

Summary

I am a highly experienced, multidisciplinary engineer/entrepreneur with a natural curiosity, and a driving need to learn. I bring a diverse and ever-expanding skill set to bear on software and start-up related problems. My engineering expertise is in building scalable backend on-premise or cloud solutions and enterprise networking. I am equally at home in the internals of SQL databases, writing Ruby-on-Rails web applications and APIs, writing glue-code in script languages, or developing with Go or C. With 20 years of experience, I've learned to recognize and adopt the best practices of both start-up and corporate cultures.

Experience

May 2012 **Co-Founder and Principal Infrastructure Architect**, *Redpoint Positioning, Inc.*, Boulder, CO.

Present Detailed achievements:

- Co-founded a company that designs and builds ultra-wideband radio hardware and software allowing for real-time indoor location with 20cm accuracy.
- Engineering:
 - Defined system architecture for the Redpoint RTLS wireless infrastructure network.
 - Identified technologies used for building an indoor GPS system.
 - Defined project roadmap and identified individual feature sprints.
 - Designed and built the backend for presentation of position data using Rails, GO, and C.
 - Defined cloud architecture and evaluated cloud providers to achieve best in class with respect to performance, cost, and compliance parameters.
 - Improved software delivery process by building a continuous-integration and delivery system.
 - Clearly documented all of the above.
 - Installed real time positioning systems on large commercial customer sites.
- Business-related:
 - Managed HR process.
 - Provided sales and marketing support during large-scale conferences (7k - 15k+ participants) demoing Redpoint's solutions to potential customers including CxOs/VPs.
 - Improved the company's bottom line by negotiating better deals with service vendors.
- Customer-related:
 - As a part of pre-sales team, helped small and Fortune 500 level customers discover their pain points within the indoor positioning space.
 - Evaluated individual customers' market opportunities.
 - Provided post-sales support.

July 2011 **Software System Architect/Network System Engineer**, *Power Tagging Inc.*, Boulder, CO.

July 2012 Detailed achievements:

- Worked at the hardware/software interface to architect and instrument real-time debug capability:
 - Wrote a complex debug parser providing mission critical real-time data to the engineering team.
 - Simplified real-time data acquisition mechanism from remote nodes to the hardware engineering team via complex sequence of VPNs.
 - Designed a test framework exercising a power grid network element establishing element's performance characteristics.
 - Built a performance data visualization platform.
- Architected network infrastructure, assuring high reliability.
- Provided overall evaluation of system security.
- Mapped customer requirements for early stage product deployment within customer's power grid system.
- Standardized software release process.
- Improved automation of software release cycle.
- Mapped out transition from antiquated centralized version control system to a modern distributed version control system.
- Managed hardware and software labs.
- Built a document repository system.
- Simplified online resource access with a single-sign on process.
- Successfully debugged broken ARM and DSP build process.
- Managed day-to-day IT operations.

May 2011 **Software Architect**, *Avvalora*, Rome, IT.

July 2011 Detailed achievements:

- Designed and implemented Amazon AWS-based online HR evaluation system using Ruby-on-Rails and jQuery.
- Gathered customer requirements and translated them into user stories.
- Evaluated and tested cloud providers.
- Improved email delivery rates and spam detection using DKIM and DCC sendmail filters.
- Implemented ad-hoc programmatic PDF document generation for presentation of results.
- Designed bounced email processor.

May 1998 **Staff System/Network Engineer**, *Qualcomm/Ericsson*, Boulder, CO.

May 2011 Detailed achievements:

- Defined and led IT and engineering projects: requirements, architecture design, budgeting, and implementation; provided capacity planning for hardware, software, and network availability.
- Designed and implemented IT policies.
- Tested performance, evaluated, and purchased computer and networking hardware and software.
- Administered a network of 150+ Sun workstations and servers: installation, maintenance, tuning, fault and core dump analysis on Sun Sparc, Ultra, Enterprise, SunFire architectures.
- Installed and configured DHCP/NIS/LDAP/DNS/SMTP/IMAP/NTP/HTTP/Jumpstart Samba/AAA/CFEngine services.
- Configured and maintained NFS and AFS servers based on NetApp, Hitachi, Sun NAS/SAN/iSCSI RAID arrays.
- Developed auditing, security, and patch management processes; installed, tuned, and developed software.
- Built and maintained IP and telco networks: project definitions, timelines, system and resource requirements, hardware testing, metrics, implementation and maintenance.
- Installed and administered Oracle databases: database design, creation, capacity tuning, backups, relational schema design (RDBMS 8, 9i, 10g, 9iAS, 11g, RAC).
- Installed and configured CISCO, Extreme Networks, Juniper, and Ericsson routers, switches, firewalls and terminal servers: network planning, routing (OSPF/EIGRP/RIP), lan/wan configuration, resiliency (ESRP/HSRP/VRRP), security (viruses, spam protection, audits, server hardening, intrusion prevention, and detection).

