**Sandeep Raibagkar**

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**512-649-4765– New Jersey – USA**

**PROFESSIONAL SUMMARY**

* Over 15 years of experience in implementation, testing, development, analysis, and support across HP ESSN (Enterprise Storage, Server, and Networking), Embedded Systems, and the Banking, Investment, and Finance domains, specializing in Systems Software, Systems Testing, Server Validation, and Hardware Validation.
* In-depth knowledge of HP Servers and Storage (DAS and SAN).
* Extensive hands-on experience in developing standalone applications and automating test cases using C, C++, Shell, Perl, and Python on Unix/Linux and Windows platforms (Windows 2008, Windows 2012, VMware).
* Expertise in Unix Shell, Python, object-oriented programming, data structures, application support, system analysis, and business analysis.
* Proficient in Unix/Linux System Programming, Embedded operating systems, and Embedded Linux.
* Working knowledge of network protocols including TCP/IP, UDP, PCIe, UART, SPI, I2C, I3C, CAN, Ethernet, and MQTT, along with familiarity with Microservices.
* Experienced in building test scripts and automating batch file executions.
* Skilled in creating and managing test bed setups, configuring servers for testing, and performing validation, verification, and qualification of server components (e.g., system hardware, drives, NIC, CPU).
* Expertise in troubleshooting and resolving customer issues, performing root cause analysis, and replicating customer environments to fix defects.
* Hands-on experience in testing and qualifying server components, such as storage disks (SAS/SATA/NVMe), CPUs, and network controllers.
* Proficient in configuring OS environments, including Linux, Windows, and VMware.
* Strong knowledge of TCP/IP, LAN, VLAN, OSPF, RIP, DHCP, DNS, FTP, and Active Directory.
* Familiar with defect tracking systems, issue triaging, and debugging processes.
* Proficient in server operating systems, including CentOS, RHEL, SLES, VMware, and Windows.
* Experience with BIOS/UEFI, SMBIOS, ACPI, iLO, and BMC configurations.
* Familiar with server architecture and network controllers from various vendors in the market.
* Experienced in validating drivers and firmware for network controllers.
* Well-versed in validation methodologies, processes, and tools, with a strong background in both Waterfall and Agile testing methodologies.
* Expertise in Manual, Functional, and Integration testing.
* Skilled in reporting and logging issues found during testing and providing timely status updates.
* Regularly engaged with developers to explain defect causes, root issues, and failure points.
* Coordinated effectively with global teams across multiple locations.
* Strong background in implementing data and compute-intensive applications.
* Expertise in developing automation frameworks and tools, test design, and planning, with proficiency in Perl and Shell scripting.
* Experience in building Linux kernel modules and porting/migrating them across different environments.
* Capable of analyzing and troubleshooting component firmware and system-level testing for IoT and other devices.
* Familiar with network protocol analyzers and wireless Zigbee protocols.
* Experienced in board bring-up (e.g., Panda Board) and developing applications for embedded platforms.

**EDUCATION**

* Bachelors in **Electrical & Electronics Engineering**, VTU Karnataka, India

**TECHNICAL SKILLS**

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| **Operating System** | Windows 98/2000/XP/7, CentOS, RHEL, SLES, AIX, Ubuntu |
| **Languages** | C, C++, SQL, PL/SQL, Perl/Python/Shell Scripting, Unix Internals |
| **Tools** | GDB (GNU debugger), Make utility, LTP, GIT, GITHUB, SVN, Strace, KCDA, Wireshark, MS Visual Studio 2010, MapR, PCIe, I2C, SPI, JTAG, USB, Restful API, Jira and Confluence. Eclipse IDE, Jenkins, QEMU |
| **Database** | Oracle, RDBMS concepts and SQL queries |
| **Networking** | TCP/IP, ESXi, Virtualization, Vmware/Vsphere/Citrix Systems |
| **HP Storage** | HP Storage Servers G6 onwards, RAID Controllers, AWS, Microsoft Azure, Microsoft Hyper-V, Cloud |
| **Technology Worked** | DAS, SAN, OpenStack, Yocto distribution Linux |
| **MS Office Suite** | Word, Excel, PowerPoint and Visio |

