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LSU Launches Interactive Supercomputer

HPC Wire

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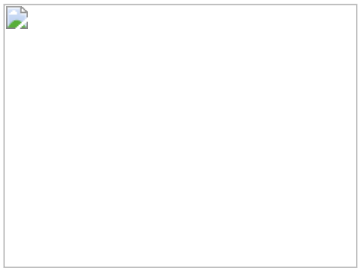
By Tiffany Trader

Interactivity is a hallmark of today's uber-connected society, so it was only a matter of time until the interactive supercomputer was birthed. The technology has been in development at LSU since 2011 when researchers at Louisiana State University's Center for Computation & Technology (CCT) began conceptualizing what an interactive system would look like and more importantly what it would be capable of.



These efforts, along with a $1 million grant from the National Science Foundation, led to a new class of machine, and one of the world's first interactive supercomputers, named Melete for the Greek mythology muse of practice. This interaction-oriented, software-rich compute cluster has tangible interfaces that support collaborative research in the lab and in the classroom. The project is led by Principal Investigator CCT's Brygg Ullmer and a team of 40 co-investigators across 11 departments in 5 colleges.

"In the classroom, laboratories, and meeting rooms, faculty today choose between real-time interaction with the limited capability of a laptop or podium PC or no interaction at all," said Ullmer, who is also an associate professor of computer science at LSU. "Through Hollywood, everyone is aware of the simulation potentials of large-scale computation. We aspire to bring some of these powers of interactive hurricane simulations, of flowing hair and animation work to what students and faculty are controlling and experiencing live in the classroom as well as at a research meeting."

CCT's IT consultant and adjunct faculty of computer science Chris Branton explains what sets Melete apart from standard HPC clusters:

"Typically, a high-performance computer would feature one head node coupled with several slave nodes," Branton said. "In contrast, Melete features several interactive face nodes in addition to the head node. These are a combination of dynamic screens, passive printed visuals, addressable LEDs, and other interactive elements. They are planned to be placed in labs, meeting spaces, and classrooms both at CCT and elsewhere on LSU campus to give interactive control of the machine to authorized users."

Melete opens up the benefits of HPC to more users. The project is targeting a wide range of fields, including computational biology, materials, mathematics, engineering, and arts.

A sampling of user comments reveals the promise of the interactive design.

"Melete helps us extract the good stuff," said LSU professor of chemistry and co-PI Les Butler.

"We can discover features in the data sets walking to and from the coffee shop that would otherwise tether us to the workstation," Butler added.

According to the NSF award abstract, the project is expected to run through August 31, 2015.

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