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An MPC-controller for Optimizing Resource Utilization, QoS Violation, and Energy Efficiency in Lambda Platform

By: Dr. M.Reza HoseinyFarahabady

The emergence of Lambda platform has stimulated many parties, ranging from small businesses to big enterprises, encouraging them to plan for building software systems which are easier to understand, test, and maintain. This platform emerged as a computing service paradigm where enable users to deploy their scripts, as a sole function or a set of libraries, without concerning about the provisioning or managing the underlying servers/infrastructure that would be used to run the code. Such paradigm can be effectively exploited as an event-driven compute service where the platform is responsible to run the users' code when some pre-defined event, such as changes in database, occurs. In return, users lose the flexibility to choose or customize the underlying operating system or adjust the run-time configuration of the programming language environment similar to what they can do in a traditional deployment paradigm such as hypervisor- and container-based virtualization. In this talk, we are looking for creating some advanced controller techniques to allocate effectively available resources to handle the tasks with complex execution patterns in order to preserve the QoS enforced by end-users in a Lambda platform.

زمان : پنج‌شنبه ۱۸ /۹۵/۹ - ساعت ۱۵

مکان : فرمانیه - خیابان شهید لواسانی- جنب برج کوه نور- نبش خیابان فربین- پژوهشگاه دانش‌های بنیادی - طبقه هم‌کف

***** شرکت برای عموم علاقه مندان آزاد است*****

Dr M.Reza HoseinyFarahabady is a research associate in the Centre for Distributed and High Performance Computing, at The University of Sydney, Australia since 2015. His main research interests include Control Engineering, Virtual Environments, and Approximation Algorithms.