Simulation Factory: Simplified Simulation Management

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Abstract

Computational Science on large high performance computing resources is hampered by the complexity of these resources. Much of this complexity is due to low-level details on these resources that are exposed to the application and the end user. This includes mechanisms for remote access, configuring and building applications from source code, and managing simulations and their output files via batch queue systems.

The Simulation Factory addresses these challenges by simplifying remote access, building executables, and managing simulations. Furthermore, Simulation Factory's automation avoids many possible user errors that can in the worst case render month-long simulations worthless.

Simulation Factory continues to evolve. New work will focus on:
• Creation of a graphical user interface for easier adoption.
• Adapt Simulation Factory to support many simulation toolkits.
• Archiving simulations with metadata that describes each unique simulation.
• Support for research group collaboration.

Acknowledgments

This work is supported by NSF awards #0932251 (TeraGrid Extension: Bridging to XD) and #0721915 (Alpaca), #0701566 (XiRel), #1005165 (NSF REU), and #0904015 (CIGR). We used TeraGrid resources at LONI, NCAR, NCSA, Purdue, and TACC under allocation TG-MCA02N014.