

Curriculum Vitae

EXPERIENCE SUMMARY:

- Total (Software Industry) Experience: 19+ Years
- Nature of Work: Software Design and Development
- Last held Designation: Senior Manager – Engineering
- Currently working as **Professor of Practice** at the Department of Computer Science and Engineering, **RVITM**, Bengaluru, India; since November 2023.
- **Subjects Handled:** Introduction to Python Programming (BPLCK205B), Operating Systems (BSC303), NoSQL Database (21CS745), Internet of Things (18CS81), C# (21CSL582)
- **Pursuing PhD** (Part Time): USN - 1DT23PIS04, RC - DSATM

ORGANIZATIONS:

- Radisys India Private Ltd (MediaEngine, CPaaS): November2016 until April2022 (5yrs 5months)
- Zebra Technologies (earlier a **Motorola** company) – Enterprise WLAN Division: July2005 to November2016 (11+ years)
- **Hewlett-Packard** (STSD): Apr2004 to June2005 as a Software Engineer
- Vistech Info Pvt Ltd: July2003 to April2004 as a Member Associate

EDUCATION:

- B.E. Computer Science [VTU] - First Class with Distinction [APS College of Engineering, Bangalore, 1999 – 2003]
- Masters in Software Systems – BITS, Pilani [DLP 2007 – 2009]

SUMMARY:

- Able leader with strong interpersonal and communication skills. Experienced with Product, People and Customer responsibilities.
- Lead/Manage projects involving Web development, Web Services, Rest API, Automation framework development, Data Analytics, OpenStack, Networking, and Virtualization.
- Hands on experience with CI/CD enablement for projects/programs.
- Actively involved in hiring and building teams.
- Transitioned teams to Agile Delivery Model with measurable impact.
- Adept at cultivating product / technology vision & innovation. Lead ideas from conceptual phase to successful delivery.
- Expertise in concepts of end-to-end program planning & implementation which includes scope management, activity sequencing, risk analysis, quality management, roles, responsibilities, timelines, and resources.
- Managing diversified teams with different skills and projects with varied technologies. Playing the role of (SAFe) SM and RTE using Agile/Scrum methodology at the same time across different programs.
- Ability to adapt to dynamic change/needs of the project requirements by re-planning/prioritizing the cadences. Technically guide teams with alternate approaches in resolving the conflicts.
- Plan, execute and deliver multiple projects (different tracks) in parallel across releases which need day to day assessment and coordination with many stake holders.
- Handle project requirements and deliverables while communicating with Customer Support team and Customers simultaneously

SKILLS PROFILE:

- Platform : Linux
- Programming Language : C, nodejs, Python
- 3rd Party Tools : ALM, JIRA, Confluence
- Web Services : Restful API, JSON
- Web Technology : Django, HTML, JavaScript, CSS
- Database : mongodb
- Scripting : Shell, Perl
- Protocols : TCP/IP, UDP, Netflow, Capwap, LLDP, CDP, DHCP, SNMP
- Version Control : GitHub, SVN, Clearcase

PERSONAL INFORMATION:

- Date / Place of Birth : June 02, 1981. Bangalore, Karnataka, India
- Official email : sudheendrabs.rvitm@rvei.edu.in
- Aadhaar Number : 801121984359
- Voter ID : YER6226666
- Personal email : sudhibs@gmail.com
- Residence : #4, 6th 'A' Cross, Kothanur Village Main Road, Kothanur Dinne, J.P.Nagar 8th Phase, Bangalore – 560076.

WORK EXPERIENCE AT RADISYS AS (SENIOR) ENGINEERING MANAGER

Media-engine Management System

Multi-node management in an easy-to-use graphical tool. The MMS is a software solution that provides a consolidated view and management overlay for the collection of Radisys Media Server Network Elements (NEs) - deployed as Virtualized Network Functions (VNFs) or Physical Network Functions (PNFs) in an operator's network. The MMS enables end to end management of the Media Servers including instantiation, deletion, configuration management, monitoring alarms, and performance management. MMS auto-discovers Media Server instances as well as periodically monitors them for reachability, faulty conditions, and inventory management. The MMS leverages the same direct management interfaces that are available on the individual media servers. The MMS can also be coordinated with the VNF Manager which notifies the MMS to provide element management support for the new NEs or VNFs. The MMS supports standard fault-detection mechanism through SNMP interface to receive the notifications. These notifications include SNMP traps and event logs from the Media Servers. The MMS also uses the SNMP interface to fetch the statistics periodically from the Media Servers and presents this information with variety of visualization formats (Tabular or Graphical) in the Dashboard. Logging management, Admin Interface, Roll Based Authentication and Authorizations, HTTPs Security are also part of MMS.