May 1998 **Staff System/Network Engineer**, *Qualcomm/Ericsson*, Boulder, CO.

- May 2011 Detailed achievements continued:
- Maintained L1 switching infrastructure with automated L3 topology infrastructure.
 - Procured, installed, configured, and troubleshot T1/E1/T3/STM1 lines: DAX equipment installation and configuration.
 - Troubleshot Ethernet, 802.11, ATM, and TCP/IP networks: performance and security.
 - Provided training for junior system administrators, software developers, and testers
 - Evaluated system performance and provided analysis of CDMA based data services.
 - Performed integration and system testing of CDMA2000, 1xEVDO, and data equipment.
 - Developed testbed environment based on Oracle and DejaGNU for software integration/verification activities.
 - Spearheaded multiple innovation projects for process and product functionality improvement.

January 1996 **System Administrator**, *Department of Computer and Information Sciences, Kansas State University*, Manhattan, KS.
May 1998

Detailed achievements:

- Administered network consisting of Sparc workstation, servers and Windows NT network (50 PCs).
- Installed and administered INGRES and ORACLE databases.
- Installed software, maintained backups, setup user accounts, configured new systems.
- Maintained computer hardware, hubs, switches, xterminals.
- Troubleshot IPX/TCP network problems.
- Integrated network based on heterogeneous operating systems (NT, Solaris, Linux).
- Installed and maintained HTTP, FTP, DNS, SMTP, and Samba servers.
- Maintained security of network and servers: network planning, OS patches, software.
- Evaluated software/hardware for purchase.
- Provided assistance to users, organized tutorials.

January 1995 **Research Assistant**, *US Grain Marketing Research Lab*, Manhattan, KS.

January 1997 Detailed achievements:

- Developed image analysis software using Matlab.
- Performed data analysis and data maintenance using SAS.
- Maintained computer hardware.
- Completed project on utilization of neural networks in grain classification.

Programming Languages

sh	Proficient	<i>Day-to-day sysadmin operations, install script development</i>
Ruby, RoR	Proficient	<i>Ruby on Rails application development</i>
Jquery	Proficient	<i>Ruby on Rails application development</i>
Go	Beginner	<i>Software package development</i>
C	Beginner	<i>Custom kernel module development, computer vision processing package development, FFI implementation</i>
Elixir	Novice	<i>Software package development</i>
perl	Prior experience	<i>Software package development</i>
PHP	Prior experience	<i>Software package development</i>
Python	Prior experience	<i>Software package development</i>

Computer skills

Architectures Amazon AWS, Rackspace, Linux, F5, NetApp, IBM, Extreme Networks, CISCO, Juniper (Netscreen, M), XEN/Vmware, MRV, IXIA, Sun (Sparc to Sunfire), Ericsson (CDMA2000, HDR, LTE), EasternResearch DACS, Brocade

Software Ruby On Rails, Mysql, PostgreSQL, Chef, Ansible, CFEngine, Docker, Terraform, Oracle (RDBMS, AS, RAC), Veritas (VXFS, Netbackup), Rational (Clearcase, Clearquest), Legato NetWorker

Education

- 1992–1996 **BS Computer Science**, *Kansas State University*, Manhattan.
1996–1998 **MS Computer Science (Incomplete)**, *Kansas State University*, Manhattan.

Training

- DesignLab: UX Design
- DesignLab: UI Design
- GIAC/GSEC
- Solaris 8 OS Internals
- ExtremeNetworks L3/L2 Switching
- Budgeting and Finance for Managers
- VoIP for 1x EVDO CDMA
- Zurb University: Responsive Web Design
- Sun Enterprise Server Administration
- Sun Performance Tuning
- CISCO Routing
- 1xEVDO CDMA OTA Interface
- Introduction to WCDMA

