Keynote 2

The Computer that is the Network: A Future History of Big Systems

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Abstract
A computer of any real size today is built around from computing components (the things we used to call servers), storage components (the things we used to call filers) and data-center-scale backplane (the thing we used to call network switches). Mostly, the construction of these systems are left as an Exercise for the User, but that’s changing rapidly. Patterns around compute-storage-network virtualization are emerging, and are apt to coalesce, finally, into some coherent view of a interconnect-centered system, with fundamental concepts of balance and having a “real” O/S. We’ll take an historical view of the evolution of computers whose backplane is in fact a network - from both an interconnect and software systems view. Then we’ll speculate wildly on the future of network-scale systems, and hope to identify What’s Important in the design of big systems and their interconnection.

Bio
With more than twenty years’ experience in the technology industry, Greg Papadopoulos has held several executive positions, most recently serving as Chief Technology Officer at Sun Microsystems, where he directed the company’s $2B R&D portfolio. Along with having been a practicing engineer with HP, Honeywell and Thinking Machines, Greg has also help found a number of his own companies, from video conferencing (PictureTel) to computational fluid dynamics (Exa Corporation). Greg was also an Associate Professor of Electrical Engineering and Computer Science at MIT, where he conducted research in scalable systems, multithreaded/data flow processor architecture, functional and declarative languages, and fault-tolerant computing. He holds a bachelor’s degree in systems science from the University of California at San Diego, as well as master’s and doctoral degrees in electrical engineering and computer science from MIT.