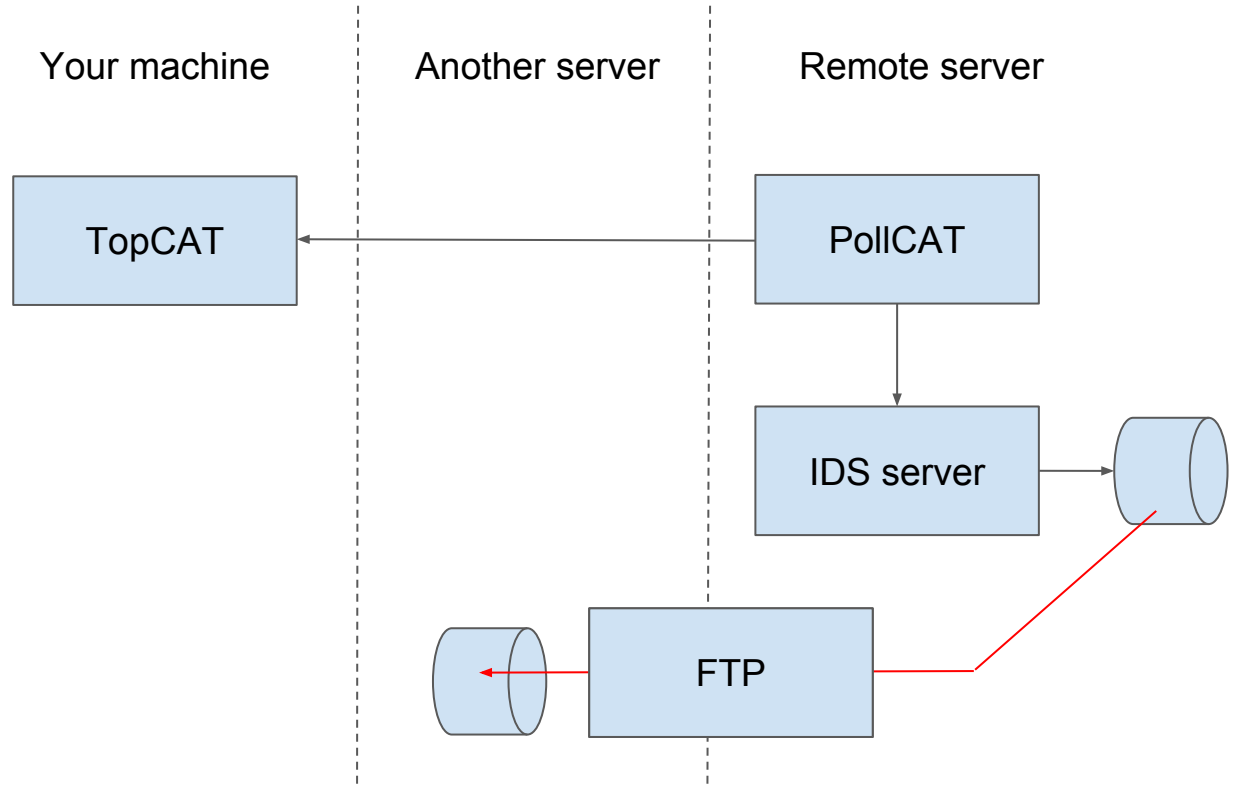
smartclient

- No infrastructure required
- Self contained distributions for Windows, RedHat, Debian, Mac
- Parallel streams of data to your filesystem running in the background



PoIIcAT

- PoIIcAT polls the IDS until data ready
- Then moves it via a plugin



IJP

- ICAT Job Portal
- Was a standalone component
- Now implemented as a TopCAT plugin so feels like TopCAT

Filter by dataset type... Filter by job type...

