

Does Scale Really Matter? Ultra-Large-Scale Systems Seven Years after the Study (Keynote)

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ABSTRACT

In 2006, *Ultra-Large-Scale Systems: The Software Challenge of the Future* (ISBN 0-9786956-0-7) documented the results of a year-long study on ultra-large, complex, distributed systems. Ultra-large-scale (ULS) systems are socio-technical ecosystems of ultra-large size on one or many dimensions – number of lines of code; number of people employing the system for different purposes; amount of data stored, accessed, manipulated, and refined; number of connections and interdependencies among software components; number of hardware elements to which they interface. The characteristics of such systems require changes in traditional software development and management practices, which in turn require a new multi-disciplinary perspective and research. A carefully prescribed research agenda was suggested.

What has happened since the study results were published? This talk shares a perspective on the post study reality — a perspective based on research motivated by the study and direct experiences with ULS systems.

ABOUT THE SPEAKER

Linda Northrop is director of the Research, Technology, and Systems Solution Program at the Software Engineering Institute (SEI) where she leads the work in architecture-centric

engineering, software product lines, cyber-physical systems, advanced mobile systems, and ultra-large-scale systems. Linda is coauthor of the book *Software Product Lines: Practices and Patterns* and led the research group on ultra-large-scale systems that resulted in the book, *Ultra-Large-Scale Systems: The Software Challenge of the Future*. Before joining the SEI, she was associated with both the United States Air Force Academy and the State University of New York as professor of computer science, and with both Eastman Kodak and IBM as a software engineer. She is an SEI Fellow and an ACM Distinguished Member.

