**ARUN KUMAR B**

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**PROFILE SNAPSHOT**

* Highly skilled Individual Contributor with **19+ years** of Embedded Software Development expertise in various areas of Data Center SAN Switching and Metro Ethernet Routing, like Board Bringup | Porting BSP/ Cisco NXOS/ JunOS EVO (Linux Based) | Forwarding Device Driver | Artificial Intelligence (AI) | High Availability | Control-plane Redundancy | ISSU | Zero Touch Provisioning | Secure Boot | Hardware Fingerprinting | TPM/ ACT/ SUDI | Chassis Management | Intel IEPS SDK | Open Source Legal | Yocto | Telemetry | GRPC | CGPB | Predictive Analytics | VMID Analytics | Network Security from DoS Attack | SNMP MIB | Port License | Bootloader Firmware/ BIOS/ U-Boot
* Ability to promote innovation through technically leading teams, comprehending open-ended customer requirements, researching feasibility, completing PoC fast, creating comprehensive functional spec, architecting the software solution, driving design, expediting development, and prioritizing time to market with exceptional quality
* Proficient in troubleshooting customer issues, identifying and resolving complex software/ hardware flaws, and cooperating with cross-functional teams on unfamiliar, multi-million-line software stacks
* Worked in a dynamic, fast-paced, highly collaborative team atmosphere where excellent teamwork ethics were valued
* Well-versed in collaborating with the globally distributed cross-functional teams
* Outstanding communication abilities and the capacity to convey intricate technical ideas with executive leadership

**SCHOLASTIC & ACCREDITATIONS**

* Specialization in Embedded Systems Design | Centre for Development of Advanced Computing, India - 2003-2004
* Bachelor of Electronics and Communication Engineering | Madurai Kamaraj University, India - 1999-2003

**TECHNICAL SKILLS**

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| --- | --- |
| **Programming:** | C | Python | Linux Bash Script | Assembly (x86 & PowerPC) | Data Structures |
| **Bus Protocols:** | PCIe | I2C | SPI | SMBUS | PMBUS | UART | RS232 |
| **Debugging tools:** | GDB | JTAG debuggers (American Arium & BDI) | Traffic Generator/ Analyzer (IXIA & JDSU) | Dediprog |
| **Operating System:** | Cisco Nexus OS (Linux based) | JunOS EVO (Linux based) | Yocto | VMware ESXi |
| **Development tools:** | Git | CVS | ACME | Clear Case | GCC | Bitbake | CDETS | GNATS | Gerrit | PRRQ | Open Grok |

**CORE SKILLS**

Attention to Detail | Critical Thinking | Strong in Analytical and Problem Solving | Continuous Self-Development | Empowers Others | Risk-Taking | Engineering Design And Development | Post Project Assessment | Process Improvement

**AWARDS AND ACCOMPLISHMENTS**

* Receiving multiple awards
	+ **Juniper**: Received *‘Rocket to Space* ‘ award for 14 months of aggressive/ startup-mode product development
	+ **Cisco**: Received multiple *‘Amaze’* and *‘Inspire’* awards, for consistent innovation, initiatives & technical leadership
	+ **Motorola**: Received *‘Bravo’* award, for saving $1 Million by preventing HW re-spin with software solution
* Consistently enhancing the customer experience
	+ Automating recover of hundreds of routers and switches to prevent downtime in the customer networks
	+ Reducing the customer maintenance window significantly, from 58 hours to 12 hours, and switched from 138 snowflakes to a more manageable set of 8 common release images
* Foundation member of platform development team in Cisco, India
	+ Grown along with the team from its original three members to its current 18-person size
	+ Travelled thrice to the US, to acquire KT on platform development and technically groomed the India platform team
* Participating & winning company-wide hackathon competitions at the site level, to showcase innovative ideas
	+ Power savings, AI based troubleshooting and hardware failure prediction, debug log classification, link diagnostics
* Saving millions of dollars in engineering efforts by providing software solutions and eliminating hardware redesign, ASIC re-spin & reducing RMA expenses due to hardware faults/ FPGA or CPLD limitations
	+ CPU Hung | FPGA power bad | ASIC counter overflow | Bad sensor | Faulty PSU controller | FAN direction | LED

