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LSSw Panel Introduction

Angela Herring

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About me:

- Group Leader, XCP-4, Continuum Models and Numerical Methods
- Project Leader/PI, Lynx project
- Scientific software developer since 2006
- Project leader/PI/Scrum master since 2010
- Specialization in leading multi-disciplinary scientific software teams
- Have led ~8 teams since 2010

Ecosystem:

- Lynx project develops the remap and interface reconstruction libraries for LANL's Next Generation Code effort, Ristra
- Lynx tools are designed to interact well with the Ristra backbone, FleCSI, are not FleCSI applications
- XCP-4 develops and rapidly deploys physics models for multiphysics codes: HE, Turbulence, and numerical methods (remap, mesh smoothing, hydrodynamics, etc)
 - Support four major multiphysics projects

Prompts

From the perspective of the scientific software ecosystem you represent:

- Do you think there is value in designing, implementing, and delivering application-specific libraries, tools, and environments as reusable components?
 - Writing libraries:
 - Reduces overall lines of code which must be maintained
 - Enables shared staffing across codebases
 - Reduces lines of code in multiphysics codebases
- What has worked and not worked well with past efforts in this area?
 - Worked well:
 - Sharing remap code to link two codes together
 - Sharing interface reconstruction code
 - Trickier:
 - Sharing inline remap capabilities
 - Ensuring performance is maintained when accessing mesh data
- What are some near-term opportunities for componentization in your application area?
 - Cross-cutting capabilities:
 - HE libraries
 - Turbulence libraries
 - Smoothing libraries
 - Material model libraries
- How could this kind of software collection be adopted and sustained?
 - Funding must push/enforce code reuse
 - LANL has recently created a project dedicated to sharing libraries