

DREAM
Distributed Resources
for the Earth System Grid Federation (ESGF) Advanced Management

JPL Task Plan No. 82-19888
December 2017 Quarterly Report

This report covers the first quarter of FY-2018 (October-December 2017). During this period, JPL staff, in accordance with the Task Plan mutually agreed upon with LLNL, performed the following activities:

- **Release of versions 1.3 and 1.4 of ESGF/Docker architecture.** The latest 1.4 version includes the most critical components of the ESGF software stack and it is almost “feature complete”. The corresponding architecture is represented in Figure 1 below. This system deploys on a single or multiple host, and was tested on Mac OSX, CentOS6, and the Amazon Cloud.
- **Started to work on version 1.5 of the ESGF/Docker architecture.** This new version will include a completely modularized Data Node, now split into different containers.
- **Started to research deployment of ESGF Docker containers through Kubernetes and OpenShift.** Work has started to deploy the ESGF containers via Kubernetes, as requested by several ESGF institutions. Additionally, we have prototyped deployment of the ESGF Index Node onto a RedHat cluster using OpenShift as a Platform-as-a-Service (PaaS).
- **Continued collaboration with University of Utah to include Visus server.** Held a few meetings to discuss integration of the Visus server into the ESGF/Docker software stack, works continues.
- **Progressed on OAuth2 integration.** JPL staff worked on transitioning the recent developments of the new ESGF components using OAuth2 into the Docker architecture, coming close to a first final release.
- **ESGF 2017 F2F Conference.** JPL staff attended the 2017 ESGF F2F conference and contributed to its management and smooth execution. In particular, during the conference JPL staff presented the following talks:
 - 2017 Status of ESGF (keynote talk)
 - Progress update and roadmap of ESGF Containers working group
 - Progress update and roadmap of ESGF Search, User Interface and Dashboard working groupAfter the conference, JPL staff started contributing to the final report.
- **ESGF Releases.** JPL issued several releases of the following modules, containing bug fixes and minor UI and performance improvements:
 - ESGF Search
 - ESGF User Interface (CoG)
 - ESGF Security
 - ESGF ORP
 - ESGF IdP

- **DREAM Management:** JPL staff attended the monthly meetings organized by DOE DREAM sponsor Rich Carlson, and led the writing of the DREAM 2017 Annual Report
- **ESGF Executive Committee and Working Groups.** JPL staff attended several ESGF conference calls for executing management and working groups, including organizing the calls of the ESGF Containers working group in collaboration with IPSL.
- **ESGF Nodes Operations.** JPL staff continued operations and upgrades of the ESGF nodes at JPL, NOAA, CU.

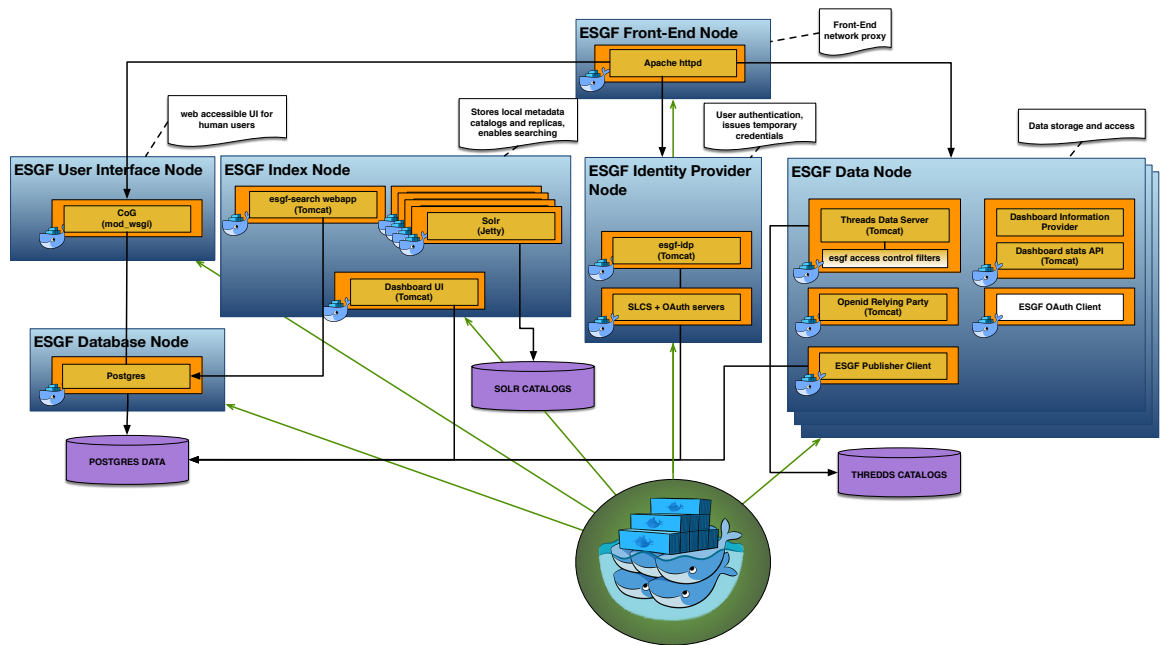


Figure 1: block diagram of the ESGF/Docker architecture version 1.4