When System Boundaries Dissolve:  
Research Opportunities in Software Architectures  
for Ubiquitous Computing and Communication  

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Abstract  
Modern computing technology is creating a growing infrastructure for high performance, nearly ubiquitous computing and communication. This infrastructure extends the reach of computation and information beyond the traditional framework of a computer application running on a fixed set of machines. The architectures that suffice for such traditional software do not address the challenges of highly distributed, dynamically reconfigured software systems that depend on resources controlled by someone other than the developer. I will discuss the architectural challenges of this new setting, describe some promising approaches to handling those challenges, and suggest research strategies for exploring and developing solutions. 

Biography  
Mary Shaw is the Alan J. Perlis Professor of Computer Science at Carnegie Mellon University. She has been a member of this faculty since completing the Ph.D. degree at Carnegie-Mellon in 1972. She had previously earned a B.A (cum laude) from Rice University and worked in systems programming and research at the Research Analysis Corporation and Rice University.  
Her research interests in computer science lie primarily in the areas of programming systems and software engineering, particularly software architecture, programming languages, specifications, and abstraction techniques. She has participated in developing innovative curricula in Computer Science from the introductory to the doctoral level. Dr. Shaw has received the Warnier prize for contributions to software engineering and is a Fellow of the Association for Computing Machinery, the Institute for Electrical and Electronics Engineers, and the American Association for the Advancement of Science.