北京大学高能效计算与应用中心学术报告

Invited Talk, Center for Energy-Efficient Computing and Applications

Co-designing for Next-Generation Extreme Scale Data Processing

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ABSTRACT: As we move closer to extreme scale computing, applications face numerous challenges that must be addressed before they can deliver breakthrough science. Data processing is one of the major challenges many of the applications are facing at the extreme scale. The ORNL team in this area has led efforts to create a new paradigm for data management on HPC platforms, which utilizes a Service Oriented Architecture to combine data-in-transit techniques with extreme performance I/O, and "in situ" data processing. This talk will present the evolution of this vision, from its inception to assembling a collaborative team, to breakthrough science delivered using the associated software platform. In addition to over 60 publications over the last three years, the ORNL software stack has gained widespread adoption in the HPC community, and is being used in over one billion hours on the Oak Ridge Leadership Computing Facility. One of the main focus areas here is in co-designing the next generation version of our system, based on our system, ADIOS, https://www.olcf.ornl.gov/center-projects/adios/, which focuses on hybrid approaches to deliver breakthrough science.

BIOGRAPHY: Scott A. Klasky is a distinguished scientist and the group leader for Scientific Data in the Computer Science and Mathematics Division at the Oak Ridge National Laboratory. He holds a Ph.D. in Physics from the University of Texas at Austin (1994), and has previously worked at the University of Texas at Austin, Syracuse University, and the Princeton Plasma Physics Laboratory. Dr. Klasky is a co-author on over 190 papers, and is the team leader of the Adaptable I/O System (ADIOS), which won an R&D 100 Award in 2013.