TITLE: Socio-Technical Coordination

Abstract:

Product architecture structures the coordination problem that the development organization must solve. The modularity strategy establishes design rules that fix module functionality and interfaces, and assigns development work for each module to a single team. The modules present relatively independent coordination problems that teams attempt to solve with all the traditional coordination mechanisms available to them. The applicability and effectiveness of this strategy is limited with increasing technical and organizational volatility. In the absence of theory explaining why and when modularity works, the technique is brittle, with very little firm basis for adjustment or for complementing it with other strategies. I present a theory of coordination, based on decision networks, that generalizes the modularity strategy. I review evidence testing several hypotheses derived from the theory, and explore how this theoretical view can drive coordination research and provide a theoretical basis for practical techniques to assist architects, developers, and managers.

Bio:

James Herbsleb is a Professor in the Institute for Software Research in the School of Computer Science at Carnegie Mellon University. His research interests lie primarily in the intersection of software engineering, computer-supported cooperative work, and socio-technical systems, focusing on such areas as geographically distributed development teams and large-scale open source development. He holds a PhD in psychology, and an MS in computer science. For about two decades, he has worked with assorted colleagues and minions to try to understand the complex and dynamic relationship between human collaboration and the software that the humans are designing and using. On his optimistic days, he feels he has made a bit of progress.