

Andrew J. Gallatin

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Employment History

GOOGLE
Senior Software Engineer, 2013-present

Mountain View, CA

I work for Google's platforms and networking group. I enjoy doing device drivers and firmware and improving network performance.

MYRICOM INC
Software Product Architect, 2010-2013

Arcadia, CA

Supervised by Nan Boden and Jakov Seizovic

I was the leader of Myricom's 10 Gigabit ethernet device driver department. I was the sole maintainer of Myricom's Linux and Unix device drivers, and I managed a Windows developer who works on the Windows drivers. In this role, I have:

- Participated in the specification and design of a cutting edge 10GbE NIC.
- Written Linux, FreeBSD, VMware ESX, and Mac OS X device drivers for the new 10GbE NIC.
- Managed a developer writing the Windows device drivers for the new 10GbE NIC.
- Assisted the hardware team with high-level verification of the new 10GbE NIC using verilog software and hardware simulators in conjunction with virtual and physical machines running our device drivers.
- Actively maintained Linux and Unix ethernet device drivers for existing Myri10GE NICs.

MYRICOM INC
Member of the Technical Staff, 2001-2010

Arcadia, CA

Supervised by Charles Seitz and Jakov Seizovic

- One of a small team which designed and implemented Myricom's Myrinet Express (*MX*) OS-bypass software platform. Products such as DBL, Sniffer, and VideoPump are all derived from MX.
- Wrote and maintained high performance network device drivers on Linux, FreeBSD, VMware ESX, Solaris, and Mac OS X for Myri10GE NICs.
- Worked with multiple OS vendors to get our Myri10GE device drivers included in their base installation.
- Collaborated with outside developers on Myri10GE drivers for their platforms (Plan9, NetBSD, OpenBSD, etc).
- Optimized Myricom's GM ethernet emulation.
- Ported GM to several new platforms, including Mac OS X and AIX.

DEPARTMENT OF COMPUTER SCIENCE, Duke University
Senior Systems Programmer 1996-2001

Durham, NC

Supervised by Prof. Jeffrey Chase

- Ported Myricom network device drivers to DEC Unix and FreeBSD.
- Helped port GMS, a distributed memory system, from DEC Unix to FreeBSD.
- One of a small team which designed and implemented Trapeze, our own messaging system for Myricom's Lanai4 NICs.
- Implemented zero-copy socket extensions in DEC Unix and FreeBSD.
- Reduced overhead and increased bandwidth of FreeBSD's NFS client code by eliminating double buffering, extra copies, and frequent NFSv3 commits.
- Ported the IProbe Alpha profiling tool to FreeBSD/alpha.
- Ported Giganet Clan VIA drivers to FreeBSD.
- Ported Compaq's PCI Pamette driver and support code to FreeBSD.
- Performed systems administration of a 70+ node research cluster.

THE FREEBSD PROJECT

Volunteer Kernel Developer 1999-present

- Maintained the mxge(4) Myri10GE device driver.
- Ported FreeBSD from 32-bit x86 to the 64-bit DEC Alpha, as a member of a two person team.
- Fixed many 32/64 bit bugs in the kernel and in userspace applications.
- Ported NetBSD's DEC Unix binary compatibility layer to FreeBSD/alpha and extended it to enable FreeBSD/alpha to run dynamically linked commercial DEC Unix executables, such as Mathematica.
- Implemented the Linux/alpha binary compatibility layer in FreeBSD/alpha.

INSTITUTE OF STATISTICS AND DECISION SCIENCES, Duke University

Durham, NC

Computer Project Manager 1993-1996

- Performed Unix systems administration for a network of roughly 30 DEC Unix and DEC Ultrix workstations.
- Ported 32-bit open-source applications to 64-bit DEC Unix.

Education

RENSSELAER POLYTECHNIC INSTITUTE

M.S. in Computer Science, 1993

GPA: 4.0/4.0

STATE UNIVERSITY OF NEW YORK AT BUFFALO

B.S. in Computer Science, 1992

GPA: 3.95/4.0 (Summa Cum Laude)

Publications

MAGOUTIS, K., ADDETIA, S., FEDOROVA, A., SELTZER, M., CHASE, J., GALLATIN, A., KISLEY, R., WICKREMESINGHE, R., AND GABBER, E. Structure and Performance of the Direct Access File System. In *Proceedings of the 2002 USENIX Technical Conference* (2002)

CHASE, J., GALLATIN, A., AND YOCUM, K. End System Optimizations for High-Speed TCP. *Communications Magazine, IEEE* 39, 4 (2001), 68–74

CHASE, J., ANDERSON, D., GALLATIN, A., LEBECK, A., AND YOCUM, K. Network I/O with Trapeze. In *1999 Hot Interconnects Symposium* (1999)

GALLATIN, A., CHASE, J., AND YOCUM, K. Trapeze/IP: TCP/IP at Near-Gigabit Speeds. In *1999 USENIX Technical Conference (Freenix Track)* (1999)

YOCUM, K., ANDERSON, D., CHASE, J., GADDE, S., GALLATIN, A., LEBECK, A., ET AL. Adaptive Message Pipelining for Network Memory and Network Storage. In *Eighth International Conference on Architectural Support for Programming Languages and Operating Systems* (1998)

ANDERSON, D., CHASE, J., GADDE, S., GALLATIN, A., YOCUM, K., AND FEELEY, M. Cheating the I/O bottleneck: Network Storage with Trapeze/Myrinet. In *Proceedings of the 1998 USENIX Technical Conference* (1998), vol. 182

YOCUM, K., CHASE, J., GALLATIN, A., AND LEBECK, A. Cut-through delivery in Trapeze: An Exercise in Low-latency Messaging. In *High Performance Distributed Computing, 1997. Proceedings. The Sixth IEEE International Symposium on* (1997), IEEE, pp. 243–252