The Web Operating System – WOS™

John Plaice
School of Computer Science and Engineering
UNSW SYDNEY NSW 2052, Australia
plaice@cse.unsw.edu.au

Herwig Unger
Universität Rostock, Fachbereich Informatik
D-18051 Rostock, Germany
hunger@ift.u-rostock.de

April 2000

The rapid development and the heterogeneous nature of the Web ensure that it is impossible to develop a complete catalog of all of the resources and services available on the Web. As a result, no single operating system can be used for Web computation, since it will necessarily be incomplete. Furthermore, it is unclear that such an operating system would even be useful, considering the different levels of granularity of service that need to be provided.

The Web Operating System (WOSTM™) approach to Web computation envisages a series of versioned servers, possibly offering different services, themselves versioned, that use the same basic protocol for communication amongst themselves, and that are capable of passing on requests for service when appropriate. The WOS is not defined by the actions of any single server but, rather, by the combined actions of the different servers.

This tutorial presents the status of the WOS, as currently implemented. It allows remote invocation of tasks from anywhere in the Web, without the use of any centralized servers. At the core is the use of two protocols, WOSP and WOSRP, for lookup-discovery work as well as for remote-invocation work.

At the same time, significant conceptual and theoretical work has been undertaken. It is the natural development of intensional programming, where computations are assumed to take place in a multidimensional context. Particular focus has been placed recently on the placing on the manipulation of multiple contexts that can be shared by the different objects that can be found in the Net.

The tutorial will include demonstrations of working networked software, and will be accessible to people new to the field, while still offering interesting insights to those who are currently developing networked systems.