

Predict with confidence the behavior of complex systems through comprehensive, science-based simulations

## Three labs to leverage common high-performance computing cluster hardware and software



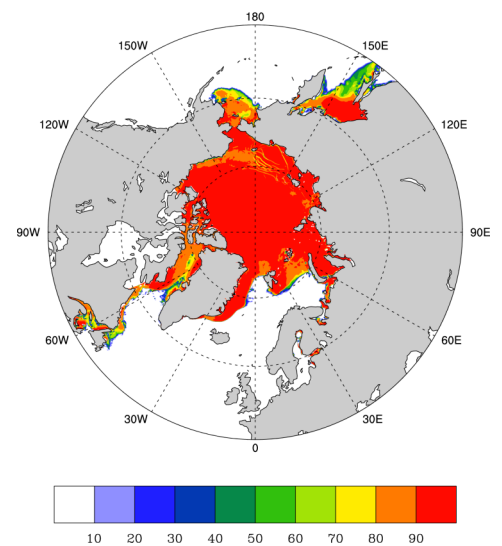
A new Linux cluster at Lawrence Livermore National Laboratory is one prototype of a new tri-lab Linux capacity cluster. Scalable units (SU) will be aggregated into multi-SU clusters of two, four, six, or eight SU, with each cluster available for computing across the three defense laboratories. The multi-SU clusters represent 40, 80, 120, and 160 teraFLOPS resources.

### Capacity computing unified across the NNSA complex

For the first time, the Department of Energy/National Nuclear Security Administration (DOE/NNSA) has awarded a single purchase contract that covers all three national defense laboratories—Los Alamos, Sandia, and Livermore. The new computers will provide much needed “capacity” computing, running larger numbers of smaller jobs simultaneously on a single high-performance machine. This allows NNSA’s more powerful supercomputers, or “capability” systems, to be dedicated to the larger, more complex calculations critical to the nation’s Stockpile Stewardship Program.

In the past, each laboratory conducted its own capacity computing procurements and ran its own operating system and tools. With different hardware and software, these systems provided very different and challenging environments to users, making collaborations difficult and increasing overall costs.

Arctic Ice Concentration



Daily ice concentration (by percent) in the Arctic from a global 0.1 degree coupled ocean and sea-ice model simulation. This simulation was run by Livermore on a prototype Tri-Lab Linux Capacity Cluster (TLCC) machine, using the LANL-developed open-source code POP-CICE.

