

## Abhishek Kumar

**Contact Info:** abhisoni.ks@gmail.com, +91-7206775040

**LinkedIn:** www.linkedin.com/in/abhishekkumarsoni

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### Experience

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*Member of Technical Staff, Qubole*

*September 2019 - Present*

- **Jenkins Infrastructure Revamp:** Migration of Build & Bake automation to Kubernetes cluster. Efforts involved Dockerfiles creation for over 60 packages, k8s set-up and retirement of legacy machines and work-flows. Project decentralised the build ownership from Ops to respective teams owning package resulting in significant drop in on-call issues.
- **Version Controlled Jenkins Set-up:** Migration of Jenkins infrastructure to automated and version controlled process 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.
- **Centralised Management and governance for AWS Accounts:** Management of around 30 AWS accounts including centralised account creation using Control Tower, centralised billing using AWS Organization, team wise IAM role based access provisioning using Single-Sign-On and centralized governance using Service Control Policies.
- **Cost Saving Initiatives:** Helped the organization in cost-optimization initiatives during Corona pandemic. Reduced the AWS cost by around 50k\$ in less than a month. Efforts involved weekend shutdown of internal environments, upgrades of EC2 machines and automated termination of idle resources etc.
- **AWS Resource Provisioning:** Provisioning of Automated, version controlled and peer-reviewed process of AWS resource creation using Terraform and 3rd party tool named Atlantis.
- **Build Pipelines:** Setup CI/CD pipelines for all supported clouds to make sure each commit go through standard process and gets tested well enough before it can make it to the production.
- **Release Cycle Responsibilities:** Work closely with release managers and QA engineers in all the major releases for all clouds. Responsibilities includes providing stable infrastructure, delivering first draft of artifacts, assistance with any bottleneck and listing out the possible improvements to address before next major releases.
- **Internal Tooling:**
  - Python based tool to automate the PR merge process enforcing repo based mandatory approval and valid PR title format
  - Tool to provide commit difference between production and hotfix tags during hotfixes on Azure, GCP and Oracle clouds.
  - Python and Jenkins based tool to cherry-pick and push the commits at release branches.

*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.

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## Education

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- **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*

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## Technical Exposure

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- **Certification:** Oracle Certified Professional, Java SE 6 Programmer
- **Languages:** Golang, Python, Bash scripting, Groovy, Java
- **Cloud:** Vast experience in AWS services. Ad-hoc experience on GCP, Oracle, Azure.
- **DevOps:** Jenkins, Docker, Kubernetes, Ansible, Terraform, Packer,
- **Miscellaneous:** Github, Bitbucket, Artifactory, Linux etc

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## Academic Projects

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- 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