

LSSw Meeting 5

February 17, 2022

Announcements

Preview for LSSw Meeting 6: Mar 17, 2022

- **Topic: Scientific Software Ecosystems: A panel discussion**
- **Description:** This month we have panelists representing other technical software ecosystems:
 - Anita Carleton, CMU, SEI
 - T. Daniel Crawford, Virginia Tech, MolSSI
 - Lorraine Hwang, UC Davis, CIG
 - Elizabeth Sexton-Kennedy, Fermi Lab, HSF
 - Andy Terrel, Xometry, NumFocus
- **Prompts:**
 - What is the value proposition of your ecosystem to its developer and user community?
 - What is the business model of your ecosystem (how do people fund their efforts)?
 - What are some of the challenges you face in providing value?
 - What are your sustainability challenges?

LSSw Meeting 5

- Topic: Meetings 1 - 4 Retrospective and Community Input
- Description: We review key themes from the previous 4 town halls
 - Mike Heroux – Discussion kickoff and moderator
 - All participants – Bring up key takeaways you have from previous meetings
 - For a reminder go to <https://lssw.io> to review content from previous meetings
 - Note: lssw.io is a redirect to <https://leadershipscientificsoftware.github.io>
 - Raise your hand in Zoom to signal you want to comment

LSSw Town Halls 1 – 4: Some themes

Meeting 1 topic: Overview of the ECP Software Technology Focus Area

- Mike Heroux, Director of Software Technology, US DOE Exascale Computing Project

Some themes:

- ECP has enabled the creation of a portfolio approach to developing and delivering SW
- The creation of SDKs enable collaboration of teams developing similar capabilities
- The creation of E4S provides a new top-level entity in the HPC ecosystem
- The sustainability of ECP software efforts is a high priority as the project ends
- Exploring the design space with the broad scientific software community is essential

Meeting 2 topic: Progress, impediments, priorities & gaps in leadership scientific software

- Ann Almgren, Berkeley Lab, PI of the AMReX project
- Todd Gamblin, Lawrence Livermore National Lab, PI of the Spack project
- Paul Kent, Oak Ridge National Lab, PI of the QMCPACK project
- J. David Moulton, Los Alamos National Lab, PI of the IDEAS Watersheds project
- Todd Munson, Argonne National Lab, PI of the PETSc/TAO project

Some themes:

- Improved SW quality and availability accelerates scientific discovery
- Maintaining SW workforce is essential through visible, sustained career paths
- Engaging, growing, & sustaining a user base is essential for viable products
- Regular testing & integration are essential for providing trusted SW components
- Complexity is growing in many dimensions, coordinated SW efforts can mitigate it

Meeting 3 topic: US Agency Use of DOE HPC Software

- Shawn Brown, Pittsburgh Supercomputing Center
- Jeff Durachta, NOAA
- Alice Koniges, University of Hawai'i Data Science Center
- Piyush Mehrotra, NASA
- Andrew Wissink, US Army

Some themes:

- Open-source community-based software products are attractive resources
- Heterogeneous platforms (GPUs) represent a significant challenge for apps
- Lack of stable programming environments, transition costs are blockers for GPUs
- Spack is used or is on the radar for all panelist communities
- DOE math libs, perf tools, portability layers & E4S used or on the radar of most

Meeting 4 topic: Expanding Leadership Scientific Software Developer & User Communities

- Deb Agarwal, Berkeley Lab
- Anshu Dubey, Argonne National Laboratory
- Bill Hart, Sandia National Labs
- Addi Malviya-Thakur, Oak Ridge National Laboratory
- Katherine Riley, Argonne National Laboratory

Some themes:

- All panelists support the expanded definition of leadership to include their domain
- New leadership definition enables holistic strategy for quality scientific SW
- The panelists' communities have much in common with HPC communities
- In the future, HPC and these communities have emerging collaboration opportunities
- SW practices & tools from these communities can help HPC teams improve