**WORK EXPERIENCE**

**Role and Responsibilities:**

* Individual contributor, with 75% coding and 25% customer requirements handling by technically leading the team
* Architecting complex software solutions, ensuring performance, scalability, debuggability & resiliency requirements
* Writing and reviewing functional spec, design spec, enhancing UT automation, examining system test plan & sanity
* Reviewing peer code, and ensuring software quality using platform sanity, code coverage & static analysis tools
* Collaborating with system test teams, to improvise the QA test plan covering all customer use cases, with automation
* Integrating BIOS/ FPGA/ CPLD/ PHY Firmware, open-source SW and third-party SDKs into Linux OS, with legal clearances
* Innovatively solving customer field issues, by engaging with the globally distributed cross-functional teams
* Initiatives to creating several internal wiki pages, covering key development, troubleshooting & quality standards
* Introducing new products (NPI) and features to the TAC, customer facing escalation, and technical marketing teams
* Mentoring juniors by emphasizing on the quality coding practices like secure, readable, reusable & debug-friendly
* Representing the team in TL9000 audits over ten years & successfully renewing the certification three times in a row

**Embedded Software Developer | Applied Thought Auditors and Consultants, Inc. | Fremont, US | Jul 2024 - Present**

* Awaiting for a new Project/ Client/ C2C

**Software Engineer Senior Staff | Juniper Networks India Pvt Ltd. | Bangalore, India | May 2022 - Jul 2024**

* Bringing-up the cloud metro router, ACX 7348 supporting 1GbE to 400GbE port flexibility with control-plane redundancy
* Resolving board bring-up issues, like PCIe AER issues due to MCTP/ ASPM/ Cmn CLK settings and other FPGA/ FW issues
* Standardizing Intel IEPS SDK/ NAC Firmware/ ICE driver across several ACX routers and leveraging common Insyde BIOS
* Handling Yocto integration of various third-party dev/ test tools & taking responsibility for mitigating vulnerabilities
* Initiatives in power-saving measures by shutting off idle interfaces, sub-utilized channel groups & optimal fan speed
* Productizing the pet project of fabric wide SFP policing feature, to prevent using unauthorized SFP/ transceiver modules
* Owning the longevity test suites, identifying the stability issues, and resolving them much ahead of the release

**Software Engineering Technical Leader | Cisco Systems (India) Pvt Ltd. | Bangalore, India | Mar 2007 - May 2022**

* Delivering 10+ Data Centre Storage Switching products, from 8G till 32G FC, by handling end-to-end responsibilities, from ASIC bring-up, Forwarding Device Driver development, board bring-up with Cisco NXOS (Linux based OS), chassis management, integrating Firmware, SDK, telemetry, collaboration with cross-functional teams in the US/ China for Hardware, FPGA, BIOS, BSP, DIAG, ODVT, VMARG, EDVT, FIT, SNMP MIB, Network mgmt, port licensing & UT automation
	+ DS-C9396T-K9 | DS-C9148T-K9 | DS-X9232-256K9 | DS-X9248-256K9 | DS-X9448-768K9 | DS-X9648-1536K9 | MDS 9718 | Port Profile Manager | Nexus 7000 CoPP | DPVM | NXOS IO-BUF
* Artificial-Intelligence (AI) integration for predicting hardware failures much ahead and preventing network disruptions
* Replacing I2C accesses to FPGA assisted PCIe access & resolving clock stretching issues, improvising stability & efficiency
* Porting hardware-anchored secure boot to ensure network security by guarding the unauthorized software booting
* Integrating hardware fingerprinting to prevent anti-counterfeit parts, by using trusted anchor module/ TPM (SUDI)
* Decreasing the OS image size by 4%, the boot-up time by 9%, and error logs cleanup for efficient troubleshooting
* Designing a QoS-based TCAM level security feature, for protecting the control-plane from denial-of-service attacks
* Offering network insights, by streaming port statistics using telemetry infra, GRPC protocol and CGPB encoding
* Developing VMID granular SAN analytics solution to uniquely track each virtual-machine specific network utilization

**Systems Software Engineer | Motorola India Pvt. Ltd | Bangalore, India | May 2004 - Mar 2007**

* Porting Phoenix server BIOS, board bring-up, errata patch, Microsoft HCT certification and prompt, high-quality release
* Enhancing U-Boot & troubleshooting PCI mezzanine cards based on PowerPC, booting Linux (Monta Vista)
* Designing and developing proprietary failsafe resiliency feature to recover corrupted bootloader firmware
* Solving a PowerPC CPU I2C bus hung limitation, by implementing a watchdog timer in FPGA to seamlessly recover
* Products worked on: PrPMC-270SL, cPCI-747/ 745/ 744