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Title: STNS01-22 BEE - FY21 P6-2: Execute BEE workflows on private cloud infrastructure

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STNS01-22 BEE – FY21 P6-2: Execute BEE workflows on private cloud infrastructure

ECP WBS 2.3.6.01 – LANL ATDM - BEE

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Scope and objectives

- BEE provides a portable, modular, HPC-focused workflow engine capable of managing containerized applications at scale.
- In FY21 BEE will expand its capabilities to provide more sophisticated handling of workflows. The ability to archive, clone, and re-run workflows will be added to BEE. The kinds of resources that BEE can use to execute workflow tasks will be expanded to include public and private clouds, such as Google Cloud Platform and OpenStack.

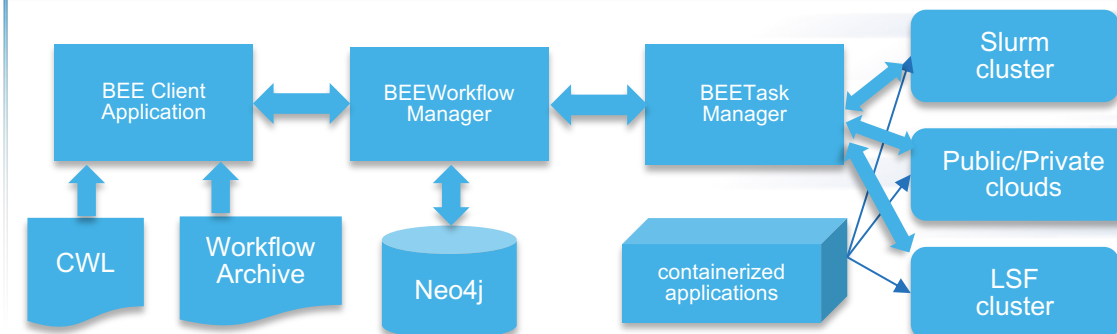
Impact

BEE will give ECP a tool that greatly simplifies the deployment of containerized workflows on the next generation of pre-exascale and exascale systems, as well as public and private clouds. BEE allows scientists to describe their workflow using the Common Workflow Language and then deploy that workflow across the entire spectrum of systems without having to learn the specifics of each container runtime, HPC resource manager, or cloud API. BEE also streamlines the curation and sharing of common workflows among the scientific community.

Deliverables Report: <https://github.com/lanl/BEE/blob/master/doc/ECPFY21STNS01-22-Completion.pdf>
HPC resources used: LANL Dora OpenStack testbed cloud



BEE: cross-platform portability of workflows



Project accomplishment

- With the ability to launch tasks on public and private clouds, scientists can leverage a greater range of available computational resources for their workflows.
- Scientists will be able to compose more complex workflows that require not only traditional HPC systems, but cloud systems, which are better suited for running persistent databases, machine learning engines, and other complex analysis tools.