**Phillip Carroll Adler**

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https://github.com/PranoSA

**EDUCATION**

**University Viterbi School of Engineering** | M.S. in Computer Science August 2021- May 2023

* GPA 3.56

**University of California, Irvine** | B.S in Mechanical Engineering, Aerospace Engineering September 2016- June 2020

* GPA: 3.59

**Skills**

**Systems Administration**

Linux Security, PAM/NSS/SSSD, Wireshark, LDAP, Kerberos & GSSAPI, Linux Networking (UFW, IPTables, Linux Network Devices), GRUB, UEFI, Systemd, Samba, NFS, DNS (Bind9), x509 Certificate Standards

**Web & Backend Infrastructure**

Keycloak (OIDC), Postgres, Elasticsearch, Cassandra, RabbitMQ, Minio, Redis, WebRTC, SFU Servers (Mediasoup), Geospatial Data (Postgis), Web-Servers and Reverse Proxies (Apache, Nginx), CDNs (Cloudfront), Apache Kafka, C#, ASP.NET

**Dev-Ops & Infrastructure**

Kubernetes, Docker, Prometheus, Grafana, Vagrant, Containerd, Git, AWS, Jenkins, Packer, Terraform

**Languages, Frameworks & Build Tools**Go, Java Spring Boot, Typescript, Express.js, Maven, NPM, React, React-Redux, Flutter, Webpack, C

 **Content Distribution, Protocols & Standards**

gRPC, REST, HTTP, TLS, DTLS, WebSockets, WebRTC, SIP (VoIP), SDP, SFU, ICE, TURN, STUN, STOMP, AMQP

**Certifications**

**CKA (Certified Kubernetes Administrator) - Cloud Native Computing Foundation July 2023**

**CKAD (Certified Kubernetes Application Developer) - Cloud Native Computing Foundation July 2023**

**CSWA (Certified Solidworks Associate) - Solidworks Certification Program August 2018**

**Personal Projects**

**Samba Share Allocator**

**(Go, Postgres, LDAP, OIDC, Samba, Minio, gRPC, REST, RabbitMQ, FFMPEG, EFK Logging)**

* Built an Application that allows deployment of multi-tenant Samba Share servers as a SaaS product where users can rent disk space and provision shares and has extra features like publicly hosting videos and Samba Share snapshots into resilient S3 storage.
* Account and Resource management is performed through an API with a REST backend built with Go using gRPC and RabbitMQ for inter-service communication, Postgres as a primary store, FFMEG for media transformation, and Minio for Media storage.
* Using Self-hosted Keycloak OIDC for SSO configuration for users of the application.
* Working on additional configuration options to use LDAP or Password hashes as an authentication mechanism and using opaque sessions with Redis instead of the default OIDC authentication configuration.
* Working on adding Additional features such as more flexible media transformations, CRL and OCSP functionality to use the app as a Temporary Certificate generator, and centralized logging with Filebeat, Elasticsearch, and Kibana.

**Shopping List Application**

**(Java Spring Boot, Express.JS, RabbitMQ, ASP.NET, Redis, Postgres, Cassandra, Elasticsearch, Keycloak, SFU)**

* Application to share and communicate about group shopping lists, items, and cost splits.
* Wrote a REST API and Websocket Server in Spring Boot initially using Postgres and RabbitMQ-STOMP protocol, and later migrated to ASP.NET, Postgres, and Redis.
* Wrote Media Servers in Typescript and Express.JS to support group messaging and group calls using Cassandra as the primary message store, Elasticsearch for text-indexing messages, and Mediasoup SFU Server for Conferences.
* User Management with self-hosted Keycloak OIDC SSO Provider.
* Currently building out front-end using Vite and React.
* Deployed Script with Automated Tests using GitHub CI/CD Pipelines.

**USC Viterbi Projects (Weenix Kernel, Network Infrastructure, & Multimedia Project)**

**(C, Go, Linux, Java, Python, Quagga, BGP)**

* + With a team, implemented the Virtual File System, POSIX process and thread operations, and part of a Virtual Memory system to a toy kernel to support basic process functionality such as POSIX APIs (Fork, Wait, Exec), Synchronization Primitives (Mutexes, Condition Variables), a VFS that processes could interact with basic file operations (read, open, close, write), and support for vmmap calls to load an ELF file into the Virtual Memory and scheduling it to run in the kernel or spawn child processes from.
	+ Ran routing experiments on a Virtualized Network of computers to control routing of anycast DNS requests to DNS servers and withdrawing and announcing routes based on network bandwidth overload using CISCO on GNS3 and Quagga on Linux. I used IPTables and Netfilters to manage traffic engineering between Nameservers.
	+ In a group, wrote a Java and Python program that ran Audio and Video analysis on plain RGB + Wav formatted videos to detect scenes and shot detection automatically.

**Unicode Learning Project**

**(AWS SAM, Python, React, Tailwind.CSS)**

* + Developed an Application designed to help users learn about UTF-8 and Unicode Characters and concepts such as encoding, graphemes, and grapheme clusters and glyphs by analyzing the bytes of strings.
	+ Serverless backend hosted on AWS and deployed via Amazon Serverless Application Model, using Python, DynamoDB, CloudFront, and API Gateway.
	+ Built the frontend application using Vite, React, and Typescript with Tailwind and Flexbox for styling.
	+ Developed a custom terraform plugin in Go that uses a username and a desired application state to create new applications using infrastructure as code definitions.

**Home Infrastructure Project**

**(Free-IPA, Linux Systems Administration, NTP, DHCP, DNS, DNS-SEC, LDAP, Kerberos, Hashicorp Vault)**

* + Used Free-IPA on a mini home server to authorize different Free-IPA users to access certain services, such as NFS, SSH, and Sudo on certain hosts using RBAC.
	+ Set up Monitoring of Machines using Prometheus and Grafana, with Keycloak as an authorizing service for the Grafana Dashboard.
	+ Set up administrative services such as NTP, DHCP, and DNS to manage service finding and synchronization.
	+ Developed a Custom Vault Plugin that creates signed JWTs for users as credentials, and allows for per-user and per-backend configuration from the Vault API.