

Balamurali Krishnan

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CAREER SUMMARY

- 15+ years of experience in Software development in Networking/Embedded/Telecom/Linux
- Master of Science in Software Systems, BITS Pilani with 8.3 CGPA
- Experience in Leading and driving teams to achieve targets with high quality.

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TECHNICAL SKILL SET

NETWORKING (L2/L3)

LINUX KERNEL,

BSP,

WLAN,

EMBEDDED,

FIRMWARE,

PCIE,

ARM,

ETHERNET,

LINUX DEVICE DRIVERS

SoC,

SEMI CONDUCTORS,

EEPROM,

ACCESS POINTS,

802.2,

802.3,

802.11,

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ISDN,SS7

TCP/IP,

VOIP

SIP

RTP

RTOS,

PACKET SWITCHING/FORWARDING

CONTROL PLANE/DATA PLANE

PROGRAMMING LANGUAGES :

- **C, C++ ,Java,python**

KEY SKILLS in COMPUTER SCIENCE:

- **Algorithms, Data Structures**
- **Advanced Computer Architecture**
- **x86,ARM**
- **Distributed Computing**
- **Parallel Computing**

VIRTUALIZATION

- **VMWARE ESXi 6.5, QEMU**

OPERATING SYSTEMS

- **Linux Kernel , Windows ,VMWare ESXi , RTOS**

CHIP

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- **Broadcom Netxtreme Ethernet Cards (10G/50G/100G)**
- **Qualcomm ipq 8074 SOC for Wireless**
- **Cisco Access points, Wireless controllers**

DEBUGGERS

- **kdump**
- **GDB, Visual Studio**

VERSION CONTROL

- **Git, ClearCase**

TOOLS

- **Code coverage, Satic Analyzers, Profilers, valgrind**

EXPERIENCE

Organization	Designation	Duration
VVDN Technonolgies Pvt Ltd	Senior Principal Engineer	Dec 2022 -
EmbedUR systems pvt Ltd	Senior Staff	Apr 2022-Sep 2022
Tally Solutions Pvt Ltd	Engineering Manager	May 2020-Sep 2020
Broadcom India Pvt Ltd	Principal Engineer	May 2013 – Dec2018
Verizon Data Services India Pvt. Ltd.	Specialist – System Development	May 2010 – May 2013
Alcatel Development India Pvt. Ltd.	Senior Software Engineer	April 2005 – March 2010
Future Software Pvt. Ltd.	Software Engineer	June 2004 – April 2005

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PROJECTS

Period	Dec 2022 to Current VVDN Technologies Pvt Ltd
Position	Senior Principal Engineer
Projects	Netgear Access Points
Technology	C, Linux,BSP, openWRT,Qualcomm IPQ 8074, WIFI 6,WIFI 7
Work Area	Wlan Driver,Linux Kernel, Wifi6, Wifi7 Firmware ,uBoot

Period	April 2022 to Sep 2022 (EmbedUR India Pvt Ltd) – client Ruckus
Position	Senior Staff
Projects	Ruckus R760/R560 Access Points
Technology	C, Linux,BSP, openWRT,Qualcomm IPQ 8074
Work Area	Board Bringup, Ethernet Driver, wlan Driver,Linux Kernel, 802.11 ax, Wifi6, Firmware ,uBoot, Ethernet driver,kernel porting

Period	April 2022 to Present (EmbedUR India Pvt Ltd) – client Cisco
Position	Senior Staff
Projects	Cisco Access Points , sBluetooth LowEnergy
Technology	C, Linux, openWRT, BLE, Cisco AP, Wireless Controller,TI cc2640
Work Area	Implementing Silabs Bluetooth driver along with TI chipset.

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Period	May 2020 to Sep2020 (Tally Solutions Pvt Ltd)
Position	Engineering Manager
Projects	New generation of Tally product
Technology	C++,Java, C, Linux,Windows,DataBase design
Responsibilities	<ul style="list-style-type: none">-Leading/Managing a team of 10 Engineers effectively and hands on in design and development of Tally customized DataBase which is designed for high reliability, scalability and availability and supports extensive features to support Tally applications in premise or backend.-Involved in software requirements phase, design,architecture and development of the module-Collaborate and plan with the other module owners for meeting the customer requirements effectively.

Period	May 2013 to Dec2018 (Broadcom India Pvt Ltd)
Position	Principal Engineer – Software Systems
Projects	(NetXtreme 1g and 10g and 50/100 g), Ethernet Device Driver, Firmware
Technology	C, LinuxKernel, VMware, Windows, Ethernet Controller,Ethernet Device driver, embedded, Fastpath Switching/Routing,802.3, EEPROM