Technologies and Tools used: Python, Django, Rest Framework, Tick Framework, Openstack, MySQL

My Role: RTE, SM, Architect, Assist team members in design, development, and support activities

License Manager

The LM allows the user to provision, update, revoke, audit, and view the MRF licenses. The LM supports both Elastic and Non-Elastic group of deployment. The Elastic group is applicable for cloud deployment. Each elastic group contains one or multiple license files. The licenses of an elastic group must have the same time and port limits with a unique elasticGroupName assigned by LM. The Non-Elastic group is applicable for standalone MRF and contains one license. The license of a non-Elastic group allows provisioning of a license file with a unique node-ID that is generated by Radisys. LM removes the tight coupling of physical node ID with the MediaServer license. Allows for the license to be redeployed to another physical or virtual server without a new license generated. Maintains a record of registered node and consumed licenses. Periodic audit of all licensed nodes. Critical for elasticity and recovery in cloud environments.

This project also included development of MRF License Agent Rest Framework for Licensing Feature using C for the MRF Product.

Technologies and Tools used: Python, Django, Rest Framework, MySQL

My Role: RTE, SM, Architect, Assist team members in design, development and support activities

Unified Management Platform

UMP is a unique product in industry which cuts across PNF & VNF based MRF and provides seamless life cycle management which includes Application, Virtual/Cloud Infra/OS upgrades, configuration & integration capabilities. It has greatly enhanced productivity & efficiency in terms of software rollouts, updates, patches, and configurations of MRF.

With the availability of centralized management tool for both legacy MRF and vMRF nodes, NOC and Network planning teams are strengthened towards achieving goals at further higher levels within stipulated timelines and with less or zero manual errors. Manageability of day-to-day operational activities have increased pace for number of activities (like compliance on regulatory and INFOSEC requirements, frequent operations and maintenance activities. Superintends, overall control and management for large number of existing legacy and virtualized network nodes yet expanding.

Technologies and Tools: Python, Django, ReactJS, PowerCLI, MySQL

My Role: RTE, SM, Architect, Assist team members in design and development activities

Media-Engine Resource Management and Automation Framework

The AM (Automation Manager) is an in-house developed automation system used primarily in load testing the Media Server line of products. Web based application to schedule, monitor, test, analyze logs, reports the test status, and archives the load tests. GUI for Test Configurations, Resource Configuration and Resource Management. GUI interface enables ease of use for scheduling, configuring, and reporting of the load tests. Upgrade and configure sw-tools and MRF as desired for test. Capable of storing historical results for reference. Automated capacity testing by iteratively running the test from estimated capacity then finds actual capacity.

Technologies and Tools: Python, Django, Pexpect, PHP, MySQL

My Role: SM, Architect, Assist team members in design, development, and support activities

Media-Engine Capacity data portal

Searching the capacity test results across the projects/platforms/A_V codec/clip in one go. Provides the scenario description of model. Auto Generates the Capacity Guide or filtered Capacity data on one click. Exports the results. Provides authentication for the user, by allowing only authorized users to login to the portal and view the data

Capacity tests and results review process via web application (GUI interface). A one-stop solution for multiple stakeholders to conduct the capacity review process. Actions taken are visible to all stakeholders. Shall aid in saving time by providing a common forum for all users. Role based access to the portal and for authorized users only. View access is open for all authorized users. Enables users to view the state/status of capacity execution. User can perform following operations (applicable as per the user role) : Login and Select the capacity tests to be run in a project. GUI interface with options allowing users to select/add/view/review capacity tests for a project. Selected tests can then be reviewed by PL/PLM/Architects provide comments/inputs desired for the tests. Once tests are reviewed and approved, AM team will pick it up for capacity execution. Once the execution is complete the test results can be reviewed online in the portal and then can be taken for completion or rerun for capacity. Users will also be able to view the state/status of capacity execution and process in the portal.

Technologies and Tools: Python, Django, Pexpect, PHP, MySQL

My Role: SM, Architect, Assist team members in design, development, and support activities

Media-Engine Media Resource Function

The MRF/IP media server is a fundamental element in an IP communications network, processing real-time audio and video media streams under the control of Application Servers (AS) in an IMS.

