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Summary

I'm a seasoned leader in technology, specializing in the development and management of secure, scalable service delivery platforms based on distributed infrastructure and cloud technologies. I possess extensive knowledge of Internet technologies, operating systems, multi-threaded programming, virtualization, host security, and more. I have excellent verbal and written communication skills.

Highlights

- Experienced lead software architect and manager of a small development team.
- Expert in Internet services architecture, deployment, scalability, and security.
- Expert in developing efficient software written in C/C++, specializing in multi-threaded server side software.
- Expert in Python
- Near-expert in Golang
- Expert in modern Perl (i.e., OO perl using Moose)
- Expert in bash, awk, sed, etc.
- Expert in UNIX system administration.
- Expert in various OpenStack projects, most notably 'Compute' (nova) where I was a core reviewer for a number of years. Also worked extensively on 'BareMetal' (Ironic).
- Was a major factor in launching Rackspace's next generation cloud, powered by OpenStack.
- Capable public conference speaker with certain audiences. Experienced at leading OpenStack design summit sessions and presentations. I have also presented at XenSummit.
- Designed and developed a portable, efficient, highly modular, thread-safe server daemon and various supporting modules that became the basis for most of the hosting related services at Concentric/XO. Using this for SMTP MX service resulted in a 75%+ increase in capacity.
- Designed and developed various kernel modules to make applications multi-tenant capable securely.
- Responsible for host security for Concentric/XO's hosting platforms.
- Built a distributed Xen-based cloud computing platform as the basis for Concentric/XO products.
- Certified ScrumMaster.
- Music enthusiast.

Other accomplishments

- I was involved with the OpenStack open source project at its launch via Rackspace. I was an influential contributor to the Compute (nova) project.
- Implemented use of open source DKIM (Domain Keys) library for use with an MX server module. Various modifications to fix bugs and improve performance were submitted back to the open source community.
- Wrote a portable, thread-safe socket-helper library in C that provided easy interfaces to use for listening, connecting, and polling. It supported Unix Domain, IPv4, and IPv6 sockets using the most efficient polling mechanism found on the OS.
- Designed and implemented various ideas for host security, including the use of IP filtering technology on all UNIX host systems at Concentric. Later, managed host security on XO's web-hosting platform of well over 100,000 customers.
- Designed and implemented a plan for migrating 40,000 customers from one web-hosting platform to another.
- Designed, implemented, and maintained a firewall and NAT architecture needed for some web-hosting back-end networks using FreeBSD, carp, and pf for real-time automatic failover.
- Designed, implemented, and maintained firewall and networking solutions for new office space for the whole web-hosting business unit. This included management of a Cisco 6509, and various numbers of Cisco 2924 and 2948 switches.
- Implemented a Subversion (svn) server for centralized revision control for source code and documents. Wrote perl scripts to convert SCCS and RCS histories to svn dump files for importing.
- Designed and developed an open source IRC server.

Experience

Tilt.com, Inc.   **October 2014 - Present**
Sr. Software Engineer   **Work From Home**

- Responsible for improving and scaling everything related to the monolithic API backend.
- Quickly became an expert in everything related to payments. This included Tilt's code, how Tilt's 3rd party payments partners work, card charges, bank transfers, refunds, etc.
- Became the lead payments engineer in short order and the go-to person for any question related to movement of funds.
- Redesigned the payments code such that implementing new 3rd party payments partners became nothing more than creating a new module that implemented some specific interfaces. Adding new partners became something where we'd have 90% functionality with as little as 2 days of work.
- Split payments code out from the monolithic API application into something that could become a separate service. This involved moving a lot of code around, separating the different 'areas of concern'.
- Designed and demoed a simple way to allow customers to send money to other people (P2P) as an 'engineering week' project. This was quickly productized and became the primary strategy for all of Tilt.
- Migrated API tests to run in CircleCI, moving them away from Jenkins.
- Led a movement to do more unit testing vs relying solely on a lot of long-running integration tests. Moved from basically no unit tests to over 500 individual tests across 100 test cases.
- Worked on a next-generation service architecture written in Golang. This involved building a common framework that could be used for any new service. The common framework provided standardized logging and standardized access to services like Rollbar and Datadog. Our custom url-shortener service was re-written in Golang to use this new framework.
- Implemented next-gen CI and deployments using AWS ECS (Docker container service) which included building a docker image in CircleCI, running tests against it, and pushing the image into a container registry. Deploys were implemented with ansible and AWS Cloud Formation.