Membership

- o Rocky Mountain Rescue Group
- o GSEC GIAC
- o USENIX
- o ACM

Engineering Projects

- 2013–2017 **API Design**, *Redpoint Positioning*.
Architected and implemented APIs for management of Redpoint's RTLS network via REST and a lightweight frontend interface using a Ruby on Rails stack with Coffeescript and Sass.
- 2015–2017 **System Release and Testplan Design**, *Redpoint Positioning*.
Defined software delivery process for Redpoint RTLS firmware. Implemented a coherent system test and software delivery strategy using the Gitlab platform with Docker testing components. Wrote a complete RTLS system test plan.
- 2014–2016 **Productization of the RTLS Server**, *Redpoint Positioning*.
Defined a standard feature set with the engineering team, turning Rails application into a self-enclosed RPM with well-defined dependencies on Redpoint software modules. Set up an internal Chef server to be used as an automation framework to commission and manage customers' cloud and on-premise RTLS servers, as well as Redpoint's production and test environments.
- 2012–2014 **Prototyping of the RTLS Server And Network Elements**, *Redpoint Positioning*.
Prototyped frontend and backend for the RTLS system using a Rails stack with D3, and Leaflet elements. Standardized style elements for the frontend using Sass and Coffeescript. Implemented cloud redundancy prototypes in AWS using a tiered architecture of off-the-shelf loadbalancers (Nginx, HAproxy) and ELB. Prototyped a bridge device using BeagleBone hardware and and created a custom image using OpenEmbedded/Yocto. Prototyped a bridge device using Raspberry Pi.
- 2012 **Power Grid Test Harness**, *PowerTagging*.
Designed and implemented an automated test framework allowing for hands-off testing of new firmware releases for multiple power-grid network devices with automated aggregate results summary.
- 2011 **360 Online Review App**, *Avvalora*.
Designed and implemented an Amazon AWS-based online employee evaluation system and review system. UI/UX design, frontend and backend implementation.
- 2010–2011 **Engineering Server Virtualization Project**, *Ericsson*.
Led project which reduced and virtualized engineering resource footprint to minimize capex/opex.

- 2010 **LTE RBS Testing**, *Ericsson*.
Assisted in LTE RBS phase modulation tests: set up eNodeB, ran IP load tests for eNodeB connected to MME core node using Aeroflex soft phone.
- 2010 **Lab Management**, *Ericsson*.
Managed engineering labs and lab staff for multiple engineering organizations.
- 2008 **Lab Security Baseline Project**, *Ericsson*.
Provided analysis and guidelines for a global security baseline project for Ericsson research labs. Implemented security initiatives in a local research lab.
- 2007 **APG Linux Prototype**, *Ericsson*.
Performed a financial and technical viability study for a migration of a Windows cluster telco sub-component to a Linux based HA system. Built a Linux based HA prototype with OpenSAF and LinuxHA.
- 2006–2008 **PII System Security**, *Ericsson*.
Analyzed user security requirements, defined project and scope for implementation. Led the implementation team.
- 2006–2008 **PII System Architecture Design**, *Ericsson*.
Provided specification and design for a highly available, 99.999% uptime NMS system. Designed IP network for SIP infrastructure for a tier 1 cellular telecommunication provider utilizing geo-redundant elements.
- 2005 **WAN/LAN performance assessment and VPN deployment**, *Private Customer*.
Performed security assessment on a LAN network for a private customer, deployed Norton Antivirus servers. Installed a VPN solution to link a remote office in Colorado with the headquarters in California and allow secure telecommuting access to a local office.
- 2004 **Oracle 9iAS Deployment**, *Ericsson*.
Led an effort to evaluate and deploy Oracle 9iAS in an integrated performance testing environment of CDMA equipment. Maintained and administered the installation, developed test cases, reports and tools.
- 2003 **CDMA2000 Data Network Performance Testing**, *Ericsson*.
Integrated Ericsson CDMA2000 network architecture with Juniper and Ericsson/3Com PDSN and network devices. Designed and implemented 1x and 1xEVDO networks using Ethernet, ATM, and CDMA2000 interfaces for acceptance and performance testing.
- 2002–2003 **Clearcase Performance Assessment**, *Ericsson*.
Evaluated performance of a Clearcase setup in a SAN vs NAS environment. Troubleshoot Clearcase performance issues stemming from SAN to HA NAS migration.
- 2002 **Streaming Video Server for CTIA**, *Ericsson*.
Evaluated, built, and supported a streaming media system for a 1xEVDO prototype.
- 2002 **System and Network Monitoring**, *Ericsson*.
Designed and implemented LAN, WAN, and Solaris performance and SLA monitoring system using HP Openview, RRDTool, and Cricket.
- 2002 **Web-based Inventory System**, *Ericsson*.
Defined requirements, designed processes, and implemented a web-based inventory system to track hardware with an Oracle database backend using hand-held barcode scanners.
- 2002 **Telco Distribution Network**, *Ericsson*.
Led a team effort to implement a campus-wide STM1/T3 distribution system based on Eastern Research DAX equipment.
- 2001–2002 **Network upgrade**, *Ericsson*.
Evaluated network requirements, defined timeline, resource allocation, and implementation of a 10-to-100Mb to-the-desktop network upgrade. Evaluated and tested equipment. Implemented the upgrade.
- 2001 **DMZ - Customer Solution Center**, *Ericsson*.
Evaluated requirements, designed and implemented a DMZ to provide data services (data routing, email, one-time- password FTP, SMS as well as web caching capabilities) for internal customers.
- 1998–1999 **Enterprise Email Paging System**, *Qualcomm/Ericsson*.
Implemented a sendmail-based enterprise email paging system.