IEEE KITCHENER-WATERLOO

SECTION PRESENTATION

Eyal de Lara

Assistant Professor
Dept. of C.S & Dept. of E&CE
University of Toronto

" System Support for Application Adaptation"

ABSTRACT:

The need for applications to adapt to the limited and variable resources, such as bandwidth and power, that characterize mobile environments is well established. This talk will consist of two parts. First, I will introduce Component-Based Adaptation, a novel approach that supports powerful adaptation policies without requiring modifications to the application's source code. In Component-Based Adaptation, the applications expose a run-time Application Programming Interface (API) to enable adaptation. The system adapts applications by calling their API methods. Because source code modification is not necessary, even proprietary applications, such as productivity tools from Microsoft's Office suite, can be adapted, and applications can be adapted long after they have been deployed. Even if source code is available, development time for implementing adaptation is much reduced. In the second part of the talk, I will describe Adaptation-Aware Editing and Progressive Update Propagation, two novel mechanisms that enable authoring multimedia content and collaborative work on mobile devices.

Adaptation-Aware Editing enables editing content that was adapted to reduce download time to the mobile device. Progressive Update Propagation reduces the time for propagating content generated at the mobile device by transmitting either a fraction of the modifications or transcoded versions thereof. With Application-Aware Editing and Progressive Update Propagation, an object present at a mobile device is characterized not only by a particular version, as in conventional replication, but also by a particular fidelity. I will demonstrate that replication models can be extended to account for the content's fidelity independently of the mechanisms used for concurrency control and consistency maintenance. As a result, these two techniques can easily be added to any replication protocol, whether optimistic or pessimistic.

BIOGRAPHY:

Eyal de Lara received a Ph.D. and M.Sc. from Rice University in 2002 and 1999, and a B.Sc. from the Instituto Tecnologico de Monterrey in 1995. His research interests include distributed systems, mobile and ubiquitous computing, collaborative work, and networking.

DATE: Thursday November 6,2003

TIME: 10:00 am

LOCATION: DC 1304, University of Waterloo Davis Centre

Invited by Youssef Iraqi

KW Communications/Vehicular Technology chapter vice-chair