# Robert Veeramani

52 Gil Nagar 2nd street, Apt#2B
Choolaimedu, Chennai 94
805-612-9847
robertacmepac@gmail.com


## Profile

Results-driven individual with Telecomm background desiring to bring engineering and telecommunication experience to a Software Development position.

## Skills

**Programming Skills:**

| | |
|---|---|
| ▫ TCL | ▫ C++ |

**Operating Systems:**

| | |
|---|---|
| ▫ Linux | ▫ Windows |

**Tools:**

SIPp, EXFO, NAVTEL, Spirent Abacus, Kamailio (SER), NAMEd (DNS), Wireshark, and Hammer Call Analyzer. Eclipse, BeyondCompare, ClearCase, JIRA, SVN, Sofffront, ClearQuest.

**Other Skills:**

SIP, VOIP, Transcoding, Regression, Automation, Scripting, GDB, Debugging, Functional+Performance+Capacity Testing, Linux, TCL, C++, Mentoring, Code::Blocks.
IMS, P-CSCF, I-CSCF, S-CSCF, DIAMETER, RADIUS, DNS, DNS-ALG, SBC, VoLTE, TCP, SCTP, TLS, SRTP, Legal Intercept, MSRP, ENUM, NAPTR, SRV, B2BUA, SIP Trunking.

## Professional Experience

**Software Developer 2, Oracle Corporation - Bedford, MA, February 2016 to January 2018**

- Surrogate-Agent defect: Surrogate Register requests were not going out of the SBC causing some major call flow failures. The issue had to do with a command getting dropped in the queue. Debugged and isolated the issue and provided a fix.
- Vodafone-Session Agent Group defect: The ENUM response did not match the Session-Agent FQDN configured by Vodafone. This was causing call failures. Debugged and identified the issue and provided a resolution.
- Debugged a deadlock issue using GDB. The issue was related to Registers and calls. The deadlock had to do with usage of un-scoped locks in a few 'SIP Register" processing functions. Identified the issue and resolved the problem by implementing Smart-Scoped Locks.
- Thread-safe: Logs were spilling out pipes and causing memory corruption. The issue turned out to be due to functions LogFile::Open and LogFile::Close not using locks, and as a result, there was no synchronization. Implemented pthread mutex lock and unlock, before and after the open/close operations on log files.
- Transcoding DSPs: Just before a major release, a critical bug was introduced into the code. Due to this bug, calls that did not have to be transcoded were taking the transcoding path and reserving DSPs. As a result, the overhead on the DSPs was overbearing, and system impact was huge. Debugged the issue and found that the clock-rate for non-fax codecs was incorrectly set causing the deviation in the code path. Provided a resolution by correctly setting the clock-rate for the audio codecs.
- Feature: -**mode-set transrating** for Adaptive Multirate codecs (AMR and AMR-WB). When the mode-set of the Adaptive Multirate codecs were intersecting, the code was taking the transcoding path and reserving DSPs. Some customers requested that based on the latest specs, transcoding was not actually required when the mode-set for Adaptive codecs were overlapping. Hence the RFE was to not reserve DSPs when mode-set was intersecting. Designed, developed, implemented the RFE. Unit tested and regression tested the code. Also built some automated test cases for the feature.

- Distributed Transcoding: -Found and resolved several Distributed Transcoding defects in the customer's site (AT&T, Telefonica). Also known as pooled transcoding. Single management SBC with a pool of transcoding SBCs.
- Feature: - **MSRP TCP Stitching Deprecation**. The new feature MSRP-B2BUA obsoleted the original stitching feature. Modified, removed and added new code to implement the requirements. Needed to add cases where some calls were to be rejected based on the new requirements for MSRP configuration. However, customers already using the feature were not be affected. Added code to ensure all these requirements were met, and also added unit tests and regression cases to test functionality.
- Debugged customer crashes using GDB and provided fixes.
- Resolved multiple customer escalations; explained to Professional Services (on-site Engineers) on how configuration needed to be modified in the case of a config issue or feature enhancement. Provided explanation of the defect fixes to customers.
- Lab admin for Service Provider Application team.

