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CURRICULUM VITAE

Objective:

I am looking for challenging & emerging market perspective opportunities for a suitable permanent role in your organization with my expertise as an **Architect/Technical Manager/Developer/Data Scientist** in IT Industry.

Current Role Description: Architect and Developer

I am totally having **19+ years of Work Experience** with relevance of 19 Years in IT Industry in Network and Telecom.

Telecom(2G/3G/4G/5G/V2X),

Wireless (802.11b/g/n/ac/ad, WIFI-6, WIFI-7),

Wireline (OSPF/RIP/BGP/ISIS/STP/RSTP/MSTP/MPLS/GPON/RPR Ring, QoS, IoT, edge cloud, Microservices, Docker, Kubernetes, AI and Machine learning),

Cybersecurity, DevOPS, M2M, SDN/NFV, Edge cloud (AWS/Azure), IoT, Machine learning, Microservices, Docker, Kubernetes, AI , Cognitive engine, Railway signaling and storage protocols (SAN/NAS/ISCSI) with Embedded/IOT Firmware Driver Applications. Exposure to various OEM Equipment and Manufacture Vendors on their Support, Testing and Development activities, and demonstrated in various Individual &Functional Roles.

Aspired Role Description: Sr.Technical Architect and Developer/Technical Manager/DevOps Lead.

Experience Summary:
- 19+ years of experience in L2, L3, wireless PROTOCOL and railways signaling Development.
- Strong debugging and troubleshooting skills.
- Hold EU blue card and resident permit of EU, authorized to work across Europe.
- Strong in all Routing protocol (OSPF, IS-IS,BGP,RIP),L2   protocol(CSMA,STP,RSTP,MSTP),TCP/IP Stack.
- Strong in all WIFI protocol standard (802.11XX) & WIFI6.
- Strong experience on 4G/5G development.
- Strong experience on ORAN(Open RAN) development.
- Development of NTN-NR , NTN-LTE, NTN-NBIoT features.
- Strong experience with RF design and Development.
- Strong experience on LiDAR development of Deep learning AI module.
- Spatial data, Machine Learning, Deep Learning, Data Science, Big Data Technologies and AI Infrastructure and Tools.
- Hands-on experience and advanced knowledge of AWS DataOps (i.e. IAM, Lambda, Step Functions, EMR/Glue and DynamoDB)
- Hands-on experience and advanced knowledge of SQL/Non-Relational Data Modeling.
- Good experience in Apache NiFi.
- Experience working with data streaming technologies (Kafka, Spark Streaming, etc.)
- Strong Experience on Network processor (Cavium Octeon or Nitrox, EZChip,Broadcom).
- Good exposure in IPv6 protocols.
- Good understanding of VoIP stack.
- Good experience in NORSOK(Cenelec), ATEX, SIL4.
- Good experience in Sélénium, WEBUI, LUA.
- Strong DevOps and Kubernetes experience.
- Strong experience in azure and AWS cloud experience.
- Strong experience in microservices, AI and Machine learning.
- Development of SDV (Software Defined Vehicle)/V2X stack.
- Development of all L2/L3 protocols for IPv6 support.
- Good in cloud computing development.
- Development of SDN/NFV stack on AT & T platform.
- Development of network security protocols (IPSec,VPNs,SSL,TLS,Application Transparent Transport Layer Security, Kerberos,OSPF authentication,SNMPv3)
- Working Knowledge of cybersecurity standards ISO 2700X and IEC 62443.
- Development of IOT and M2M solution and Machine learning on ISS stack.
- Development of IOT(Connected car, M2X, V2X) solution on ISS stack.
- Development of docker and cloud container solution on ISS stack.
- Development of Open source and contribution in SONiC community.
- Development on the Mellanox, Broadcom and Marvell chipset.
- Good in Avaya interaction center application.
- Good in Avaya contact center control manager.
- Good in Avaya workforce optimization.
- Good knowledge in AVP call flow and integration.

