Other

An Overview of FleCSI: A Compile-time Configurable Framework Designed to Support Multi-physics Application Development

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Abstract:

FleCSI is a compile-time configurable framework designed to support multi-physics application development. It aims at providing execution and data abstractions over state-of-the-art HPC programming models including asynchronous MPI, Legion, HPX + Kokkos. The intent is to give developers a concrete set of user-friendly programming tools that can be used now, while allowing flexibility in choosing runtime implementations and optimizations that can be applied to architectures and runtimes that arise in the future. FleCSI also attempts to provide a very general set of infrastructure design patterns that can be specialized and extended to suit a specific problem. Current support includes different topology types (unstructured mesh, structured mesh, tree) as well as graph partitioning interfaces, and dependency closures.

Speaker's Bio:

Irina is Co-Design Team leader at the Los Alamos National Laboratory. Her research interests are focused on new HPC technologies in application and large-scale scientific simulation codes. Her current work is directed at integrating task-based runtime systems into several software projects at LANL, including the FleCSI and CANGA projects.

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