

RAVI KOOTHATI

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ABOUT

- **Senior Systems & Backend Engineer** with **10+ years** of experience architecting high-performance network infrastructure, virtualized firewalls, and cloud-native solutions.
- Proven track record of optimizing datapath performance (achieving **28% throughput gains**), automating cloud deployments (Terraform/Python), and resolving complex kernel/driver-level bottlenecks.
- Expert in **C/C++, Linux Kernel, and DPDK**, with recent hands-on experience in backend microservices and database resilience. Adept at bridging the gap between low-level system optimization and scalable cloud architecture.

TECHNICAL SKILLS

Languages	C, C++, Python, Go, SQL, Bash
Systems	Linux Kernel, DPDK, SR-IOV, Virtualization (KVM, VMware, QEMU)
Networking	TCP/IP, L2-L7 Protocols, Network Security, VPN (IPsec/SSL)
Cloud & DevOps	AWS, Oracle Cloud (OCI), Alibaba Cloud, Azure, GCP, Terraform, Docker, Kubernetes, CI/CD
Tools	GDB, Cisco TReX, Wireshark, Tcpdump, Git, Perforce, Jira

PROFESSIONAL EXPERIENCE

IBM | Software Developer (Backend & Systems) | *Markham, ON* | Apr 2024 – Dec 2024

Transitioned to backend development for SevOne NPM, rapidly mastering Go/MySQL to deliver critical stability and security improvements for an enterprise Network Management System.

- **Cluster Resilience & Availability:** Engineered a high-availability feature to force-remove inaccessible peer/HSA nodes, preventing cluster lockups during maintenance and significantly reducing recovery time.
- **Security & Compliance:** Spearheaded a critical security initiative to patch Golang CVEs, migrate container images to verified publishers, and automate kernel cleanup, ensuring compliance for Fortune 500 banking clients.
- **Critical Escalation Resolution:** Resolved **35+ high-priority escalations** involving NMS upgrade failures, database schema corruption, and ICMP plugin malfunctions.
- **Database & Migration:** Developed idempotent SQL schema updates and robust migration strategies to prevent data loss during version upgrades (v7.0 to v7.2).
- **Observability Tools:** Built a utility to trace objects through the Kafka-based ingestion pipeline and added synthetic indicators for interface error monitoring, improving system debuggability.

CISCO | Software Engineer (Systems & Kernel) | *Bangalore, IN* | Aug 2020 – Mar 2024

Core developer for Cisco ASAv/FTDv (virtualized firewalls), focusing on performance optimization, driver integration, and multi-cloud enablement (OCI, Alibaba, AWS).

- **Performance Optimization (SR-IOV):** Led the integration of **SR-IOV** for Broadcom and Mellanox DPUs on Oracle Cloud (OCI). Optimized driver configurations to boost throughput from **8.1 Gbps to 10.4 Gbps (28% increase)**, contributing an estimated **\$2M in value** to the business unit.
- **Cloud Automation (Alibaba):** Architected a cloud-native autoscaling solution for Alibaba Cloud using **Python and Terraform**. Automated the deployment of VNICs, security groups, and health monitors, reducing customer operational overhead by **35%**. *Used in infrastructure for the Beijing Olympics.*
- **Datapath Tuning:** Resolved critical performance bottlenecks (NIC underruns, memory leaks) by tuning **DPDK parameters**, hugepages, and ring sizes. Increased Connections Per Second (CPS) by **130% (110k to 255k)** for ASAv-KVM deployments.
- **Debugging & Tooling:** Enhanced the **Cisco TAC reporting tool** by integrating granular datapath logs (mbuf pools, memory stats, CPU history). Reduced Mean Time to Resolution (**MTTR**) for customer cases by **~50%**.
- **Platform Modernization:** Led the upgrade of core components (Wind River Linux, DPDK, FXOS) across multiple releases, resolving complex dependency chains and driver compatibility issues.

SONICWALL | Software Engineer | Bangalore, IN | Sep 2017 – Apr 2020

Progressed from Support to Core Development, building essential tools and features for SonicOS and Next-Gen Firewalls

- **Tool Development (Python):** Designed and built the **TSR (Tech Support Report) Analysis Tool**, parsing **100,000+ line log files** using **20,000+ regex patterns**. Created a UI to visualize firewall state, drastically reducing log analysis time for the global support team.
- **Migration Automation:** Developed a web-based **Configuration Migration Tool** to automatically convert Cisco, Checkpoint, Sophos, Fortinet, Juniper and Palo Alto configs to SonicWall format, accelerating new customer onboarding.
- **Switch Integration:** Architected a unified management layer allowing SonicWall Firewalls to configure and monitor connected SonicWall Switches via LLDP and custom APIs.
- **Feature Development:** Implemented key features including AWS integration endpoints, FTP logging, and ARP Storm Control.

SONICWALL | Enterprise Technical Support Engineer | Bangalore, IN | Jun 2015 – Sep 2017

- **High-Stakes Troubleshooting:** Provided expert-level support for Fortune 500 clients, resolving critical outages involving VPNs, HA clusters, and routing protocols (OSPF/BGP).
- **Lab Management:** Managed a test lab of **75+ devices** (Firewalls, Switches, APs) to reproduce complex customer topologies and verify bugs.

EDUCATION

- **Master of Technology, Software Systems (Security)** | BITS Pilani | 2023
 - *Work Integrated Learning Program (completed alongside full-time role at Cisco)*
- **Bachelor of Engineering, Computer Science** | Visvesvaraya Technological University | 2015

CERTIFICATIONS & AWARDS

- **Certifications:**
 - AWS Certified Cloud Practitioner (*Targeting Dec 2025*)
 - [Oracle Certified Cloud Infrastructure Foundations Associate](#)
 - [IBM SevOne NPM](#)
 - [SonicWall Network Security Administrator](#) (SNSA)
 - [Certified SonicWall Security Administrator](#) (CSSA)
- **Awards:**
 - [Cisco Connected Recognition Award](#) (2021, 2022): For SR-IOV Support and VirtIO optimization.
 - [SonicWall Technical Master](#) (2020): For contributions to firewall development and tool creation.