Mike Macdonald

Cloud Engineer

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Profile

I am an AWS Cloud Engineer with extensive experience working in high pressured environments within the education sector. I am inherently curious, I love problem solving, analytical thinking and helping companies learn how the cloud can enhance their elasticity, optimise their performance and reduce their costs.

Cloud Projects

CI/CD Integration for static S3 website – Utilised Github and AWS Codepipline for CI/CD, enabling streamlined version control and deployment of a static website hosted in S3 and delivered securely through CloudFront using Origin Access Control.

HTTP APIs to start instances - Created an HTTP API using AWS API Gateway that has two methods. One method invokes a Lambda function that starts any EC2 with a specific tag, the other stops any EC2 with a specific tag. As an additional step, an EventBridge CRON schedule was included that automatically stops the tagged EC2s at midnight each day to prevent accidentally leaving the EC2s running and incurring costs.

Creating a two-tier architecture with auto-scaling and RDS – Created a Diagram as Code in Draw.io before utilising CloudFormation to provision a two-tier architecture with an Application Load Balancer, Auto-Scaling EC2 group, Secrets Manager and RDS MySQL database. I created a CloudWatch alarm that is triggered when more than 100 requests are made to the ALB within a minute. As an extension, I then recreated this architecture in Terraform.

Employment History

Freelance Solutions Architect
July 2023 – present

- Created Proof of Concept architecture for start-up seeking investor funding
    - Three-tier secure architecture
    - Scalable decoupled microservices architecture including Lambda, SQS, SNS, EC2, RDS
    - Implemented security including Logging (CloudWatch and CloudTrail), Least privilege, MFA
- Designed architecture for small business looking to moving to the cloud
    - Utilised highly available EC2s, application load balancer, Lambda, Aurora MySQL, API Gateway, Quicksight, SNS, SQS, SES and S3 (Intelligent Tiering and Glacier)
    - Tracked ads through various social media to see which was best platform for marketing
- Created CloudFront deployment with Origin Access Control for website entirely in Terraform
    - Created custom module for multiple re-use of website
    - Utilised GitHub for version control with Git CLI commands
    - Used Bash scripting for automated environment set up
    - Managed both locally and through Terraform Cloud

Freelance IT Support – Local Church
September 2012 – January 2023

- *Technical Skills -*
  - Procured and deployed all staff laptops
  - Provided risk/benefit analysis that lead to the migration of IT infrastructure from legacy on premises server to cloud based file system.
  - Administrator on cloud file system, managing users, security of shared file structure, MFA.
  - Technical liaison with external company to set up mesh WIFI network to improve WIFI access for staff and visitors.
  - Administrate Exchange, Office 365 and Teams for the organisation.
  - Designed and manage church website including DNS configuration.
  - Managed church integration with multiple SaaS systems.
  - Continue to provide remote support using TeamViewer remote software.
- *Leadership* - Run Audio/Visual team including training sessions for staff and volunteers.

Maths Teacher and School Timetabler – Tring Park School
January 2013 – July 2023

- *Problem Solving* - Demonstrated exceptional problem-solving and analytical abilities in overcoming scheduling challenges and ensuring optimal utilisation of resources. Successful development and implementation of school timetable, efficiently coordinating the schedules of 370 students and 60 staff members year after year. Proven expertise in managing complex logistical operations, showcasing a strong attention to detail and a solution-oriented mindset while liaising with staff to ensure their needs are met within the timetable.

- *Strategic Thinking* - Developed and executed a comprehensive COVID technology strategy, enabling seamless transition to online teaching and ensuring continuity of education during the pandemic. This facilitated > 35,000 academic and vocational lessons to be delivered over a 9 month period.

- *Leadership* - Nominated by colleagues to be a staff representative to the Senior Leadership Team, advocating for staff concerns and facilitating communication between staff and management.

Qualifications

- AWS Solutions Architect Associate
- AWS Cloud Practitioner
- Qualified Teacher Status (QTS)

Education

AWS Academy – Optima IT
February 2023 – July 2023
- Intensive course learning AWS services.
- Studied everything required to pass the Cloud Practitioner, Solutions Architect Associate, Solutions Architect Professional and Security Speciality AWS certifications.
- Asked to present personal projects I had done at multiple academy wide presentation evenings.
- Passed AWS Cloud Practitioner and Solutions Architect Associate exams first time.

University Of Kent – Forensic Science
September 2006 – July 2010
- Graduated with 2:1 BSc (Hons)

Further educational experience can be provided upon request.

If you would like more information please view my online CV at https://mike-macdonald.co.uk