Rainbow: Engineering Support for Self-Healing Systems
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Abstract
An increasingly important requirement of modern software-based systems is continuous operation even in the face of environmental changes, shifting user requirements, and unanticipated faults. One approach to address this requirement is to make systems self-adaptive: when problems are detected the system "heals" itself. In this talk I describe the Rainbow System, which allows engineers to add self-healing capabilities to existing systems. The key ideas behind Rainbow are (a) the use of architectural models; (b) a new language for specifying self-healing strategies; and (c) the ability to customize the self-healing mechanisms to the domain.

Biography
David Garlan is a Professor of Computer Science and Director of Software Engineering Professional Programs in the School of Computer Science at Carnegie Mellon University. He received his Ph.D. from Carnegie Mellon in 1987. His interests include software architecture, self-adaptive systems, formal methods, and cyber-physical systems. He is considered to be one of the founders of the field of software architecture, and, in particular, formal representation and analysis of architectural designs. He has published numerous articles and co-authored two books about software architecture. In 2005 he received a Stevens Award Citation for "fundamental contributions to the development and understanding of software architecture as a discipline in software engineering."