Name	Size	Create Time	Modified Time	Dataset Type	Actions
Containing...		From... To...	From... To...	Containing...	
✓ OctopusSM4_SingleMolecule4_20...	691.55 MB	2016-10-07 13:34:00	2016-10-07 13:34:00	octopus:MSMM:rawdata	Configure Job
✓ OctopusSM4_SingleMolecule4_20...	1.27 GB	2016-10-07 13:22:35	2016-10-07 13:33:33	octopus:MSMM:rawdata	Configure Job
✓ OctopusSM4_SingleMolecule4_20...	1.27 GB	2016-10-07 13:11:10	2016-10-07 13:22:07	octopus:MSMM:rawdata	Configure Job
✓ OctopusSM4_SingleMolecule4_20...	1.27 GB	2016-10-07 12:59:03	2016-10-07 13:10:41	octopus:MSMM:rawdata	Configure Job
✓ OctopusSM4_SingleMolecule4_20...	1.27 GB	2016-10-07 12:48:58	2016-10-07 12:58:34	octopus:MSMM:rawdata	Configure Job
✓ OctopusSM4_SingleMolecule4_20...	1.27 GB	2016-10-07 12:38:58	2016-10-07 12:48:31	octopus:MSMM:rawdata	Configure Job
✓ OctopusSM4_SingleMolecule4_20...	1.27 GB	2016-10-07 12:27:57	2016-10-07 12:38:31	octopus:MSMM:rawdata	Configure Job
✓ OctopusSM4_SingleMolecule4_20...	1.27 GB	2016-10-07 12:17:22	2016-10-07 12:27:29	octopus:MSMM:rawdata	Configure Job
✓ OctopusSM4_SingleMolecule4_20...	1.27 GB	2016-10-07 12:07:58	2016-10-07 12:16:56	octopus:MSMM:rawdata	Configure Job
✓ OctopusSM4_SingleMolecule4_20...	1.27 GB	2016-10-07 11:59:14	2016-10-07 12:07:33	octopus:MSMM:rawdata	Configure Job
✓ OctopusSM4_SingleMolecule4_20...	1.27 GB	2016-10-07 11:51:47	2016-10-07 11:58:25	octopus:MSMM:rawdata	Configure Job
✓ OctopusSM4_SingleMolecule4_20...	1.27 GB	2016-10-07 11:45:09	2016-10-07 11:51:22	octopus:MSMM:rawdata	Configure Job
✓ OctopusSM4_SingleMolecule4_20...	1.27 GB	2016-10-07 11:24:59	2016-10-07 11:31:21	octopus:MSMM:rawdata	Configure Job
✓ OctopusSM4_SingleMolecule4_20...	1.27 GB	2016-10-07 07:53:20	2016-10-07 08:03:33	octopus:MSMM:rawdata	Configure Job

My Jobs

[Configure New Job](#)

Job Id	Job Type	Submitted	Status	Actions
<input type="text" value="Containing..."/>	<input type="text" value="Containing..."/>	<input type="text" value="From..."/> <input type="text" value="To..."/>	<input type="text" value="Containing..."/>	
501	Sleepcount	2016-10-07 13:57:28	Queued	Cancel Job
410	download quicy output project list(PI)	2016-08-24 12:16:18	Completed	Delete Job
409	download quicy output project list(PI)	2016-08-24 12:15:45	Completed	Delete Job
408	download quicy output project list(PI)	2016-08-24 12:07:51	Completed	Delete Job
407	Test args - multiple datasets or datafiles	2016-08-23 17:27:20	Completed	Delete Job
169	GetDatasetsTest	2016-08-15 16:46:54	Completed	Delete Job
168	GetDatasetsTest	2016-08-05 15:09:32	Completed	Delete Job
165	GetDatasetsTest	2016-08-05 15:01:39	Completed	Delete Job
164	GetDatasetsTest	2016-08-05 14:58:03	Completed	Delete Job
163	GetDatasetsTest	2016-08-05 14:56:10	Completed	Delete Job
155	Date	2016-07-29 15:23:13	Completed	Delete Job
154	download quicy output tracks csv(PI)	2016-07-28 16:37:07	Completed	Delete Job
153	download quicy output tracks csv(PI)	2016-07-28 12:44:58	Completed	Delete Job
152	Test args - multiple datasets/files	2016-07-26 09:56:30	Completed	Delete Job
151	Date	2016-07-26 09:54:31	Completed	Delete Job



