

# Why We Need Strategies for Working Remotely: the Exascale Computing Project (ECP) Panel Series

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**Abstract—** In response to the COVID-19 pandemic, the Exascale Computing Project’s Interoperable Design of Extreme-scale Application Software (IDEAS-ECP) team launched the panel series *Strategies for Working Remotely*. The panels facilitate informal, cross-organizational dialog. In a time of pandemic, we increasingly need to reach across perceived boundaries to learn from each other, so that we can move beyond stand-alone silos to more connected multidisciplinary and multi-organizational teams of teams configurations—that are *more than HPC*. This State of the Practice contribution argues that the unplanned transition to remote work, overuse of electronic communication, and need to unlearn habits associated with an overreliance on face-to-face, have created unique opportunities to learn from the situation and accelerate cross-institutional cooperation and collaboration through community dialog.

**Keywords—**remote work, COVID-19, virtual work, working from home, panel series, community dialog, team of teams

## I. INTRODUCTION

Many scientific software teams have functioned as dispersed teams, or teams of teams [1] and are familiar with a variety of tools commonly used by software teams to stay connected, such as email, messaging, Slack, Gitter, GitHub, Skype, MS Teams, Zoom, etc. Additionally, if you have traveled extensively, have colleagues at geographically distributed institutions, or have worked offsite, then you experienced virtual, or remote work at one time or another. While for some, working remotely had been an everyday occurrence, the global COVID-19 pandemic [2] thrust many of us into a new normal that involves extended remote work and/or reduced exposure to others while in co-located spaces and practicing social distancing. Several factors operating simultaneously have contributed to perceptions that working remotely now (during COVID-19) seems qualitatively different from working remotely before the pandemic. They include: unplanned and imposed transitions to working from home, degraded and overused electronic communication channels, and the need to learn new skills as well as *unlearn old habits* that over time may have shaped our views of what it means to be productive. Since it is likely that a combination of working

from home and social distancing while at worksites is here to stay for a while in some form or another, we need *strategies for working remotely*.

## II. UNPLANNED AND IMPOSED TRANSITION

The transition from the office to working remotely at home for many of us was unplanned and imposed. We did not ask for it, we did not plan for it, and we certainly could not control it. Yes, we face challenges including caretaking and parenting while working remotely, transitioning our teams and operations to a fully virtual set-up, and virtually onboarding new team members. However, while the imposition of these unplanned changes may pose great stress for many of us, we should also nevertheless consider that there are many essential staff members who are required to report to work in co-located spaces while practicing physical distancing and in some cases putting themselves in harm’s way for a greater good. The challenges faced by essential workers who are our colleagues and the need to move much of the workforce to working remotely, impact future policies and ways our organizations will respond in the near- and long-term. As our organizations shift back to what they consider “normal” — which was most likely already a hybrid arrangement of co-located and satellite team members who are remotely working, there will hopefully be increased awareness of the struggles faced by all. The trend of remote working will likely continue for some time especially since now we, as a community of computational scientists, have a more *collective* experience with working remotely. In our community, remote work arrangements are nothing new. What is new, however, is that we have all been working remotely *together*. This alone has reshaped our workplace to allow for increased awareness and, in many cases, to illuminate what it’s like to experience work differently.

## III. DEGRADED AND OVERUSED COMMUNICATION CHANNEL

Before the pandemic, we had a healthy combination of face-to-face and technology-mediated communication each day, both synchronous and asynchronous. We decided how much we wanted, and when. We had agency, or locus of control. The

face-to-face communication channel is what communication scholars call stimulus rich — that is, we use our senses (auditory, visual, tactile, olfactory, and gustatory) to engage in verbal and nonverbal communication and are mostly unaware of it. Technology-mediated communication, on the other hand (except for holographic and cross reality systems which offer greater possibility for immersion), is still rather stimulus poor. Since a greater number of us are working remotely, the overuse of electronic communication for extended periods of time often degraded by poor connectivity literally overwhelms the human brain as it attempts to process and share information via screens instead of through unmediated verbal and nonverbal channels. For example, “Zoom fatigue” characterized by our constant gaze into a video camera is exhausting [3]. Managing expectations when working in environments characterized by degraded and overused communication channels (mostly electronic) is the unfortunate current reality of working remotely. The good news, however, is that in the best cases productivity does not suffer [4], rather, it flourishes.

#### IV. UNLEARNING OLD HABITS

While most, if not all of us are open to learning new skills, we also should be open to *unlearning* old habits that no longer work for us in a new situation. Regarding working remotely and productivity, unlearning a habit in this case refers to a rethinking a familiar way of working that may no longer meet the collective expectations of productivity while we are working through a pandemic. It has been said that computational scientists may easily work from anywhere. However, this may only be true *as long as certain conditions exist*. Those conditions are different for each of us. The opportunity we have now with respect to working remotely is to determine for ourselves, and with our teams, what those conditions are. Even though some, if not most of us, may believe we are rather skilled at working remotely, we should be open to ways that newcomers to the remote working experience will impact perceptions of productivity, and the stability or comfort of the habits we once enjoyed. Very likely, we will find that our openness to new ways of working is rewarded with increased innovation, productivity, and satisfaction.

#### V. FACILITATING COMMUNITY DIALOG

In response to the challenges identified above related to the COVID-19 pandemic and the influx of previously co-located teams to working remotely, the Exascale Computing Project’s Interoperable Design of Extreme-scale Application Software (IDEAS-ECP) team launched the panel series *Strategies for Working Remotely* [5]. Many, if not all, of us want spontaneous, synchronous group conversations – we miss humanity. To date, there have been six panels who have addressed advice from those who are experienced, parenting while working remotely, transitioning to virtual teams, onboarding and mentoring, how teams cope with disruption, and hybrid organizational structures. Most of the panels have focused on building individual resiliency skills to cope with working remotely during the COVID-19 pandemic. The panel series is designed

to promote informal, cross-organizational dialog and build community. In a time of pandemic that has exacerbated the challenges expressed in previous sections, we increasingly need to *reach across* perceived boundaries to learn from each other, so that we can *move beyond* stand-alone silos to more connected multidisciplinary and multi-organizational configurations. No longer bound by physical walls, we can consider how working remotely allows us to operate as global teams of teams [1].

#### VI. CONCLUSIONS

Unplanned and imposed remote work created a sea change that has altered the way we work now and will likely impact the way we work in the future. A panel series such as *Strategies for Working Remotely* [5] offers opportunities to scale and accelerate cross-institutional cooperation and collaboration in the community. Each of us serves an important role in ensuring that we learn as a community from the COVID-19 pandemic. Anticipating the pandemic’s lasting impact, we have an opportunity to shape and influence the future of scientific work by collectively developing strategies for working remotely. We can now more easily see where our organizational infrastructures and policies can be improved. Our own habits and assumptions about productivity, togetherness, isolation, inclusivity, and communication are challenged each day. The shift to remote work en masse during a pandemic and social change has given us an opportunity to be more inclusive and compassionate, opening doors for technological innovation to support how we work and communicate as teams of scientists, especially in those situations where we lack the most while absent from each other.

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