RSE in the US National Labs, from ORNL's Perspective

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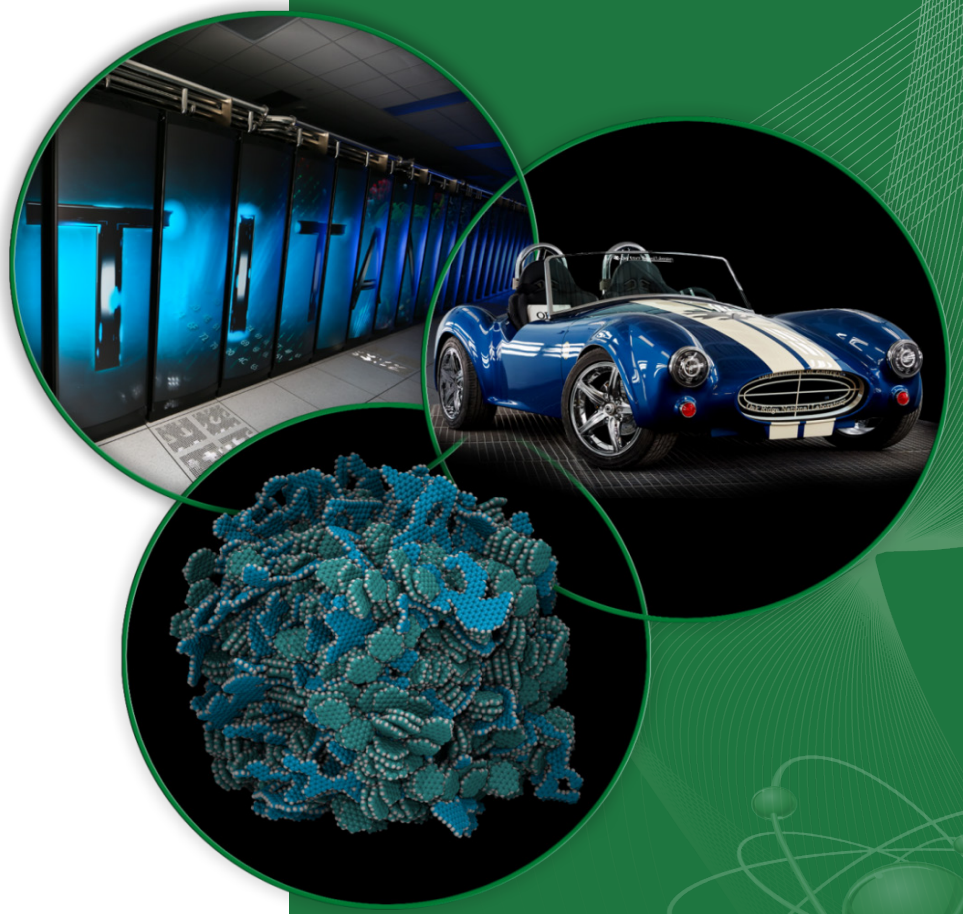

Back in the day…

- Labs like ORNL produce a lot of software and do a lot of “software engineering”
- People in the RSE role tend to be scattered around the lab
  - Associated with the group that they support
  - Extensive interactions with the researchers they support, less with other RSEs
- Can be a challenge to evaluate RSEs in a groups dominated by researchers
- Software development is largely “local” (up to the PI)
  - No higher, lab-wide perspective on software development

Recognizing the Opportunity (and Need) for Improvement

- We have become a “software shop”
- Co-develop: software development in the context of research projects
  - Quality: Introduce software quality practices early in the development process
  - Utility: Connection to research projects ensures that products have utility
- Support maintenance of software skill sets
- Balance embedding versus mobility versus capacity
- Need to grow and support a lab wide culture of software development
  - Appropriate metrics for individuals: peer review, by the appropriate community, is the essential goal

Initial Steps

- Over 100 software packages supporting communities with 68 packages identified through presentations in “software expos” representing 13 divisions in multiple directorates.
- Over 900 users in ORNL GitLab server (Git repo hosting service), representing 600GB of source code.
- Active development of internal training courses for students, postgrads, and staff in Python and C++.
- Regular “hackathons” for social coding and user group meetings.
- Dedicated Twitter channel: @ORNLSoftware.
- Dedicated line org: Scientific Software Development.
- Still challenging: *attribution, community, compensation*

The Future

- ORNL actively working to promote RSE through our Scientific Software Initiative (SSI)
- Building a community for RSEs to connect, find opportunities, and contribute.
- Encouraging the use of new software metrics that add SE-themed peer review to performance management.
- Building standards of practice and state-of-the-art tools to help RSEs progress.
- Educating the broader Lab community on what RSEs are and what they can do for them, how they fit in their projects.
- Contributing to DOE-wide efforts, such as DOE Code, that increase attribution and allow RSEs to get DOIs for software.
- Working with managers across the Lab to recognize, promote and support RSEs.