

# JOSHUA HOBLITT

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## SUMMARY OF QUALIFICATIONS

- An adaptable Systems Administrator with more than a decade of experience in the IT industry
- “Jack of all trades” - An extremely broad skill set that ranges from the data center all the way to the desktop
- Job roles have included: software engineer, webmaster, UNIX host security, build maintainer, testing guru, general network security, general systems administrator, network design, data center planning (including construction), cluster design, VOIP deployment and network monitoring with intrusion detection
- Maintainer of several modules on CPAN and former maintainer of the Parrot virtual machine project
- 24x7x365 operational experience
- Demonstrated ability to work at high altitude (14,000 ft.)

## WORK EXPERIENCE

### UNIX Systems Administrator

**June 2010 - Present**

*National Solar Observatory - Tucson, AZ*

- Support the SOLIS telescope on Kitt Peak and the network of 6 GONG telescopes around the globe
- Added 100s of TBs of additional storage in the form of 8U custom built NAS boxes
- Took over an aging IT infrastructure and modernized the data center with technologies like virtualization, HA clustering, DRBD, and 10Gbit/s ethernet.
- Standardized the OS image for production servers (100+ servers) and scientist desktops a single Centos5.x image (kickstarted) and managed via Puppet.
- Participated in the IT planning process for the Advanced Technology Solar Telescope (ATST), which will be the worlds largest solar telescope on Haleakala

I came to NSO specially to modernize an aging IT infrastructure which had not had a dedicated systems administrator for several years. I initialzing estimated that it would take approximately two years to complete this task and I am about half way through the revamping process. The modernizations I've implemented have been wide ranging from hardware upgrades like installing switched PDUs and replacing aging servers with systems that having integrated BMCs, to the installation of monitoring and management systems, such as Nagios and Puppet. Academic environments have a tendency to "fall behind the times" due to erratic funding profiles but via conservative spending, NSO is well on it's way to having a modern enterprise computing environment.

### Senior Network Technician

**September 2009 - June 2010**

*Login, Inc. - Tucson, AZ*

- Manage fiber builds for Metro Optical Ethernet (MOE) installation on client premises
- Manage Asterisk based VOIP services
- Manage client network equipment
- Schedule and supervise HVAC, generator, and electrical systems maintenance at a ~ 2, 600 sq. ft. data center
- Respond to customer trouble tickets and after hours emergencies

While at Login, I've spent a large percentage of my time managing network equipment and have added Adtran's AOS operating system and Juniper's JUNOS (m20 platform) to my skill base. I've also spent a lot of time working on Login's ongoing electrical system upgrade to fully convert from a 208V 3PH utility feed to a 480V 3PH feed. Recently, I've been plotting the data from the E-Mon D-Mon sub meters I oversaw the installation of and generating statistics for billing from a SQL table base of call logs.

### Information Technology Specialist

**January 2002 - August 2004 (Hilo)**

**August 2004 - August 2009 (Honolulu)**

*Institute for Astronomy, University of Hawai'i - Honolulu, Hawai'i*

- Network “work package manager” for the PS1 project. Designed and installed the network in the PS1 telescope including bringing up both ends of 1GigE connection to Kihei, Maui and deploying an Asterisk PBX
- Responsible for the design and installation of a mixed computation and storage HPC cluster with 0.8 Petabytes of storage.
- Participated in the design, documentation and coding of multiple scientific libraries and software implemented largely in C99 by a multiple site team of three to ten members, depending on partner institution staffing levels. The core library is 108K LoC and total internal software tree is 601K LoC (87% C99, 9% Perl).
- Managed ~115 servers.
- Build maintainer for 50+ software packages using the “autotools” for C code and `Module::Build` for Perl packages

- Championed bringing test-driven development (or testing at all) into packages written in C via the bundling of `libtap` and a wrapper library of `libtap` that I implemented
- Extensive development of C and Perl applications using MySQL and performance tuning of MySQL installations, including over 5K lines of complex SQL queries and a data set of ~175M rows with the design intended to scale to billions of rows.
- Developed a unique user-land object repository (pseudo-filesystem) in C and Perl that's designed to scale to billions of objects (files) with multiple redundant copies of each object distributed across production HPC cluster
- Developed several RFPs and ran the competitive bidding process for I.T. purchases in the \$200K-\$300K range
- Built and maintained my own custom Gentoo image and ebuilds tree for production servers (built with `catalyst`)

My time was divided between several different hats: System Programmer for the Pan-STARRS' Image Processing Pipeline (IPP), PS1 Network Manager (ended in fall 2008), and IPP System Administrator for multiple HPC clusters spread across three different islands. I gained ample experience planning logistics and manpower for network and cluster installations at remote work sites on the summit of Haleakala and at the Maui High Performance Computer Center (MHPCC). My largest single job function was designing and implementing applications in C and Perl to support the IPP; this included formalized systems engineering documentation in LaTeX and Doxygen, a thread-safe reference-counting memory management with back-tracing support, numerous parsers (in C and Perl), a cluster-wide state-keeping work queue system, and a large petabyte-scale storage management system.

