

Theral Mackey

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San Francisco, Ca

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Accomplished Sr Site Reliability Engineer with 20+ years of experience designing, implementing, automating, monitoring and optimizing infrastructure and services. Well versed in on-call, incident response and mitigation, and post-mortems. Planning and executing critical and complex projects at scale with minimal interruptions in production environments and developer time.

WORK EXPERIENCE

Sr Video Core Services Engineer L6 (SRE)

Dec 2018 - June 2023

Twitch (Amazon) | San Francisco, Ca

Reduced tech-debt and modernized the bare-metal server fleet. Took ownership of core back-end services and re-architected them into fault tolerant manageable solutions for 55000+ bare-metal servers distributed in 80+ datacenters around the world.

- Designed and led a project that upgraded legacy Puppet configuration management platforms to a unified modern version deployed on AWS EC2 and ECS by Terraform, with a Grafana dashboard to track progress of all 55k hosts
- Collaborated with 50+ service teams to orchestrate a downtime-free upgrade path for multiple projects
- Implemented CI/CD workflows and custom environments for the configuration management system, allowing specific environments for each of 120+ service types across all servers
- Divided the monolithic Git repository into 220 module based code repositories, reducing merge conflicts and testing delays by over 90%. Separated service level configs from system level configs, and engineered a system to create cohesive builds across the repos and eliminate unintentional downtime from conflicting code updates
- Ran a project to migrate authentication of all Twitch systems from in-house LDAP to AWS managed SSH certificates, reducing login lag by 5s and shifting user access management into AWS, also resolving a security issue
- Wrote web hook receivers for code deployments, SSL certificate ordering and testing, and an AWS Lambda to assign DHCP Fixed address reservations in an Infoblox appliance, amongst other automations

Sr Systems Operations Engineer

Feb 2012 - Dec 2018

Evernote | Redwood City, Ca

Managed and streamlined the Xen server fleet running production Tomcat + Mysql service, while expanding from 350 to 1000+ servers.

- Developed an open-source [2-factor authentication plugin for FreeRadius](#), back-ended by LDAP, that works on non-2fa ready systems and network devices that support Radius
- Designed, built, and maintained the LDAP/Radius central authentication services management UI, and internal SSL CA infrastructure. Air-gapped corporate vs operational infrastructure with credential sync into Google Cloud
- Redesigned staging, dev, and test environments, with automated provisioning and ephemeral stage environments
- Moved services between physical data centers, built a Disaster Recovery site, then moved the entire service into GCP
- Maintained Jenkins CI/CD Build infrastructure, including Xen and VMWare build nodes running Linux, WindowsOS X and started transition to Docker/GKE build nodes
- Wrote Ansible playbooks for service recovery of DRBD and Mysql transaction log playback for data recovery

Systems Operations Engineer

Jan 2009 - Feb 2012

Zetta | Santa Clara, Ca

Built the infrastructure to launch the initial product offering (cloud NAS), and helped pivot into enterprise cloud-backup.

- Automated Xen and CFEngine to auto-provision machines and virtual servers
- Setup and managed replicated DNS, DHCP, LDAP, Radius, Kerberos, RSA Securid, Qualys
- Created end-user applications for managing centralized Auth and DNS, and implemented production Authentication methods allowing service integration with customers' own internal auth servers
- Implemented user and group level authentication per virtual_vhost for WebDav using custom patched Apache modules
- Designed and built an enterprise search solution for customers, using Lucene and Solr. Wrote a message queue based feeder to index customer data as it was uploaded

Systems Operations Engineer

Aug 2007 - Jan 2009

Ning, Inc | Palo Alto, Ca

Built and automated the production systems running this Social Network's production service,

- Setup central LDAP/Radius services for Sun and Linux systems, WiFi 802.1x, and network gear
- Setup and managed internal Asterisk phone system, w/automated SIP phone provisioning and LDAP authentication
- Utilized jumpstart and Solaris Zones to create a hands-free plug-and-play server provisioning system
- Created a deployment meta language allowing natural-language scripted complex deployments with live reporting in IRC

Systems Operations Engineer

Jun 2002 - Aug 2007

Cbeyond, Inc | Atlanta, Ga

Automated manual processes at this VoIP telecom startup, while expanding from 3 to 8+ markets and executing an IPO

- Wrote an automated T1 testing utility allowing iLECs to verify, test, and accept T1 circuits via webpage
- Implemented a migration application to move a customer's network path and services as part of TRRO mitigation

SKILLS

- Infrastructure as Code: Puppet, Terraform, Ansible
- CI/CD: Jenkins, GitHub
- Authentication Systems: LDAP, Radius, Kerberos, TOTP, SAML
- Cross-Team collaboration
- Cloud Platforms: AWS, GCP
- Linux Systems
- Scripting and programming: Python, Bash, PHP, Perl
- Databases: Mysql, Postgres
- Virtualization and Containers: Xen, Docker, KVM, VMWare
- Monitoring and Alerting: Nagios, Cloudwatch, DataDog, PagerDuty, Splunk, Graphite, Grafana
- Physical Datacenter planning, builds, moves and maintenance
- TCP/IP Networking, switches, routers, load balancers
- Incident Response Management
- Troubleshooting and remediation
- Documentation and runbooks
- System design and automation

CERTIFICATES AND AWARDS

- Certified Scrum Master - Scrum Alliance
- Jim Markle Operational Excellence Award - Cbeyond
- Fred Lanoue Athletic Achievement Award - Georgia Institute of Technology Swimming and Diving team

EDUCATION

Georgia Institute of Technology Bachelor of Mechanical Engineering

April 2000

VOLUNTEERING

Temple of Together: Temple Builder

March 2023 - Sept 2024

Full-time volunteer Lead CNC operator, heavy machinery operator. Set up and vectorized imported architectural DXF files, optimized cut sheets, edited gCode and ran an 8'x4' ShopBot CNC router, saving the project \$50k+. Troubleshoot and repaired electrical contactor issues. Wrote operating procedures and runbooks for inexperienced volunteers. During the on-site build became a licensed scissor lift operator, operated boom lifts, skid steer and VR forklifts, assisted in rigging, flying and landing heavy pre-built components to physically build the Temple structure. Part-time volunteer for 2023 as well. www.2024temple.com

San Francisco Bay Chapter of the National Speleological Society: Executive - Newsletter Editor

Jan 2011 - Present

A 501(c)(3) caving organization preserving caves as a natural resource and educating the public. Voting member of the board and Newsletter Editor. The publication has won multiple awards from the national organization for cover art/layout, many of which use photographs shot by myself. Responsibilities include managing technological resources and internet presence.

www.sfbaycaving.org www.caves.org

TurningWheels for Kids: QC Wrench

Dec 2012 - Dec 2019

TurningWheels builds 2000+ bikes (36,729 total by 2019) in just a few hours during their Big Bike Build each year that are given to children in need. As a QC Wrench, I mechanically hand-check all bikes for proper and safe assembly. turningwheelsforkids.com

Responsible Organized Mountain Pedalers: Director - Member At Large

Jan 2009 - Nov 2012

A 501(c)(3) mountain bike organization promoting mountain bike recreation and sustainable trail access in Santa Clara and San Mateo Counties. A regional chapter of the International Mountain Biking Association (IMBA). www.svmtb.org