

Presenter: Dr. Charles J. Holland, Deputy Under Secretary of Defense for Science and Technology

Abstract:

High performance computing has been, is, and will continue to be a strategic capability for the Nation. Dating back to the 1982 Lax Report, this field has been studied and restudied numerous times in an effort to advance national goals in science, engineering, and national security. Typically and by necessity, such analyses tend to be introspective in nature and narrowly focused. This talk examines high performance computing in a broader context, discussing the "spheres of influence" that are expected to shape the future of this field. I will look at these influences from three different perspectives. The first involves the historical, examining the impact of past and present programs, trends, and events. The second examines the landscape of information and electronics technology, from embedded systems to security, to highlight those areas that are expected to heavily influence thinking and design of tomorrow's high performance computing systems and software technologies. The third is from one of Federal policy, highlighting the forces and trends that will shape government activities in this field.

Biography:

Dr. Charles J. Holland is the Deputy Under Secretary of Defense (Science and Technology). In this capacity, he provides leadership to the entire spectrum of the \$10B+ annual Defense science and technology portfolio executed through the three Services and Defense Agencies. In addition, he oversees the DoD High Performance Computing Modernization Program, the Defense Modeling and Simulation Office and the Software Engineering Institute, which provide corporate Department of Defense capabilities. His office is also responsible for validating the Technology Readiness Assessment of all major DoD programs requiring Defense Acquisition Board decisions. He is the US Principal to The Technical Cooperation Program, a cooperative defense science and technology activity with representatives from Australia, Canada, New Zealand, United Kingdom and the United States.

Over the past two decades, Dr. Holland has played a key role in the Federal high performance computing R&D, dating back to the 1987 OSTP report *A R&D Strategy for High Performance Computing*. Recently, he served as co-lead for the *Report on High Performance Computing for the National Security Community (July 2002)* and led the development of the white paper *DoD Research and Development Agenda for High Productivity Computing Systems (June 2001)*, which served as the roadmap for the current DARPA program in high-end computing. Also, he has been actively involved with the DoD High Performance Computing Modernization Program. Since its inception in 1992, he has served on the program's advisory panel and twice served as the Program Director.

Dr. Holland began his career in academia with appointments at Purdue University and as a Visiting Member at the Courant Institute of Mathematical Sciences at New York

University. A substantial portion of his career has involved the direction of basic research programs in computer science and applied mathematics at the Office of Naval Research and the Air Force Office of Scientific Research.

He received the Presidential Rank Award, Meritorious Executive (2000), the Society for Industrial and Applied Mathematics Commendation for Public Service Award (1999), and the Meritorious Civilian Service Award from the Secretary of Defense (2001), Air Force (1998), and the Navy (1984). He is a member of the Board of Trustees for the Consortium for Mathematics and its Applications (COMAP) and the Editorial Board of Computing In Science and Engineering.

He received a B.S. (1968), M.S. (1969) in Applied Mathematics from the Georgia Institute of Technology and a Ph. D. (1972) in Applied Mathematics from Brown University.