DDDAS Project Update

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Outline

- Plan for Capabilities for May 2007 conference

- Target date for first canine experiment

- Proposal Status

- Talks for next couple of weeks
CyberInfrastructure

- hp adaptive FEM computations
- Compute Server
- Hp3D
- MRTI Data Transfer Feedback Control
- LBIE Mesher
- Image processing and Mesh generation
- Visualization Server
- Volume Rover
- Houston: Surgery/Visualization Client
- MRI & MRTI Scans
CyberInfrastructure

Client

Austin

Web Server

Visualization Clients
- VolumeRover
- WebBrowser

Houston

Middle Tier

XMLRPC

Back End

Data Server

Rendering
- Image Processing
- Mesh Generation
- Registration
- Internet/Intranet Aware

Hp3D
- FEM Computation
- Optimization
- MPI/Petsc
- Internet Aware
Outline of treatment

- Place patient in mri machine (mesh generated from day before and initial optimal parameters computed)

- Take set of MRI data and transfer via XML-RPC to TACC (if necessary) to do mesh-registration via image registration code.

- Volume/FEM Rendering at TACC send data to VolRover Client(s) via XML-RPC for visual confirmation of Mesh Registration
Outline of treatment

- Experiment Ready. Start MRTI acquisition and data transfer. Start FEM code at TACC (lonestar). Open VNC on Maverick for visual confirmation of calibration.

  ▶ Begin with XML-RPC in AVS: commercial package but have enough of the source code to do this

  ▶ Is FEM Temp Visualization in Vol Rover Beneficial?
Plan for ICCS May 2007

GOAL: create one movie demonstrating that all the ingredients are working seemlessly

Priorities

1. Setup CVC software for real time mesh registration via image registration (rigid body motions only) and XML-RPC
2. have FEM code ready for real time calibration/optimal control and AVS/VNC/XML-RPC visualization
3. add mesh deformation if necessary
4. add real time FEM Temp Visualization if necessary
Target Date For Canine Experiments

- Several Phantom Runs must be completed first

- Ready For Real time Calibration and visualization *(Late March)*
  - data transfer needs to be redone. average time to transfer a *5MB* file from Lonestar to Maverick is *5 sec* using San file system or SCP.
  - study various optimization methods

- Ready for real time control by *(Mid-Late April)*
Proposal Status

???
Talks for next couple of weeks

website