#### *Institute for Astronomy, University of Hawai'i - Hilo, Hawai'i*

- Responsible for I.T. support of the IfA's facilities on island of Hawai'i for ~2.5 years
- Responsible for the Hilo facilities' network, UNIX/Linux servers/workstations, Windows desktops, and the UH88 telescope's network
- Supported ~65 scientists, technical and administrative staff
- Deployed and maintained a Cisco VOIP network in Hilo with ~55 handsets
- Deployed and maintained multiple Cisco PIX firewalls
- Supported telescope operations at 14,000ft.
- Replaced a dozen Cisco 2900s 10/100Mbit/s switches handling desktop connectivity with two Cisco 4000 series switches for a total of ~300 GigE ports so that all physical ports in the building would be live
- Planned for and supported major projects (NASA's IRTF telescope, NASA's JWST IR detector development, UH 88" telescope, internal instrumentation development)
- Worked with architects to develop data center and network/telecom wiring requirements for a new 20,000 sq. ft. facility
- Developed web apps and data acquisition software for plotting weather data from the UH88's sensor network
- Developed the annual Hilo IT budget, in the \$100K-\$200K range
- Hired and mentored a Jr. Administrator

I was responsible for everything from budgeting and purchasing to end-user support. Some of my major projects in Hilo included: implementing a Cisco VOIP network from scratch, deploying Cisco PIXs at three different sites (including two telescopes on Mauna Kea), design and deployment of a multi-terabyte archival system, and overhauling internal security measures. A sample of my more than 20 smaller projects are: gigabit ethernet to the desktop, facility wide deployment of 802.11b APs in the plenum space, consulting on the construction of a new facility, development of a weather and industrial data encoder acquisition system, and overseeing network wiring and electrical contractors.

## **UNIX Systems Administrator**

**October 2000 - July 2001**

### *BBox - Beaverton, Oregon*

- One of two UNIX administrators responsible for ~two dozen production servers
- Responsible for Solaris, Linux, OpenBSD, and NetApp Systems
- Responsible for UNIX host and network security
- Responsible for availability of hosted sites and internal infrastructure
- Managed network border firewalls and intrusion detection
- Perl programming for systems administration, internal and external projects
- Consultant to in-house Developers for design integration
- On-call 24x7
- Built and maintained IPSEC VPNs between data centers
- Administered DNS both internally and for hosting customers
- Generated production control documentation for UNIX systems
- Developed Perl scripts for automatic response to website downtime

At BBox, I reviewed and improved UNIX host security. I participated in the building of a new high-availability data center and the migration of the dev/test environment into that data center. The company merged with Fortix<sup>1</sup>, now Viawest<sup>2</sup>. We went through the process of migrating the production environment from being co-located to Fortix's 5,000+ sq. ft. data center and took over managed services inside that data center.

My official job title was UNIX Systems Administrator but after a few months I was given the unofficial title of "Security Administrator". In addition to my UNIX admin hat, I took on a traditional infosec role; for example, configuring and monitoring intrusion detection systems and managing VPNs. This included taking over the Cisco PIX firewalls at Fortix.

<sup>1</sup><http://www.fortix.net/>

<sup>2</sup><http://viawest.com/>

## UNIX Systems Administrator (CSci. Dept.)

January 2000 - June 2000

Sept. 1998 - Dec. 1999 (student 499 project)

*Clark College - Vancouver, Washington*

- Responsible for Solaris, HP-UX, Linux, and OpenBSD systems
- Administration of network services (HTTP, DNS, DHCP, etc.) and devices
- Managed ~2500 user accounts
- Responsible for system security and stability
- Created and maintained all student accounts on a quarterly basis
- Set up automated account creation and deactivation based on student enrollment saving multiple man weeks at the start of each quarter
- Ensured privacy of network by developing and implementing a stringent security policy
- Interacted with faculty and students on a daily basis

I completely reorganized and rewired the Computer Science Department's network, including all UNIX systems and network equipment, largely to remove the 10base2 segments. I also coordinated efforts with the campus-wide CIS Department to achieve better integration with the CS Department. As a guest speaker I lectured the "Intro to UNIX" course on what it was like to be a Systems Administrator. The goal was to either help those students choose a career path or have better interactions in the future with a Systems Administrator as an end-user.

## Customer Support Engineer

February 1998 - July 1998

*Stream International - Beaverton, Oregon*

- Performed technical support for PCMCIA ethernet and ethernet + modem cards
- Supported product installation and configuration on: MSDOS, PCDOS, Win3.x, Win9x, WinNT3.xx and WinNT4, OS/2 Warp (3 and 4), MacOS 7.5.3 and above, Netware 3.1x - 4.xx, SCO UNIX

I worked as part of a telephone support environment dealing with end-user networking issues on supported 3com PCMCIA networking products. This involved working with a large range of operating systems and hardware while servicing laptops and networking equipment.

## TECHNICAL SUMMARY

A non-exhaustive list:

- Solaris (sparc, i386), Linux (i386, amd64, sparc, alpha), HP-UX (hppa, m68k), OpenBSD (i386, sparc), FreeBSD (i386), NetBSD (i386), Cisco PIX OS, Cisco IOS, Adtran AOS, Juniper JOS, Blade Networks ISCLI
- Spanning-Tree, Layer 3 switches, VTP, ISL, etc.
- Cisco Call Manager and Asterisk PBX (phones, gateways, Call Manager, Unity, voice mail)
- Packet Filtering, Monitoring, IDS (Cisco PIX, Checkpoint FW-1, PF, IPF/IPNAT, Snort, NFR)
- Weblogic, Interwoven, Apache, VCS, VxFS, Sendmail, Postfix, Bind, Dhcpd, NIS, NFS, SSH, Oracle, MySQL (extensive experience), Dovecot, Nagios, Puppet, etc.
- KVM Hypervisor, virt-manager, VT-d/IO-MMU/VFs
- Shell Script (bourne, korn, bash), Perl, Sed, Awk, Expect, XHTML, CSS, L<sup>A</sup>T<sub>E</sub>X, CVS, SVN, git, etc.
- ANSI C (through C99), C++, MS VB 3-6
- Windows (7, XP, 2K, NT4, 9x, 3x, DOS)