Parallel Scripting with Swift for Applications at the Petascale and Beyond

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The Swift parallel scripting language lets users apply parallel composition constructs to existing sequential or parallel programs to express highly parallel scripts.

Swift scripts are flexible and portable, and can run efficiently on platforms ranging from multicore workstations to petascale supercomputers. For performing parameter sweeps and data analysis with exiting application programs, parallel scripting is typically easier and more productive than tightly-coupled parallel programming.

This talk will provide an overview of Swift and how it is used to run scientific applications in parallel on clusters, grids, clouds, and petascale systems. The architectural challenges of scripting on large-scale systems will be covered, and case studies will be presented. Swift's place in the taxonomy of parallel programming languages and environments will be discussed, and speculative ideas for hybrid models for multi-level programming to go beyond the petascale will be considered.

More info is available at: *www.ci.uchicago.edu/swift*