Bart Trojanowski's Résumé

Contact Information

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Professional Objective

I seek challenging software design and development projects through direct consulting clients. I strive to achieve quality, accuracy, performance and maintainability in the products I write.

Skills

General Experience

- Fluent in **C** and **C++**, and experienced in Java, JavaScript, Perl, PHP, i386 and amd64 (x86-64) assembly, SmallTalk, SQL, Pascal, and BASIC.
- Experienced in many operating systems such as: **Linux**, Solaris, *BSD, Windows 2k/NT/98, DOS, MacOS.
- Very strong problem solving skills.
- Proficient in **multi-threaded** and **real-time** application design and development.
- Designed various **cross-platform** drivers, libraries, and applications.
- Performed **ports** of several windows applications and drivers to Linux.
- Theoretical and applied understanding of vast **network** systems, **protocols** and concepts.
- Performed development, testing, benchmarking, and debugging many networking and **multi-threaded**/**multi-processor** application using Linux tools.
- Exposure in **debugging** and **optimizing** gcc and gdb, of the GNU tool chain, for a custom built ARC processor.
- Familiar with **X** application development using GTK+ libraries.
- Working knowledge of Microsoft Access, DBase IV, and mySQL at both environment and programming levels.
- Familiarity with countless desktop publishing, productivity and scientific software for various platforms.

Networking

- Berkeley sockets (UNIX networking)
- Network security (firewalls, proxy servers, etc.)
- TCP, UDP, ICMP, Multicast internals
- Ethernet, IP and PPP connectivity
- Routing (mrouted, RIP, BGP) and switching
- Low-level FTP, HTTP, Telnet, POP3, SMTP, SAMBA
- Development of IPSec and ISAKMP/IKE protocols
- SSH, SSL, NFS
- Internet/Intranet
- DVB and MPEG standards

Kernel/Embedded

- Extensive knowledge of Linux kernel internals; worked on various optimization projects for the Linux kernel.
- Exposure to various hardware bus architectures (PCI, CompactPCI, PC104, etc) and processors (Intel x86, AMD Opteron, Strong-ARM, Xscale, ARC, TI DSP, etc).
- Good understanding of Linux boot sequence; used to design custom Linux distribution for use in embedded applications.
- Expert in debugging, modifying, porting, and optimization of Linux kernel sources.
- Experienced in embedded development under Linux, pSOS, and built-in-house operating systems.
- Design and implementation knowledge for real-time systems.
- Understanding of Solaris and NT driver development.

Employment History

- **Contract Developer**
  Jukie Networks *(self employed)*
  June 2004-Present

  runs a consulting company specialized in Linux software design and development; during this short period of time has been involved in drafting the architecture of two embedded platforms, design and implementation of a distributed file system driver, helped SOMA Networks in debugging and extending their product, and worked on porting network drivers from Windows NT to Linux.

- **Software Developer**
  FortiNet
  March 2004-June 2004

  worked on debugging and extending the functionality of the FortiLog product, which was designed to collect events from other FortiNet units and generate reports.

- **Software Developer**
  SOMA Networks
  September 2001-March 2004

  designed, implemented, and responsible for a set of drivers handling host to radio communication and configuration, via PCI bus; focused on kernel level code for arm-linux and x86-linux platforms; helped in debugging hard-real-time TI DSP embedded software; was exposed to the telecom industry and broadband wireless infrastructures; gained experience in low-level DMA-controller interaction on the Intel Xscale processor.

- **Software Developer**
  Chrysalis-ITS
  January 2000-August 2001

  designed, implemented, and responsible for maintenance of a cross platform (Linux/FreeBSD) driver and debug tools for a PCI device; helped in porting it to WinNT and Solaris; designed and implemented an automated testing environment for the PCI device; involved in porting a kernel IPSec implementation to use a hardware accelerator; written various kernel modules to exercise the Chrysalis-ITS hardware; also, worked on various internal tools used by the firmware developers; provided Linux tutelage to other project developers; as a background task maintained a project CVS/NFS server for various developers.

