

# Kaylen Thorpe

Brooklyn, New York  
[kthorpe@hyperpipe.com](mailto:kthorpe@hyperpipe.com)

Senior SRE/DevOps/Computer Systems Engineer

## Skills

Amazon AWS • Kubernetes • Terraform • Jenkins • CI/CD automation • Docker/Containerd • Cassandra, MySQL, PostgreSQL, MongoDB, MSSQL, redis, Elasticsearch, RDS • Redhat, CentOS, Ubuntu, Debian • bash, Powershell, Python • Zabbix, Datadog, Dynatrace, Splunk • Vault • High-Performance Computing

## Career Highlights

### IBM || Senior Site Reliability Engineer || New York, NY || November 2024 - Present

Reduced toil by automating upgrade workflows (without engineer intervention) for core products — Nomad, Consul, and Vault — to ensure security, compliance, and consistency across environments, using Python and Github Actions.

Created a tool to securely automate the propagation of secrets across environments and regions within Vault.

Ensure infrastructure performance and reliability (ops); participate in on-call rotation.

Collaborate with global cross-functional teams to build/manage infrastructure, debug issues, and resolve outages.

#### Service Level Objective (SLO) refinement & implementation

- \* Led quarterly project to refine and implement Service Level Objectives (SLOs) within Datadog.
- \* Worked with product teams to identify the metrics which are most impactful to clients
- \* Automated the provisioning of SLO monitors using Terraform, and created dashboards that highlight deficiencies.
- \* This optimized SLO monitoring made weekly ops review meetings more efficient by reducing the time spent looking at individual metrics and provided a data-based approach for prioritizing tasks.

### ADP || Senior Systems Reliability Engineer || New York, NY || December 2019 - July 2024

Built and maintained multi-account, multi-region, globally-distributed systems in AWS using Infrastructure as Code tools like Terraform and Helm, with hundreds of nodes and thousands of Kubernetes pods.

Built and maintained multi-account, multi-region CI/CD pipeline using tools like Jenkins, Ansible, and BitBucket.

Contributed to core platform code libraries such as monitoring, APM, and tracing.

#### Kubernetes Cost & Performance Optimization (python)

- \* Kubernetes pods are often over-provisioned (CPU, memory), resulting in under-utilized cluster nodes.
- \* Created a Kubernetes resource optimization tool to determine optimal CPU and memory requests and limits for each pod/container, based on performance data exported from a custom Datadog dashboard (~500 services x 10 env.)
- \* Tool reports a cost comparison of various instance types, as well as optimized workloads, to predict cost savings.
- \* Tool writes settings to Helm values.yaml files; can also determine a workload affinity for optimized instance types.
- \* Reduced CPU and memory requests increase overall cluster utilization, thereby reducing the number of nodes needed to run in the cluster, thus saving money.
- \* **Savings exceeded \$1 million per year in reduced EKS expenses.**

Created performance testing automation and orchestration framework in Python3 that runs in Kubernetes:

- \* Supports multiple performance testing tools like Locust, JMeter, and K6.
- \* Orchestrates worker pods and nodes, collects, analyzes, reports, and persists output.
- \* Integrates into CICD pipeline to automate performance testing and identify regressions.
- \* Created SDK to enable development teams to create and automate their own tests.

Spent extensive time on performance testing and tuning AWS cloud environment:

- \* Tested numerous types of AWS and Kubernetes resources, software services, APIs, and more.
- \* Benchmark various instance types/sizes for services like EC2, RDS, EKS, and ElasticSearch.
- \* Determine the most performance and cost-efficient instance types to use for EC2, RDS, EKS, and ElasticSearch.
- \* Reverse-engineered and automated the performance testing of our payroll calculation system.

Created/implemented an application performance monitoring library in Node.js across our entire platform using Datadog APM, with distributed tracing capabilities, to allow developers to correlate log events with detailed performance data, and troubleshoot and optimize their code.

Created an IaC automation tool/service to export and provision Splunk Cloud searches and monitors, and a UI to enable bulk management of those resources, through the Splunk REST API and powered by Python3/Flask

Developed a unified monitoring dashboard in Ruby to aggregate and visualize alerts and metrics from diverse sources such as Opsgenie, Dynatrace, and Splunk

Improved platform reliability by implementing and leading RCAs with Tier-1 support engineers.  
Mentor junior teammates, lead weekly sessions to teach the tools we use: AWS, SQL, Kubernetes, etc

## **N26 || Senior Site Reliability Engineer || New York, NY || December 2018 - October 2019**

Built and maintained and automated a globally-distributed, highly-scalable, self-healing microservice environment hosted in AWS, provisioned with Terraform, deployed with nomad and spotinst, and monitored by Datadog and ELK.

Developed and maintained CI/CD pipelines with tools including Jenkins, Terraform, Github, docker, vault, saltstack.

Mentored junior SREs in technical skills and best-practices, and especially “soft skills”.

Worked to automate/template the provisioning of an entire AWS region to speed expansion to new markets, while being mindful of the security and compliance regulations of other countries.

