What I Learned from 20 Years of Leading Open Source Projects
(the slides are available under "Presentation Materials" in the above URL)
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Presented by: Wolfgang Bangerth (Colorado State University)

Q. What happened to deal.i (deal one) ?

A. It stays closed source.

Q. How do you balance time between contributing to open source projects and work responsibilities?

A. It's a balancing act that als involves knowing what my department, the NSF, my family, and others are expecting of me. There is never enough time for everything, and we all struggle with it.

Q. How are you addressing the transition to GPUs?

A. Other developers in the team are addressing that.

Q. Did you learn software development by use or did you take any professional software development classes?

A. I am self taught. My formal training is in physics and mathematics.

Q. Did you stumble on any "anti-patterns" that you would want to share? (Management or technical software-related, maybe just the most memorable)

A. We've made some mistakes, but not too many. I can't remember any anti-patterns other than trying to write something like a smart pointer without really knowing what we wanted out of it.

Q. How did you manage to find 11 developers?

A. Being welcoming and giving credit. Understanding where people are coming from and trying to figure out what they want to get out of it.

Q. As a physicist and mathematician, do you produce more in science or computer coding? How can you reach a balance between being productive in science and coding with the best practice?

A. I'm doing all of it to some degree. Some of my papers are about algorithms, some are on applications. I really enjoy programming, but I spend far more time these days on reviewing other people's patches than writing my own. That's just being a manager, I guess.

Q. To paraphrase Seymour Cray, would you rather write software with two professional programmers or 100 volunteers and grad students?

A. That depends on what your timeline is. Personally, I enjoy working with students, but there is no question that working with professional software developers will give better results quicker. That said, the NSF (or universities) does not provide the sort of money necessary to actually offer professional programmers what they can get on the free market.

Q. Do you see the current level of package complexity as a necessary feature to achieve modern functionality, or as an undesirable side-effect that we are realizing post-facto and we could aspire to simpler structure in the future?

A. Necessary. There is nothing that can be done about it.

Q. How do you avoid micromanaging new students and the code they write?

A. You need to 'let go' of some control and let people contribute.

Q. If starting deal.II from scratch would be reasonable, what would you do differently with your current knowledge?

A. Not very much actually :-)
(You mentioned you wouldn't implement your own linear algebra routines anymore? -- not from Wolfgang) Yes, that is correct, but that's a relatively small part of deal.II.

Q. Should DOE change funding to better support your ideas?

A. I think DOE has understood that scientific software is a foundational issue that needs to be supported long-term in the same way as physical research infrastructure is. This webinar is just one example of having this understanding. As to whether DOE should directly support me/my research: DOE has a mission, stipulated by law and actual practice; DOE is not a funding agency for research. As a consequence, DOE would support my work if it was necessary for the DOE mission; it has found in the past that it is not necessary, and that is fine with me.

Q. On the focus of academia to publish papers over publishing code, how do you handle this personally and with your grad students? Also, how do you handle the training requirements internally? Do you use existing resources like MOOC or do you do one on one training or something else?

A. I've done ok publishing over the past few years, often on parts of my work on deal.II itself (the algorithmic side) and also often on *applications* of deal.II to other areas. By and large, my publication record is what can be expected of a professor in a department like mine: https://www.math.colostate.edu/~bangerth/publications.html