Responsibilities	<p>1</p> <p>Experience in development of PCIe based Ethernet Driver and other Kernel mode components for Mezzanine/Stand Up/LOM Ethernet controllers for 10/25/50/100Gbps enterprise and cloud-based network adapters.</p> <ul style="list-style-type: none">• Real-time operations and the Linux kernel optimizations for the control and data plane and work on isolation of cores.• Dealing with legacy software/drivers and mixed-endian issues in the networking field.• Worked on tools such as Performance counters in 'user space'.• Virtualization support with considerations for real-time performance, I/O optimization, robustness and heterogeneous operating environments on multi-core SoCs.• development, maintenance, enhancement and bug fixing for NIC drivers for 10G/40G/100G/200G converged Network adapters for Linux OS• Supported ESXi (VMWare)/Linux/Windows Application development teams to test and bug fix in NIC management tools,Firmware upgrade tools• ESXi NIC Configuration Tool: Developed a management application tool to set and get various high end parameters e.g. Link speed/duplex, EEE, DCB, NVM, FEC etc.• Worked with internal PQA team for reproducing and revalidating several driver bugs in Broadcom NICs', high speed NIC and visrtualizations features like LRO, SR-IOV, VxLAN, Geneve, DCB, FW dump, NPAR etc.• Have good knowledge about internals of Linux L2 driver bnxt_en for Broadcom NIC product line. <p>2 Broadcom Fastpath Switching/Routing software</p> <p>Involved in the development of routing functionalities in the Broadcom Fastpath software. Worked on OSPF,RIP,VRRP,DHCP,VLAN,TCP/IP.</p>
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Period	May 2010 to May 2013 (Verizon Data Services)
Position	Specialist – System Development
Project	International Community for Information Systems (Verizon Network Surveillance)
Technology	IBM AIX, Linux, C++, Java, Oracle 9i, NMS, SIP, SNMP, SSL, IpSec
Responsibilities	<p>Leading a team of 6 Engineers effectively in the Network Surveillance project and also an individual contributor.</p> <p>Analysis of Voice over IP and TDM call traffic patterns to proactively recognize customer-impacting problems that are recognized reactively today. It is used to effectively research call failures and failure patterns to resolve problems in networks and improve its performance. Development involves both in server (C++) side and client (Java).</p> <ul style="list-style-type: none">- Designed SCIP (SIP carrier Inter-connect Points) projects for both Domestic and International Verizon Network.- Designed Network Monitoring software for DANTEL data centers.- Designed Network Surveillance project for new SONUS Gateway deployment for APAC and EMEA regions.- Designed Network Surveillance project for new AXE and ENGINE Gateway deployment for United States International Traffic.- Involved in Requirement Analysis, Design, Development, Testing and Production Support .

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Period	June 2007 to March 2010 (Alcatel-Lucent India)
Position	Senior Software Engineer
Project	Alcatel-Lucent OmniPCX Office CallServer (4400 - PBX)
Technology	Linux, SunSolaris, C, Java,Q.931,ISDN
Responsibilities/Roles	<p>The Call Server provides all core call features to the subscribers. Both local and external calls are handled by this module. This module provides call interface to VOIP module. Analog, ISDN, VOIP calls are also handled by the call server. It also includes features like phone set programming, hunting groups, attendants etc.</p> <ul style="list-style-type: none">- Development and Maintenance of new requirements in CallServer in the PBX- Development involves in the configuration tool which is implemented in Java.- Implementation of new state machines for new call scenarios.- Decoding and analyzing Q.931 messages.

Period	April 2005 to March 2010 (Alcatel-Lucent India)
Position	Senior Software Engineer
Project	VoiceOver IP in Alcatel OmniPCX Enterprise (4400 - PBX)
Technology	Linux, RTLinux,SunSolaris,C++,C, VoIP,SIP,RTP
Responsibilities	The PBX 4400 has a VoIP module which has a SIP stack. This VoIP module is responsible for all the IP call facilities provided in the PBX like

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	<p>Multi party Conference, Transfer, Call Forwarding, Dynamic Routing, Attendant call etc.</p> <ul style="list-style-type: none">- Development and Maintenance of new VoIP requirements in relation to the CallServer Features for the PBX- Implementation of new state machines for new call scenarios.- Expertise in handling packet capture tools like Wireshark for analyzing SIP and RTP packet flows.
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Period	April 2005 to March 2010 (Alcatel-Lucent India)
Position	Senior Software Engineer
Project	CSTA protocol – Computer Telephony Integration (CTI) and OTS (Open Telephony Server) in Alcatel OmniPCX Office (4200 - PBX)
Technology	Linux, RTLinux, SunSolaris, C++,Computer Telephony Integration/CSTA
Responsibilities	<p>CSTA is an abstraction layer for telecommunications applications. It is independent of underlying protocols. It has a telephone device model that enables CTI applications to work with a wide range of telephone devices. The core of CSTA is a normalized Call Control model. Additional to the core there are other Call Associated and Physical Device features.</p> <ul style="list-style-type: none">- Maintain / enhance new features for enhanced telephony services like Call management (in-conversation features like transfer, conference etc), phone set management (nomadic, call forwarding, call log management, phonebook access, voicemail notification through e-mail etc...). This includes designing new state automations and fixing critical anomalies

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	<p>in CSTA / OTS.</p> <ul style="list-style-type: none">- Handled all crash issues during OXO release R800. fixed all crashes involving new NPTL thread libraries, glib++, memory management services in OTS due to change of processor from Intel to PowerPC (Linux kernel from 2.4 to 2.6).
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Period	June 2004 to April 2005 (FutureSoft Pvt. Ltd. (ARICENT))
Position	Software Engineer Trainee
Project	Protocol Analyzer in Network Monitoring Software.(Fastnet)
Technology	Linux,Windows,C++,VC++,LAN,ATM,Protocol Analyzer/SIP,H.323,COPS
Responsibilities	<p>The Fastnet software monitors LAN/WAN/ATM traffic and generates various kinds of statistical reports. Fastnet LAN probes enable users to maximize the performance of their LAN.</p> <p>Solutions are provided for : Half Duplex 10/100 Ethernet, Token Ring, Full Duplex 10/100 Ethernet and Gigabit Ethernet. Fastnet WAN probes monitor the performance of strategic WAN links that carry business critical applications.</p> <ul style="list-style-type: none">- Involved in enhancement of System analysis and decoding VOIP protocols for Fastnet like H.323,SIP,COPS- Neutralizing bugs in release code and delivering SRS,HLD,LLD,STP and ITP for specified requirements.

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ACADEMICS

M.S Software Systems from BITS, Pilani – 2009-10. With **8.3 CGPA**

BTECH IT from Madras University – 2000 – 2004 with **83.3%**

Higher Secondary from Ebenezer Marcus Matriculation higher sec school **with 95.25%**