- Good in DPI development on IPOQUE products.
- Strong programming skills using C in network protocols/algorithm development.
- Experience in ARM Cavium core and Board support packages|(BSP) development.
- Strong in Access point stack development.
- In-depth knowledge in network protocols and networking, esp. routing/signaling/transport protocols.
- Strong experience on Layer2 and Layer3 Development.
- Expertise in Layer2 Protocols (ie, ATM, Ethernet)
- Expertise in Layer3 Protocols (IP4, IPv6, RIP, IGMP, ICMP, OSPF)
- Good knowledge/experience in functionalities like Multicast
- Experience in GMPLS/MPLS/QoS.
- Experience in TCP/IP stack.
- Experience in GPON/RPR RING stack.
- Experience in 2G,3G,4G,5G, WIFI (802.11a,802.11 b/g/n, 802.11 ac,802.11ad).
- Experience/Knowledge on intel, Broadcom ,Marvell and Mellanox platform
- Strong programming experience in C/Linux
- Experience in Linux user space programming IPC, process handling, file systems
- Strong experience on network protocol design/implementation/evaluation/analysis.
- Strong analytic/simulation skills on network protocols
- Strong skills and experience for research and development in networking.
- Protocols: TCP/IP suite, IPX, MPLS, RPR RING, GPON, QoS, WLAN and source route bridging.
- Network General Sniffer, router packet capture and similar troubleshooting tools.
- Highly experienced with full-cycle of software and hardware development.
- Experience in technology transfer to commercial product
- Very strong experience in AT&T and Verizon conformance test packages development and testing.
- Very strong in LTE IOT, WCDMA IOT and GSM IOT packages testing and development.
- Very strong in IMS testing (conformance, operator and R&D) packages.
- Very strong in IMS R&D packages development.
- Very strong in WIFI OFFLOADING packages Testing.
- Very strong in WIFI OFFLOADING packages development.
- Very strong in LBS testing (conformance, operator and R&D) packages.
- Very strong in TTCN2 and TTCN3.
- Very strong experience in raising PR and resolving PR.
- Very strong experience in test case development on R&S, Anristu and Agilent products.
- Having good experience on regression and sanity testing on Samsung, qualcomm and INTEL modem.
- Holding valid German national VISA.
- Holding PR for Netherlands.
- Holding VISA for Hungary & Austria.
- Strong programming skills using C/C++ in network and telecom protocols/algorithm development.
- In-depth knowledge in telecomm and network protocols and networking, esp. routing/signaling/transport protocols.
- Strong experience on WIGIG development.
- Strong experience on GSM, UMTS, CDMA, HSPA+, HSDPA, HSUPA and SOFTAP.
- Strong experience on Call box R&S CMW-500, R&S CMU-200, R&S CRTU.
- Strong experience on Call box Agilent 8960 and Agilent PXT.
- Strong experience on Call box ANIRISTU-8430A.
- Strong experience on Call box Aeroflex 7131N.
- Strong experience on AMARISOFT test equipment.
- Strong experience on IMS module and test case development on R&S CMW-500.
- Strong experience on Qualcomm Modem chipset MDM9600, MDM9200, MPSS8960(717,713,Sprint),MPSS8930(717,713),Window 8 mobile, Strider, SOFTAP.
- Strong experience on Qualcomm Tools QXDM, QPST, QMICM, test pro, CMAPI, QCAT.
- Strong experience of Test case development on R&S CMW-500 and Agilent PXT call box.
- Strong experience of IRAT Test case development on R&S CMW-500 and ANIRISTU-8430A.
- Strong experience of LTE Advance Test case development on R&S CMW-500.
- Strong experience of ANIRISTU-8430A RTD environment and R&S MLAPI/LLAPI environment.
- Strong experience of IPERF, FTP, RNDIS, TETHEARD throughput for QUALCOMM chipset.
- Strong experience on telecomm and network protocol design/implementation/evaluation/analysis.
- Strong analytic/simulation skills on network protocols
- Good in railway domain, railway signalling and rolling stock.

