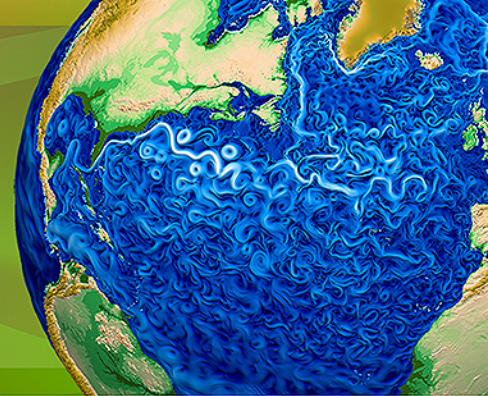




Accelerated Climate Modeling  
for Energy



# ACME Web Dashboard

A component of the ACME Workflow

By Matthew Harris

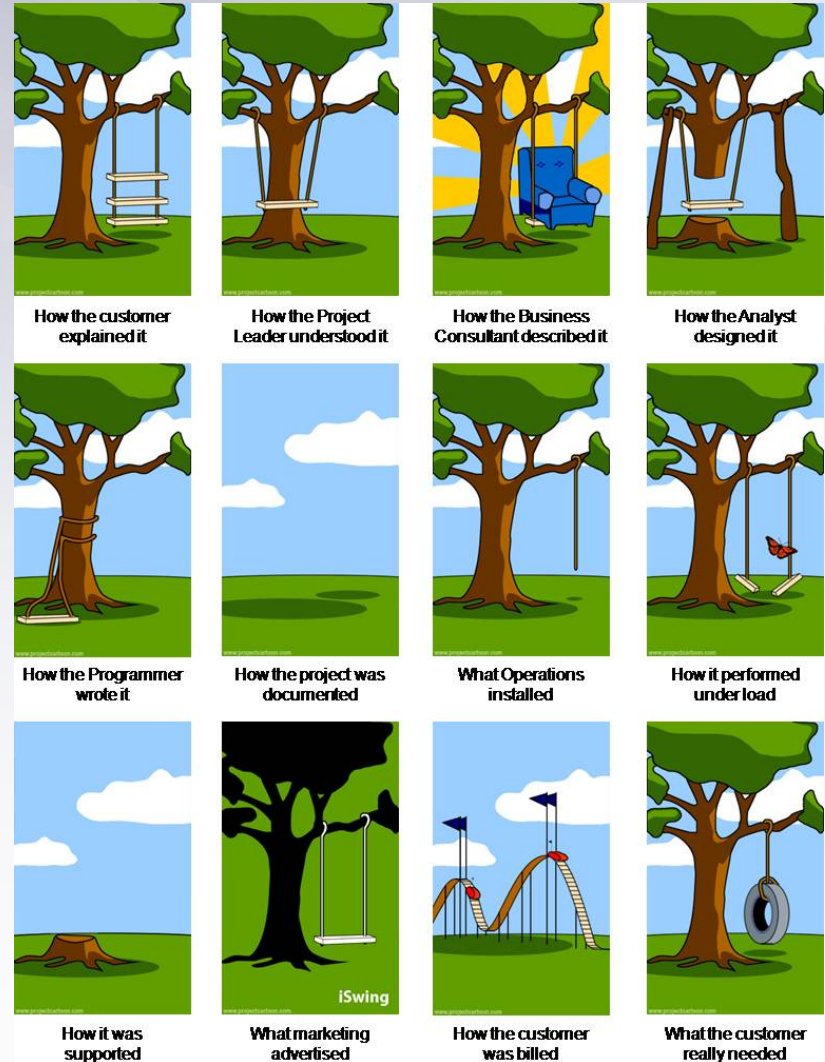
Lawrence Livermore National Laboratory

[harris112@llnl.gov](mailto:harris112@llnl.gov)

<http://github.com/mattben>

# Outline

- What is the ACME Workflow Group?
- What would you say you do here?
  - Teams / Production
- ACME Web Dashboard
  - Backend (cdatweb) / Frontend / Integration
- Future Work
- Conclusion



