

Sambhu Nampoothiri G

Software Developer | Architect | DevOps

Portfolio: [Jack-Of-Some-Trades](#)

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Professional Summary

Accomplished Senior Backend Developer with approximately 3 years of experience designing and leading EMS solutions for transport network routers. Expertise in network automation, microservices development, and performance optimization. Proven track record in defining product roadmaps, collaborating with stakeholders, and leading cross-functional teams to deliver scalable and high-availability systems.

Core Competencies & Technologies

Cloud-Native & Microservices Architecture

- Container Orchestration & Deployment: Kubernetes, Docker, Helm, Istio Service Mesh
- High Availability & Load Balancing: HAProxy, Keepalived
- Messaging & Event-Driven Architecture: Kafka, gRPC
- Container Security & Registry: Harbor

Programming & Automation

- Languages: Python, C++
- Automation & Configuration Management: NETCONF, SNMP, OpenDaylight, YANG

Networking & EMS Solutions

- EMS Architecture & FCAPS Implementation (Fault, Configuration, Accounting, Performance, Security)
- Networking Protocols: LLDP, OpenFlow, NETCONF, SNMP
- Routing & Transport Network Services: BGP, OSPF, MPLS, LDP, RSVP-TE, IS-IS, Segment Routing, EVPN, VXLAN, L3VPN, L2VPN
- Logical Topology & Service Processing within EMS

Frameworks & Development Tools

- Service Orchestration & API Management: Kong API Gateway
- Application Frameworks: Flask, FastAPI
- Databases & Storage: MongoDB, Redis, Longhorn
- Monitoring & Logging: Prometheus, Grafana, ELK Stack

Scalability & Performance Optimization

- Distributed Systems & Caching Strategies
- Memory Management, Load Balancing, and Resource Optimization

Project Leadership & Agile Management

- Product Design & Documentation: Technical Design Documents, Swagger
 - Agile & DevOps Practices: CI/CD, GitOps, Helm
 - Cross-Functional Collaboration with stakeholders and integration teams
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Work Experience

Senior Engineer, EMS/NMS Software Backend Development

Company: HFCL

Duration: July 2022 – Present

- Led **backend development** for EMS/NMS software systems.
 - Spearheaded **scalability** efforts to support 50K+ routers by optimizing **memory management, caching, and load balancing**.
 - Designed and developed software and deployment architecture to process, count and display statistics of incoming notification and alarm at the rate of **300 per second** from network devices.
 - Developed [pyNetX](#), an open source **asynchronous non-blocking** python library for NETCONF based devices.
 - Migrated from Flask to **FastAPI** to enhance performance through asynchronous processing.
 - Created a Python-based **Security Management** microservice functioning as an **Intrusion Detection System**.
 - Designed and implemented **MOP Automation** using **Ansible & Python**, reducing operational efforts by 80%.
 - Refactored processes including **Software Installation, Database CRUD Operations, Configuration Upload, and Compliance Verification**.
 - Built a Python-based **SNMP Management** microservice to retrieve data from network routers.
 - Integrated **License Validation** and **RBAC** to enforce user access and restrictions.
 - Developed persistent **Streaming** APIs via **Redis Pub/Sub** and **websockets** for real-time data.
 - Designed and deployed a **high-availability, cloud-native EMS setup using HAProxy, Keepalived, and Istio**.
 - Integrated **Harbor, Kong API Gateway, and Helm** for secure microservices orchestration.
 - Implemented **Kafka**-based messaging for event-driven communication.
 - Optimized MongoDB **performance**, reducing RAM usage from 6GB to 2GB.
 - Reduced Redis **connections** from 100+ to 5 per microservice to prevent overload.
 - Conducted code reviews, implemented linting protocols, and ensured adherence to quality standards.
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Internships

CI/CD Pipeline Intern

Company: HFCL, Bangalore

Duration: March 2022 – June 2022 **Certification:** [CI/CD Pipeline Internship Certificate](#)

- Developed a **CI/CD** pipeline using **Jenkins** integrated with GitHub.
- Implemented code quality checks with **SonarQube** for bug detection and analysis.

Software Intern

Company: TECHFUNIC, United States (Remote)

Duration: July 2021 – February 2022 **Certification:** [TECHFUNIC Software Internship Certificate](#)

- Developed a **Zoom client API** to automatically transfer recorded videos to **Google Cloud Storage**.
- Created scheduling software to manage Zoom meeting availability and avoid conflicts.

Education

Bachelor of Technology in Electronics and Communication Engineering

Institution: College of Engineering, Trivandrum

Duration: August 2018 – August 2022

CGPA: 8.68

High School

Institution: Toc H Public School, Punalur, Kollam, India

Completed: March 2017

Percentage: 94.6%

Projects

Sithara Music Generator

- **Technologies:** Python, HTML, CSS, Flask, NLP
- **Code:** [GitHub Repository](#)
- Created a lyrics generator for 'Manglish' songs using an LSTM model trained on Sithara's songs.
- Earned recognition in the Tinkerhub Build From Home competition.

Indian License Plate Detection and Extraction

- **Technologies:** Python, Computer Vision
- **Code:** [GitHub Repository](#)
- Developed an AI tool to detect and extract Indian vehicle license plates from videos and live feeds using OCR.

Plain Paper Art Generator using Neural Style Transfer

- **Technologies:** Python, Computer Vision
- **Code:** [GitHub Repository](#)

- Enhanced a neural style transfer model using a pre-trained VGG19 network to generate unique art by merging multiple painting styles.

Coinciding Meetings Finder

- **Technologies:** Python
 - **Code:** [GitHub Repository](#)
 - Developed a tool to identify scheduling conflicts in online meetings using the Zoom REST API.
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Events & Leadership

- **AI Lead, EC-Tech, College of Engineering, Trivandrum:**
Leads the AI wing and conducts machine learning sessions for students.
- **AI/ML Lead, Google Developer Students Club (GDSC), College of Engineering, Trivandrum:**
Organizes workshops and talk series on machine learning and deep learning.
- **Official Campus Ambassador, BFIKF 2019:**
Represented BFIKF 2019 at Kovalam beach, promoting accessible facilities for special needs.
- **Coordinator, Eristica Technical Debate (IEDCCET):**
Managed and mediated technical debate events, ensuring smooth execution.