

Andrei Warkentin

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Overview

- environments: POSIX, Win32, .NET, Android, UEFI, NT kernel, Linux kernel, Xen
- kernels, drivers, firmware, porting / bring-up
- hardware/software boundary
- IA-32, AMD64, ARMv7, embedded hardware/buses
- thorough testing and excellent debugging skills
- flexible performer, fast learner
- good, responsible team player
- Xen, Linux and UEFI TianoCore contributor
- LinkedIn profile: <http://www.linkedin.com/pub/andrei-warkentin/1a/320/37>

Education

- **University of Illinois at Chicago** Chicago, IL
 - Bachelor of Science in Computer Science, 2008
 - ACM, LUG member.
 - ACM@UIC SIGOPS (Operating Systems) founder, ACM corporate relations.
 - 2006 Caterpillar Homeland Security Award of Excellence for work in CS.

Work History

- **Principal Staff Software Engineer** April 2010 - Present
Motorola Mobility, Libertyville, IL
 - Motorola Xoom (Android 3.0 tablet) bring-up on NVidia Tegra 2 ARMv7 platform. Linux kernel porting, debugging, driver development, multimedia bring-up, camera, HDMI/HDCP, factory test software.
 - Motorola Atrix (Android phone) development assistance.
 - LTE (4G) model firmware (Linux-based) development assistance.
 - eMMC/SDHCI upstream development for Linux SD/MMC subsystem.
 - UEFI Tiano Core EDK2 contributor, prototype bring-up on Tegra 2.
 - UEFI SD/MMC subsystem development.
 - Google Summer of Code mentor for porting UEFI firmware (EDK2) to IA-32/X64 Xen virtual machines.
 - Performance analysis tools.
 - Converged Computing Bravo! award.
- **Software Development Engineer** July 2008 - March 2010
Microsoft, Redmond, WA
 - Position with the Work Anywhere group.
 - * Development owner for the Roaming User Profile and Folder Redirection components.
 - * Technology investigations and prototyping with the Microsoft Synchronization Framework and other user- and kernel-space technologies to explore fine-grained synchronization of registry and other user profile data.
 - * Prototype registry filter driver for logging registry and certain transactional operations.
 - Position with the Core Virtualization (Hyper-V) group.
 - * Component owner for parts of the emulated virtual device stack, virtual machine BIOS.
 - * Correctness, stability and third-party OS support for Hyper-V emulated virtual devices stack and virtual machine BIOS.
 - * Internal tools, mostly in the debugging problem space, to facilitate debugging AMI BIOS and UEFI firmware.

- * Component owner for Virtual Machine UEFI. Device support, critical path, memory footprint optimization. Synthetic network booting, integration with virtual machine management stack. KD debugging support for UEFI, allowing source-level debugging via WinDbg and FireWire.
 - * Investigation and prototype implementation of virtual machine device emulator isolation.
 - * Intern mentoring for implementing isolated UART emulation.
 - * Patent pending for EFI work, patent pending for virtual machine emulator isolation work.
 - * College Recruiting.
- **Software Development Engineer Intern** May 2007 - August 2007
 Microsoft, Redmond, WA
 - Internship with the Core Virtualization (Hyper-V) group, porting the Hyper-V high-performance synthetic device stack to x64 UEFI firmware.
 - Hypervisor, VMBus, timer, SCSI and framebuffer support, to allow a fully synthetic Windows boot with minimum usage of the emulated virtual device stack.
 - **Software Development Engineer Intern** May 2006 - August 2006
 Microsoft, Redmond, WA
 - Internship with the Core Virtualization (Hyper-V) group, porting a Tiano Core (EDK1) UEFI Win32 simulator as stand-alone x64 virtual machine firmware capable of booting Windows UEFI-way.
 - UEFI build tools modifications to generate bootable firmware.
 - Implementation of ACPI support necessary to boot Windows.
 - **Software Engineer** May 2005 - May 2008
 Data Armor / CHI Networks, Chicago, IL
 - Senior system and network administrator for CHI Networks and CHI Networks clients.
 - Development of software supporting system and network infrastructure.
 - Development, QA and testing of network management and services product under development.
 - **IT Consultant and Research Programmer** August 2004 - August 2005
 Academic Computing and Communications Center,
 University of Illinois at Chicago, Chicago, IL
 - IT support for UIC computer labs, hardware maintenance and client support.
 - Development of internal tools to facilitate network installation of software.

Experience History

- **Lead Developer** August 2007 - July 2008
 Ethos Operating System, <http://www.rites.uic.edu/~solworth/ethos.html>
 - Prototype design and implementation of a small kernel running on top of the IA-32 Xen Hypervisor, to facilitate research and development of a secure OS base.
 - Initial bring-up work, memory and process management, scheduler, early boot filesystem.
 - Back (Linux) and front (Ethos) xen drivers for enabling communication between Ethos domain and a Linux host across Xenbus.
- **Developer** August 2005 - August 2007
 TabMobile Project, <http://tablab.cs.uic.edu/~tablab/tabmobile/>
 - Design and implementation of prototype core application for the Tabmobile Project, a research project focusing on applying state-of-the-art touch screen technology to refine a new teaching paradigm.
- **Developer** September 2004 - April 2005
 Project PSTool, <http://www.sourceforge.net/projects/pstool>

- Design and implementation of a parallel distributed (MPI) tool for calculating a one-sided power spectrum for electron-paramagnetic-resonance/laser spectroscopy research.

Skills

- Specialties
 - Android, ARMv7, ACPI, algorithms, assembly, BIOS, boot loaders, C, C++, EDK2, low-level debugging support, device drivers, device emulation, emulation, firmware, IPC, kernel bring-up, kernel development, kernel porting, Linux kernel, low-level development, multithreading, .NET, NT kernel, os development, PCI, POSIX, system programming, system/network administration, SysV, SCSI, TCP/IP, Tiano Core, UEFI, virtual machines, virtualization, WDM, Win32, x86, x86-64, Xen
- Interests
 - Low-level, kernels, operating systems, design, algorithms, hard problems, virtualization, hypervisors, drivers, block storage, file systems, schedulers, debuggers, emulation.