# What is the ACME Workflow Group?

- Trying to make doing science (climate modeling) suck less.
- Improve user experience (one interface)
  - Finding Models
  - Modifying Models and their scripts
  - Finding Model Inputs
  - Submitting a job (Running a Model simulation)
  - Viewing job run time output
  - Viewing Model output and diagnostics
  - Publishing Model output
  - Model collaboration and modification for re-running

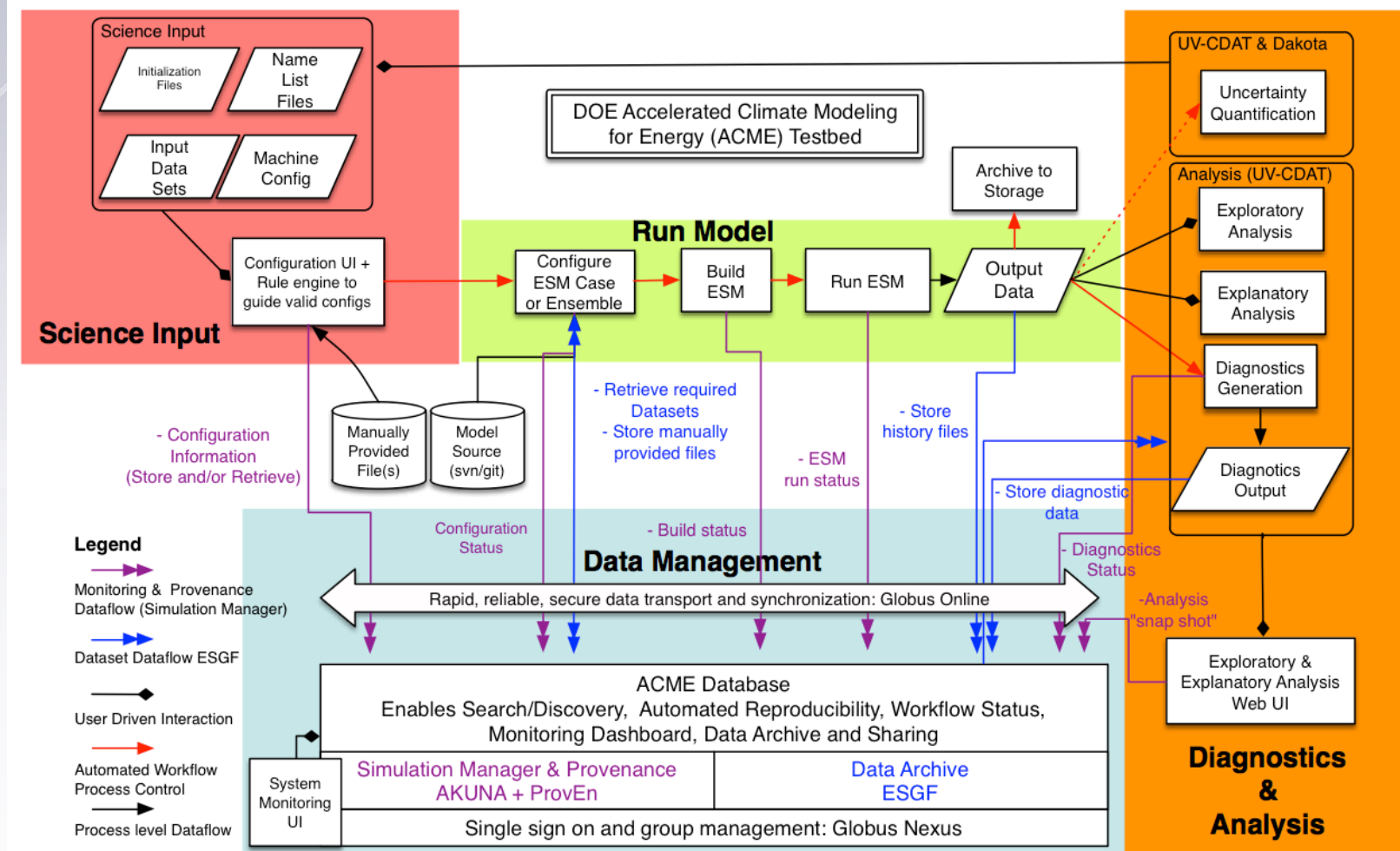




# Workflow Group

The advanced model development, testing and execution infrastructure has been designed to strongly accelerate the model development and testing cycle for the new Department of Energy (DOE) Accelerated Climate Model for Energy (ACME) model, by automating labor intensive tasks, providing intelligent support for complex tasks and reducing duplication of effort through collaboration support. The workflow test bed environment will provide the group of collaborating DOE scientists with the data and computing infrastructure needed for rapid development and assessment of new scientific modules and provide a testing-to-production environment for simulation and evaluation (i.e., diagnosis, metrics, and intercomparison). Deployment and integration of existing software tools as well as the development of necessary new software capabilities to accomplish this will be driven by the scientific requirements to develop and use the overall coupled ACME model and the individual component models (i.e., atmosphere, land, ocean, sea ice, and land ice) within it. While some of the tools will be specific to a particular science question, wherever possible the workflow team will identify common methods and similar metrics across component models and in the coupled ACME model to foster synergistic developments that satisfy the requirements of both.

# Workflow Group



# ACME Workflow Working Teams

- User Interface (Web Dashboard)
  - Matthew Harris, Jon Beezely, John Harrny
- Data Management (Velo)
  - Carina Lansing, Bibi Raju
- Visualization (CDATWEB)
  - Jon Beezely, Matthew Harris
- Provenance (ProvEn)
  - Carina Lansing, Bibi Raju
- Rule Engine
  - Pegasus

