SANTHOSH NAGARAJ

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SUMMARY

Software Engineer with six years of experience in backend development, skilled in turning complex business needs into scalable, cloud-native solutions. With a strong track record in designing and maintaining robust systems, he has made extensive contributions to CNCF projects, particularly Headlamp. Passionate about crafting clean, efficient code that elevates user experience and increases engagement.

EXPERIENCE

Software Engineer II, Microsoft May 2021 - Present
Golang, Kubernetes, Helm, Postgres, Prometheus, Grafana *Bengaluru, India (Remote)*

- Developed and maintained Headlamp plugins for CNCF tools like Helm, Prometheus, OpenCost, and Backstage, enabling seamless integration and improving overall user experience. These contributions led to a significant increase in user adoption and expanded the tool's ecosystem.
- Expanded Headlamp's reach by developing distribution solutions, including a Minikube addon, Docker Desktop extension, Podman Desktop extension, Digital Ocean marketplace package, and Helm chart. These additions significantly boosted user adoption. Also established CI pipelines to automate PR triggers for version updates, ensuring the distributions stay updated with each new release.
- Reengineered Headlamp's backend architecture by modularizing a previously tightly coupled codebase and replacing custom logic with the Kubernetes client-go package. This reduced maintenance overhead, improved reliability, and organized thousands of lines of code into manageable modules. The transformation also enabled comprehensive testing, raising code coverage from 12% to 56%.
- Built a system to monitor GitHub metrics, tracking star counts, download counts across various distributions. Integrated the tracker with Prometheus and Grafana for in-depth monitoring and visualization, simplifying adoption rate analysis for new versions. This became a key resource for management to report on critical adoption metrics.
- Led community outreach efforts for Headlamp, enhancing user adoption and engagement through events and communication. Mentored new engineers to streamline onboarding and deepen their understanding of the project. Contributed to essential documentation and blog posts to foster knowledge sharing and strengthen developer outreach.
- Redesigned the Nebraska backend using OpenAPI-based code generation, enhancing request validation and simplifying the addition of new endpoints. Optimized Postgres queries to improve performance, implemented end-to-end tests, and set up GitHub Actions workflows to run tests on pull requests. Managed Nebraska releases until the project transitioned to another team.
- Built a Golang Updater library for Nebraska to abstract the underlying Omaha protocol thus simplifying backend interactions, and developed a Terraform provider for Nebraska. These became the base for other teams to create a proof of concept for integrating a Kubernetes operator to automate workload updates within the cluster.

Software Engineer, Kinvolk Jan 2021 - May 2021
Golang, Postgres, Keycloak, Prometheus, Grafana *Remote*

- Designed and implemented OIDC authentication for Nebraska, creating comprehensive documentation to integrate with providers such as Auth0 and Keycloak. This enhancement improved security and simplified user access management for enterprise customers.
- Introduced monitoring capabilities in Nebraska's backend, building internal dashboards with Grafana and Prometheus to identify slow-performing endpoints.
- Built Kinvolk User Accounts, a user and team management service, by extending Keycloak APIs to include advanced access control (ACL). Enabling role-based access and flexible user permissions to streamline access management for enterprise clients.

Software Engineer, Atlan Dec 2018 - Jun 2020
Golang, Python, MongoDB, Redis, RabbitMQ *Delhi, India*

- Enhanced the user onboarding experience for Collect, by redesigning workflows. These improvements resulted in a measurable increase in pipeline completion and conversion rates among new users.
- Developed an offboarding flow for Collect, enabling customers who churn to seamlessly export all their data. This feature improved the customer experience during offboarding while meeting compliance requirements.
- Added OpenXLS format support for form imports, enabling customers to migrate seamlessly to our platform and get up and running quickly without needing to recreate their forms. This feature addressed a key requirement for prospective customers, simplifying transitions from other products.
- Actively participated in SRE operations, playing a key role in setting up the monitoring and alerting systems. Strengthened these systems to improve reliability and reduce incident response times. Successfully handled P0 incidents, ensuring swift resolution and minimal impact on customers.
- Developed a query caching layer for internal analytics, significantly reducing the cost and latency of repeated queries in an OLAP system. Created reconciliation tools for data workflows to ensure accuracy and improve overall system performance.
- Designed and implemented a real-time monitoring solution using MongoDB change streams, enabling the business team to continuously track product adoption metrics. This solution provided up-to-date insights, empowering data-driven decision-making and improving strategic planning.

EDUCATION

Bachelor of Technology (Computer Science), VIT University 2015-2019