

Trusted Mobile and Cloud Computing with Assured Big-Data Security and Privacy

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Abstract: In this talk, Dr. Hwang presents the ubiquity, mobility, scalability and energy efficiency of Internet clouds. The purpose is to assure big-data integrity, security and privacy in support of pervasive mobile computing and communication applications. He will discuss the interactions between mobile and cloud computing systems. With rapid growth of mobile devices and wireless networks, he assesses the impacts of smartphones, tablet computers, and 4G LTE/WiMax networks. In particular, he aims at supporting the emerging *Internet of things* (IoT) in secure cloud storage and fast processing of massive data collected from on-line sales, *peer-to-peer* (P2P) file sharing, and social/sensor/content networks among many other applications.

Hwang will share the design experiences and experimental results of three cloud research projects at USC in collaboration with several universities in US, China and Norway. These case studies cover cloud-based video gaming, secure data repository in smart-grid informatics, and sensor grid applications. He describes the prototype game cloud architecture and its measured performance results. To remove the security and trust barriers in these clouds, he presents several new ideas recently developed with data coloring, reputation system for intercloud, virtual machine insulation, bigdata governance, and cloud repository design for preserving data security and privacy. Finally, he will discuss research frontiers on three proposed future Internet architectures and their protocols in anticipated new applications.

Biographical Sketch : Kai Hwang is a Professor of EE/CS at the University of Southern California. He received the Ph.D. from University of California, Berkeley in 1972. He has published 8 books and over 220 scientific papers in computer architecture, parallel processing, distributed systems, cloud computing and network security. His books have been adopted worldwide and translated into 4 foreign languages. His works have been cited more than 11,000 times with an h-index of 45. His latest book: *Distributed and Cloud Computing* with G. Fox and J. Dongarra was published in 2011.

Dr. Hwang was recognized with an IEEE Fellow in 1986, received the 2004 CFC Outstanding Achievement Award, the IPDPS-2011 Founder's Award, and the Lifetime Achievement Award from the IEEE Cloud2012 for his pioneering work in parallel computing and distributed systems. He has served as the founding Editor-in-Chief of the *Journal of Parallel and Distributed Computing* for 28 years. He has delivered three dozens of keynote addresses on advanced computing systems and cutting-edge information technologies in major IEEE/ACM Conferences. Hwang has performed advisory, consulting and collaborative work for IBM, Intel, MIT Lincoln Lab, JPL at Caltech, ETL in Japan, Academia Sinica in China, GMD in Germany, and INRIA in France. He can be reached via Email: kaihwang@usc.edu.

