

Experiments in Adaptable Distributed Systems

Bharat Bhargava

Department of Computer Sciences
Purdue University
West Lafayette, IN 47907

Abstract

An adaptable system can gracefully reconfigure based on its environment during execution. We propose to conduct a series of experiments that will lead in the development of policies for adaptability at the application, system, and network layer to meet the quality of service requirements. We study the impact of system constraints in determining the quality of service that can be guaranteed to the user. We plan to identify adaptability guidelines and mechanisms that will be implemented in the application and system software. We will evaluate how adaptability impacts in meeting the quality of service requirements in different applications. We focus on two fundamental research problems: Adaptability mechanisms and infrastructure and Adaptable quality of service provision and control for distributed systems. This will lead toward developing expert rules/guidelines for system adaptability and its impact on various applications. This will allow the research on the behavior of system software and its impact on various emerging applications such as electronic commerce, digital libraries, and video conferencing systems. This research will allow experiments with advanced system services, protocols, techniques and their experimental evaluation. This knowledge is applicable to various system software used in collaborative computing, distributed file systems, multimedia application, and real-time processing.