Keynote Talk

A Unified View of Virtualization

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Abstract

Virtualization technologies have been developed by a number of computer science and engineering disciplines, sometimes independently, often by different groups and at different times. Not surprisingly, these groups each view virtualization as a sub-discipline, so it is studied in a fragmented way. In the future, however, virtualization will become an essential part of all computer systems by providing smart interconnection mechanisms for the three major system components — application software, system software, and hardware. Consequently, the study of virtualization technologies will become a discipline in its own right and will stand on equal footing with the other major areas of computer systems design.

Bio

James E. Smith is a professor in the Department of Electrical and Computer Engineering at the University of Wisconsin- Madison. He received his PhD in 1976 from the University of Illinois. Since then, he has been involved in a number of computer research and development projects as a faculty member at Wisconsin and in industry (Control Data Corporation, Astronautics Coporation, Cray Research). Currently, he and his research group are studying the virtual machine abstraction as a technique for providing high performance and power efficiency through co-design and tight coupling of virtual machine hardware and software. Prof. Smith recieved the ACM/IEEE 1999 Eckert-Mauchly Award for contributions to the field of computer architecture. He is co-author with Ravi Nair of a book on virtual machines soon to be published by Morgan Kaufmann.

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