Creating Powerful Computing Platforms Needed to Tackle Even More Challenging Problems

T. S. Eugene Ng
Associate Professor, Computer Science

CURRENT RESEARCH

Building networked computer systems that are faster, bigger, and more resilient

Networked computer systems involve both computing hardware and software which is interconnected by a communication network. Therefore, networked computer systems are the underlying engines for solving computationally hard scientific problems and for supporting the large scale consumer and enterprise applications. Implications range from assembly of large genomes, seismic data analysis, medical image data mining, to online shopping, on-demand video streaming, and mobile applications.

Dr. T.S. Eugene Ng, of Rice University, aims to deeply understand the requirements and characteristics of applications, and then based on this understanding, develop new networked computer systems that run applications significantly faster, allow applications to expand significantly, and tolerate hardware and software failures in a graceful manner. Through his research, he discovers, proves, and demonstrates new and improved solutions for building networked computer systems thus, giving scientists and engineers the powerful platforms they need to tackle even more challenging problems. Because of the importance he places on a cross-cutting approach to his work, he is able to steer away from making incremental improvements to narrowly defined problems and rather, focus on large problems that are likely to impact the world for the better. His innovative research often leads to breakthroughs that are widely adopted by the industry including: the Linux operating system, Google's content distribution network, and Calient's optical switching solutions.

Current research projects include:

- Studying Applications in the "Cloud" Environment: A Cloud is a massive computer cluster involving millions of computers...

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AFFILIATION

Rice University

EDUCATION

- B.S. in Computer Engineering 1996 ,University of Washington
- M.S. in Computer Science 1998 ,Carnegie Mellon University
- Ph.D. in Computer Science 2003 ,Carnegie Mellon University

AWARDS

- BM Faculty Award, 2009
- Alfred P. Sloan Research Fellowship, 2009
- NSF Career Award, 2005

RESEARCH AREAS

Technology, Computational Sciences / Mathematics, IOT, Devices, Data

FUNDING REQUEST

Support the continued research of Dr. Ng as he creates networked computer systems that serve as the underlying engines for solving computationally hard scientific problems and for supporting large scale consumer and enterprise applications. Donations will fund the necessary personnel, and a new experimental testbed that would cost $500K. With your help in only one year, he will demonstrate a fully functional prototype networked computer system and in 2 years the prototype will be brought into production.