Brian Cunnie

Software Developer

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Objective

Not currently looking, but if I were, it would be for a four-day workweek software developer position in the San Francisco Bay Area, one accessible by public transportation, with pair programming.

Skills

Programming Languages (Test Frameworks): Golang (Ginkgo), Ruby (RSpec), Python (unittest), Javascript/ReactJS (Jasmine, Jest), Java, bash, Perl, C, C++, APL, Assembler

Tools and Declarative Languages: Cloud Foundry CLI, BOSH, git, JetBrains's IDEs (Goland, RubyMine, WebStorm, PyCharm), Android Studio, CSS, HTML, Concourse CI, ZFS, SQL, svn

Operating System and Infrastructures-as-a-Service (IaaSes): macOS, Linux, FreeBSD, ESXi (vSphere), FreeBSD, MS Windows, Amazon AWS, Microsoft Azure, Google Cloud Platform (GCP), VMware vSphere

Network Protocols & Services: TCP/IP (routing, DHCP, IPv6, NDP, firewalls (iptables and pf)), DNS (BIND, named, djbdns, PowerDNS), email (Sendmail, qmail, Postfix), HTTP servers (Apache, nginx)

Experience

Software Engineer, Broadcom (formerly VMware, formerly Pivotal), San Francisco, CA
6/11 to present

- BOSH: maintained BOSH, a virtual machine (VM) orchestrator (Ruby) CPIs: maintained the Ruby-based Cloud Provider Interface (CPI,interface between BOSH and IaaS). Wrote the underlying API calls for AWS and vSphere. (Ruby) Operations Manager: developed and maintained Operations Manager, a Ruby-on-Rails application which acts as a front end to Pivotal's commercial Cloud Foundry and Kubernetes offerings. Went on-call, helped customers resolve technical issues.
- Autoscaler and Scheduler Team: maintained two cloud-based applications (written in a smorgasbord of languages: Golang, Kotlin, Java, Groovy, Bash). Much of the work was bug fixes and CVE mitigations through dependency bumps
- V3 Acceleration Team: enhanced the Cloud Foundry API (CAPI), a Ruby-based MVC application, to include new endpoints, new features. At the same time, enhanced the Cloud Foundry CLI, a Golang-based application, to take advantage of the new endpoints and new features
- TAS NSX-T: built automated test infrastructure to test interoperability between Pivotal's cloud offering (TAS) and VMware's software-defined network (NSX-T), addressed issues with appropriate organizations
- Cloud Operations: maintained Pivotal Web Services (PWS), Pivotal's public-facing Cloud Foundry.

Deployed updates several times a week, addressed GDPR compliance, and diagnosed, remedied, and documented outages
- Release Engineering: wrote the tooling that tested the each release of the Pivotal Cloud Foundry software (Ruby)
- Toolsmiths: maintained vSphere environments used by the development teams

Systems Administrator, Arda Technologies (acquired by Google), Mountain View, CA
12/07 to 6/11

Provided computer support for an IC Design Startup.

- Managed the following machines:
  - 35 Linux machines (mostly RHEL5, one RHEL3, two Fedora (12,13)),
  - 20 Windows machines (mostly laptops, Windows 7, Vista),
  - 3 FreeBSD machines (2 firewalls, 1 backup),
  - 1 NetApp,
  - 3 DD-WRT WiFi access points
- Maintained DNS, LDAP, NFS
- Implemented a fairly complex backup system (using a combination of perl scripts, rsync, cron, svnadmin dump, ZFS snapshots)
- Configured firewalls (FreeBSD) and VPN (OpenVPN)
- Configured redundant Internet connections (Comcast Cable and AT&T DSL)
- Hand-crafted two iterations of the corporate website (using XHTML, PHP, and CSS)
- Troubleshot and tuned as needed. Spec'ed and purchased equipment as needed

Systems Administrator, Aeluros (acquired by Broadcom), Mountain View, CA
3/02 to 12/07

Provided computer support for an IC Design Startup.

