Erik L. Nygren

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Objective

To remain happily employed at Akamai, my current employer.

Education

Massachusetts Institute of Technology, Cambridge, MA 1998—1999
PhD student in Computer Science and Engineering. Completed Oral Qualifying Examinations.

Massachusetts Institute of Technology, Cambridge, MA 1992—1998
Bachelor's and Master's of Engineering in Computer Science and Engineering with undergraduate GPA of 4.9/5.0 and graduate GPA of 5.0/5.0.

Graduate and undergraduate course-work covering computer systems, software engineering, programming languages and compiler engineering, artificial intelligence, computer graphics, human factors engineering, digital electronics, algorithms, probability, signal processing, writing, psychology, and core math and science.

Redwood High School, Larkspur, CA 1988—1992
Class Valedictorian and National Merit Finalist.

Skills

Extensive experience designing and providing design critiques for highly scalable and reliable Internet systems. Broad and deep knowledge of the Akamai technology platform.

Extensive experience with software engineering, Linux system administration, Internet security, and Internet protocols. Experience with network programming, Linux kernel programming, mobile code systems, embedded and real-time systems, web application development, human factors design, computer graphics, and hardware/software systems integration. Experience working with teams through all stages of the software development cycle. Experience with Python, C, Perl, Java, XSLT/XML, and other programming/scripting environments.

Experience

Akamai Technologies
Chief Systems Architect, Network Systems Engineering June 1999—present
Systems Architect focusing on operations, scalability, security, and reliability. Involved in the design and operations of highly reliable large-scale distributed systems. Responsible for scoping, road-mapping, and designing many systems and processes involved in enabling Akamai to manage over 70,000 machines in nearly 1,000 networks.

Member of Akamai Architecture Board, participating in frequent design reviews for significant platform changes. Developed company-wide Technical Incident Response process. Tracked and prioritized platform scaling and operational efficiency issues. Provided design support for many cross-functional engineering projects, including heavy involvement with three major company-wide Linux OS upgrades to our production environment.

Current title since October 2006. Previous titles included Senior Developer, Senior Systems Engineer, Senior Architect, and Principal Architect.

MIT Laboratory for Computer Science
Graduate Research Assistant Fall 1997—Spring 1999
Worked for Professor M. Frans Kaashoek in the Parallel and Distributed Operating

Systems group. Designed and implemented PAN, a high-performance active network system that can use multiple mobile code systems.

MIT
Teaching Assistant for "Software Engineering" course Spring 1998
Assisted in the teaching and administration of 6.170, MIT's undergraduate software engineering course.

Fourth Planet
Co-Founder and VP of Engineering 1996
Co-founded a NASA spin-off start-up company. Fourth Planet provided tools and services for the real-time 3D visualization of dynamic systems, including computer networks. Worked on the design of the company's core technology, ported VEVI (a 3D visualization product) to Windows NT, configured and administered the company's workstations and servers.

NASA Ames Intelligent Mechanisms Group
Contractor with Recom Technologies Summer 1994 and 1995
Worked with Butler Hine and Terry Fong. Responsible for initial design and development of the kernel for VEVI 3, the Virtual Environment Vehicle Interface software which may be used in future space missions. VEVI, one of the core technologies of the IM Group, was selected as the first runner-up for the 1996 NASA Software of the Year Award. Received a NASA Space Act Award for work on VEVI. Developed and maintained the web site for the 1994 Dante II mission to Mt. Spurr and performed other system administration tasks.

MIT Virtual Environment Technology For Training Testbed
UROP Researcher October 1993—June 1994
Designed a system for communication between the components of a Virtual Environment system.

NASA Ames Intelligent Mechanisms Group
Student Intern under SJSU Program Summer 1993
Worked with Butler Hine and Terry Fong on the TROV, a submersible remotely operated vehicle sent to Antarctica in Fall 1993.

NASA Ames VIEW Lab
AIAA Galileo Fellow Summer 1992
Worked with Stephen Ellis to develop software for virtual environment systems.

Personal Projects and Activities

Member, MIT Student Information Processing Board (SIPB). Five years on the SIPB Executive Committee. Maintained software installations and provided volunteer consulting.

Involved in supporting, advocating, and developing Open Source software for the Linux operating system.

Developed and instructed four years of an MIT IAP seminar entitled "Introduction to UNIX Software Development".

Staff member, web curator, and developer of content management system for the MIT IHTFP Online Hack Gallery.

Other interests include the creation of art, reading, creative writing, cooking, hiking, camping, software engineering, electronics, and photography.

Talks

Erik Nygren, "Experiences with Scalable Network Operations at Akamai", USENIX LISA 2007, Dallas TX. (http://www.usenix.org/events/lisa07/tech/tech.html#nygren)

Papers and Publications

E. Nygren, R. K. Sitaraman, and J. Sun, "The Akamai Network: A Platform for High-Performance Internet Applications", *ACM SIGOPS Operating Systems Review*, Vol. 44, No.3, July 2010.

E. Nygren, S. Garland, and M.F. Kaashoek, "PAN: A High-Performance Active Network Node Supporting Multiple Mobile Code Systems", In proceedings *IEEE OPENARCH'99*, March 1999.

E. Nygren, "The Design and Implementation of a High-Performance Active Network Node", MIT Master's Thesis, February 1998.

L. Piguet, B. Hine, P. Hontalas, T. Fong, and E. Nygren, "The Virtual Environment Vehicle Interface: A Dynamic, Distributed And Flexible Virtual Environment", In proceedings *Imagina 96*, February 1996.

T. Fong, H. Pangels, D. Wettergreen, E. Nygren, B. Hine, P. Hontalas, and C. Fedor, "Operator Interfaces and Network Based Participation for Dante II", SAE 25th International Conference on Environmental Systems, July 1995.

B. Hine, P. Hontalas, L. Piguet, T. Fong, and E. Nygren, "VEVI: A Virtual Environment Teleoperations Interface for Planetary Exploration", SAE 25th International Conference on Environmental Systems, July 1995.

L. Piguet, T. Fong, B. Hine, P. Hontalas, and E. Nygren, "VEVI: A Virtual Reality Tool for Robotic Planetary Explorations", Virtual Reality World 95, February 1995.

D. Zeltzer, W. Aviles, R. Gupta, J.F. Lee, E. Nygren, J. Pfautz, N. Pioch, and B. Reid, "Virtual Environment Technology for Training: Core Testbed", Annual Report prepared for Naval Air Warfare Center Training Systems Division, MIT Research Laboratory of Electronics, Cambridge, MA, May 1994.

B. Hine, C. Stoker, M. Sims, D. Rasmussen, P. Hontalas, T. Fong, J. Steele, D. Barch, D. Andersen, E. Miles, and E. Nygren, "The Application of Telepresence and Virtual Reality to Subsea Exploration", The 2nd Workshop on Mobile Robots for Subsea Environments, In proceedings *ROV 94*, May 1994.