# Team Collaboration





# Team Deployment

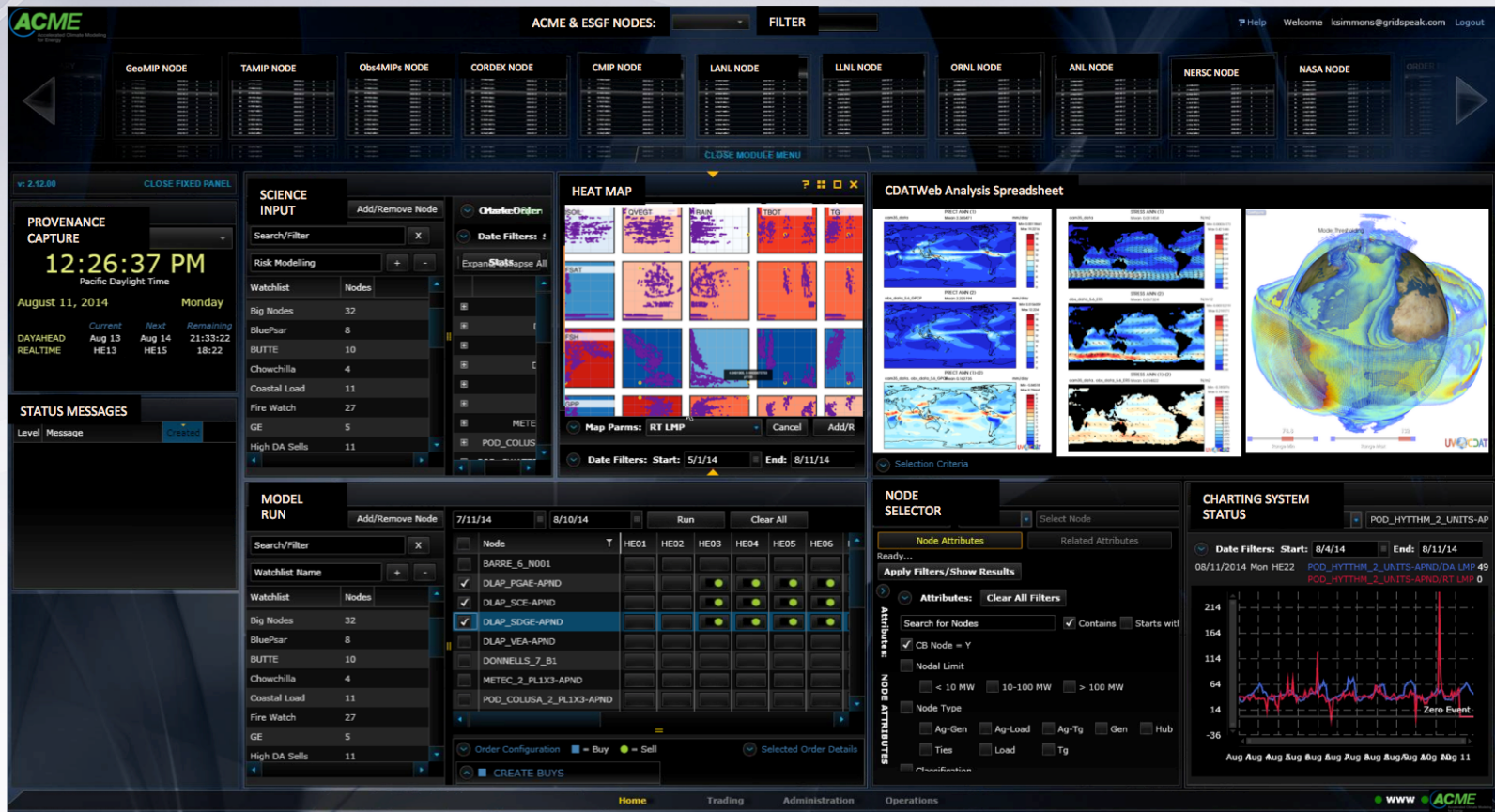




# ACME Web Dashboard

The ACME Web Dashboard is a web based dashboard that will allow users to login, view and edit files for running the model at the OLCF. The UI dashboard mockup can be seen on the Github wiki. In addition, the dashboard will allow users to view sample output such as simulated output and community data sets via ESGF, images using the diagnostics "Classic Viewer", and basic analysis output generated by CDATWeb. The UI depends on the development of other ACME workflow components. Meaning, it only calls underlying workflow component scripts or WPS APIs from the "Process Flow", ESGF, UV-CDAT, Velo, and ProvEn modules. Each call will be logged for later playback, sharing, or for running separately from the UI. ESGF (i.e., CoG) and UV-CDAT (i.e., CDATWeb) are on the verge of releasing their own independent UI. They will be among the first components to be incorporated into the ACME Web Dashboard.

# ACME Web Dashboard



# Tools

- Backend
  - Apache 2.4.10
  - Uwsgi 2.0.9
  - Python 2.7.8
  - Django 1.7.1
    - Recaptcha
- Testing
  - Robot Framework ??
- Frontend
  - Bootstrap
  - Gridster JS
  - JQuery
  - Angular JS
  - JS Panel
  - Metro JS
  - HTML5
  - CSS3

