Reed Morrison
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RECENT EXPERIENCE

Software Development:

- Topics: web server development, web application security, distributed computing
- Languages: C, C++, Python, Bash, Golang
- Process: Agile/SAFe

Education:
B.S. Electrical Engineering (University of California Davis)

PROFESSIONAL EXPERIENCE

Senior Principal Software Engineer (CDN) Edgio, Playa Vista, CA
(September 2019 - Present)

Edge front-end server development, including: L7 load balancing, consistent hashing/cache key generation with scaling for popular content, secure highly multi-tenant TLS termination (client to edge). Developed concepts for customer configurations with support for self-service and faster edge distribution.

Security Core Development Lead (CDN) EdgeCast, Playa Vista, CA
(August 2016 - September 2019)

Lead security application development for a large global CDN with thousands of customers. Product lines included: WAF, L7 rate-limiting, and basic bot mitigation. Developed multi-tenant ModSecurity conformant WAF allowing for improved performance, and scale. Conducted code reviews, audits, and large-ish refactors of several internal and external team projects.

Senior Software Engineer (CDN) EdgeCast, Santa Monica, CA
(August 2013 - August 2016)

WAF and Rate-Limiting back office
Designed and developed the security product back-office supporting the WAF and L7 rate-limiting products, including: configuration API's, fast global config distribution, logging pipelines, and an HA data cluster with customer facing dashboard API's.

Edge to Origin TLS configuration
Developed customer "Edge to Origin" TLS configuration including, hostname validation, cipher specifications, and certificate pinning.

Software Engineer CounterTack (Endpoint Security), Santa Monica, CA
(April 2011 - July 2013)

VM Introspection Solution
Improved performance and reliability of existing forensics collection/analysis projects. Developed

interprocess elastic buffer library with test harness. Removed analysis SW bottlenecks identified via performance profiling. Developed automated testing suite to spin-up/attack VMs, and to verify correctness of forensics results. Optimized VM system collection stack increasing data throughput, and VM performance.

Embedded Software Engineer Northrop Grumman Space Technology, Redondo Beach, CA
(August 2007 - March 2011)

Satellite - Communications System Payload Firmware:
Lead firmware developer for command and data handling computer. Firmware bootstrapped flight SBC, including run-time initialization, bridge configuration, and ground command-able loading/patching of the flight application. Created requirements, design, and test documentation. Developed suite of SW utilities to facilitate firmware SW unit testing, including an EEPROM file system layout tool, and a diagnostic serial shell supporting program loads/memory dumps/EEPROM burns.

Satellite -Control System Payload SW Verification:
Led flight SW verification effort including development of test requirements, test-set HW/SW, and verification SW. Verified HW and SW aspects of the target against program requirements. Notable features of test-set included: JTAG/Serial/1553 I/O, a scriptable remote controlled interface for full-scale remote automation, database uploads, and test vector integration for comparing simulated control laws to actuals running on the target.

Electrical Engineer ATK Space and Sensors, Torrance, CA
(July 2001 - April 2007)

Medical Imaging System:
For the Wellman Center of Photomedicine, developed fast data acquisition/storage system for a medical imaging application running on a single board computer. Wrote low overhead high speed file system for managing data stored to a RAID from the SBC via fiber-channel. Co-developed fast B-Spline interpolation and baseband conversion algorithms for an FPGA.

Laser Radar System:
Developed laser radar data acquisition/processing server application for multi-CPU single board computers. Demanding real-time performance requirements were met by: vectorizing radar algorithms, distributing workload over many CPUs, and optimizing corner turns per cache size. Developed multi-processor notification/communication driver with POSIX-like interfaces. Created fast 2-D graphing framework for Mac OS X that was successfully deployed in 5 projects.

Research Engineer CIPIC Interface Lab, Davis, CA (May 2000 – June 2001)

3-D Audio Research
Created new experimental setup, including analysis SW, for measuring the effect of the human ear on audible sound with the goal of recreating spatial (3-D) audio in headphones. Developed approach to combining separate analytical head and ear responses to create an approximate total response function.

REFERENCES
Available upon request