

Sierra Usability & UI Integration Proposal

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Input from ARDEC, Cubit, Sierra, Workbench Teams

TCG-1

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Sierra Usability FY11 Summary

1. Add DoD-requested geometry and meshing enhancements to CUBIT
2. Support translation from Abaqus to Sierra and ALE3D
3. Disseminate analysis guidelines for key capabilities
4. Complete SNLs ongoing roadmap for integrated Analysis/V&V/UQ/Optimization capability

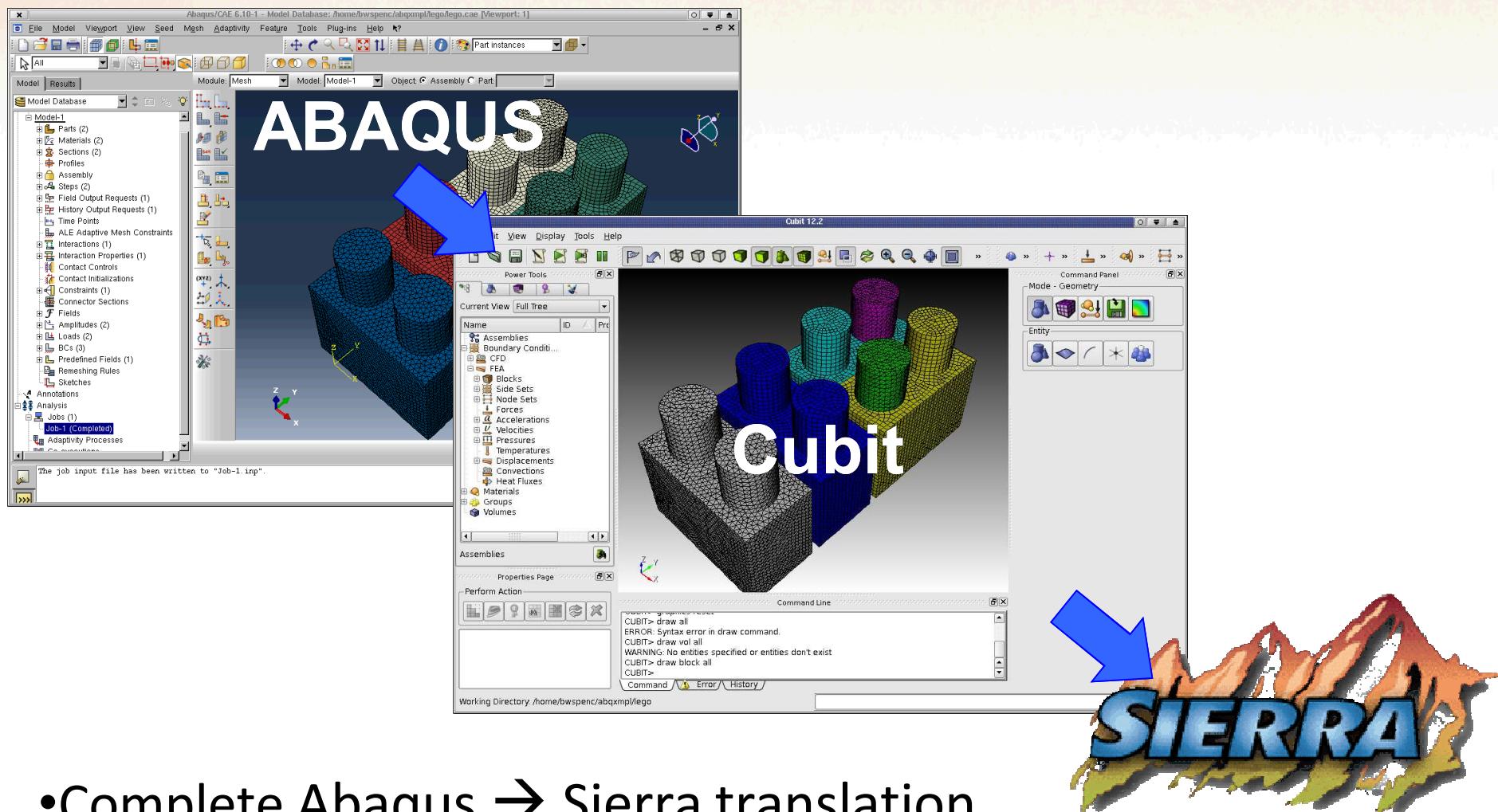
Total FY11 Costs: \$250K / \$250K

DoD Geometry/Meshing Tasks

- Import part, assembly, and colors from STEP
- Geometry fixing
- Virtual topology
- Coloring improvements
 - Automatic color by mesh type
 - Color by part, volume, material, element type, etc.
- Partitioned cells remain associated with volumes
- Mesh statistic visualization
- Assignment of materials for Eulerian codes

(blue text = in progress now)

