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Profile

As a technology professional I've worked with a multitude of different technologies and systems spanning a decade. At Zipwhip Inc. I created the containerization platform foundation, which resulted in an ability to easily roll out multiple environments, and scale services quickly. Additionally, my five year stretch helping to build tech startup Revolution Analytics resulted in an acquisition by Microsoft Corp. goo.gl/oqhvng

I have ten years experience with several Linux distributions. I've presented on topics such as the ZFS file system, IPv6 networking and the Dvorak keyboard layout. I have expert level proficiency in a variety of technical areas. My attention to detail is looked up to by current and former colleagues. I have excellent troubleshooting skills and an ability to make disparate connections between unrelated systems, tools and processes.

I strive to be approachable and personable in my daily interactions with co-workers that are both local and around the world. As a technical leader I'm always researching and experimenting with primarily the latest open source and cloud native technologies.

Selected Technology Experience

Essentials	Software / OS	DevOps Tools
Docker / Kubernetes / Vagrant	Debian / Ubuntu / Alpine / MacOS	Bash / Git / Mercurial (hg)
RDS / MySQL / PostgreSQL	Ingress Nginx / Apache2	Ansible / Terraform
AutoScaling, Route53 / DNS	Gitlab Pipelines / Jenkins / Codeship	Virtualbox / KVM / Qemu
EC2 / EBS / S3 / KMS / Yubikey	Rancher Server / Windows Server / PAM / U2F / WebAuthn	Trello / Asana / Jira / Confluence / Slack / LucidChart
Mongo / Couchbase / Cassandra	Github / Gitlab / BitBucket / httpie / curl / jq	AWS / GCP / Linode / Rackspace

Selected Experience

Senior DevOps Architect

Arc'teryx Equipment Inc.

November 2018 – Present

North Vancouver, British Columbia
(Remote)

- Extensive collaboration with remote team members
 - Kops managed Kubernetes clusters, dev, preprod, prod
 - Extensive work with Gitlab Pipelines, CI-CD build/deploy automation
 - Deploy Gitlab Runners on self created and managed Kubernetes clusters
 - Jetstack Cert-Manager with Let's Encrypt for auto-renewing TLS certificates
 - Numerous prototypes, research and lab work. e.g. testing different docker registry platforms, monitoring tools, etc.
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DevOps Engineer

ReachNow Car Sharing (BMW Group)

May 2018 – November 2018

Seattle, Washington

- Part of tech team that built new backend for unified mobile app for ReachNow Drive and Ride (iOS + Android) Note - Updated mobile apps were released in July 2018.
 - Terraform template creation and maintenance for AWS resources
 - AWS API Gateway maintenance
 - Setup NewRelic monitoring alerts for backend Java applications using NRQL
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Senior DevOps Engineer
Valassis Digital Inc.

June 2017 – May 2018
Seattle, Washington

- Migrate large AWS hosted DCOS cluster to Kubernetes, resulting in \$75K/year savings
 - Gitlab Pipelines CI/CD rollout for build pipeline, internal and external facing services
 - Kubernetes cluster initialization, management and upgrades with kops
 - Integrated Google Stackdriver monitoring/logging into AWS hosted K8S cluster, for replacing ELK stack
 - Kube2IAM rollout for individual docker container based security policies
 - Base AMI build process with Packer and Gitlab Pipelines for custom Kubernetes host AMI's
 - Numerous Kubernetes manifest file creation for deployment's, pods, cron-jobs, etc.
 - Document steps needed to build various infrastructure related items
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DevOps Engineer
Zipwhip Inc.

June 2016 – May 2017
Seattle, Washington

- Create custom Docker images for a huge technology stack, including items such as: Mongo, Couchbase, Percona MySQL, ActiveMQ, MogileFS, NetNumber emulator, as well as Dockerizing several custom in-house applications needed for message delivery and receiving
- Resident Docker / Linux containerization expert. Created Rancher Server instances for dev and production. Automate per environment Docker cluster host management with Terraform
- Creator / Maintainer of in-house and open source base Docker images used for dev, testing, QA and production. Dockerfile creation and maintenance

- Terraform template creation for AWS, VPC, Security Group and EC2 host management
 - Build pipeline automation with Jenkins 2.0, Maven, and Docker with Slack integration
 - Training Java and Node.js developers on Rancher and Docker best practices and concepts
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DevOps Solutions Engineer
Joyent Inc.

February 2016 – June 2016
Seattle, Washington

Acquired by Samsung Corporation, June 2016.

<https://www.joyent.com/blog/samsung-acquires-joyent-a-ctos-perspective>

DevOps Engineer
CloudMunch Inc.

July 2015 – February 2016
Bellevue, Washington

Acquired by JFrog Corporation, June 2017.

