End-to-end Framework for Fusion Integrated Simulation (EFFIS)
S. KLASKY, ORNL, H. ABBASI, C.S. CHANG, J. CUMMINGS, C. DOCAN,
Q. LIU, M. PARASHAR, N. PODHORSZKI, K. SCHWAN, A. SHOSHANI, R.
TCHOUA, M. WOLF, F. ZHAN, F. ZHENG, CPES COLLABORATION — EFFIS
is a set of tools developed for working with large-scale simulations. EFFIS is used
by researchers in the Center for Plasma Edge Simulation, as well as many other
areas of science. EFFIS is composed of services including adaptable I/O, workflows,
dashboards, visualization, code coupling, wide-area data movement, and provenance
capturing. One of the unique aspects of EFFIS is that it transparently allows users
to switch from code coupling on disk to coupling in memory, using the concept of a
shared space in a staging area. The staging area is a small fraction of the compute
nodes needed to run the large-scale simulation, but it is used for the construction of
I/O pipelines and a code-coupling infrastructure. This allows the scientist to make
minor changes for the code to work with ADIOS), and then with no changes perform
complex transformations, and analytics, which all occur *in situ* with the simulation.
In this talk, we will focus on the technologies CPES uses, which are scalable and
can be used on anything from workstations to petascale machines.

S. Klasky
ORNL

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