

Charles L. Coffing

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Philosophy Software is an art. When done well, it is beautiful and moving. Done well, it is a force multiplier.

I am a software artist, specializing in embedded Linux and C++.

Proficiencies

- Experienced at architecting and delivering robust, high performance software on time through agile methodologies and test-driven development.
- Decades of Linux experience, including embedded Linux, ARM debugging, systems-level programming, kernel, distribution packaging, and administration.
- Decades of C and C++ experience.
- Proficient with multi-threaded, asynchronous IO, and event-driven designs.
- Experience with Linux, ARM assembly, POSIX, code verification tools, BSD, Mac OS X, CMake, Python, shell scripts, Lua, GTK, Qt, and UML.
- Excellent technical writing and editing skills.

Education **Massachusetts Institute of Technology** Cambridge, MA
September 1994 – May 1999
Bachelor of Science in Computer Science and Engineering, June 1999.
Master of Engineering in Electrical Engineering and Computer Science, June 1999. Thesis title: *An x86 Protected Mode Virtual Machine Monitor for the MIT Exokernel.*
Undergraduate GPA 4.3/5.0; graduate GPA 4.8/5.0.

Portfolio **OcherBook** <https://github.com/ccoffing/OcherBook>
GPLv3 licensed; sole maintainer. Replacement firmware for Kobo eReaders (Kobo Touch, Mini, and Glo).

airbag_fd https://github.com/ccoffing/airbag_fd
MIT licensed; sole maintainer. Crash handlers for embedded Linux (discovering backtraces when I was told it wasn't possible). Deployed in commercial and open-source projects.

BlockBuster TV *Announced CES January 2013* <http://blockbustertv.com>
Proprietary; core engineer. Next-generation TV.

DISHWorld IPTV *Announced June 2012* <http://dishworldiptv.com>
Proprietary; core engineer. Next-generation TV.

Logitech Alert
Proprietary; contributing engineer. Best-in-class TCP/IP security camera.

Experience **Echostar LLC** American Fork, UT
Staff Engineer; March 2011 – present
Returned to Move Networks (acquired by Echostar) to change how people watch TV.

Worked with the one remaining player engineer to reboot the project and rebuild the team.

Core contributor to the player powering DISHWorld IPTV (announced June 2012) and BlockBuster TV (announced Jan 2013 at CES in partnership with Samsung). Ported the player to Broadcom (7405 Nexus, 2708 BCM) and Roku (ARM and MIPS). Advised Roku on video API design for the Roku 4.8 firmware. Squeezed maximal performance out of MIPS-based Roku device for smooth HD playback. Assisted with porting BlockBuster TV to Android, Samsung TV, Samsung Blu-Ray, and PlayStation 3.

Logitech, Inc.

Draper, UT

Senior Firmware Engineer; August 2010 – March 2011

Senior firmware engineer for the Logitech Alert security cameras. Embedded Linux development involving TI's Davinci DM365 SOC, sensor register adjustments, u-Boot, JTAG, YAFFS2 and NAND layout, and SD card kernel drivers. Designed a platform abstraction between the camera components and the Qt-based portable application layer to decouple the hardware and software teams.

Move Networks, Inc.

American Fork, UT

Architect and Sr. Software Engineer; October 2007 – June 2010

Architect and Sr. Software Engineer for a ground-up rewrite of Move Networks' Adaptive Rate video player, consisting of a cross-platform SDK in C++ and Lua targeting desktops, mobile, and embedded Linux set-top boxes. Managed risk and maintained investor confidence via early prototypes, scrum, TDD, closed-loop logging, and proactive code quality. Powered video delivery for ABC, Fox, ESPN360, Operah, LimeTV, and others.

Novell, Inc.

Provo, UT

Software Engineer Consultant; January 2003 – October 2007

Shipped the Linux-based Excelerator XL 1.0 and 1.0 SP1 web caching appliance. Maintained the Xen virtualization packages for SUSE Linux. Participated in the DMTF and developed an OpenWBEM-based CIM provider for Xen. Provided Xen training for Novell's trainers and technical support staff.

Volera, Inc.

Orem, UT

Software Engineer II; April 2001 – December 2002

Wrote a Linux-based installer for the Excelerator appliance; created a Cisco IOS-style dynamic command-line interface on Linux for the appliance; maintained a network driver in the Linux kernel. Consulted for developers and managers as the company shifted from NetWare to Linux.

Prima Publishing

Roseville, CA

2000 – 2001

Co-author and/or technical editor of eight Linux books.

Novell, Inc.

Provo, UT

Software Engineer II; July 1999 – April 2001

Worked on a team of three to refactor and harden an SSL stack on NetWare 5.1. Engineered a transparent transport-independent wrapper for the SSL stack. Made the stack and wrapper scalable across multiple processors in an event-driven kernel environment.

Various

Internist; 1994 – 1998

Details available upon request regarding additional experience at **MIT Laboratory for Computer Science** (x86 virtual machine monitor), **Motorola SPS** (internship evaluating Verity Search97 SDK on Solaris), **MIT Media Lab** (multithreaded C++ webcrawler on Linux for copyright watermarking), **IBM RTP** (two internships on WebExplorer web browser and web server), **Ball State University** (particle physics simulations in Fortran; built and lab-tested detector prototypes).

Awards

Novell “Pole Position” personal award, 2007
Novell “Pit Crew” team award, 2006
Westinghouse Science Talent Search Finalist, 1994
National Merit Scholarship Finalist, 1994
National Honor Society, 1992

Publications and Presentations

Teacher of a 3-hour virtualization tutorial, *Xen and other Virtualization Techniques*, LinuxWorld Conference & Expo, San Francisco CA, August 8-11, 2005.

Keynote presenter to an audience of 4,000 at Novell’s 2005 SLC BrainShare conference, March 25, 2005.

Technical reviewer of *Starting With Red Hat Linux*, ISBN 0761530517, 2001; *The Joy Of Linux*, ISBN 0761531513, 2001.

Co-author and developmental editor of *Installing, Configuring, and Customizing Slackware Linux*, ISBN 0761526161, 2000.

Co-author of *Installing, Configuring, and Customizing SuSE Linux*, ISBN 0761523081, 2000; *Installing, Configuring, and Customizing Red Hat Linux 6.1*, ISBN 0761523065, 2000.

Technical reviewer of *Installing, Configuring, and Customizing Red Hat Linux 7.0*, 2000; *Red Hat Linux Administrator’s Guide*, ISBN 0761521577, 2000; *VMware 2.0 for Linux*, ISBN 0761527648, 2000.

“Design and Development of a Charged Particle Detector Array for Heavy-Ion-Induced Fusion Reactions” C.L. COFFING, A.L. MICHAEL, M.R. PARKER, J.L. WILE. Undergraduate Research Conference, Butler University, Indianapolis, IN. April 15, 1994.

“Development of a 4-pi charged-particle detector for fusion-evaporation reaction” C.L. COFFING, M.R. PARKER, A.L. MICHAEL, J.L. WILE, *Ball State Univ. Chemistry*, D.R. OBER *Ball State Univ. Physics*, R.T. DE SOUZA *Indiana Univ. Cyclotron Facility*. Bulletin of the American Physical Society, Volume 38, No. 9, October 1993.