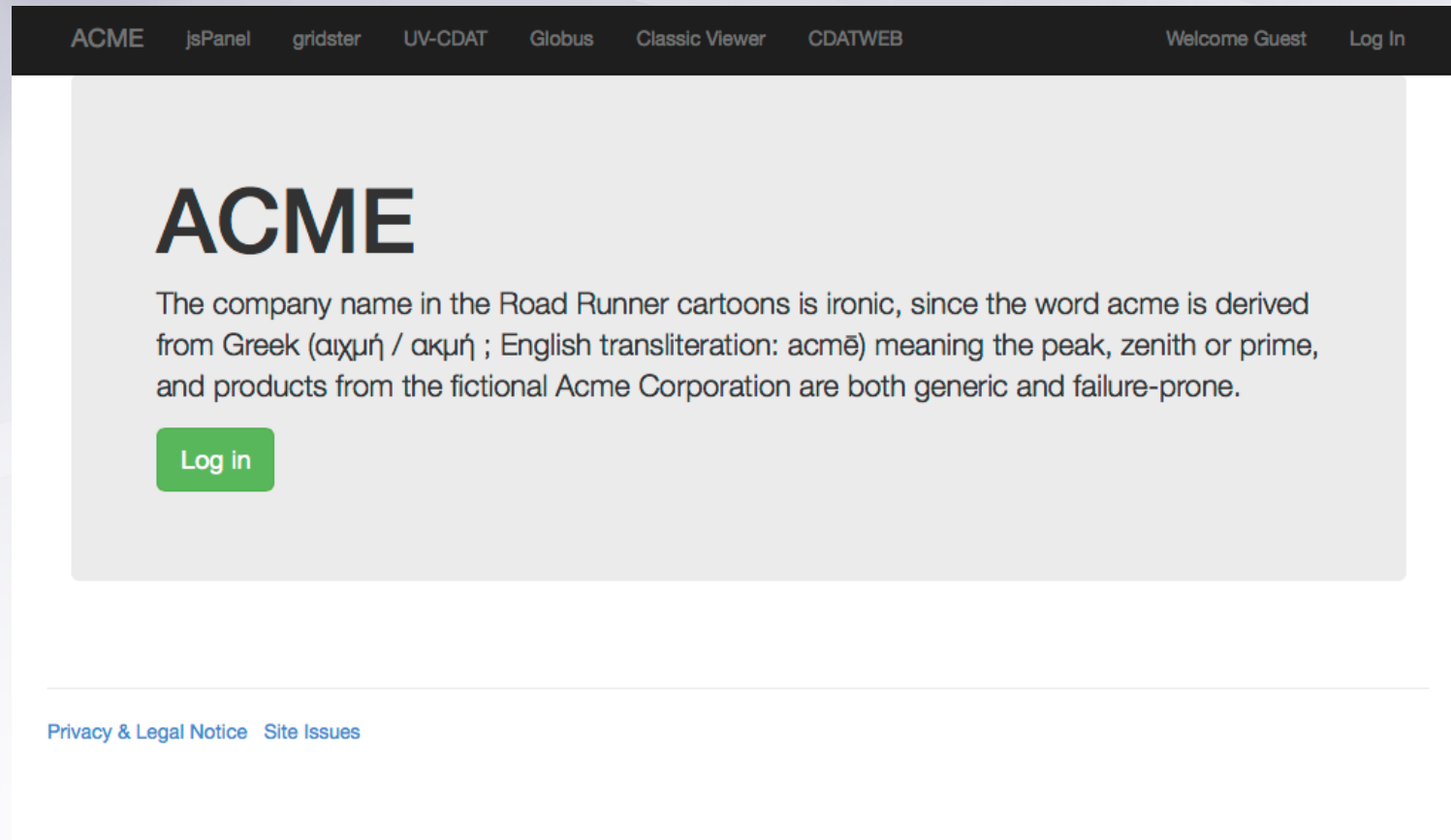
<http://acme-oui.github.io>



# Current Working Release

- Production Server up and Running
- Dashboard Deployed ([acme-web-fe.onrl.gov](http://acme-web-fe.onrl.gov))
- UI in development
- Visualization Server deployed ([acmeuvcdat.onrl.gov](http://acmeuvcdat.onrl.gov))
- Deploying CDATWEB standalone ([acme-cdatweb.onrl.gov](http://acme-cdatweb.onrl.gov))
- Integrating CDATWEB in to the FE this week
- Velo Data Node Deployed ([acmetest.onrl.gov](http://acmetest.onrl.gov))
- Integration with Velo in coming weeks