Rackspace Hosting   **July 2010 – October 2014**
Sr. Software Engineer/Principal Engineer   **Work From Home**

- Initially responsible for creating 'the next generation' Cloud Servers product. This involved committing new features to OpenStack to gain feature parity with the first generation code. OpenStack is almost all Python.
- Designed, developed, and implemented a solution to scale OpenStack to meet Rackspace's needs.
- Responsible for doing code reviews upstream and internally.
- Responsible for mentoring other members of the team, providing guidance on software development design, architecture, implementation, and OpenStack in general.
- Developed slides about how Rackspace uses Xen and presented them at Xen Summit in 2012.
- Helped build and integrate the OnMetal (bare metal) product with Cloud Servers. Influenced a change in direction to use
- OpenStack Ironic that has seen many benefits.
- Member of the TCT, a small group of highly technical employees that are available to help out wherever the company needs.
- Member of Product Technical Advisory Board. We review the design and implementation of new products or new features of products.

XO Communications   **April 2008 – Present**
Director of Software Development, Hosting   **San Jose, CA**

- Manage an Internet services software development group consisting of teams of Unix, Windows, and UI/Control Panel developers using Agile processes.
- Responsible for the software that hosts services such as DNS, email, and web-hosting.
- Lead architect responsible for the technical direction of products based on communication with Product Management and Marketing.
- Mentor members of the team, providing guidance on software development design, architecture, and implementation.
- Perform code reviews and participate in development when time permits.
- Work very closely with Operations, providing tools and system administration assistance when necessary.

XO Communications   **June 1999 – April 2008**
Senior Software Architect   **San Jose, CA**
(XO was the result of Nextlink's acquisition of Concentric in June, 2000)

User-land Development:

- Lead architect and developer of UNIX server software, specializing in multi-threaded development in C.
- Designed and developed the basis for all server-based software using loadable module ideologies combined with pthreads.
- Designed and developed a multi-threaded front-end MX (SMTP) module for the modular server architecture.
- Designed and developed a multi-threaded DNS resolver module for the modular server architecture.
- Designed and developed a generic, distributed, fully redundant, replicated storage solution to use for mail and other data.
- Maintained an already-existing IPC/shared memory solution that was used as a very fast DB cache. Designed and implemented a more distributed version that passed updates and other events to many different nodes instead of the old solution that just updated shared memory on different nodes by reading off of NFS shares.
- Developed high performance multi-threaded Usenet server software, including a Usenet proxy daemon.
- Developed a Xen-based virtualization platform for use for products such as Managed Server and Managed Backup.

Kernel Development:

- Developed a dynamic file system kernel module for Solaris, used to create secure virtualized file system space for use in a shared hosting environment.
- Developed a number of Solaris kernel modules to create secure virtual machines for use in shared hosting environment shell and CGI space. This was originally prototyped on both Linux and FreeBSD and involves wrapping of most system calls.
- Modified ip-filter kernel module to prevent OS-type detection from netcraft.com. Also added rate-limiting options.
- Developed a kernel module for FreeBSD to do hardware load balancing via MAC address rewriting.

Concentric Network Corporation   **August 1996 – June 1999**
Senior Systems Engineer   **Cupertino, CA**

- Responsible for system administration of Concentric's Internet services and shared hosting platforms as well as development of new software and features.
- Wrote various pieces of a dial-up authentication platform, including a multi-threaded event distribution system and a multi-threaded database server to track dial-up sessions in real time.
- Modified open source Usenet software to work in a shared web-hosting environment for a custom local newsgroup feature.
- Maintained Concentric's Usenet and IRC systems and code.

Skills

Operating Systems:

Solaris, Linux, *BSD, Mac OS X, Cisco CatOS and IOS, OnTap, Windows

Development:

C, C++, python, Golang, various UNIX shells, sed, awk, perl, php, tcl, mysql, Berkeley DB, OpenSSL, multi-threaded programming (POSIX and UI/Solaris threads), kernel level programming (Solaris/Linux/FreeBSD), IPC, Solaris doors, svn/cvs/rcs/sccs, gdb, adb/mdb, autoconf/automake.

Other Knowledge:

AWS, Docker, Xen, VMWare, CircleCI, Jenkins, Datadog, truss/strace/ktrace, regular expressions, Apache, postfix, qmail, dspam, SpamAssassin, procmail, fetchmail, bind, OpenVPN, OpenSSH, rsync, ipfilter, ipfw, pf (packet filter), iptables, NAT, hardware and software based load balancing, tcpdump/snoop, traceroute, and more.

Protocols:

HTTP, SMTP, POP3, IMAP, DNS, FTP, NNTP, IRC, Radius, SSL, DHCP, TCP, UDP, NFS, NTP, RIP, BGP