Software Development Support for Next-Generation Distributed Embedded Systems

Stephen S. Yau

Department of Computer Science and Engineering
Arizona State University
yau@asu.edu

Abstract

Current trends in distributed computing systems indicate that they are expanding from enterprise computing to sensor-rich smart spaces and ubiquitous computing environments. These environments may consist of various types of context-aware embedded and handheld devices, possibly integrated with physical environments and transparently connected to each other through mobile ad hoc networks. Such environments pose new challenges related to the end-to-end aspects of software development and execution. These challenges require a new way of looking at the software development issues, especially how to develop software systems that can take advantage of the increased intelligence from the surrounding environments.

In this talk we will explore emerging technologies, which can be used to effectively address the software development issues related to next-generation distributed embedded systems. In particular, we will discuss the increasingly important roles of middleware technologies, application frameworks, and model-based software development methodologies in this aspect. We will also describe how the respective strengths of these technologies can possibly facilitate the development and execution of high-quality distributed software systems in sensor-rich, distributed embedded environments.