ASimulation Management John Norris Randy Hudson Analysis Michael Papka (SMA) System

Problems

- Hard to find old simulations, parameters, input and output
- * Scientists use idiosyncratic methods of organization
- * Cannot "see" all simulations in one place
- Hard to keep track of post-processing results and associate them with their simulations

Problems

- * So...
 - * Harder than necessary to compare simulations
 - * Harder than necessary to verify some simulations
 - * Harder than necessary to reproduce results
 - * Harder than necessary to share results
 - Harder than necessary to transfer control between scientists

Solution

 Keep track of as much about a computational science project, from as close to one place, in as standard a way, as possible.

SMA System Requirements

- * Control from as small a locus as possible
- * Encourage standards
- * Automate as much as possible
- * Organize & catalog simulation data & metadata in one place
- * Record simulation history
- * Monitor running simulations

SMA System Requirements

- * Enhance analysis of simulation output
- * Enhance verification of simulations
- * Aid publication of results
- * Archive simulation output
- * Extend SMA system to any scientific domain

SMA System Design

* Database

- Collect & store simulation metadata
- * Store associations between simulations, output & post-processing

Scripts

- * Collect metadata from running simulation
- * Monitor health of running simulation
- Maintain integrity of metadata
- * Automate file archival

Web portal

- * Launch scripts
- * Plot metadata
- * View images of running simulations
- * View provenance data

