Ted Logan

Embedded Software Engineer
Site Reliability Engineer

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Summary

Working as an embedded software engineer, and then as a site reliability engineer, gives me a unique perspective: the very big (Google's global production network) and the very little (billions of devices using Qualcomm Snapdragon chips shipped worldwide). My aspiration is to join these worlds: apply SRE practices to embedded Internet-connected devices.

Work Experience

Senior Software Engineer, Site Reliability Engineer 2016-Present
Google San Francisco, California (2016-2018)
Seattle, Washington (2018-Present)

- Part of a Tier I on-call rotation supporting App Engine, a major Cloud service serving more than 28 billion requests per day
  - As part of the regular on-call rotation, I took the pager once every 6 to 8 weeks, for twelve hours a day ("following the sun") for seven consecutive days, and was first point of escalation for the serving stack, in addition to managing regular rollouts
  - Served as incident commander and postmortem owner for numerous incidents
- Hosted Wheel-of-Misfortune exercises to train team members

Staff Engineer 2011-2015
Senior Engineer 2008-2011
Qualcomm Boulder, Colorado

- Modem Common Services team member (2013-2015)
  - Served as primary point-of-contact for a software module supporting crystal oscillator (XO) calibration, managing the daily operations of my team of one to prioritize support versus new feature development
  - Developed and deployed a new algorithm to calibrate the crystal oscillator, enabling more-accurate frequency estimation leading to reduced network and GPS search time and improved performance
  - Wrote and maintained an automatic unit test suite for the team's software modules
  - Supported bringup of new Snapdragon modems, enabling XO factory calibration
  - Directly supported Tier 1 OEMs
  - Implemented and tested an improved algorithm for managing SAR (specific absorption of radiation) to ensure FCC and international regulatory compliance
  - Issued US Patent 9,622,187 for new power-management approach invented while implementing an improved SAR algorithm
  - Wrote log-analysis code using Perl, C++, and Matlab to extract and graph key parameters to visualize and explain log data
- UART driver team lead (2011-2013)
  - Served as team lead of a small device driver team supporting high-speed UART
  - Coordinated and assigned development activities across the team
  - Effectively managed a small team with a wide variety of skills and personalities

- Established procedures for code reviews using Code Collaborator and branching using Perforce
- Supported HS-UART driver on proprietary RTOS, including developing new features to support new hardware, and triaging support requests and fixing bugs
- Traveled to India to train new team member in remote office
- Traveled to support Tier 1 OEMs

- Multiprocessor team member (2008-2011)
  - Supported the Shared Memory Driver (SMD), an interprocessor communication pipe using shared memory, used for message-passing and data transmission on ARM-based Snapdragon smartphone chips
  - Triaged support requests using JTAG debugger and crash dumps, fixed bugs, and released code using the internal release process
  - Wrote a new light-weight interprocessor communication pipe using shared memory for the industry's first multi-mode chipset supporting LTE, and supported the entire SMD stack from pre-silicon simulation to chip bringup through to customer releases
  - Ported SMD to Windows 8 on ARM, writing a new kernel-mode driver to support both Windows Phone 8 and Windows RT
  - Wrote WinDbg (Windows kernel debugger) extension to quickly display the current status of SMD, reducing support and triage requests
  - Wrote Trace32 JTAG debugger scripts to extract logging information for debugging
  - Participated in team code reviews
  - Trained new team members

Software Engineer 2008
Morphlix Boulder, Colorado

- Developed set-top box software for a Linux-based STB in C and C++, using SVN source control
- Built STB user interface using DirectFB
- Instrumental in successful private beta of the Morphlix service
- Implemented MP4 container support for video playback

Software Engineer 2006-2008
Solekai Systems Boulder, Colorado

- Developed, maintained, and verified satellite and cable television set-top-box software (middleware) on embedded Linux using C, C++, Java, JNI, and O-code
- Wrote Linux kernel driver for a PCI devices
- Implemented driver acceptance test controlled by Perl scripts calling and C modules
- Wrote a special-purpose MPEG transport stream analyzer to extract and report key fields in the file, and verify compliance with the spec
- Traveled domestically and internationally to customer sites for on-site engineering support

Software Engineer 2003-2006
Imaging Technology International Boulder, Colorado

- Specified, developed, tested, and maintained user-level printer control software in C++ and Labview throughout its design life cycle
- Designed and built a real-time temperature control board using an 8-bit Atmel microcontroller
- Wrote user manuals and application notes for internal and external use
- Trained customers and developed training materials and procedures

- Assisted in electrical and mechanical assembly and testing

Education

Bachelor of Science in Computer Engineering 2002

Walla Walla College College Place, Washington

- 3.6 cumulative GPA
- Key coursework included operating system design, circuits, digital design, embedded system design, software engineering, networking, distributed computing, technical writing
- Designed and built a binary clock using an 8051 microcontroller
- Wrote a complete TCP/IP stack in C for an embedded 386
- Vice President, Computer Science Club