**Transcoding SQA Lead, Oracle Corporation - Bedford, MA, June 2013 to January 2016**

- Lead the Transcoding SQA group; trained Junior Engineers in the team.
- Played a key role in the reproduction of several critical customer bugs, and also automated tests that would expose these defects.
- Drove automation of features and created an automation test-bed for Transcoding testing and Development.
- Major Achievement: Transcoding of SRTP calls (including functional testing, capacity testing, and performance testing). Media over SRTP also requires SIP over TLS.
- Completely automated the entire testing of SRTP+TRANSCODING.
- Developed TCL based automation for several prominent Transcoding features:

| | | |
|---|---|---|
| ▪ Fax Transcoding. | ▪ Software Transcoding | ▪ Asymmetric Payload Type Mapping |

- Built test scripts for functional and performance testing of new codecs known as OPUS and SILK.
- Worked with both developers and product management to create test plans and ensure the quality of multiple features.
- Successfully completed all major projects on time despite many last-minute changes and revisions to the code.
- Served as the Transcoding lab admin: -installed Linux servers, configured D-Link, and extreme switches, created vlans for testing when previously, vlans were not used.
- Automated Transcoding Media tests using TCL interface in EXFO, which reduced testing cycle time by over 40% enabling quicker time to market.
- Provided configuration and call flow scenario to on-site Engineer at the customer site for Fax Transcoding Feature. This helped close the deal and acquire the customer.

**Senior SQA Engineer, Acme Packet - Bedford, MA, October 2012 to June 2013**

- Lead the Transcoding Project for 4500. Developed an automation/regression harness for Transcoding Features.
- Lead the 6300 Transcoding Project: Created Test Plans, developed regression harness for 6300 transcoding, logged several release blockers, ported over 2000 regression test cases to the 6300 platform; this project was instrumental to being promoted to Team Lead.
- Debugging complex SIP hairpin call-flows, script issues, SBC defects.
- Designed and developed EXFO/NAVTEL suites for DTMF Translation, Inband, SIP-INFO, and RFC2833.
- Incorporated automated DTMF verification of Transcoded+DTMF calls using EXFO/Navtel.
- Designed and developed TCL based automation suites for:

| | | |
|---|---|---|
| ▫ Pooled/Distributed Transcoding | ▫ Transcoded Hair-pinned Flows | ▫ EXFO Media for Transcoding |
| ▫ Lawful Intercept of Transcoded calls | P-Associated-URI -wildcarded PSI. | |

- Incorporated automated Media Verification of Transcoded Calls using EXFO/Navtel.
- Wrote test plans and developed detailed test matrices for all Transcoding combinations, and also automated 21 Transcoding combinations in the Codec Matrix.
- Emulated application servers, media servers to verify the proper functionality of the product.

- Worked with the tools team to scope and design the necessary infrastructure to improve the effectiveness of the automation harness allowing the regression to be more effective in the organization. Installed D-Link switches, extreme switches, Linux servers in Lab.

**SQA Engineer, Acme Packet - Burlington, MA, October 2007 to October 2012**

- Designed and developed TCL based automation for:

| | | |
|---|---|---|
| SIP over SCTP | DNS | SIP_REGISTRATION_VIA_PROXY |
| SIP over TCP | DNS-ALG | PER_USER_SUBSCRIBE_DIALOGS_LIMIT |
| SIP over TLS | SNMP | Hair-pinned Media Release |
| | DIAMETER | Multiple usages per dialog. |

- Developed automation for Hairpinned Calls that were routed through Application Server. This was a hole in the existing regressions.
- Developed performance testing requirements, test-plan, and designed and deployed test scheme and infrastructure.
- Worked with hardware and software developers along with professional services to determine the path for testing strategies.
- Worked on SIP, UDP, TCP, TLS, RTP, SRTP, and QoS.
- Used freeware tools like SIPp along with 3rd party tools such as the Exfo, Navtel and Spirent Abacus.
- Combined these tools with an internal test tool harness to provide feedback data to Tools development and ensure overall quality of the product. Provided feedback to Exfo to help them productize new features.

**QA Intern, BlueNote Networks Tewksbury MA - November 2006 to July 2007**

- Performance testing of BlueNote's Session-Suite software including SIP, TCP, TLS, RTP, conferencing, Session-Control(SIP), Session-Relay(RTP), Transcoding.
- Developed and executed Performance test plans.

**QA Intern, Alcatel Lucent, Chennai, INDIA – June 2006 to September 2006**

- Tested GVP-IPCS SIP Stack using Protos.
- Executed test plans.
- Functional testing of SIP server; call flow analysis; debugging of SIP signaling issues and call set-up issues; SIP inter-working.

## Education and Training

**Certificate**: **Computer Science**, December 2014, **Boston University**
Certificate in Computer Science + Operating System Masters Level supplemental course

**Masters: Electrical Engineering,** August 2007**, University of Massachusetts at Lowell**