<https://jfrog.com/about/press/jfrog-acquires-cloudmunch-roi-speedometer-containers-devops/>

- Led project migrating entire engineering team and repositories to a new Github Organization
 - Created POC for distributed backend for the enterprise CloudMunch GUI using Hadoop HDFS
 - Created Terraform templates for HDFS cluster creation in EC2, optimizing resources and the time required to deploy them
 - Created documentation framework using ReadTheDocs / Sphinx markdown rendering engine
 - Creating new Ansible playbooks, while also doing numerous enhancements and upgrades to existing playbooks
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DevOps Engineer
Redwire Services LLC

August 2015 – January 2016
Seattle, Washington

RedWire is an established AWS Managed Services Partner looking for expertise in AWS technologies and Linux systems engineering. I was offered a full-time position with the company, but was more interested in being in the startup world at that time. I opted to be an hourly consultant for projects that would interest me, and available as time and other responsibilities allowed. I was occasionally pinged to see if could help out with interesting projects, or things that were in my core competencies.

Below is an example of a project I worked on for a Redwire customer:

- Setup Amazon Linux virtual machines with native ZFS-on-Linux for a customer Proof of Concept involving 800GB+ Postgres databases. The first goal was to prove that by using built-in ZFS compression algorithms (GZIP or LZ4) that we could significantly reduce the size of EBS volumes required to store the existing databases (reducing monthly costs noticeably) without significantly reducing the performance or maintainability of Postgres.
- The second tier goal was to prove that using the ZFS compression approach with EC2 would be cheaper than using AWS RDS “managed” instances. This project required setting up multiple EC2 instances for A/B testing and pulling in the data from daily backups of the existing production databases.

R&D DevOps Engineer

April 2014 – May 2015

Revolution Analytics Inc.

Seattle, Washington
(Hybrid Remote + Office)

Promoted and part of the new Open Source Solutions department at Revolution Analytics, I also collaborate with multiple teams at Revolution including the Seattle based software engineering team, and the IT team.

In 2014 I was a major contributor in the design and implementation of a new open source toolkit designed for creating reproducibility in R programming environments - the **Reproducible R Toolkit**. (RRT)
<https://mran.microsoft.com/package/checkpoint>

The other half of the RRT project required a new server architecture be built to accommodate the high rate of change in the ever growing open source R package community. I was the R&D project lead on what I eventually named the *Modern R Archive Network* (currently known as 'Microsoft') <http://goo.gl/b0qLaF>

MRAN is a Node.js based web site served via Nginx. It also stores large quantities of source code and binary data implemented as *checkpoint-server* and was designed to be a snapshot capable system so the client side checkpoint package can tie into the server side snapshots that the system creates.

Built to allow for maximum flexibility of the hosting environment, MRAN uses ZFS as the basis of the storage system. It can run equally well in any public or private cloud environment (OpenStack, EC2, Digital Ocean), or even on bare metal.

The R&D phase of the RRT/MRAN project required me to interact with R programmers and web developers so we could make sure the client and server side portions of the system would work seamlessly together. This required collaborative coordination across multiple time zones. As well as solid inter-team communication so everyone was on the same page regarding feature adjustments and general code changes.

Architected Jenkins-CI / Github integration into testing and staging servers for MRAN so new code commits can be immediately previewed by all team members on the staging server, before changes go live on the production systems.

A pioneer advocate and evangelist for the use of Docker containers in the organization. I used Docker containers for Revolution R Open build systems and highly isolated, clean test environments, drastically reducing cloud computing server costs and creating reproducible builds.

Senior Systems Engineer
Revolution Analytics Inc.

August 2013 – April 2014
Seattle, Washington

As the Revolution Analytics IT department needed to grow beyond one person, I was the lead in the successful on-boarding of additional employees to the IT team.

As much of my focus at Revolution had been on Linux systems, I worked closely with the first new junior admin who we brought in to spend time on core networking upgrades and Windows system administration tasks.

I trained the second junior admin on advanced Linux admin tasks as well as AWS practices and concepts to help off-load some of my growing workload.

In September and October of 2013 I was a key organizer in the migration of Revolution's Palo Alto, CA office to a larger office space in the neighboring town of Mountain View. This project required an initial visit and consultation of both the existing office and the proposed office space in order to devise a comprehensive plan for success. For the new office space I consulted and interacted with the electricians, ethernet cabling teams, ISP, as well as the building engineer.

After careful planning we reached the actual move date. In October 2013 I coordinated a small team of consultants that were brought in strictly to help with the migration of equipment from the old office to the new office, including the corporate phone system for the sales team, etc.

One key item I had to research pre-move date was upgrading the WiFi access points to a new system that could sustain a much larger number of simultaneous users than the legacy system. We also needed to be able to monitor and inspect the WiFi network from Seattle, so I chose a cloud enabled system for deployment. (CloudTrax / OpenMesh)

In January of 2014 myself along with the rest of my Seattle based IT team migrated all of the servers and equipment I had setup, configured and maintained in the Seattle office based server rooms to a new dedicated collocation facility that would better serve the needs for cooling, uptime and service level agreements within the company.

