Reed Morrison
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RECENT EXPERIENCE

Software Development:

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

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

PROFESSIONAL EXPERIENCE

Security Core Development Lead (CDN) Verizon Digital Media Services, Playa Vista, CA
(August 2016 - Present)

Web Application Firewall Engine
Lead development of a new multi-tenant ModSecurity conformant engine (https://github.com/VerizonDigital/waflz). New engine has allowed for much greater scale and capacity to accurately handle many more customers.

Development Lead
Lead product development for several successful and rapidly growing product lines for a large CDN with 10's of thousands of servers deployed in >160 locations globally with thousands of customers and handling traffic for reasonable swath of the entire internet. Product lines include: WAF, Rate-Limiting, and Bot mitigation. Conducted code reviews, audits, and large-ish refactors of several internal and external team projects.

Sr. SW Developer (CDN) Verizon Digital Media Services (formerly EdgeCast), Santa Monica, CA
(August 2013 - August 2016)

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

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

Sr. SW Developer CounterTack (Computer Security Startup), 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 SW 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 (now Phase Coherence Inc.), 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.

Conference Paper:
"Structural composition and decomposition of HRTF's, " V. Ralph Algazi, Richard O. Duda, Reed P. Morrison, Dennis M. Thompson, in WASSAP '01 (2001 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics)

REFERENCES
Available upon request