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 Virtualizaton (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://wwww.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.