

Bart Trojanowski

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Qualified programmer, architect, and consultant.

17+ years of Linux development experience, 15 years driver and kernel work.

Specialties: Linux kernel, drivers, multi-platform, optimization.

Experience

Software Developer/Consultant

Jukie Networks Inc.

2001 – Present

Jukie Networks specializes in Linux kernel and embedded development. Projects worked on range from PCI device kernel drivers and X.org drivers, to network layer work, to file systems, to cryptographic frameworks. Has helped clients architect embedded platforms, port various Windows software to Linux, and to redesign existing software for cross-platform portability.

Senior Software Architect

Diablo Technologies

Dec 2010 – Aug 2017

Involved in 3 main projects:

"MegaDIMM" project: Initially designed and implemented a software simulation environment. Developed as a block device driver in C on Linux. Implementation ran cycle-exact simulation of hardware Diablo would later build in FPGA. Coordinated FPGA board bringup, porting simulator to driver, assisted in FPGA design, and firmware debug.

"TeraDIMM" project: Heavily involved in designing a software stack to support Diablo's Memory1 hardware architecture. Implemented driver on Linux, and helped to port it to Windows and VMware ESX. Heavily relied on Linux tool chain, oprofile, Linux perf, and in house tools for gathering performance numbers. Concentrated on performance characterization and code optimization.

"DMX" project: Prototyped, designed, and developed initial prototype of Diablo Memory eXpansion software stack. Initially implemented as a modification to Linux kernel, and later ported to be a loadable module. Operational on host, KVM and containers. Implemented custom page fault handler using private PTE page-table tree. Worked with software team to productize it. Designed initial smart prefetching algorithms that would keep ahead of the application paging in data the application would require. Added support for DMX to use NVME devices. Heavily relied

on Linux tool chain, Linux perf, Linux crash tool, and in house tools for benchmarking DMX.
Concentrated on improving performance of the design, and removing multi-threading bottlenecks.

Keywords: Linux, C, architecture, design, development, Intel, x86-64, amd64, paging, swap, PCIe, NVMe, memory, assembly, optimization, bottleneck, multi-threading, driver, simulator, porting, benchmark, virtual memory, VMM, VMware, ESX, KVM, containers

Linux Consultant
Trend Micro
May 2009 – Sep 2011

Develop and maintain deep packet inspection firewall driver on Linux, and other platforms.

Conference Organizer
Ottawa IPv6 Summit
Jun 2010 – Jul 2011

Managing, organizing, and marketing tasks related to the Ottawa IPv6 Summit.

Contract developer
Fine Point Technologies
Sep 2008 – May 2010

Porting an existing Linux based PPPoE embedded system to new hardware; profiling linux PPPoE drivers and server software to fix SMP locking bottlenecks; adding new features, like IPv6 support.

Contract developer
International Datacasting
Feb 2008 – May 2009

Ported an embedded system acting as a satellite based signal multiplexer to new hardware; porting satellite receiver/transmitter kernel drivers; help other engineers debug and fix various kernel issues on other product lines.

Linux Consultant
Third Brigade
2004 – May 2009

Develop and maintain deep inspection firewall driver on Linux and other platforms.

Linux Consultant
Safenet
Jul 2007 – Oct 2008

Called in to provide analysis of Linux kernel crashes, researching workarounds, and fixing issues.
Wrote custom kernel code to test certain issues.

Contract developer
Symbio Technologies
Mar 2007 – Feb 2008

Participated in the design and implementation of a small embedded system to act as a preboot environment, which obtained credentials from the user before unlocking the hard disk and booting the main OS; product was based on Linux using an ATA device with TRUST extensions; worked on the embedded system and custom drivers to talk to the SATA device. Also worked on fixing bugs in X.org server running on an AMD Geode based single board computer.

Education

Carleton University
BCS/Co-op
Computer Science, Software
1995 – 1999

Activities and Societies: Carleton Computer Science Society (CCSS), Nexus

Skills

- Operating Systems, Linux, UNIX, Solaris, BSD, Windows
- Device drivers, integration, middleware, tools, embedded, kernel
- Kernel programming, multithreading, interrupts, PCIe
- Software, design, development, debugging, algorithms, architecture
- Debugging, profiling, optimization, porting
- Revision control, svn, git
- Programming, C, C++, assembly, R, perl, lua, R, java, python
- System Architecture, X86, X86_64, ARM, memory management, page tables, swap
- Unix Shell Scripting, bash,
- Servers, networking, IPv6, firewalls, TCP/IP
- Enterprise Storage, NVMe, SCSI, SATA
- DDR3, Flash
- Security, Cryptography
- Virtualization, KVM, VMware, ESX, containers