RTPG: RTP Traffic Generator is used for stress testing MRFs, which uses pre-encoded codec clips. Supports various audio, video codecs like EVS, AMR, AMR-WB, Opus, EVRC, PCMU, PCMA, H264, H263, MP4, VP8. Supports EVS codec with NB, WB, SWB bands, primary, AMR-WB IO modes, compact, header-full formats. Supports long duration and multiple outband DTMF digits in single packet based on RFC 4733. Supports 40ms, 60ms, 80ms packetization, Native RTP Redundancy based on RFC 4867, Generic RTP Redundancy based on RFC 2198 for AMR, AMR-WB codecs. Also, supports native redundancy with each redundant frame encoded at different bitrates

SIP Application Software: Generate various SIP call flows for testing MRFs. Supports various SIP contexts like sip:tc, sip:msml, sip:b2b, sip:conf, sip:monitor, sip:dialog (vxml), MSCML. Supports Continuous Presence Conference, Voice Activated Switching Conference, Lawful Intercept, B2BUA Early Media with forking, Keyword detection, Automated Speech Recognition, Text To Speech SIP Call flows.

Technologies: Linux, C, C++, SIP Protocol, RTP, RTCP, IPSEC

My Role: SM, Assist team members in design, development, and support activities

CPaaS Engage Video Assistant

EVA is an A/V/Text interactive bot for sales, marketing, and customer support engagement. The primary components of the solution include Intent Server (which understands the intent of user's questions and suggests possible answers), Ribbon SBC (which handles the incoming calls from the users), Call Application Server (which handles incoming calls from SBC and interacts with the Intent Server) and MRF (for processing media related functions like announcement, recording). Calls to the bot can be made from the native dialer of a mobile phone (that supports SIP/RTP) over a network (that supports VoLTE) and from web browsers.

SIP UE Simulator: an application developed for testing CAS primarily used for simulating SIP part of the UE (typically a mobile device supporting SIP). PJSIP used as base framework which provides APIs and callbacks for creating calls and handling SIP events. Supports both functional and stress testing. Call flows are written in YAML format using a proprietary scripting interface. Integrated with RTP Traffic Generator for simulating RTP part of the UE.

CAS Evaluation: As part of evaluating various open source and commercial Telephony Application Servers that supports SIP, a Video Analytics Application Server using Cipango SIP Servlets was developed for demonstrating the face and motion detection features in MRF.

Protocols/Standards Used: SIP, RTP, YAML, JSON, JSR309, MSML

- Back-end modules using Python on Django Web Framework
- Google/Azure Speech Simulators in Golang
- REST server simulators in Golang
- Django based application for solution capacity benchmarking

My Role: SM, Assist team members in design, development, and support activities

WORK EXPERIENCE AT ZEBRA TECHNOLOGIES

ZGuest : Scalable, Centralized CAPTIVE PORTAL solution purpose-built for Retail / Hospitality Guest access. Support multi-cluster WiNG deployments. Integrated guest management and Analytics. My Role: Lead plus Individual Contributor for the project.

Application Visibility and Zebra NSight Platform

The Deep Packet Inspection (DPI) engine embedded into WiNG OS examines every flow of every user at the access point, detecting and identifying thousands of applications in real time and reporting the information to the Zebra NSight platform. The result is real-time visibility and in-depth insight into every dimension of the network, including Layer-7 application visibility, client devices, device and OS types and users. At a glance, you can see the top applications by usage or by count at every level — from site to access points and client devices. In addition, your firewall and QOS policies can leverage the application context to enforce policies. With this intelligence, you can improve the overall performance of the WLAN network and protect workforce productivity by prioritizing business critical applications and blocking others based on the IT policy. My Role: Lead plus Individual Contributor. Though involved and hands-on with all the components of this vast feature, main component(s) I've worked on are statistics, monitoring and analytics. Nsight simulator for AVC which is essentially a web-application that runs on any general-purpose Linux PC.

