

# Michael O'Donnell <modonnell.resume@gmail.com>

Experienced developer/maintainer/admin of Systems Software

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## Summary

- I've enjoyed working on Systems Software projects from platform bringup to end-of-life maintenance across a range of architectures from PCs to supercomputers. Experience includes driver/kernel work, system administration (CompTIA Security+ / A+ / RHCSA / LPIC-1), shell scripting, Classified environments, live DVD installers, highly-available and fault-tolerant systems, cross-architecture portation, firmware/bootcode, Java Virtual Machine internals, network appliances. Comfortable with Windows but strongly prefer Linux/C/bash.
  - Interested in fulltime developer/SysAdmin/SysEng/DevOps position.
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## Work Experience

### **Lincoln Laboratory, SysAdmin(Engineer II), contracting (01/15-present)**

- Maintain research infrastructure in the Airborne Networks Group; deploy server/desktop/laptop/VM systems (Linux/Mac/Windows) and networks; ensure compliance with Lab/DOD security requirements; configure/maintain Classified testbed systems; serve as Assistant Information Security Officer on several IS Plans; script the automated configuration/verification of Security Technical Controls; design DVDs for distribution of turn-key Linux development environment to sponsors/partners; assist researchers configuring/installing proprietary and Open Source softwares; manage Active Directory accounts; perform sysadmin duties on SIPRNet systems; specify new equipment purchases.

### **Hanscom AFB, Systems Analyst, contracting (06/14-12/14)**

- Provide Systems support in the Classified ITFS lab; serve as a primary HelpDesk contact; debug, (re)image and upgrade server/desktop systems; create/admin AD accounts; generate or contribute to analysis of problems with (for example) VMWare, AD, Powershell, etc.
- Serve as the Linux pro in this extremely Windows-centric environment; deploy/patch servers per USAF specs; configure servers as (for example) Nessus vulnerability scanning engines or DHCP servers; instruct/assist users unfamiliar with Linux, creating scripts and generating reports.

### **Consultant (5/12 - 10/12)**

- Bring repository of sensitive documents back in-house from external 3rd-party server after corporate IT staff abandons the effort; restore accessibility (prevented by Windows bug involving long pathnames/filenames) by restructuring filesystem topology using custom scripts and Linux tools; reduce repository size by 2/3 via deduplication. Generate an InstallShield-style tool providing one-click installation of an Internet Explorer folder full of URLs referencing the recovered documents.

### **WSI Corp (The Weather Channel Companies) Andover (6/06 - 8/10...)**

- Handle all matters related to configuration and support of WSI's weather visualization products deployed on clustered Linux workstations. Coordinate migration of product line from 32bit platforms based on RHEL3 to the 64bit CentOS5.4; work with applications developers to debug and optimize. Completely reimplement product installer while leaving its User interface unchanged; devise automated approach to in-situ 64bit conversion of deployed systems such that process is largely transparent to customers. Analyze/repair defects in Linux kernel, libraries and applications as well as platform BIOS; modify/backport kernel modules for USB and PCI devices; configure and troubleshoot eNet, NFS and SSH; assist QA with root-cause analyses; manage bug-reporting with Red Hat and other upstream providers. Evaluate peripherals (RAIDs, network/USB adapters, etc) for inclusion in product line.
- Serve as sysadmin for some internal and customer Linux systems; configure and debug SSH, NFS, DNS, X, sendmail, RAID, mdadm, dialup access, software updates and backups, and User account management.
- Support other WSI departments; design/code a weather-data repository manager; design/code an rsync based file replication manager; write scripts to convert/extract geographical and meteorological data obtained from commercial and gov't sources; maintain existing Python and Tcl scripts; create RPM packages; train and mentor Customer Service personnel and be on-call 24x7 for time-critical escalations.

- (WSI converted to a Windows-shop; full-time Linux position eliminated 8/10) Provide occasional assistance with "legacy" Linux matters on a contract basis.

### **Acopia Networks (now F5) Lowell, MA (3/06 - 6/06)**

- Analyze/repair defects in the (C++ coded) CIFS/NetBIOS and NFS filesystem virtualization service of the ARX router. Resolve approx 30 bugs in a complex codebase in 3 months.

### **Stratus Technologies, Maynard, MA (11/03 - 3/06)**

- Debug/enhance middleware library linking Stratus fault-tolerant services to Linux SNMP agent.
- Serve as Linux team's liaison to Tools group during contentious conversion from CVS to an in-house Configuration Management system based on ClearCase.
- Debug/harden Linux e100/e1000 ethernet and bonding modules for use in Stratus fault tolerant systems; clean up supposedly PCI HotPlug-compliant sections; shepherd changes (eg. commit ac7c6669) back to Linux community directly and also via Red Hat/Novell.
- Design/implement an approach to identifying Ethernet interfaces such that their names reflect only their location in the PCI topology and are independent of their MAC addrs, their presence at boot time or subsequent HotPlug removals/insertions.
- Design/implement disk "scrubber" script providing earlier detection of latent faults in the component disks of Linux RAID1 configurations.
- Repair multiprocessor interrupt support in KGDB's remote agent for use with 2.6.18 Linux on Stratus hardware; add custom commands for extracting (via Remote Serial Protocol) symbols and load addresses from loadable kernel modules.