**PROFESSIONAL EXPERIENCE**

**CLIENT: HPI, Jersey city, NJ Jan 24 – Current**

**Role: SENIOR SYSTEMS ENGINEER (Principal Staff Engineer)**

**Project: OCI LINUX Firmware Development and Firmware Testing, HPI**

**Responsibilities:**

* Designed, developed, tested, and maintained software and hardware systems that interface with device hardware components.
* Analyzed functionality with a focus on CFU (Component Firmware Update) states and log analysis.
* Designed, developed, and implemented C-based code following the CFU protocol to create applications that interact with hardware (USB devices like Fleetwood/Hendriks boards) for firmware deployment. The implementation covers multiple CFU stages, reading offer and payload data files to facilitate firmware upgrades and downgrades.
* Followed best practices and guidelines for development and testing across various CFU states.
* Conducted testing, verification, and validation of firmware upgrade/downgrade processes to ensure proper functionality.
* Developed test scripts in Shell/Python to validate firmware upgrades and downgrades for Fleetwood and Hendriks boards.
* The development environment incorporated GIT Source Code Management and JIRA defect management. Supporting software was written in C/C++.
* Development included simulation and device integration testing, and unit testing using CPUtest and OpMock. Debugging with JTAG, Lauderbach, and GDB.
* Worked with Agile software development process across local and remote cross functional teams. Development and simulation was done in Linux.
* Additionally, participated in documentation, code reviews, demos, and status updates.

**CLIENT CHARLES SCHWAB Aug 21 – Dec 2023**

**Role: SENIOR SYSTEMS ENGINEER**

**Project: DATA & REP TECHNOLOGY (DART) AND ANACONDA PLATFORM SUPPORT**

**Responsibilities:**

* Implemented a Linux-based enterprise Anaconda platform for Data Science and Machine Learning using Python 3.
* Supported Machine Learning projects in production environments, ensuring smooth deployment and operation.
* Deployed code to QA and Production environments for the DaRT application.
* Followed deployment and testing guidelines to process and transform metrics data collected in the HIVE database.
* Scheduled jobs for regular data updates, analyzing data across clusters to ensure accuracy.
* Developed Python scripts to automate platform support tasks, enhancing operational efficiency.
* Built and deployed Python packages using Conda for streamlined management of dependencies.
* Troubleshot and debugged customer issues, performing thorough testing and verification.
* Provided system administration and integration support to ensure platform stability and performance.
* Regularly updated the Project Manager on testing progress and status, ensuring alignment with project timelines.
* Actively participated in core team meetings to understand the design and implementation of BDE application and dashboard products.
* Monitored cluster data and executed scripts to create necessary databases, tables, and environments in both Team Space and App Space.
* Set up customer environments to reproduce and diagnose customer-reported issues.
* Collaborated with cloud and big data teams to provide Python-based solutions for data processing and analytics.
* Designed, installed, monitored, and maintained Citrix systems and their infrastructure components. Addressed technical issues, providing troubleshooting and support for Citrix systems in the environment.

**CLIENT: HPE – HOUSTON, TX (ONSITE) May 19 - June 2021**

**Role: SENIOR SYSTEMS ENGINEER (Principal Staff Engineer)**

**Project: Hyper Scale Linux Pro**

**Responsibilities:**

* Installed HP NexGen servers into racks and performed initial hardware setups.
* Tested, qualified, and managed server components within the data center to ensure optimal performance.
* Automated test cases for OS installation, test-tool execution, and validation of test scenarios.
* Conducted Proof of Concept (POC) testing for both new and existing customers, ensuring the overall product functionality meets expectations.
* Set up customer environments to reproduce and diagnose specific customer issues.
* Troubleshot and debugged customer-reported issues to ensure quick resolution.
* Provided system administration and integration support for seamless server operation.
* Updated server firmware, including the latest ROM, BIOS, iLO, BMC, storage, and network controller firmware, in line with HPE best practices.
* Configured DHCP and PXE servers to streamline network-based installations.
* Installed and configured servers with various operating systems based on project requirements.
* Performed rigorous testing and verification to validate issue resolution and system stability.
* Provided timely status updates to the HP Project Manager on testing progress and issue resolution.
* Participated in core team meetings to understand the design and implementation of NextGen HP products.

