

The last few years have been very challenging with regards to hiring and retaining talented developers to work on scientific software. There is a very high demand for their skill set and as more and more companies are adopting remote work policies, the competition to hire this small pool of skilled professionals has become fierce. It is challenging to compete with companies that are headquartered in high cost of living areas (such as the Bay Area) and are willing to pay comparable salaries to remote workers living where the cost of living is lower.

It has been especially challenging to retain experienced developers. Many of the projects funded by the DOE provide significant growth opportunities for researchers and developers. We encourage early career scientists to publish and to present. As a result, the best ones quickly develop worldwide recognition and become prime candidates for companies willing to pay significantly high salaries.

The best way to counteract (in addition to improving compensation) is to play to the strengths of the scientific computing software community. These are: open science culture, impact and scientific freedom. Many of these bright developers come from a science background. They are passionate about working in an environment where they can freely exchange their work products with others and collaborate closely. This is often not possible in the industry where the IP is closely guarded and collaboration is often limited to within the company. Furthermore, DOE sponsored work often has broad scientific impact which can be directly linked to improving human knowledge, reducing our negative impact on the environment and increasing our quality of life. Finally, the DOE ecosystem provides significantly more freedom to choose one's destiny through early career awards, grants, lab directed projects etc. This is in contrast to much of the industry where one's career choices are limited to opportunities within the particular unit that they are part of or to moving to another position or another company.

These are important strengths that can help hire and retain talented and passionate individuals. However, their impact can be somewhat limited when it comes to developers of scientific software. Those passionate about developing scientific software want to see their software have a broad impact, often beyond DOE's sphere of influence. This requires the freedom to address at least some of the needs of the broader user community, which is not always possible with the funding mechanisms

and reward infrastructure available within DOE. Scientists and developers are more likely to be awarded for their publications than the features or the quality of the software to which they contribute. Funding mechanisms are more targeted towards developing novel methods and less towards community building and maintaining long lived software. Addressing these issues would significantly strengthen our ability to hire and retain talented software developers leveraging our strengths of open science culture, impact and scientific freedom.