### **Mission Critical Linux, Lowell (8/00 - 10/03)**

- Port Linux to various embedded/custom PowerPC systems (including Galileo GT64260 reference implementation w/PowerPC G4 7400/7410); develop platform/board support for Ethernet, MMU, interrupt, PCI and RS232; patch Linux for debugging with KGDB via RS232, and also use Abatron's BDI2000 to debug via JTAG interface.
- Analyze/repair defects in Linux.
- Support development of NetGuard/DataGuard High-Availability clustering products; design/implement a cluster-aware file mirroring daemon, debug daemons/libraries, integrate ethernet channel bonding.

### **Mercury Computer Systems, Chelmsford MA (3/98 - 7/00)**

- Design/implement a replacement spinlock subsystem for Mercury multicomputers to deal with scalability problems suffered in large (50+ compute elements) configurations; extend the NUMA-based Mellor-Crummey/Scott locking algorithm to work on Mercury's non-NUMA hardware.
- Improve source code analysis tools; introduce Glimpse/ctags and create scripts enabling Cscope to operate in Mercury's unique development environment.
- Create example programs illustrating use of software-only synchronization algorithms on Mercury multicomputers.
- Analyze/repair defects in MC/OS.

### **The Open Group (formerly OSF) Research Institute, Cambridge (7/94-8/97)**

- Technical liaison to corporate client for duration of an ARPA-funded project; advise and participate in development of real-time execution environment for client's target system based on Paragon supercomputer technology and OSF1/Mach; perform wide range of development and support tasks; travel to client site intermittently to assist in configuration/deployment and for general handholding.
- Port OSF1/Mach kernel from uni- to multi-processor Paragon nodes; primarily responsible for low-level interrupt and memory management code; hit all milestones in an aggressive schedule. (team of 3)
- Rework OSF1/Mach boot loader; add handling for ELF images and static initialization of C++ executables.
- Participate in creation of Java runtime environment using C++ in an "intellectual property clean room"; implement portions of the Java Virtual Machine supporting math primitives, switch statements, arrays, etc; port entire project from Gnu G++ to a pre-release version of HP's ACC; maintain/enhance scripts and rules files in ClearCase-based development environment.

### **PREVIOUSLY...**

- Design/develop a low-overhead UNIX kernel subsystem (Linux 'tickless' timers are similar) for managing specialized counter-timer hardware; develop syscall interface and user libraries implementing a Posix 1003.4-compliant interface to that subsystem.

- Port/develop UNIX on various platforms/architectures including 68040, MIPS3000, WangVS, 80286
- Develop/maintain kernel, libraries and utilities; includes VM, exception handling, file system, kernel debugger and SMP synchronization issues.
- Perform onsite debug/enhancement of customer applications and OS; involves international travel. (Salvage some critical accounts.)
- Develop standalone diagnostics monitor; port standalone utilities to run w/this monitor; rework monitor on extremely short notice to serve as system boot ROM.
- Institute management of UNIX sources using Berkeley Revision Control System; arrange nightly builds and packaging of multi-target releases.
- Develop/maintain Xenix device drivers for QIC-02 tapes, bitmapped graphics, virtual disks and SCSI tapes.
- Develop/maintain ROM-based emulation of the IBM-PC in an "intellectual property clean room".
- Serve as liaison to hardware group developing an ASIC implementation of an Instruction Prefetch Monitor for the 80286 (required for IBM-PC emulation/virtualization); write an assembler to aid in programming the state-machine PAL. Named on patent application.
- Develop firmware in tunable RF amplifier used in MRI systems; invent simple multitasking executive and processes to control stepper motors, coordinate sensor data and communicate with host; verify proper signal levels using oscilloscope.
- Breadboard prototypes of hardware designs; assist with HW debug; Construct chassis and cables for military avionics systems.

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## Education/Certifications

CompTIA Security+ Q2G2XVLHKCQEQ59D (2017), RHCSA 130-201-361 (2013), CompTIA A+ (2012), LPIC-1 10159721 (2011), CIW Web Foundations Associate (2012), MTA:Web Development Fundamentals (2013), Novell Certified Linux Administrator/Datacenter Tech Specialist (2011)

Additional studies: calculus, assembler language, C/C++, compiler construction, object oriented programming, economics, UNIX SVR4 ESMP internals

Associate Degree in Arts, State College Of Florida

Pursuing BSIT at Western Governors University (on hiatus)

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## Other

My SIGSEGV patches for CTWM (a window manager for X) accepted Dec 2012. My fixes (and name) still present in Linux e100 driver since 2.4.18, commit ac7c6669; diagnosed transient bonding failures, provided missing protection of MDIO registers. Member of Greater New Hampshire Linux Users Group (GNHLUG.org) since 1992

U.S. citizen, current passport, Secret clearance (TS pending).

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(NOTE: numerals in "b0rken" and "m0d0nne11" above)