

SYNOPSIS

Software Developer fascinated by infrastructures, networks, and security.

TECH USED

Python, Terraform, Amazon Web Services, Kubernetes, Docker, Kafka, Scala, Clojure, JavaScript, C#, C/C++, PHP, SQL and NoSQL databases (SQLite, Rethink, Influx)

EXPERIENCE

Auvik Networks -- R&D / Software Developer 2017/10 - Present

- consulted by r&d teams for various best practices regarding CI/CD, allowing them to hit the ground running
- led projects to upgrade our infrastructure and tooling, keeping us up-to-date with security fixes and features
- created and maintained tools for managing infrastructure as code
 - codified our CLI invocations, reducing error rates and adding consistency
 - scaled solutions to work with >10 AWS accounts spread across >5 regions, mitigating various large-scale outages
- implemented authn+authz best practices for Auvik's cloud infrastructure
 - wrote AWS IAM policies to allow developers to safely access different environments
 - implemented RBAC using client certificates in K8s
 - added the requirement to authn+authz against our corporate IdP to internal tools
- implemented CI/CD across the r&d team, multiple times in various ways
 - implemented CI/CD pipelines using Jenkins and BitBucket
 - moved those same pipelines to use GitLab CI/CD across the entire company
 - significantly reduced costs by removing Bamboo and Jenkins
- improved the range of our device support by
 - writing and improving parsers, extending functionality new and existing devices
 - extending our strategies for identifying devices (SSH/Telnet, SNMP, etc)
- added a specialized logging system to debug parsers running on live devices, allowing both r&d and support address issues faster

CENX (acquired by Ericsson) -- R&D / Software Developer 2016/05 - 2017/09

- optimized the speed of which we process alarms using data from various streams
 - removed external dependencies on slow services, improved our decoding of events
- added support for authenticating against multiple LDAP servers, addressing customers' complex deployment requirements
- emulated the production environment better locally, improving the development and testing workflow

Government of Canada -- Shared Services Canada / Software Developer 2015/04 - 2016/01

- improved programs which monitor the health and usage of large networks
 - made it multi-process, reducing run time from >8 hours to <4 hours
 - added support to extract and model data from previously ignored SNMP OIDs, improving our network models
- created an intranet website which generated reports about network outages and changes, allowing us to better diagnose network issues

Carleton University -- Carleton Computer Security Lab / Research Assistant 2013/05 - 2014/12

- researched methods to increase software diversity by creating permutations of the OpenSSL, BoringSSL, and LibreSSL libraries
 - decreased the return on investment for targeting a single library
- researched and implemented gesture based authentication for Android and iOS
 - translated core algorithms to C/C++ and used the JNI to make them accessible from an Android application
 - wrote the initial server backend to store the data for use with offline processing
 - wrote tools and visualizations to refine our model of the data
 - implemented several proof of concepts ranging from Android lock screens to payment confirmation screens

Canadian Association of Physicists -- Web Administrator 2012/01 - 2013/04

- identified and fixed security flaws in legacy PHP and ASP systems
- triaged and addressed issues affecting PCI compliance
- maintained and upgraded the Drupal website and the Members only area, keeping us up-to-date with security fixes and features

EDUCATION

Carleton University -- Bachelor of Computer Science: Computer and Internet Security, Honours

Thesis: FrankenSSL: Recombining Cryptographic Libraries to Create Software Variants

Supervisor: Dr. Anil Somayaji