

# David Mikalova - Cloud Infrastructure Engineer

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## Summary

8+ years experience creating composable and maintainable deployment systems in AWS:

- Automate build, test, and deploy pipelines of Docker containers to Kubernetes, orchestrate cloud microservices, infrastructure as code, DevOps practices, continuous integration, continuous delivery, immutable infrastructure, automated infrastructure testing, infrastructure security, internal developer platform, and concise documentation.
- Tools and languages: AWS, DigitalOcean, Kubernetes, Docker, Terraform, Terragrunt, Consul, Vault, Git, Ubuntu Linux, Tekton, TeamCity, CircleCI, Jenkins, Ansible, Bash, Go, JavaScript, Node.js, NPM, and Vue.js.
- AWS resources: EKS clusters, EC2 Instances with Auto Scaling Groups and Load Balancers, Lambdas, ECS container registries, S3 buckets, DynamoDB tables, Aurora databases, Athena queries, API Gateways, IAM roles, CloudFront distributions, KMS encryption keys, Secrets Manager secrets, and Route53 hosted zones.

## Experience

### github.com/dmikalova/infrastructure - Jul 2021 to present

Open source infrastructure as code for hosting personal web apps.

- DigitalOcean Kubernetes cluster with load balancer and DNS routing. Terraform configuration defined for all infrastructure resources and Kubernetes manifests.
- Automated Let's Encrypt certificate rotation with cert-manager for multiple domains and service based ingress routes managed with Traefik.
- Vue.js web apps are continuously deployed with CI/CD pipeline built on Tekton CRDs.

### Navigating Cancer - Senior System Reliability Engineer - Mar 2020 to Jun 2021

Established DevOps principles through a focus on team code ownership.

- Containerized build and test of Ruby monolith in Jenkins with test error screenshots in headless Selenium containers. Parallelized tests eliminated multi-day queues for developers running tests.
- Mentored SRE team on structuring composable Terraform modules to ease burden of maintaining infrastructure as code. Documented DevOps practices with standard interfaces defined in Jenkinsfiles, Dockerfiles, Kubernetes manifests, and Terraform code. Resulting developer autonomy doubled SRE team velocity as measured by tickets closed.
- Coordinated the migration of 28 Kubernetes services across 5 teams and 4 environments to new Kubernetes clusters and set company wide standards for secrets management using AWS Secrets Manager.
- Drove code ownership and automation with developer teams through disaster recovery exercises with a focus on improving the security and integrity of millions of patients' data.
- Deployed Tableau cluster with authentication through JumpCloud SAML IdP. Synchronized Tableau server workbooks to Git repository for backup, change history, and audits.

## **David Mikalova - Cloud Infrastructure Engineer**

### **Brightcove - Systems Engineer I, II - Feb 2014 to Feb 2020**

Lead Systems Engineer on Brightcove Live, the company's fastest growing product.

- Implemented the deployment of a live video streaming system that handles millions of concurrent viewers per stream, workloads on thousands of on-demand EC2 instances, and dynamic deployments across 8 AWS regions.
- Major successful events include the 2018 Winter Olympics, Cricket Australia matches, Australian Open tennis matches, and Mayweather vs. McGregor boxing match.
- Migrated from a bespoke deployment system written in JavaScript to a standardized declarative Terraform configuration with no migration downtime. Resulted in taking days instead of weeks to implement infrastructure for new services and increased reliability.
- Automated scaling of EC2 instances and DynamoDB databases to minimize costs during off-peak usage with cumulative yearly cost reductions exceeding \$100,000.

Designed and implemented application and infrastructure deployment with Terraform to manage Production, Staging, and QA environments in separate AWS accounts.

- Leveraged Terraform to deploy containerized applications to Kubernetes, simplifying the application environment and deployment process.
- Championed the adoption of an immutable artifact promotion workflow which reduced production downtime incidents in half by having the same build artifact and infrastructure configuration tested in QA promoted through all environments.
- Managed microservice networking with AWS VPCs and Security Groups across 8 AWS regions including public API Gateways, private microservice networks, and cross-account peering connections to internal company Kubernetes clusters.

Fostered a team wide focus on automation during post-acquisition restructuring.

- Migrated from on-premise VMware servers to AWS EC2 Instances with no downtime.
- Planned, executed, and verified the migration of hundreds of terabytes of customer video data off of retiring hardware with no downtime.
- Created a Consul cluster to automate application configuration updates.

### **Unicorn Media (acquired by Brightcove)**

#### **Systems Administrator - Sep 2013 to Jan 2014**

Developed standards to keep pace with a rapidly growing cloud and datacenter footprint.

## **Education**

### **AWS certified - Running Containers on AWS EKS - Feb 2021**

### **Arizona State University - B.S. in Chemistry, Minor in Mathematics**

Modeled the Hydrogen molecule in Mathematica by solving the wave equation from first principles. Calculations were 95% accurate compared to experimental measurements.