# Landing Page



# Sign In

[ACME](#)[jsPanel](#)[gridster](#)[UV-CDAT](#)[Globus](#)[Classic Viewer](#)[CDATWEB](#)[Welcome Guest](#)[Log In](#)

## Please Sign In

---

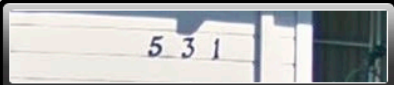
[Privacy & Legal Notice](#) [Site Issues](#)




# Registering

[ACME](#) [jsPanel](#) [gridster](#) [UV-CDAT](#) [Globus](#) [Classic Viewer](#) [CDATWEB](#) [Welcome Guest](#) [Log In](#)

## Create An Account



[Privacy & Terms](#)



Create Account

[Privacy & Legal Notice](#) [Site Issues](#)

# Dashboard v1 jsPanel

ACMEjsPanelgridsterUV-CDATGlobusClassic ViewerCDATWEBWelcome adbenLog Out

Create New Window

PANEL\_1

Index

Minimal

Basic

Class Hierarchy

DOM Tree

Visual Tree

Shapes

SVG Icons

Arrowheads

Navigation

Family Tree

Local View

Decision Tree

Incremental Tree

Double Tree

OrgChart (Static)

OrgChart Editor

Mind Map

Tournament

Tree View

Genogram

IVR Tree

Parse Tree

Beat Paths