In March of 2014 as a new Open Source Solutions department was forming within Revolution Analytics, I was promoted to be a founding member of the new department.

System Administrator
Revolution Analytics Inc.

February 2010 – August 2013
Seattle, Washington

Work in concert with a team of experienced technical engineers and software developers. Utilize an Agile software development method and Jira issue tracking for delivering high performance statistical software to Enterprise, Government and Academic customers.

- Install Cloudera Hadoop, CDH3, CDH4 on bare metal Linux clusters and Linux virtual machines
- Created successful custom port of Netezza Emulator environment from Win7/VMware Player to VMware ESXi hosted environment
- Install and administer IBM-Platform LSF versions 7, 8, 9 on RHEL 5/6
- Create SLES 10 and SLES 11 base operating system images for Tera-data DB development
- Helped deploy Linux virtual machines for Revolution R and Greenplum DB development
- Experienced with EC2, EBS in AWS including key management for SSH access • Experienced with Rackspace Cloud (Gen1 and OpenStack)
- Created in-house custom backup system using Jenkins, Udev rules, rsync
- Knowledge of Public Key Infrastructure concepts (SSH key policies)
- Helped design and implement ZFS based multi-terabyte tiered storage system for virtual machines utilizing a mix of solid state and spinning disk drives with different storage capacity and performance levels
- Deployed Centrify Auth for Active Directory based authentication to Linux

servers

- Initiated and oversaw the rollout of a new VPN solution for the Seattle office and remote team members
 - Administer MySQL databases on Linux and Windows platforms
 - Early 2010, helped transition the company name from Revolution Computing to Revolution Analytics, web site redirects, Google Apps
 - Setup the community CRAN mirror for Revolution at cran.revolutionanalytics.com, http, ftp and rsync access to the mirror
 - Install and configure *DenyHosts* brute-force prevention software on public facing company servers
 - Company wide owner of `hostmaster@` , `security@` , `root@` and `admin@` emails
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System Administrator
808 Consulting LLC

July 2004 – July 2010
Various

- Meet with clients to determine details for in-office server configurations
- Perform customized server installations designed for each customer's situation
- Follow up with clients at designated intervals to make sure all server infrastructure continues to meet needs as time passes
- On Call to respond to any immediate needs or emergencies effecting clients

Conference + Workshop Attendance

Jun 2015 – Present

- **FIDO U2F For Simpler Stronger Financial Services**
March 25th, 2021 - Online Webinar
- **Silicon Slopes Tech Summit**
January 31st - Feb 1st 2019
Salt Palace, Salt Lake City, UT
- **DevOps Days**
April 24th - 25th, 2018
WA State Conference Center, Seattle, WA
- **DockerCon 2017**
April 17th - 20th 2017
Austin Convention Center, Austin, TX
- **AutomaCon 2.0**
September 27th - 29th 2016
Portland Art Museum, Portland, OR
- **Hackaday Super Conference**
November 15th 2015
Dogpatch Studios, San Francisco, CA
- **Building Infrastructure with Kubernetes, Ansible, AWS**
October 15th 2015
Galvanize, Seattle, WA
- **Speaker, Ignite Seattle 28**
September 17th 2015
Town Hall Seattle <http://youtu.be/sdw6FIFKnco>
- **AutomaCon 1.0**
September 15th - 16th 2015
Portland Art Museum, Portland, OR
- **OpenStack Day**
August 20th 2015
Washington Athletic Club, Seattle, WA
- **DataDay Seattle**
June 27th 2015
Westin, Seattle, WA

Community

Over a period of several years I have attended a variety of software and hardware oriented in-person community Meetup groups. Most of the meetings I have attended have been in the Seattle Region, but I have occasionally attended Meetups and Conferences in other cities, regions and countries.

- **Kubernetes Meetup**
- **Docker Meetup**
- **DevOps Meetup**
- **AWS Architects + Engineers Meetup**
- **Chef Meetup**
- **League of Professional System Administrators** (formerly)

- **Seattle Area System Administrators Guild** (formerly)

Attend monthly SASAG meetings with frequent technical presentations to increase my knowledge-base and stay current on real world technology trends.

- July 2010 monthly presenter, “IPv6 for SysAdmins”

<http://y2u.be/ytopeqx3eK0>

- November 2010 monthly presenter, “Intro to ZFS for System Admins”

- **Apache HTTPd Facebook Group Admin** (formerly)

I was the administrator for the Apache web server Facebook group for several years before I stopped using Facebook. I moderated and stimulated group discussions and helped answer community member questions posted to the group.