**CLIENT: HPE – FORT COLLINS, CO Feb 16 - Apr 2019**

**Role: SYSTEMS ENGINEER:**

**Project: OPEN HPI AND HPTE KERNEL SUPPORT**

**Responsibilities:**

* Monitored incoming defects reported by customers, HPE Level 3 support, and TPS QA, ensuring proper acceptance and acknowledgment in tracking systems.
* Investigated defects requiring expert-level debugging and kernel crash dump analysis, with a particular focus on Linux Kernel issues.
* Reviewed upstream Linux Kernel and Debian user space to identify potential fixes and improvements.
* Implemented fixes, including back-porting upstream changes, and verified their effectiveness.
* Developed and executed regression tests, integrating them into the HPTE test harness for continued validation.
* Worked on networking development, including TCP, SCTP, and network namespaces, to enhance network functionality.
* Designed and developed software components and scripts to support system operations.
* Maintained the proper operation of the SCSI stack to ensure storage system reliability.
* Provided ongoing support for Gen 8 and upcoming server releases, troubleshooting and ensuring smooth performance.
* Configured remote test setups for HPTE QA and validated test configurations in various environments.
* Contributed to test bed setup in the HP ESSN (Enterprise Storage, Server, and Networking) environment, ensuring proper infrastructure for testing.
* Validated the latest versions of QA stress test suites to ensure comprehensive testing coverage.
* Participated in client team meetings on-site and weekly coordination with the offshore team to ensure alignment on project goals.
* Developed and maintained comprehensive system documentation for ease of use and troubleshooting.
* Engaged in technical collaboration meetings to discuss project requirements, solutions, and improvements.

**CLIENT: HPE, Fort Collins, CO Dec 14 - Jan 2016**

**Role: SYSTEMS ENGINEER (Hardware Validation and Test Engineer)**

**Project: RMC (RECOVERY MANAGER CENTRAL)**

**Responsibilities:**

* Set up and configure test beds for various validation activities, ensuring they are ready for qualification testing.
* Automated and executed test cases using the RMC-developed tool in a SAN environment.
* Installed and deployed virtual machines (VMs), along with the necessary software and tools for integration.
* Conducted functional testing to validate and qualify the RMC product’s integration with different modules and vendor applications.
* Generated detailed reports documenting issues encountered during testing and provided solutions to resolve each of them.
* Validation of all requirements and open issues in you track
* Field issues root cause analysis and repro at system level
* Develop test report and arrange review meeting

**CLIENT: HPE / MPHASIS, INDIA Oct 12 - Nov 2014**

**Role: SYSTEMS ENGINEER.**

**Project: ATOMOS**

**Responsibilities:**

* Architected, designed, and developed a complete automation framework tool from the ground up.
* Developed the Atomos framework end-to-end, enabling the creation of test suites based on various user-defined options from the UI.
* Gained expertise in automation frameworks and tool development, test design and planning, as well as Perl and Shell scripting.
* Python, Scripting, Bash, and LabVIEW coding for validation testing.

**CLIENT: FISERV / SONATA SOFTWARE LTD, INDIA Mar 10 - Jul 2012**

**Role: SENIOR SOFTWARE ENGINEER**

**Project: GLOBAL INVESTMENT MANAGER**

**Responsibilities:**

* Developed design documents to address and resolve reported issues.
* Resolved both outstanding and newly reported issues across existing and newly developed modules.
* Prioritized reported issues and implemented fixes based on severity and impact.
* Developed a tool to assess the performance of the module.
* Tracked issues end-to-end using issue reporting tools like Quix/Bugzilla, ensuring timely closure of defects.
* Documented the entire process from reproducing defects to implementing and verifying fixes.
* Validated and tested fixes and enhancements to qualify updated modules.
* Generated detailed reports listing encountered issues and the corresponding fixes.
* Attended team and client meetings to discuss progress and collaborated with clients to provide timely solutions.

**CLIENT: FISERV / SONATA SOFTWARE LTD, INDIA Jun 08 - May 2010**

**Role: SENIOR SOFTWARE ENGINEER**

**Project: Performance Manager**

**Responsibilities:**

* Created design documents to outline solutions for each reported issue.
* Addressed both outstanding and incoming issues in existing and newly developed modules.
* Prioritized issues based on severity and impact, implementing fixes accordingly.
* Developed a tool to verify and assess the performance of the module.
* Designed, developed, and tested network software and applications for Confidential’s line of secure communications server products. Real-time systems software was written for Linux using C and C++. The applications level software also included development in Python and Java.
* Developed test software in Linux C++ for testing 5000 handsets with 500 simultaneous voice calls.
* Developed specialized voip software for General Dynamics and L3 Communications secure cell phones based on Windows Mobile / Windows CE. All software was written in C++.
* Managed end-to-end issue tracking using Quix/Bugzilla, ensuring defects were resolved and closed.
* Documented the entire process, from reproducing defects to implementing and validating fixes.
* Validated and tested fixes and enhancements to ensure modules met quality standards.
* Generated comprehensive reports detailing encountered issues and corresponding solutions.
* Participated in team and client meetings, collaborating with clients to provide timely and effective solutions.

**SENIOR ENGINEER: Various positions in India Jun 2007 – May 2008 Responsibilities:**

* Worked on analysis and testing applications/tools in banking domain.