Concept Map

Euler Diagram

Data Visualization

Entity Relationship

Friend Wheel

Recentering Radial

PERT

Gantt

Shop Floor Monitor

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Flowchart

Page Flow

State Chart

Sequential Function

Grafcet Diagrams

Sequence Diagram

Logic Circuit

Record Mapper

Dynamic Ports

Planogram

Sealing Chart

New Tree

MinNodes: 20

MaxNodes: 10

MinChildren: 1

MaxChildren: 10

Generate Tree

ForceDirectedLayout Properties

Max Iterations: 100

Epsilon: 1

Infinity: 1000

ArrangementSpacing: 100 10

Vertex Properties

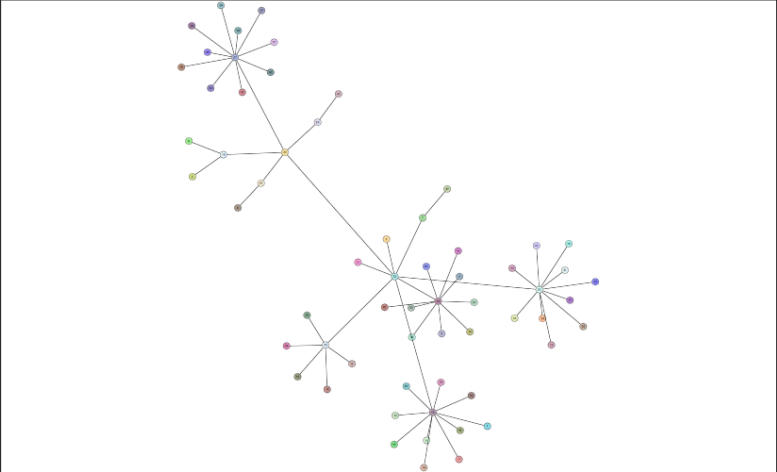
Electrical Charge: 150

Gravitational Mass: 0

Edge Properties

Spring Stiffness: 0.05

Spring Length: 50

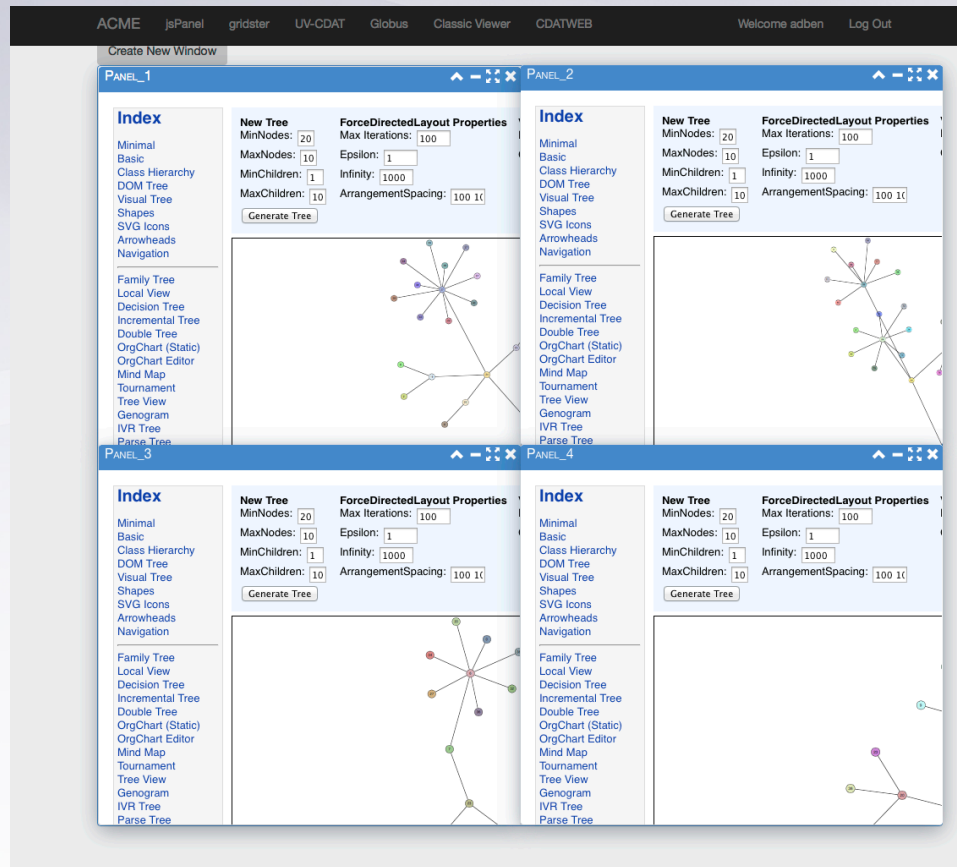


[View this sample page's source in-page](#)

[View this sample page's source on GitHub](#)

GoJS® version 1.4.23. Copyright © 1998-2015 by Northwoods Software Corporation.