- **OpenIndiana** - former operating system community member

Helped establish a libre/open alternative to Sun-Oracle Solaris server Operating System after the closure of the OpenSolaris project. Significant because of its native, Open Source ZFS technology. I discov-

ered and reported numerous system bugs to the project bug tracker. For about two years, I was one of eight individuals with commit/edit access to the main project web site. I also made a number of contributions to the project wiki portal and helped out community members in the project IRC channels.

- **Linux Fest Northwest** linuxfestnorthwest.org

I have attended several LinuxFest NW Conferences. Usually held the last weekend of April or early May each year. It's a fun, free software oriented conference with a good mix of tutorials, talks and professional networking, as well as a large vendor area.

Certifications

- **PADI Open Water Diver (60 Feet)**

Issued: November 2018

Certification ID: 18110P4754

Issuer: *Amigos Del Mar*, San Pedro, Ambergris Caye, Belize

- **AIARE Avalanche Level 1 (AIARE1)**

Issued: February 2017

Issuer: *BC Adventure Guides*, Seattle + Snoqualmie Pass, WA, USA

Recommendations

- **Amy Chan, 2020-04-07**

"It is a pleasure working with Chris. He was able to setup a production quality and stable environment for our software using AWS, Kubernetes and Gitlab. In addition, he's been able to introduce many new technologies and strategies to the company.

To name a few:

-Infrastructure as Code best practices and patterns

-Branch aware automated builds and deployments

-Self hosted Gitlab runners

*-TLS certificates using Lets Encrypt
He's always a source of knowledge when it comes to DevOps and continues to be a leader in this space."*

• David Smith, 2015-04-01

"When I needed a DevOps Engineer for the Revolution R Open project, I turned immediately to Chris.

His experience with open-source systems was invaluable in creating the build processes, test systems and web servers and processes to support our project.

His knowledge of leading-edge technologies like docker gave us a real leg-up in the project, and his expertise in GitHub really helped to make a distributed team work efficiently.

On top of that Chris is friendly and a pleasure to work with."

• Andrie de Vries, 2015-03-25

"I worked closely with Chris on the development of Revolution R Open, including the MRAN snapshot server solution, during the latter half of 2014.

Chris is an incredibly enthusiastic, optimistic and responsive person, who is always willing to help resolve issues.

During the project, Chris solved many technical problems around backup, synchronization and communication between the different components of a complex system. In the process he introduced new tools, e.g. using the ZFS file system for system snapshots, and making the project available as a docker container.

The way Chris has integrated Jenkins with our staging and production servers has been really helpful to the team and gave us more insight into what is happening with our code."

- **Dale Quigg, 2015-03-20**

“Chris was instrumental in building the storage, networking, and compute “foundation” used to build and test our software until Revolution was purchased by Microsoft. His technical expertise on both Linux and Windows systems was invaluable in producing the infrastructure necessary to introduce new products and platforms.”

- **Taylor Choyce, 2015-03-19**

“I worked closely with Chris on a daily basis for a few years. The first thing that struck me about Chris was his ability to always find the best technical solutions for clients while staying in their budgets. Chris also excelled at taking what he learned from past experiences and applying it to new projects, while still avoiding “cookie-cutter” like approaches to client needs.

We first partnered up because he needed more time to focus on completing the technical projects 808 Consulting was working on, turning over the business development aspects to me.

I've met many people in the technology sector over the years and Chris is hands-down the most passionate I've met or worked with. Also noteworthy he always avoided making things overly complex, unless the complexity was beneficial to the client. He was always upfront and professional with me and even the toughest of clients.

Although I'm not working in the technology space at the moment, I still rely on Chris to provide me with advice on whatever technical pieces are in front of me on occasion. Chris will be an asset to whomever he works with. No matter what you are working on I wholeheartedly recommend Chris for your project or team.”

- **Stephen Weller, 2015-03-19**

“I have worked closely together with Chris for almost 5 years now. He has both a lot of knowledge and understanding of general computer issues and problems. He has a broad knowledge of both software methodologies and hardware systems.

What sets him apart from most other IT and systems engineers I have worked with is that he has a uncommon ability to suggest a better way to accomplish what you are trying to do.

Not only does he have excellent technical abilities, but he has a good understanding of how people want to use software. His enthusiasm for what he does is obvious.

I can also attest to Chris's willingness to help other coworkers whenever he can. He is a great team player.”

• **Nick, Webb, 2015-01-08**

“Chris is a very bright systems engineer with contagious enthusiasm for his craft. I love working with Chris and look forward to our next opportunity to work together.”

Education

Bachelors of Applied Science, 2004

Computer System Administration

Arizona State University

Polytechnic Campus

Mesa, Arizona

Associate of Recording Arts and Sciences, 2002

Studio & Live Concert Non-Linear Recording Techniques

Glendale Community College

Glendale, Arizona