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Power, Density, Reliability & Performance: customer-driven evolution of cluster computing and storage, in high energy physics and other scientific fields.

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Cluster systems now comprise 50% to 90% of the High Performance Computing (HPC) market. However, with computing and storage needs outpacing Moore's law, the traditional approach of scaling is giving rise to facility, administrative and performance issues. Details of industry trends and unmet customer requirements for cluster computing will be presented. Implications on systems and facility design will also be explored.

Summary

Eng Lim Goh, Ph.D.
Senior Vice President and Chief Technology Officer , SGI

Dr. Eng Lim Goh has been with SGI for 17 years, becoming one of the chief scientists in 1998 and chief technology officer in 2001. His tenure includes work in computer graphics algorithms and high-performance computing (HPC) architectures.

In HPC, he oversees Project Ultraviolet, the goal of which is to design and build the company's next generation science and high-performance enterprise-driven computer architecture. He is also the coauthor of SGI's recommendation to the high-end computing revitalization task force (HECRTF) for federal funding of key corresponding technologies. This proposal was reviewed by HECRTF in 2003 and judged to be one of the top submitted papers.

He is a proponent of next-generation computer systems designed specifically for customer applications performance. To this, he advocates computational density and energy efficiency when integrating commodity components; and where appropriate, a balanced multi-paradigm approach, across a globally addressable memory, to architectural design.

In computer graphics, Dr. Goh's current research interest is in the relationships between human visual perception and visual computing. He has been awarded three U.S. patents in this field. He is also leading a small research effort to investigate application-transparent, massively parallel rendering.

In 2005, the IDG publication, InfoWorld, named Dr. Goh one of World's 25 most influential CTOs. That same year, he was also included in the HPCwire list of "15 People to Watch." In 2007, Dr. Goh was named in "Champions 2.0" for the bio-IT industry by BioIT World magazine.

Before joining SGI, Dr. Goh worked for Intergraph Systems, Schlumberger Wireline Netherlands, and Shell Research U.K. A Shell Cambridge University Scholar, he completed his Ph.D. research and dissertation on parallel architectures and computer

graphics. He also holds a first-class honors degree in mechanical engineering from Birmingham University, U.K.

Presenter: Dr GOH, Eng Lim (SGI)

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