**Toward Support for Longitudinal Studies of Application Characterization and Performance with SW-CAP**

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**Abstract**

Having information about the characteristics and performance of a particular version of an application, for a given set of inputs, can be very useful. For example, it may be used to help describe a workload to system vendors, or as a baseline for an application performance engineering campaign. However, there is even more value to tracking application characterization and performance over time, for multiple problem inputs, and across several systems in order to support longitudinal studies that reveal changes in system workload and application and system performance regressions. To facilitate such longitudinal studies, we are designing and implementing a service called Software-Characterization and Performance (SW-CAP). SW-CAP consists of a web-based interface implemented using Django, plus a SQL database backend running on an OpenShift cluster. SW-CAP data can also be accessed via a Python Jupyter notebook server. To support evaluation of our design, and to demonstrate the functionality of our prototype, we are populating it using a small number of applications and supporting libraries drawn from Application Development projects of the Department of Energy's Exascale Computing Project. In this poster, we describe our current SW-CAP design and present our early prototype implementation.