# v1 jsPanel





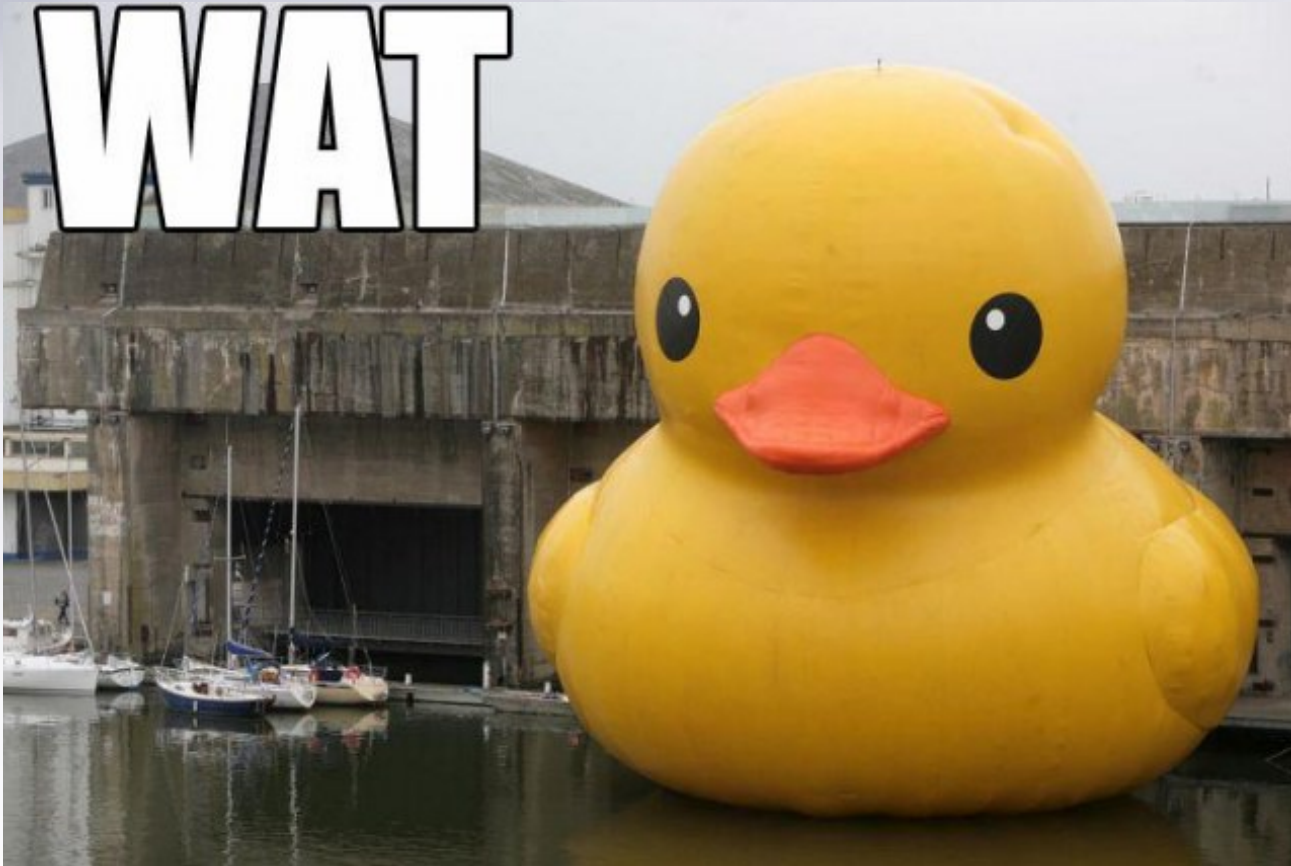
# Dashboard v2 Gridster

The screenshot displays the Dashboard v2 Gridster interface. At the top, a dark navigation bar contains the following links: ACME, jsPanel, gridster, UV-CDAT, Globus, Classic Viewer, CDATWEB, Welcome adben, and Log Out. On the left side, a vertical sidebar features a green 'Close' button at the top, followed by a list of navigation options: Provenance Capture, Status Messages, Science Input, Node List, Heat Map, Model Run, Node Selector, CDATWeb Analysis, and Charting System Status. The main content area is a grid containing four panels, each with a blue header and a close button. The panels are labeled 'provenance', 'status', 'nodeList', and 'science'. Each panel displays the text: 'The path of the righteous man is beset on all sides by the iniquities of the selfish and the tyranny of evil men.'

# Future Work

- Create Service Layer for all apps
- Robot Framework Integration
- Each app should have a stand alone UI
- Connect to all Services for Data movement
  - Publishing (ESGF)
  - Job Submission
  - File Transferring (Globus Online)
- User Beta Testing
- Reduce the number of user accounts / required log ins

# Questions





# Links

- ACME Web Dashbaord
  - <http://acme-oui.github.io> (site)
  - <http://acme-web-fe.ornl.gov/acme>
- Bootstrap
  - <http://getbootstrap.com>
- JQuery
  - <http://jquery.com>
- Gridster JS
  - <http://gridster.net>
- Angular JS
  - <https://angularjs.org>
- JS Panel
  - <http://jspanel.de/index.html>
- Metro JS
  - <http://www.drewgreenwell.com/projects/metrojs>
- Robot Framework
  - <http://robotframework.org>
- Jpye
  - <http://jpye.sourceforge.net>
- Python
  - <https://www.python.org>
- Django
  - <https://www.djangoproject.com>
- uWSGU
  - <https://uwsgi-docs.readthedocs.org/en/latest>



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