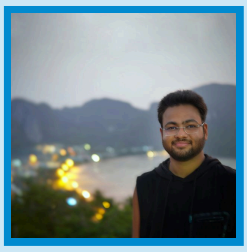

Hritwik Singhal

Site Reliability Engineer and Linux/Open-source enthusiast.

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Site Reliability Engineer with **3+ years** of experience in building & maintaining resilient, scalable infrastructure in production environments. I am a **dedicated**, self-driven **geek** with a passion for **self-hosting** and a strong zeal for **open-source development**. I'd rather spend 4 hours writing a program to **automate** a task than spend 4 minutes doing it manually every day.

Profiles

Hritwik

Hritwik

Skills

Linux

SSH, Systemd, ZFS, LVM, Virtualization

Platforms

AWS, GPC, Azure, Proxmox, On-Prem

Networking

TCP/IP, DNS, DHCP, VLAN, VPN, Firewalls, Wireshark

IaC

Nix, Terraform, NixOS

Automation and Scripting Tools

Ansible, Bash, Python, Git, Jenkins

Orchestration

Kubernetes, Docker, Helm, ArgoCD, Argo Workflows

Monitoring

Grafana, Loki, Prometheus, ElasticSearch

Other

Distributed Systems, Optimizations, Databases, Load Balancing, GitOps, Microservices, Logging, Alerting, Hadoop

Soft Skills

Communication, Problem-Solving, Collaboration, Flexibility, Critical Thinking, Eager to learn

Hobbies

Homelab
self hosting, de-google

Reading
Astronomy, Psychology, Physics

Badminton

Gaming

Languages

Python

Bash

Java

C/C++

Experience

Health & Well-being Career break — March 2025 - Present

Well, emergencies don't knock on your door; they just barge in and announce, 'Time for a reset!' So, I've been rediscovering all the things I loved – like finally tackling that coding project I'd been putting off, tinkering with my Homelab & leveling up my favorite game.

Tessell — Sept 2024 - Feb 2025
Platform Engineer — Bangalore, India

Led the architectural revamp of a monolithic **Python** backend codebase to a modular design, enhancing **scalability, maintainability, and platform flexibility**; enabling faster feature releases and quicker response to market demands. This included:

- Refactoring the monolithic codebase to modular architecture, reducing code complexity by **20%**.
- Designing and implementing a fully automated deployment pipeline for new database VMs across AWS & Azure using Argo Workflows and custom backend, reducing VM deployment time by **~80%** from **2 days to 4 hours**.
- **Eliminating** developer dependency on our team for Database testing, fostering a self-service model and freeing up our team's capacity.
- Adding seamless support for new cloud platforms, including successful deployments to Oracle Cloud Infrastructure (OCI), reducing onboarding time by **25%.**
- Improving support for integration of new DB's, implemented checksum validation for data integrity, improving data accuracy and reducing error rates by **10%**.
- Automated cleanup of AWS/Azure zombie resources, saving **~5%** infra costs.

Media.net — July 2022 to July 2024
Site Reliability Engineer — Bangalore, India

- Leveraged **Nix** and **Terraform** to scale existing Hadoop cluster, on GCP and On-prem datacenters, from **20 to 70** nodes; thus reducing deployment time by **80%**.
- Optimized disk read/write latencies from **20ms** to **under 1ms** for **HDFS** by fine-tuning various **ZFS** parameters; thus mitigating frequent latency spikes by **80%**.
- Led company-wide deployment of Zeppelin & Hue for **300** devs using **Nix, TF** & **SOPS**. Used Infrastructure as Code (IaC) methodologies for optimized deployment speed, reliability and secret management.
- Scaled Hadoop cluster by **30%** in capacity. Implemented resource pipelines to improve capacity planning by generating & aggregating team-specific data.
- Implemented **Jenkins CI/CD** pipelines to automate the deployment of **Conda** virtual environments on Hadoop cluster, resulting in **30%** reduced app deployment time.
- Proven on call proficiency in debugging live production issues during 24x7 **on-call rotations**. Ensured rapid resolution, minimizing downtime and enhancing system resilience. Proficiently conducted and authored detailed **RCA** reports.

Media.net — January 2022 to July 2022
Site Reliability Engineer Intern — Mumbai, India

Conducted in-depth analysis of Java garbage collection times by analyzing GC logs from Hadoop cluster nodes. Fine-tuned GC parameters & optimized heap sizes, thus resulting in **10% improvement** of application performance and reduced memory consumption.

Projects

TerraNixLab (My Homelab) — 2024 - Present

- Stateless, Immutable, Declarative deployment of my Proxmox-based Homelab. Used Terraform and Nix for provisioning of containers, VMs & DNS in Cloudflare & firewall.
- Reduced gaming latency by **50%** from **120ms to 55ms**, by carefully optimizing & tuning the network & OS; made **Remote gaming** viable over a distance of 2000km.
- Improved **security** and **performance** by isolating network & automated traffic routing of segregated networks through **VLANs** for different services.
- Created a comprehensive **documentation** for all homelab components and operational procedures/workings to ensure maintainability.
- **Official maintainer** of Filebrowser package in Nixpkgs.

DiskDoctor — 2024

Developed a robust solution for reporting, monitoring and alerting of health degradation of 800 disks (SSDs, HDDs, and NVMes) in a 200-node **Proxmox** cluster. Integrated **Proxmox** & **Cloudera** API's for seamless management of disk infrastructure.

NebulaCrawler — 2023 - 2024

A Kubernetes-driven local search engine where pods are used for autonomous crawling, pushing scraped webpages to Elasticsearch and URLs to Redis. Integrated Prometheus exporter SDK for monitoring and analysis of pertinent metrics.

Education

LNM Institute of Information Technology, Jaipur — August 2018 to May 2022
B.Tech in Computer Science

Personal Pursuits

PADI Open Water Scuba Diver — Jan 2024

Qualified to a depth of 18m, can dive anywhere in the world using my own scuba gear. Turns out, the ocean is way more entertaining. Who needs Netflix when you have a pufferfish looking perpetually surprised!

Travelling Solo — 2022 - 2024

Just me, my backpack and some wonderful nomads i met on the way. The result? A whole lot of unexpected discoveries and a perspective shift that's, let's just say, significant!

Trek to Summit of Mt. Kedarkantha — Jan 2021
12,500 ft at -10°C

Survived -10 °C for 6 days! But hey, the view from the top was pretty spectacular.