- **Software Specialist**
  International Datacasting Corporation
  May 1998-January 2000

  provided support and maintain the Java 'Superflex Status & Control' application (as described below); researched the needed tools and support software, in part designed, and developed the majority of the firmware to drive the next generation Superflex product; firmware is written in C++, taking advantage of POSIX threads, and runs on Linux; was in charge of reducing a commercial Linux install down to 8 MB to fit on a flash disk.

  extensively involved in design of the firmware and control protocol specification for the new data satellite receiver; solely responsible for research of technologies and development of the firmware; the product uses off the shelf and proprietary products that must be integrated; firmware allows for easy exchange of current hardware for other that are not yet available.

- **Software Developer**
  International Datacasting Corporation
  Aug 1997-April 1998

  designed and implemented a Java application GUI named 'Status & Control' for the Superflex line of satellite receivers; helped in the effort of debugging pSOS-based firmware, written in C++, that was configured by the GUI; as a result became very comfortable with switching between Java and C++; aided in the debugging efforts of a QNX system control software used to remotely control receivers; maintained transmit-side modulator software; as a side project built and maintained a Linux routing & gatewaying server that ran a mail spooler, a local DNS and other services.

- **Software Developer / Assistant Project Manager**
  Evergreen Wildfire Systems
  September 1996-August 1997

  involved in the development of Sparrow GIS software; duties range from constructing graphing and charting facilities, to user interface design and debugging code for Sparrow, a program which visually represents geographical statistics retrieved from relational databases;

  involved in supervising and development of many projects including "Parks Fire Web" an Intranet & Internet solution to distributing public and internal forest fire information amongst its institutions;

- **Software Developer / Consultant**
  Parks Canada
  May 1995-August 1996

  participated in the development of the fire management system currently in use by National Parks of Canada; duties included the design a GUI to provide remote database access functions & greater ease of use; after project completion involved in updating this system to current client requirements, adding functionality to the existing application;

- **Software Developer/Consultant**
  Datacast Communications
  September 1995-April 1996

  while on the project entitled "Newspapers for the blind" assisted the visually challenged in setting up VBI equipment in home in order to receive electronic papers; participated in a team environment to develop a WWW server, for Smart Communities, that mimicking Yellow Pages but in electronic form;

Academics

- **Bachelor of Science** in Computer Science with Software Option, May 1999, Carleton University.

  Five year Co-op program. Degree awarded with **Highest Honours** standing.

  Studies concentrated on: Computer Networking and Cryptography , Operating Systems & Real-time Systems, Object Oriented Programming, Artificial Intelligence, Computer Graphics & Simulations, and Database Development.

Open Source Projects

- currently working on Debian port to AMD64 architecture (AMD Opteron chip); see http://www.jukie.net/~bart/debian/amd64/.
- previously involved in redesign efforts of KLIPS (kernel part of the IPSec implementation for Linux); my involvement lies in the development of a kernel-space crypto library: http://www.jukie.net/~bart/linux-ipsec.
- developed an elf signing utility which uses the GnuPG engine for digitally signing elf executables: http://elfsign.sourceforge.net.
- developed a firewall construction tool for Red Hat systems running ipchains, called Fire Gnome: http://www.jukie.net/~bart/gfirewall/.

Noteworthy Achievements

- awarded Canadian Government's Personnel Security Standard, "Enhanced Reliability" level.
- running Linux as primary operating system for the last six years at home, and for the last four years in an office environment.
- runs his own Linux router at home, hosting a personal web site, email, etc.
- in order to learn PHP, launched two 'webzines' for use by friends and the Linux community
- while at university, was the president and part owner of Computer Emporium, a home business engaged in computer sales and network/firewall installations.
- developed, set-up and maintained an online searchable price database for Computer Emporium