## **SiriusXM Satellite Radio || DevOps Engineer || New York, NY || January 2017 – August 2018**

Migrated all AWS infrastructure, including hundreds of instances and TBs of storage, from an existing to a new AWS account. Designed new environment following best practices for networking, security, storage, and CI/CD, codified in Terraform.

Implemented complete Zabbix monitoring solution, including the monitoring of custom datapoints, API calls, queues, AWS resources, JMX metrics, website performance.

Led Akamai CDN integration to serve audio and website content, to secure assets using Akamai access keys, and to boost the performance of our mobile users, while still preserving our ability to collect user metrics.

Built and deployed an Elasticsearch-Logstash-Kibana (ELK) log collection cluster, including local collection proxies to improve performance, grok filters to parse logs, and separate Kibana dashboards/visualizations for engineers and developers.

Built and supported multiple database/NoSQL solutions: mongodb, Cassandra, MySQL, postgresql, and redis.

Supported development and production environments for Node, Python, Java, Scala, iOS and Android applications.

## **PEX Card || Senior Systems Engineer || New York, NY || April 2015 – July 2016**

Designed, deployed and managed Dell Compellent Storage Center, iSCSI SAN devices using Cisco Nexus 10G switches for ESXi datastores and SQL Server failover cluster. Trained team-members on setup, administration and troubleshooting.

Built high-performance Microsoft SQL Server database clusters, including API endpoints and reporting nodes.

Proficient in CentOS and Ubuntu Linux – performance, kernel tweaks, security, devices, network, scripting, filesystems, etc.

Built, deployed, and managed ~100 VMs on ~10 VMWare ESXi hosts. Configured virtual networks, datastores, vMotioned instances, recovered LVM filesystems. Primarily a Windows Server 2008, 2012, and CentOS 6, 7 environment.

Cisco Catalyst, Nexus, ASA configuration; network analysis; off-loading, jumbo frame; performance architecture.

Built highly-available, load balanced, failover systems in production and DR environments.

Built and administered a distributed Active Directory environment, including security groups and permissions, group policy, network shares, certificate server, RODCs, WSUS, LDAP, Kerberos, and OpenOTP integration.

Maintained PCI-DSS compliant environment; familiar with security, tools, and remediation.

Implemented various logging and performance monitoring tools to analyze and alert on all network, server, and storage devices, including extensive Zabbix customization. Used data to identify/improve poor-performing equipment or services.

Deployed security tools including Atomic ASL, Thales KMS, and Alienvault to ensure the security of financial data.

## **City University of New York – Institute for Software Design and Development**

Systems Engineer || New York, NY || January 2010 – March 2015

Designed and maintained a 30-server research & development environment; Cisco PIX and ASA firewalls. VMWare and Xen virtualization; Zabbix monitoring. Red Hat & Ubuntu Linux, Windows IIS & SQL Server. Design IT systems for clients; purchased, installed equipment on-site and in datacenter.

Provided technical consultation on a wide variety of academic, scientific, and government-related projects. Created detailed technical project proposals for government contracts and academic grants: estimated budget and labor; GUI mock-ups, conceptual models, and live demos for clients. Projects included air quality analysis, solar energy collection, building environmental systems, 3-dimensional dissection simulations, traffic analysis, and hand-held multisensory devices.

Contributed technical and analytical expertise, provisioned computational resources for computer science-related Ph.D. research projects, including data collection and warehousing, operating system and application support, security, collaborative applications, visualization software, electronics, sensors, and RISC devices.

Hosted and secured dedicated servers for an international collaborative research project with software and equipment from partners including IBM, Raytheon, Honeywell, Oxford University, US Army Research Lab, and UK Ministry of Defense.

## **The Daily Orange || IT Director ; Board of Directors || Syracuse, NY || September 2005 – August 2009**

Responsible for the IT operations of the independent student newspaper, a 4-floor office with a staff of 50 people. Network, server, workstation installation, troubleshooting, repair. On-call 24/7; addressed frequent night-time outages by implementing capital upgrade of all network and server systems. Directed purchase of all software and equipment.

Planned, fundraised, and implemented a \$30,000 IT infrastructure upgrade at a cost of \$10,000, soliciting tools and materials donations. Built rack with Dell servers; SAN, backup storage, UPS, gigabit network, layer-3 switch, and router; rewired entire office with 80 drops of gigabit Ethernet. Virtualized six physical LAMP servers into one using VMWare.

## **General Electric || Info. Mgmt. Leadership Program, Intern || Schenectady, NY || June 2008 – August 2008**

Optimized Apache, MySQL, Websphere, jBoss and Tomcat performance on Solaris UltraSPARC T2 servers.

## **Publications**

Operational Effectiveness In Use of BAS (Building Automation Systems) October 2013 *Bobker M, Brown T, Thorpe K, Joseph M, Ascazubi M, Essman J.* Int'l Conference for Enhanced Building Operations, Montreal, Quebec

## **Education, Certifications, Volunteerism**

**New York City Science & Engineering Fair || Judge || 2010 - present**

**Red Hat Certified Technician || November 2011**

**Syracuse University || Bachelor degree || Syracuse, New York || 2005 – 2009**

Relevant coursework: Enterprise Systems, Advanced Networking, Systems Administration, CCNA, CWNA