Technology Experiences

Architecture & Framework	**CISCO PLATFORMS**(IOS, IOS XR QNX RTOS R&S Layer 2 & 3 Protocols& Applications) **Nokia, SONY &Bridge Co**(OSSO MAEMO, AV Streaming various hardware & Software Interfaces with player SDK using QT GUI) **Huawei A&S Product Lines**(SCG, SDP, DPI, PCRF with SIP protocols, IMS on ATCA) **Lucent Optical Networks**(FCAPS Implementation, OSS/BSS, AAA, TCP/IP Convergence) **Lucent Wireless Technologies**(BRAS protocols with OAM&P Features) **NORTEL SWITCHING & ROUTERS**(Layer 2 & 3 Wire line Services with ATM & Frame relay) **TRILLIUM TAPA, FT/HA, DFT-HA**(SS7, SIP, VOIP, GSM, UTRAN, OAM&P, FT/HA) **Intel Network Processor** (Control, Data and Management Plane Application Services)
Software & Packages	**Languages: -** C, C++, Data Structure **Scripting: -** Shell script, Python, Perl, TCL **Middleware –**QT SDK, Gstreamer, XML,SOAP, WSDL, Tuxedo, Security – Cryptography & SSL **Database: -** Oracle, Sql **OS & Internals: -** Linux Device Drivers, Ubuntu. **RTOS: -** vXWorks, QNX, CISCO IOS, Firmware Development and Kernel Programming **Networking: -** TCP/IP, HTTP, RTP, Client/Server, Diameter, AAA, Radius, and Parsers **Wireless:2G,3G,4G, WIFI(802.11a,802.11 b/g/n, 802.11 ac,802.11ad)** **Datacom: -**L3 Routing Protocols and L2 Protocols **Railway Domain: -** Railway Signaling, ERTMS, EVC, RBC, IXL.
Hardware / Processor	Intel processor IXP1200/2400, Motorola PowerPC, ARM, Cavium econa,Atmel AVR
Development/Testing/Automation/Tools	**Development IDEs**(Linux, Visual Studio, VXWorks Work Bench and Visual Paradigm) **Configuration Management**(Clearcase,DOORS,VSS), **Defect Management**(remedy, Bugzilla), **Memory Leak**(Insure, Purify),Static Analyzers(Gmock, Gtest, CPPunit, Junit, Eclipse Plug-ins),**Protocol Analyzer**(K1297, K1197, catapult, Wire Shark) , **Traffic Generator** (Net Flow, CISCO preparatory), **Design** (UML, MS VISIO), **Test Automation Tools** (Test Harness, PERL, Python, TTCN), VMware Client Application and Tools, CodedUI` and Selenium Tools (Integration Tools)

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Key Competencies & Skills

Skills (Key Competencies)	Proficiency	Experience (in Yrs)
C /C++, Data Structure, Unix Internals	Expert	19+
Railway signaling	Expert	19+
AI/ML, Data Science, DevOps, AWS, Azure	Expert	19+
UNIX- Linux, Ubuntu	Expert	19+
Automation Testing, Traffic Generator, Load Runner, Analyzer	Expert	19+
Wireless/WLAN Protocols/IP Routing/LTE Call Flows/UTRAN/GSM/SS7	Expert	19+
RTOS - VXWorks, Linux Device Driver , Thread-X and QNX	Expert	19+

BSP, Boot Loader, Firmware, I2C, SPI, UART, USB,Apple IOS, Device Drivers	Expert	19+
IP Routing, Datacom, Networking, AI, Machine Learning, Microservices, Kafka, 5G, WiFI , Wireless.	Expert	19+
Agile and Continuous Integration	Expert	19+
Embedded Systems Design and Development Process	Expert	19+
Network Security and cybersecurity	Expert	19+
Project Planning, Estimations and All other Techniques	Expert	19+
OSS/BSS/VAS/NMS/EMS/IMS	Expert	19+
Network Processor, Control Path, Data Path , Fast Ethernet Processing	Expert	19+
UPNP/DLNA, Audio & Video Firmware, Home Automations	Expert	19+

Employment Summary

Dates	Organization	Role
Aug 2014 – Till date	Vantiva, Spain	Architect
July 2012 – Aug 2014	Rohde and Schwarz, Germany	Senior Technical Lead
May 2011 – July 2012	TCS , USA	Technical Analyst
Aug 2010 – Mar-2011	HCL Technologies, USA	lead Engineer
Jan 2007 – 31st July 2010	BINSOFT Techno solution, USA	Software Engineer