NETFLOW for WiNG Devices

NetFlow services provide network administrators with access to IP flow information from their data networks. WiNG Devices gather flow data and export it to collectors. The collected data provides fine-grained metering for highly flexible and detailed resource usage accounting. Also, exported NetFlow data is used for a variety of purposes, including network monitoring, capacity planning etc. My Role: Lead plus Individual Contributor

DHCP Option 82 for WiNG Access Points

DHCP option 82 is called the Relay Agent Information option and is inserted by the DHCP relay agent when forwarding client-originated DHCP packets to a DHCP server. Servers recognizing the Relay Agent Information option use the information to implement IP address assignment policy. The DHCP Server echoes the option back verbatim to the relay agent in server-to-client replies. The relay agent strips the option before forwarding reply to the client.

My Role: Lead plus Individual Contributor

FIPS and CC Certifications for Wireless Switch [RFS7000] & Access Point [AP7131N]

Federal Information Processing Standard 140-2 (FIPS 140-2) is a standard that describes government requirements that hardware and software products should meet for Sensitive but Unclassified (SBU) use. The Common Criteria for Information Technology Security Evaluation, abbreviated "CC", defines a language for defining and evaluating information technology security systems and products. My Role: Tech Lead, Co-ordinator for this team (size of 8) plus individual contributor. Liaison with InfoGard lab for certification.

Discovery Protocols for Wireless Switch & Access Points

The Link Layer Discovery Protocol or LLDP is a vendor-neutral Layer 2 protocol that allows a network device to advertise its identity and capabilities on the local network. The protocol was formally ratified as IEEE standard 802.1AB-2005 in May 2005.

Cisco Discovery Protocol or CDP is a Media- and protocol-independent device-discovery protocol. Using CDP, a device can advertise its existence to other devices and receive information about other devices on the same LAN or on the remote side of a WAN. Runs on all media that support SNAP, including LANs, Frame Relay, and ATM media.

My Role: Individual contributor (Team Size: 1)

Licensing Mechanisms for WCCP

The enhanced redundancy/failover is achieved through Wireless Cluster Control Protocol – WCCP.

My Role: Individual contributor for the Max & Additive Licensing mechanisms.

Features as part of various Wireless-Switches, Access-Points & Access-Ports Releases

Good hands-on experience of Backend & CLI code with the below features:

Hotspot, Dhcp, Radius, Cell-Controller, Clustering, Upgrade/Downgrade, Audit logging, Dataplane, Digital- Certificates, VPN, SNMP & more.

OEM (original equipment manufacturer)

Framework and builds to rebrand; port the Motorola WiNG 4.3 releases for RFS-4000, RFS-6000, RFS-7000 and related AP7131N, ADP 51xx & LCAP software images as per Extreme's Requirements Specification.

Framework & builds to rebrand & port the Motorola WiNG 4.3 releases for RFS-4000, RFS-6000, RFS-7000 and related AP7131N, ADP 51xx & LCAP software images as per Brocade's Requirements Specification.

My Role: Tech Lead for this team (size of 4) plus individual contributor

Development of Multi-Core MIPS based symbol wireless switch on HP blade

A wireless switch based on multi core architecture (MIPS 64) with a control plane running SMP Linux kernel with other cores running proprietary RTOS. As an individual contributor, I was involved in all phases of design, development, Bug-Fixing & support till the end of the product delivery

Development of WS5120 symbol wireless switch on IBM e-series blade

IBM blade based wireless switch is developed with end-to-end redundancy for wireless network which supports multiple security features like WPA, EAP-TLS, Kerberos, etc. Involved in all phases of design, development, Bug-Fixing & support till the end of the product delivery. Platform: Monta Vista Linux. Programming Language: C, Shell Scripting

WORK EXPERIENCE AT HEWLETT-PACKARD**Storage Agents**

Involved in Development, Enhancements & Maintenance of Storage-Agents for Linux which is based on the SNMP architecture. Involved in integrating HP (Compaq) specific MIBs in the SIM (Systems Insight Manager).

Agent implementation for the HP (Compaq) specific MIBs for various features. Active participation in Linux-Drivers (cciss & cpqarray) Testing & Maintenance (cpqarray). Exposure to latest Storage Controllers & Storage Technologies.

Utility Data Center

The UDC provides the end users with compute resources on-demand, as and when required. This was possible due to the organization of the computing resources as a pool of free resources, instead of tying them up together. The Storage and the Networking was virtualized to a large extent. The granularity of the processing element was limited to the physical server level, even though the server was equipped with Symmetric Multi-Processors (SMP).

Gained experience in Product Build, Makefiles, Code Review Processes. Worked with a Large Codebase, CVS, Test-Automation Development - Enhancement & Maintenance. Additionally the TechTalk co-ordinator for the team.