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PREM GANESH ELANGO

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PROFESSIONAL SUMMARY

Storage expert and Senior Software Development Engineer in Test with 13+ years of hands-on experience across NAND Flash, Apple storage drivers and Fibre Channel. Specialized in end-to-end storage qualification, including firmware, kernel drivers, OS storage stacks, and external storage ecosystems, with deep expertise in automation frameworks, data integrity, performance validation, and cross-layer debugging.

SKILLS

- NAND flash technology
- Apple storage drivers
- Fibre Channel storage
- PCIe and NVMe protocols
- SCSI and USB interfaces
- APFS file system
- Storage validation techniques
- Python automation frameworks
- CI/CD practices
- System debugging and cross-layer analysis
- Code coverage metrics
- SQL and NoSQL databases
- Version control with Git and GitHub
- Agile methodologies
- Software development lifecycle (SDLC)

PROFESSIONAL EXPERIENCE

Senior Software Development Engineer in Test / Apple *01/2023 - Current*

- **Storage Automation Ownership**: Lead the design and development of a scalable automation framework validating **NAND Flash and Apple storage drivers** across iPhone, iPad, Mac, Apple Watch, and Apple TV, ensuring **data integrity, performance, and reliability** at global scale.
- **Apple Storage Driver & Firmware Qualification**: Own quality validation for the **Apple storage driver stack**(AppleSDXC, IONVMeFamily, AppleAHCI, IOSCSIArchitectureModelFamily, IOUSBMassStorageFamily, IOStorageFamily), **Apple Storage Firmware (ASF)**, and **external storage devices**, through weekly regression and release qualification across watchOS, iOS, macOS, and tvOS.
- **Storage Performance Benchmarking**: Built and owned a storage performance benchmarking framework to run production-like workloads (QD sweeps, app launches, and file copy scenarios) to detect regressions and ensure internal NAND meets performance targets across new product releases, improving end-user experience.
- **Cross-Layer Debugging & Triage**: Debug and triage complex issues spanning **kernel drivers, firmware, APFS, OS storage stack, and hardware interfaces** (PCIe, NVMe, SCSI, USB) in close collaboration with Storage Technology and OS teams.
- **Code Coverage & Test Strategy**: Drive **code coverage analysis** to identify test gaps, prioritize validation efforts, and reduce release risk through data-driven quality engineering.
- Code Reviews & Technical Leadership: Conduct code reviews to enforce coding standards, improve maintainability, and catch potential defects early; mentor engineers, and contribute to design discussions.
- **Lab Tooling & Vendor Collaboration**: Build **lab automation and device management tools** to improve test throughput and device utilization, and partner with **NAND and storage vendors** to influence firmware and driver quality.

Senior Software Engineer in Test / Broadcom *10/2016 - 01/2023*

- Primarily involved in developing, maintaining, and supporting automation frameworks for Brocade Fiber Channel Switches. Work closely with QA team to develop automation tools and enhance testing standards.
- **Automation Frameworks for Fibre Channel Platforms**: Led the design, development, and long-term support of automation frameworks for Brocade Fibre Channel switches, including Gen 7 64G directors and extension switches used in enterprise, government, and financial sectors. Collaborated closely with QA and engineering teams to raise testing standards and improve release quality.
- **Process Optimization & Quality Improvements**: Identified gaps across validation workflows and testing processes, driving streamlining and standardization efforts that improved efficiency, consistency, and defect detection.
- **Device Utilization Monitoring Platform**: Played a key role in building an end-to-end device utilization monitoring system by automating access to engineering switches, collecting real-time utilization metrics, and storing them in a centralized database. Developed dashboards visualizing usage patterns, enabling data-driven business and engineering decisions and more efficient use of hardware resources.
- **Security Vulnerability Assessment & Risk Visibility**: Initiated and led a security vulnerability analysis effort, transforming raw security issue data into actionable insights. Designed a solution to map vulnerabilities to specific device owners, improving accountability and remediation timelines. Built risk dashboards to surface exposure trends and increase awareness at senior management levels.
- **Device Reservation & Resource Management System**: Independently designed and implemented a device reservation and management platform from scratch, enabling engineers to reserve, add, and manage shared hardware. Delivered dashboards providing organization-wide visibility into device usage, supporting hardware justification, decommissioning of underutilized devices, and cost optimization.

Automation Engineer / Hewlett Packard Enterprise (Micro Focus) *05/2016 - 08/2016*

- Designed and developed automation scripts using QFTest and Jython for ArcSight- Enterprise Security Management a solution for real-time intelligent identification, prioritization and network response to external security attacks, insider threats and compliance breaches.

Test Engineer / HCL *10/2012 - 03/2016*

- Responsible for command line and Web based testing including GUI Testing, Regression Testing, Integration Testing, System Testing, Performance Testing, Stress Testing, Functional Testing and Unit Testing for features supported by Brocade's Web Tools Application.
- Handled critical features in Element Manager such as Firmware Download, Zoning, Performance Monitoring, Name Server, Security Policies, Access Gateway, and High Availability in supported protocols like FC, FCIP.
- Worked on different security-based access control to switches, which includes RBAC, AAA (TACACS+, RADIUS, LDAP), IPv4/IPv6 Access Control List, Authentication and SCC policies in single and multi-switch Fabric.

EDUCATION

Data Analysis and Visualization Boot Camp *05/2019*
UC Berkeley Extension

Bachelor's: information technology *05/2012*
Sastra University