Workbench Planning

The following major features are under consideration for ongoing Workbench development:

Feature	Description	Priority
Authentication and authorization		
	Add support for integration with external authentication and authorization systems.This includes adding OAuth /OIDC support; integration with CILogon and Globus Auth.	1
	Support authorization models to enable access to data and other resources (COManage, LDAP). Consider looking again at KeyCloak/LDAP, particularly with eduPerson support.	1
Workbench/Cloud		
	Simplified installation	2
	Ability to export services to run in VM or container-based environments.	3
	Ability to install Workbench in commercial cloud environments with storage support (NFS v Gluster)	1
	Integration with other orchestration environments (e.g., Swarm).	3
Workbench/HPC		
	Ability to run analysis developed in Workbench via HPC using standard APIs (Airavata, Agave).	1
	Convert Docker containers to Singularity.	1
	Login node replacement (i.e., use workbench as parallel resource to HPC system to support development, interactive analysis and visualization.	3
Workbench/Gateway	Ability to develop applications in Workbench and deploy/publish for wider access (same as export to cloud above) (TERRA-REF "Shiny" use case), GCMC; Ability to develop and deploy data portals.	3
Container preservation	Zenodo for Dockerhub/Singularity. Provide a centralized and distributed registry/cache specific to scientific /research oriented software that includes DOIs. This came up as a case at CAE Workshop and is not solved by WT.	3
Education and training	Ability to easily "spin up" instances near data for workshops and training; models for creating temporary training accounts; integration with external systems (e.g., map reduce, etc). Case: PI4, Einstein Toolkit.	1
Private/public data	Support for mounting and publishing data in a variety of formats. Cases: NBI raw/Mongo DB, TERRA BETYdb, ThinkChicago data. Requires permissions model;	3
	NBI prototype	1
Batch/Workflow support	Ability to integrate with batch and workflow systems; both via containers and outside. Casea: LIGO, BrAPI, CyVerse, KnowEng	3
Custom catalog /branding		3
Backup, recovery, failover, monitoring	Improve backup/recovery, failover and monitoring support.	2
Configurable resource limits	Ability to request more resources for interactive sessions from container-based environment (ala JupyterHub "profiles")	2
Integration with Data Portals	Clowder, HubZero, DataVerse, Girder – ability to fulfill DataDNS vision.	3
JupyterHub interoperability		3
For-fee service	Process for requesting workbench instance for some duration with associated fees. Similar to system used by events group.	3

Administration console	Admin web interface for common functions (ndslabsctl)	3
Usage reporting		2
Einstein Toolkit Tutorial instance		1
Filesystem performance testing	Openstack + Docker + Gluster: find the absolute best configuration for performance.	Go away
Documentation updates		1
Twitter use case		1
Stitching use case		1
ETK use case		1

See also:

- Container Analysis Environments Workshop
- SC17 Demo
- PI4 Bootcamp
- EarthCube Workbench
- ThinkChicago
- Einstein Toolkit School
- Bridge Health/NB