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Summary:

A software engineer with 23 years experience developing, debugging, testing, and maintaining complex cloud software. Experienced leader having lead teams of 3-5 engineers to deliver large scale software projects and demonstrable working prototypes.

Work Experience:

Principal Software Engineer   June 2014-Present
Akamai Technologies, Cambridge, MA

Edge Fabric   September 2022-Present
- Service Mesh developed by Akamai incorporating Envoy proxy, Hashicorp Vault, and Hashicorp Consul on Akamai Linode compute instances.
- Implemented a mechanism for secure delivery and rotation of certificates and secrets using Hashicorp Vault.
- Hashicorp Terraform and Ansible used for orchestrating new deployments

IoT Edge Connect   September 2018-September 2022
- Hyper scale messaging service, Utilized C++ front end to implement a distributed, scalable MQTT messaging service. Apache Cassandra backend, Apache Kafka for distributed message passing.
- Testing it, at scale, was nearly as difficult as developing it. Utilized Akamai CloudTest initially for performance testing and evaluation. Later, led a team of third party contractors to develop a purpose built test tool for MQTT using Locust. Each of these tools utilized AWS EC2 instances, later added support for Azure.
- Developed another suite of performance testing tools using AWS Lambda, to quickly generate highly elastic load scenarios.
- https://techdocs.akamai.com/iot-edge-connect/docs

MAP (Mobile Accelerator Product)   January 2018-September 2018
- Backend scalability improvements (python, nginx, gunicorn)
- A-B testing and evaluation using Headspin (www.headspin.io) to measure performance improvements using MAP
- https://github.com/aka-embu/aka-map

Datawalla   January 2016-January 2018
- Product Architect for Mobile video delivery and caching solution for embedded applications - Video on a wireless router, single board computer etc.
- Demonstrated at Mobile World Congress 2016 and National Association of Broadcasters (NAB) 2017.
- Python based, using Predictive Content Delivery backend.

Predictive Content Delivery (PCD)   June 2014-January 2018
- Mobile app and SDK to allow predictive caching of video content on an end user's device. (TikTok before TikTok was a thing)

- Python backend, Postgresql DB. Video content crawlers written in Perl and Python.
- https://www.prnewswire.com/news-releases/akamai-launches-predictive-content-delivery-solutions-to-allow-instant-video-start-up-on-mobile-devices-300223230.html

Senior Software Engineer   August 2013-June 2014
Q-Factor, Waltham, MA
- Startup working on TCP optimizations to speed throughput on mobile and wifi networks
- Utilized data from Wireshark and tcpdump to create visualizations of throughput improvements and inter-packet latencies using python, numpy, matplotlib.
- Developed KPI's for evaluating performance improvements.

Hardware Engineer V   January 2001-August 2013
Ericsson, Lowell, MA
- Embedded software and hardware diagnostics on various carrier-class routers.
- Perl, sh, TCL, python, and custom scripting languages. Embedded Linux, vxWorks, and custom runtime executives • Building custom toolchains using BuildRoot • CVS, git, Clearcase, Perforce, and subversion revision control • Windriver Workbench, ICE, and ICE2 for on-chip debug. • C, C++, Perl, Tcl, Python, sh, assembly

Skills and Other:

Coding: Python, C/C++, Javascript, Java, PHP, Perl, Bash scripting
Public Cloud: Terraform, Ansible, AWS, Azure, Akamai Linode, Digital Ocean
SDLC/documentation: Git, Atlassian suite, Google Suite
Databases: SQL (postgresql, mysql, sqlite), NoSQL (Cassandra)
Video codecs and transcoding: ffmpeg, HLS, DASH

Side projects:
Real estate market intelligence and automated marketing   2018-2019
- Developed python software to read and parse the MLS Property Information Network feed of all market listings in Massachusetts and put the information in a modern database.
- Integrate with Facebook and Google Ads to create marketing information based on analysis of the information: target new listings to users located geographically nearby, provide analysis as part of the ad: "X new listings in your neighborhood!"

Dance competition video downloading and post-processing   2020-Present
- My son is on the dance team and enjoys watching the competitions over and over. The competitions don't release video of the entire event, but they do "live-stream" it.
- Developed a set of ffmpeg scripts that "record" the live streams and make them available on-demand for my son.

Education:

Pennsylvania State University, B.S. Computer Engineering, 2000, Cumulative GPA: 3.5