

Dr. Tom Keller - IBM

Category : Past Speakers

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Computer Data Centers: Backbones to the IT Revolution
Big, Hungry, and Growing

Commercial computers have grown not just in numbers but also in their individual power demands, resulting in an alarming electric power consumption trend. Today's kitchen refrigerator-sized "rack" of computers can now weigh as much as a Toyota Camry and consume as much electricity as 15 homes. Data centers, expensive buildings which house tens to hundreds of racks, now account for 2% of the electricity consumed in the U.S., a figure which has doubled in the last five years. Locally, Austin is home to six large data centers.

In an energy-constrained world, this growth is unsustainable and comes at increasingly unacceptable social costs. In response, computer manufacturers are refocusing their commercial server designs towards energy efficiency. This talk describes the energy challenges of supporting the world-wide Internet and what governments, electric utilities and the computer industry are doing about them. In addition, the Texas Advanced Computing Center's new, state-of-the-art data center, adjacent to the auditorium, will be open to tour.

Dr. Tom Keller is IBM's ranking technical executive in the area of power-aware computing and is a Distinguished Engineer in the company's Austin Research Laboratory, where research in energy-efficient data centers, microprocessors and computing systems is conducted. He has previously worked at the UT Computation Center, MCC and the Los Alamos National Laboratory holds a Ph.D. from the University of Texas in Computer Sciences.

Bio:

Dr. Tom W. Keller was recently promoted to Distinguished Engineer in the IBM Research Division for his contributions to the management of power in computer systems, one of the newest and most challenging problems facing computer developers today. Keller is among the first IBMers to recognize the importance of the power problem to continued competitiveness and has been a central figure in power-related activities. Keller and the research team he led at the Austin Research Lab have accumulated an impressive record of recent contributions, including co-developing the PowerExecutive™ feature, a power measurement and management product for IBM systems now shipping in System x platforms. They have also led development of power management in upcoming System p POWER6 systems, which begin shipping in 2007.

Keller began his 17 year career in IBM as technical lead of the AIX operating system performance group but has worked the last decade in the IBM Research Division, where he initiated and led the first IBM full system simulator project before working in low-power system design. His research record includes 40 refereed papers and 6 patents. After receiving his Ph.D. in 1976 from the University of Texas at Austin in Computer Sciences, he alternated between research and product development at the Los Alamos National Laboratory, the University of Texas and the Microelectronic and Computer Technology Corp. (MCC), where he designed the TPC-C benchmark.

Presented to the Forum on June 6, 2007

[Presentation Slides](#)

Access Dr. Keller's talk [here](#).