Job Details For Job 557

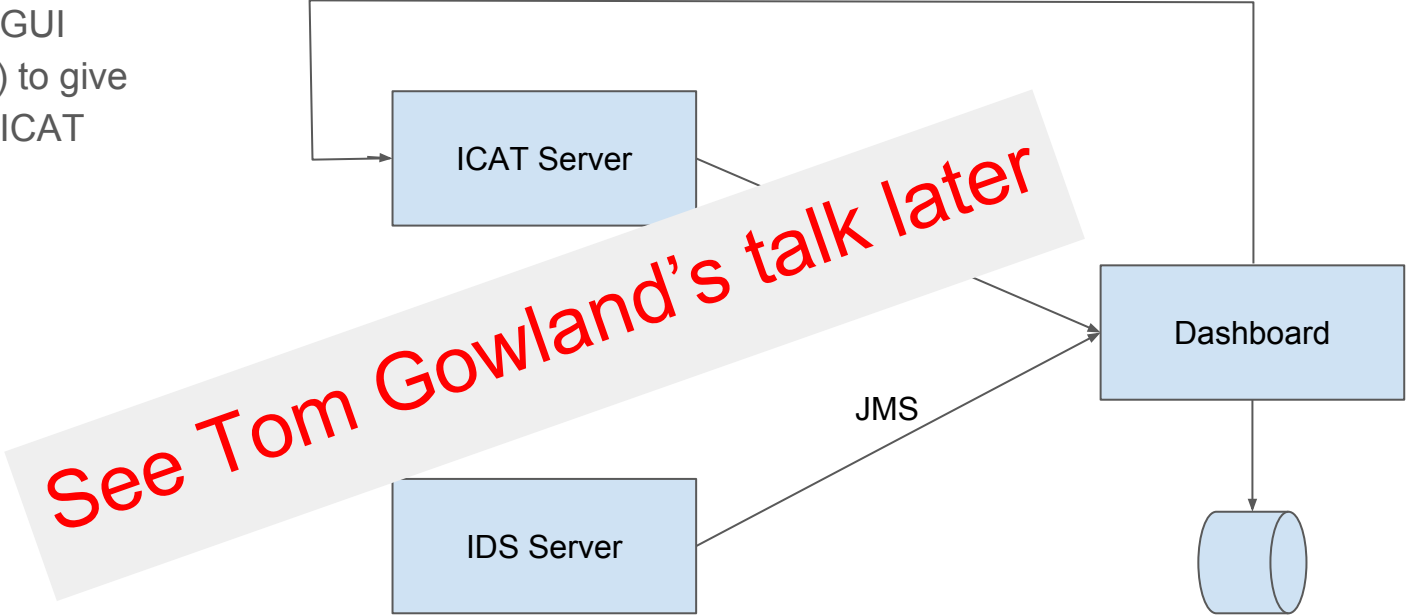
Standard Output

```
Prologue starting
Job can now run
Fri Oct 7 15:13:27 BST 2016 - /opt/ijp/bin/sleepcount.bash starting
Supplied args: --count 5 --sleep 15
Count 1: sleeping for 15 ...
Count 2: sleeping for 15 ...
Count 3: sleeping for 15 ...
```

Close

Dashboard

- Web based GUI (Angular JS) to give overview of ICAT Usage



Installation

- Show installation of a number of components
 - Minimum to get TopCAT running.
- Won't be showing:
 - Python-icat
 - Icatmanager
 - Dashboard
 - PollCAT