Abhishek Kumar
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Education

- **Indian Institute of Technology (IIT) , Bombay**
  Master of Technology (M. Tech), Computer Science and Engineering(CSE)   *July, 2017*

- **JCD Memorial College of Engineering, Sirsa (Haryana)**
  Bachelor of Technology (B. Tech), Computer Science and Engineering(CSE)   *July, 2014*

Experience

Member of Technical Staff, Qubole   *September 2019 - Present*

- Migration of build & bake automation to Kubernetes cluster moving away from standard EC2 machines. Efforts mainly involved dockerfiles creation for all the packages. Project decentralised the build ownership from Ops to respective teams owning the packages resulting in drastic reduction in on-call issues.

- Jenkins infrastructure set-up in automated and versioned controlled fashion using Ansible playbooks, Groovy scripts and terraform configurations. It helped the team in cloning any number of Jenkins server from the existing Jenkins infrastructure with minimal manual interference.

- Management of around 30 AWS accounts including centralised account creation using Control Tower, centralised billing using AWS Organization, team wise access provisioning using Single-Sign-On and centralized governance using Service Control Policies.

- Helped the organization in cost-optimization initiatives during Corona pandemic saving around 50k$ in less than a month. Efforts involve weekend shutdown of internal environments, upgrades of EC2 machines and automated termination of idle resources etc.

- Provisioning of Automated, version controlled and peer-reviewed process of AWS resource creation using terraform and 3rd party tool named Atlantis

- Setup full CI/CD pipelines so that each commit will go through standard process of software lifecycle and gets tested well enough before it can make it to the production.

- Customised Python based tool to create an automated and version controlled process of baking the AMIs using packer.

- Work closely with release managers and QA engineers in all the major releases for all clouds. Responsibility includes delivering first set of artifact, assistance with any bottleneck and listing possible improvements to address before next major release.

Software Engineer, DataXu   *July 2017 - July 2019*

- Development of an IaC Golang tool to manage company's critical AWS resources in a versioned and automated environment by codifying the AWS resources into configurations.

- Implementation of Golang, Jenkins based tool to grant temporary, auditable cross account S3 bucket access in prod account to an IAM role in staging account.

- Redesigned company wide AWS access leveraging Single Sign-on. Efforts involved configuring fine grained roles for SSO and provision of a wrapper over aws-cli to authenticate a user against Okta using SAML assertion to retrieve temporary STS credentials from AWS.

- Development of Python based tool to examine tags of newly created resources as per company tagging guidelines to track AWS cost at more granular level.

- Development of a Python based break-glass procedure to assume elevated permissions in AWS while handling escalations.

- Provisioning of Athena workgroups to get better cost distribution between teams and applications.

Technical Exposure

- **Certification**: Oracle Certified Professional, Java SE 6 Programmer

- **Languages**: Golang, Python, Bash scripting, Java , Groovy

- **Cloud**: Vast experience in AWS services. Ad-hoc experience on GCP, Oracle, Azure.

- **Automation**: Jenkins, Ansible, Terraform, Packer

- **Miscellaneous**: Github, Artifactory, Linux etc

Academic Projects

- Implementation of Distributed File Server Based on RAFT Consensus Protocol

    - Implemented a highly concurrent file server with Read, Write, Append, Delete, Compare-And-Swap and automatic expiry time as built-in primitives
    - Made the file server fault-tolerant by replicating it using the Raft consensus protocol. A system of five servers behaves as one transparently, and can survive node failures as long as a majority is functional
    - Implemented multithreading in file server to handle multiple clients at same time using Golang

- IITB Network Monitoring and traffic analysis

    - Worked on zabbix framework to monitor network and determine the usage of network resources
    - Optimal level of anonymization so that users remain anonymous, but usage trends remain extractable while analysis

- IITB Network Monitoring and traffic analysis

- Implementation of Zero Knowledge Authentication protocol

- Seminar on Online Voting System using Bitcoin and Blockchain