LOCALITY, WORKING SETS, AND OPTIMAL SYSTEM PERFORMANCE

NOVEMBER 9, 2020
NOON–1 P.M.

https://rochester.zoom.us/j/3575796041

Denning will discuss the development of the working set concept and locality principle since their births in 1965, from his perspective as a participant over the past 55 years.

The working set model for program behavior has stood the test of time in virtual memory management for over half a century. Locality is the observed tendency of programs to use distinct subsets of their pages over extended periods of time.

These principles are important in the design of modern caches and caching servers in the Internet. Denning will also comment on several myths about locality and the performance of memory systems.

Peter J. Denning is widely known as a virtual memory and computer systems performance pioneer. He invented the Working Set Model, which immunized operating systems to thrashing and maximized system throughput. His solutions to these problems are widely used today in operating systems from desktops to smartphones.

Denning cofounded the CSNET, the first community network to use internet technology, leading the transition to the modern internet. He established RIACS as one of the nation's leading centers in computation science, working on high performance computing, telescience, and neural networks.

Denning's most recent books are *Computational Thinking* (2019), *Great Principles of Computing* (2015), and *The Innovator's Way* (2010), all by the MIT Press.

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