Education Summary

Degree and Date	Institute	Major and Specialization
MTECH	Bharath university, Chennai	Digital communication & Networking
Bachelor of Engineering	The institution of engineers	Electronic and communication engineering
Xilinx certification	Xilinx Inc., Bangalore	Xilinx-ISE, IPCORE,IBERT,Modelsim
IMS,LTE,LBS,WIGIG certification	Rohde and Schwarz Munich	IMS,LTE,LBS,WIGIG
CCNA, Certification	Cisco	CCNA
Mobile world congress	MWC 2014	WIFI OFFLOADING
PMP certification	2016	Project management.

PROJECT EXPERIENCE(s)

CURRENT PROJECT: -

Project	Next generation of micro data center development
Description	Micro Data Centres develops compact, high performance, reliable edge-to-edge infrastructures (hardware and software) and edge native services to support your big data and AI processing on premise, while protecting your data, meta data and AI models. An on-premises mesh of Edge Micro Data centres (EMDC's) embedded in your edge will act as a highly interactive, scalable and context-driven infrastructure that self-heals, scales up and down, authenticates and authorises devices, users and tenants and detects and isolates anomaly behaviour at your Edge. Our software built from open-source modules, has high levels of automation and AI built-in for declarative deployment and management of edge services and applications, increased flexibility for assigning functions and application components to EMDC hardware, improved operational efficiencies resulting from common automation and operating procedures and reduced power usage by placing workloads intelligently and powering down unused hardware.
Type	Development
Role	Architect
Team Size	12
Technology	AWS, Azure, GCP, Docker, Kubernetes, PyTorch, LightGBM, CatBoost, LLM,Scikit-learn, MLflow,Kafka,SDN, NFV, OVF, Aoache NiFi, Docker,Orchestration, Container, Microservices, Kubernetes, cloud, Open stack,5G/6G,WIFI6/7,V2X,DevOps,AWS,Azure,LiDAR(AI),Open source stack, NORSOK(Cenelec), ATEX, NTN-NR , NTN-LTE, NTN-NBIoT.

- Working as Architect/Developer/Data Scientist.
- Deep understanding of Classical ML, DL, and NLP techniques.
- Familiarity with SOTA models and approaches in ML, DL, and NLP.
- Experience with data processing and ETL processes.
- Familiarity with data pipeline and workflow management tools (e.g., Prefect, Apache Airflow).
- Implementation of use cases with a focus on data analytics (incl. data-driven customer interaction, CDP, data-driven marketing), AI (incl. GenAI).
- Implementation knowledge in a range of AI techniques (e.g. GenAI, supervised and un-supervised machine learning techniques, deep learning, graph data analytics, statistical analysis, time series, geospatial, NLP, sentiment analysis, pattern detection, etc.).
- Good experience in MLOps.
- Good experience in LLM.
- Good experience in Apache NiFi.
- Design and Implementation of test improvements in chatbot functionality.
- Development of Data science and AI/ML stack.
- Development of unified stack for heterogeneous system.
- Development of cognitive engine for micro data center.
- Development of SDV (Software Defined Vehicle)/V2X stack.
- Implementation of ADAS (Advanced Driver Assistance Systems) features.
- Development of telecom stack(4G/5G) for edge cloud.
- Development of RF layer and physical layer.
- Development of NTN-NR, NTN-LTE, NTN-NBIoT features.
- Development of Layer2(STP, RSTP, MSTP) and Layer 3(OSPF, BGP, ISIS) protocols.

- Development of short range communication protocols (Bluetooth) & GPS.
- Implementation of security stack on edge cloud.
- Integration of WIFI stack with edge cloud.
- Implementation of various micro services for unified stack.
- Implementation of cyber security standards based on ISO/IEC 27001.
- Good experience in NORSOK(Cenelec), ATEX, SIL4.

Communication:

- Client communication, frequent communication with the appropriate team, onsite coordinator and with the user to resolve user issues.
- Frequently chasing with the user's through mail.
- Communication with the offshore and onsite team members.

