

Visual Interfaces for Parallel Simulations (VIPS)

Identification and Significance of Innovation

The proposed VIPS innovation will:

- ✓ **Leverage open-source 3D visualizations applications** to model input geometry and physics
- ✓ **Facilitate executing and monitoring** of parallel science simulations on modern day supercomputers
- ✓ **Hide the details** of the job queuing systems, runtime environment configurations, paths, and writing scripts by providing a single intuitive, graphical interface
- ✓ **Organize run and data** automatically for user
- ✓ **Validate input files** to save time and unintended results

Expected TRL Range at the end of Contract (1-9): 4

Technical Objectives

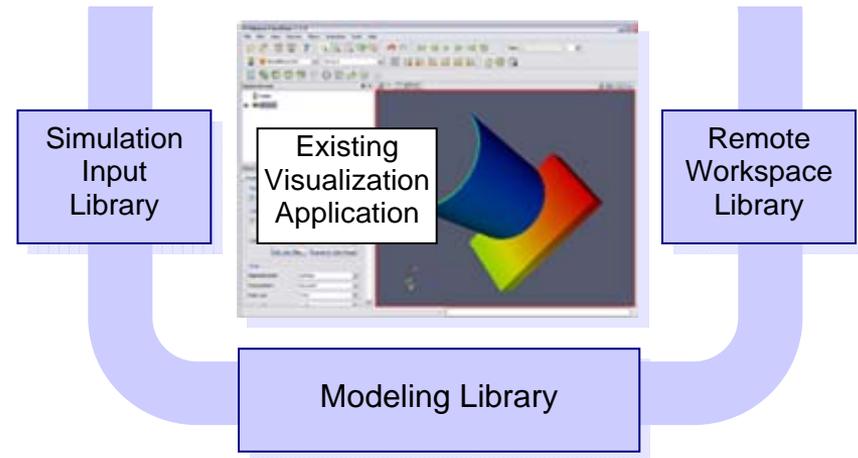
Determine the feasibility of a cross-platform application that:

- ✓ Study **Input File Descriptions Abstractions** for NASA codes
- ✓ Extend **Open-Source Visualization** application functionality
- ✓ Strong NASA-relevant reference Implementation with the **VORPAL** simulation and **VisIt** visualization application

Work Plan

- (1) Investigate Input Generalizations & Develop Prototype Library
- (2) Design Modeler Library & Develop Prototype
- (3) Design Remote Workspace Library & Develop Prototype
- (4) User Testing and Write Progress Report

VIPS Science Studio



NASA Applications

- ✓ Enhance the usability of NASA supercomputing resources
- ✓ Increase productivity of NASA scientists and engineers
- ✓ Reference implementation applicable to NASA mission

Non-NASA Applications

- ✓ Will augment value of any parallel numerical simulation
- ✓ Will aid in commercialization of a code developed at firm

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