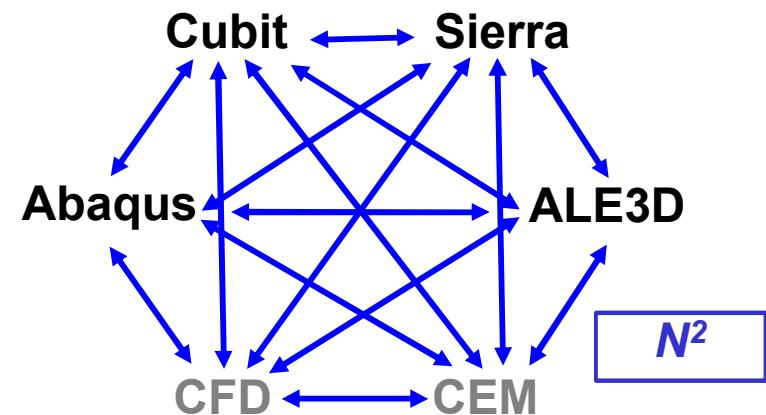
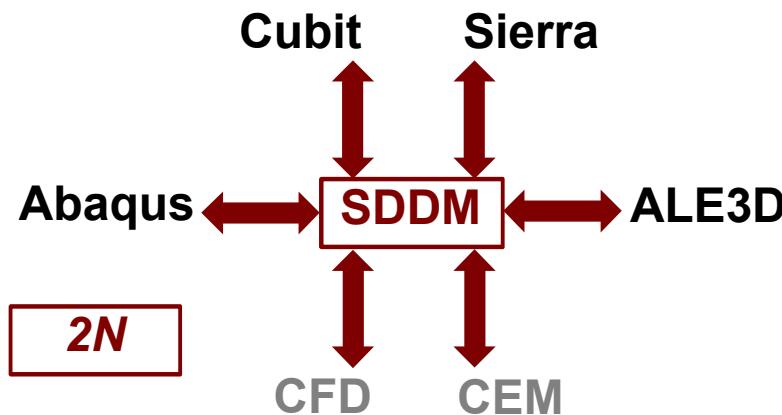
Translation Tasks: Abaqus



- Complete Abaqus → Sierra translation
- Support capabilities used in production analyses

Translation Tasks: ALE3D

- Coordinate with ALE3D team to add support for ALE3D in Sierra Editor and Cubit via SDDM
- SDDM = Simulation Data Definition Model



Disseminate Code Usage Guidelines

- Provide DoD users access to Sierra documents
 - Users manuals
 - Usage guidelines
 - Training materials
 - Example problems
 - Support information

Release - Adagio

file:///Users/bwsenc/gitproj/docs/adagio/web/html_src/resources_adagio.htm

SIERRA Solid Mechanics Nonlinear Analysis of Solids

Home Overview Resources Contact Us Internal Users

Resources

Adagio 4.18

Release Date: September 2010

Features for this version include:

- Initialization of Variables with Weibull Distribution
- Automatic Contact Interactions for Implicit Analysis
- User Output Data Filtering
- Representative Volume Element Usage Enhancements

Documentation

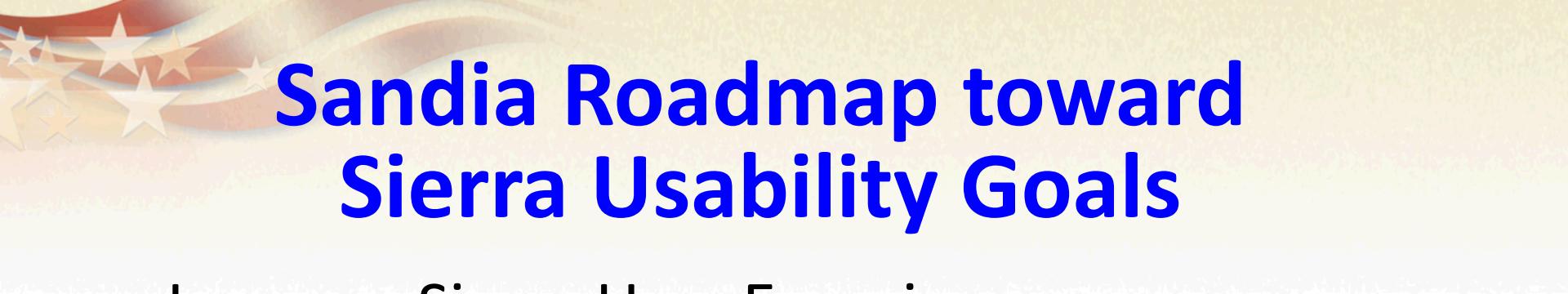
- [Adagio 4.18 Release Notes](#)
- [Adagio 4.18 User's Guide](#)
- [Adagio 4.18 Command Summary](#)

Adagio 4.16

Release Date: May 2010

Features for this version include:

I-CMS Material Model being used by default



Sandia Roadmap toward Sierra Usability Goals

Improve Sierra User Experience

User Experience comparable to expectation set by, e.g., Abaqus CAE, ANSYS Workbench

Amplify Sierra's Distinguishing Strengths

Realize the vision of integrated analysis, V&V, optimization, and UQ

Integration with a diverse computing environment
local, remote parallel, & exascale computing

Available Sandia Technology for Analysis/V&V/UQ/Opt

CUBIT

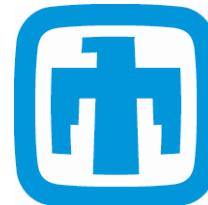
Geometry and Mesh Generation Toolkit

Paraview

Data Visualization and Analysis

Dart Workbench

Integrated tools to aid analyst productivity



DAKOTA

Design Analysis Kit for Optimization and Terascale Applications

Sierra Editor

GUI driven syntax editor for SIERRA input files

SDDM

Simulation data definition model



Questions and Answers

And thank you for your consideration