Towards a Seamless Transition to Virtual Teams

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Abstract

From an ad hoc and infrequent exercise, many teams have been abruptly pushed into a virtual context by the ongoing pandemic. While the coming years will inform us about the eventual impact of this transition, sharing of lessons learnt from diverse experiences will enable smoother transition as well as continued operation of virtual teams. With a special emphasis on virtual software teams, we will present a summary of key lessons learnt in transitioning co-located and partially distributed software teams to fully virtual software teams.

Background

Scientific software teams are now working remotely and collaborating virtually in response to COVID-19 social distancing practices. In many cases, teams were co-located, and their transition was unplanned. As working remotely has suddenly become a near-universal experience for staff members of research organizations, many software teams are now functioning as completely virtual teams—geographically dispersed and interacting only through electronic communication rather than in person. The authors contributed to the IDEAS-ECP [1], [2] (IDEAS stands for Interoperable Design of Extreme-scale Application Software). The project is funded by the Exascale Computing Project (ECP) [3] of the U.S. Department of Energy (DOE). Panel discussion series Strategies for Working Remotely [1], [4]. The objective of the discussion was to share experiences in recent transitions from co-located and partially distributed software teams to fully virtual software teams. Topics included challenges, lessons learned, unforeseen benefits, and opportunities to look for from this experience. Panelists made brief introductory comments followed by open discussion [5].

In this State of the Practice presentation, we will discuss the challenges, lessons learned, opportunities and unforeseen benefits from this unprecedented experience. An emphasis will be on virtual teams that are geographically dispersed and interacting only through electronic communication rather than in person. The presentation will also summarize some of the key lessons from the third episode of the IDEAS-ECP Strategies for Working Remotely panel series [5], discussion that brought together several staff members of the Department of Energy's national laboratories, who spoke about experiences in recent transitions from co-located and partially distributed software teams to fully virtual software teams.

Lessons Learnt

Some of the key challenges that are currently being faced by many scientific software development teams include the hurdles in bringing together people with diverse backgrounds to perform paired programming in a remote setting. For example, many teams include subject matter experts, algorithm designers, programmers, and software engineers, where interaction is not always easy. The ability to communicate effectively in a remote context becomes especially challenging. New challenges emerge in the recruitment and remote-mentoring of new talent. A widely varying life situation of team members introduces new challenges.

Under these significant hurdles, some of the key lessons we will discuss include lesson on implementing fundamental aspects of remote work such as establishing and adhering to regular work schedule, implementing ergonomic workplaces in a home environment, enabling stronger online presence through stronger Internet connections, and establishing convenient and regular meeting practices. The diversity of individual life situations such as young parents without access to childcare have brought forth a new set of challenges in establishing a level playing field, as well as the ability to communicate regularly during scheduled time frames. Consequently, teams that are characterized by generosity and acceptance of unequal roles from its contributing members have emerged as resilient and stronger teams. Teams are also benefiting from enabling social interactions through water cooler meetings and nontraditional means such as games. A final lesson is encouraging charity in all forms, especially through actions from the leadership that can result in a meaningful impact on building a positive organizational culture benefiting not only the organization but also the society at large.

A concluding lesson that we will discuss is on the increased burden on leadership and organizational culture that enable successful transition to virtual teams. This ability has emerged as a competitive advantage and determines the long term success of an organization in our opinion.

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