PREVIOUS PROJECT: -

Project(20)	Development of SDN/NFV stack (ECOMP) on AT & T platform.
Description	ECOMP, or Enhanced Control, Orchestration, Management and Policy, provides the necessary automation platform that enabled us to achieve aggressive virtualization goals across enterprise, infrastructure, mobility and consumer use cases. ECOMP, the goal of this project with the Linux Foundation is to deliver the capabilities for the design, creation, orchestration, monitoring and life-cycle management of Virtual Network Functions (VNFs) in a software-defined networking environment.
Type	Development
Role	Software Architect
Team Size	6
Technology	SDN, NFV, OVF, Docker, SONiC, Orchestration, Container, Microservices, Kubernetes ,cloud, Open stack,5G,DevOps,AWS,Azure, MIMO, Power class 1.5 and 8RX, LiDAR(AI)

- Working as Software Architect/Developer.
- Development of explicitly, directly and programmatically communicate network requirement and desired network behavior to SDN controller through north-bound interface (NBI) driver.
- Development of abstracted network view for internal decision-making algorithm.
- Development of Microservices, Cognitive engine, firmware and optimization algorithm.
- Implementation of requirements from SDN app to configure SDN data-path through Control Data-plane Interface (CDPI) driver.
- Implementation of abstracted network view (including statistics and events) to SDN app through NBI agent.
- Development of ECOMP Design Framework and ECOMP Execution Framework.
- Implementation of Control Data-plane Interface (CDPI) Agent: -

  - Exposes visibility of network infrastructure.

  - Advertises forwarding and data processing capabilities and allows uncontended control over the same.

- Development of one or more traffic forwarding engine and may contain zero or more traffic processing function
- Development of 5G abstraction layer.
- Development of 8x8 MIMO features.

- Development of NSA and SA NR features.
- Development of Power Class 1.5 Features.
- Development of AI , like LiDAR Features.
- Development of XLAT and IP pass through features.
- Development of Billing abstraction layer OSS/BSS.
- Strong experience in DevOps and Kubernetes.

Communication:

- Client communication, frequent communication with the appropriate team, onsite coordinator and with the user to resolve user issues.
- Frequently chasing with the user's through mail.
- Communication with the offshore and onsite team members.

Project(19)	**Design and development of O-RAN (Open RAN) Stack**

Project(18)	**Development of 5G NR stack.**

Project (17)	**Development of NFV stack on AT & T flex ware platform.**

Project (16)	**Development of Cyber security stack on Alstom's wayside platform MooN.**

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Project (15)	**Development of 5G stack on Alstom's ERTMS 2oo3 Train borne Platform (EVC2P-European Vital Computer Plus)**

Project (14)	**Development of failure mechanism in Alstom's ERTMS 2oo3 Train borne Platform (EVC2P-European Vital Computer Plus)**

Project(13)	**Stack development of Aricent Intelligent Switching Solution(ISS)**

Project (12)	**Platform development of building Internet of Things (IoT) applications over AT & T network cloud.**

Project(11)	**Development of L2/L3 protocols on Coriant 86XX routers**

Project(10)	**M2M product development for AP/Repeater/Client/Router/NAT**

Project(9)	**Development of G-MPLS stack**

Project(8)	Test packages(AT&T,Verizon,LTE,LTE-A,IMS,GSM,WCDMA,TDSCDMA,DSDS/TSTS,VAMOS1/2 and IRAT)development and testing

Project(7)	LTE(MAC & RRC layers) protocol Development

Project (6)	Development of CC certification of Motorola wireless AP7131N and RFS7000 switch

Project (5)	Development of ISCSI protocol in SAFENET.

Project (4)	DEVELOPMENT OF QOS IN ADSL+2 WIRELESS ROUTERS AND SWITCHES.

Project (3)	Development of MPLS protocol.

Project (2)	Development of RPR ring protocol.

Project (1)	Development of GPON Protocol.

REWARDS

- Got 92.87percentile in GATE- 2007
- Stood 4th in University.
- Awarded in Mobile world congress Barcelona Spain 2014

PERSONAL PROFILE

Date of Birth   : 3rd may 1985.

Gender   : Male

Marital Status   : Single

Nationality   : Indian