- Managed the following machines:
  - 100 Linux machines
  - 20 Windows machines (Finance, Marketing, Sales),
  - 3 Solaris 8 (legacy license and print servers),
  - 2 HPUX machines (offline Agilent 8k testers).
- Coded the chip-testing GUI in Perl/Tk for eval kits for our chips to the customers, modified to accommodate new product lines and new features
- Hand-built the external mail server using a combination of cyrus-imapd, sendmail, Apache, SquirrelMail, and OpenLDAP. Also implemented a calendar server using Apache, MySQL, OpenLDAP, and PHP
- Maintained firewalls, redundant internet connections, DNS, YP/NIS, NFS system internally, backups of our corporate intellectual property (IP), spec'd and purchased equipment

Extracurricular Activities

I run sslip.io, a DNS service which maps specially-crafted hostnames to IP addresses. It made the top spot on Hacker News when I announced it.

I also run five servers in the NTP pool which carry an aggregate of 1% of the US NTP pool traffic.

I (with Dmitriy Kalinin) added IPv6 support to BOSH.

I contribute to open source projects. My favorite contribution: updating Ruby's core library, openssl, to correctly verify abbreviated IPv6 SANs.

I blog what captures my interest, including debugging the vSphere API via the BOSH vSphere CPI (1), how to install a TLS certificate on VMware NSX 4.1 (1), on-premise is almost four times cheaper than the cloud (1), the least secure way to backup vCenter 8.0 with TrueNAS 13.0 (1), creating multi-platform Docker images with Concourse CI (1), how to install a TLS certificate on vCenter Server Appliance (VCSA) 8.0 (1), tuning HAProxy in a vSphere environment (1), the underground guide to Cloud Foundry Acceptance Tests (1), disk controller benchmarks: VMware Paravirtual's vs. LSI Logic Parallel's (1), Concourse CI on Kubernetes (GKE) (1, 2, 3, 4, 5, 6) how to best organize your Golang unit tests (1), how to enable IPv6 on Cloud Foundry's HAProxy (1), benchmarks of a 10 GbE-backed NAS server (1), transferring time-based one-time passwords to a new smartphone (1), uncovering a man-in-the-middle SSH proxy (1), how to install a TLS Certificate on vCenter server appliance (VCSA) (1), benchmarking the disk speed of IaaSes (1), deploying BOSH VMs with IPv6 addresses to vSphere (1) and to AWS (2), maintaining BOSH Directors with Concourse CI and bosh-deployment (1), why is my NTP server costing me $500/year (1 (top spot on Hacker News), 2, 3), deploying a BOSH Director With SSL certificates issued by a commercial CA (1), how to customize a BOSH stemcell (1), updating a BOSH Release (1), Concourse CI has badges (1), Concourse CI without a load balancer (1), the world's smallest Concourse CI server (1), setting up and benchmarking the iSCSI performance of a ZFS fileserver (1, 2), installing Cloud Foundry in a home lab (1, 2, 3, and 4), setting up a DNS, NTP and nginx server in the cloud (1, 2, 3, 4, and 5), configuring and troubleshooting an IPv6 firewall (1, 2, 3, and 4), using Ruby Expect to control network appliances (1), using DNS-SD to make printing easier (1), locking down an ethernet network (1), and many more. I've written blog posts as part of my job as well, and do not include those posts in the above list.

I swim in the San Francisco Bay and play rugby.

Education

Stevens Institute of Technology, June 1989
Master of Science and Engineering, Major in Telecommunications Engineering

University of Pennsylvania, August 1986
Bachelor of Science and Engineering, Major in Computer Science Engineering

Ongoing, non-degree-related education:

- Front-End Web Development with React (2019)
- Build a Modern Computer from First Principles: Nand to Tetris: Parts 1 (2015) and 2 (2018)
- Programming Mobile Applications for Android Handheld Systems: Part 1 (2015)
- Web Application Architectures (Ruby on Rails) (2014)
- An Introduction to Interactive Programming in Python: Parts 1 and 2 (2013)

Honors

National Merit Scholar