Dipen Patel

+919988327290 dpnpatel5@gmail.com linkedin.com/in/dpnpatel5 github.com/dpnpatel5

Summary — Lead Engineer with approximately 9 years of experience in C/C++ and embedded systems. Proficient in developing applications using both monolithic and microservices architectures.

Technical Competencies

Languages: C, C++, Python, OOPS
Storage: Oracle, MySQL, Redis , Couchbase
Cloud/DevOps: Docker, Kubernetes, Prometheus, AWS(S3, Lambda, EC2, IAM, Glue, Athena, Redshfit), Airflow, Jenkins CI/CD
OS: Ubuntu, RHEL, CentOS, Windows
Telecom: GTP, SIP, Diameter, MAP, GSM, VoLTE
APIs/Framework: OpenSSL, JWT, gRPC, tinyxml2, osip2/osipparser2, PySpark
Embedded: I2C , Yocto, Petalinux
Debugging: GDB, Valgrind, Address Sanitizer, Wireshark,Cunit Framework

Recent Experience

RadiSys Ind Pvt Ltd **Since Sept 2022**
Lead Engineer

Project: 5G O-RAN RADIO UNIT

- Designed and implemented an ARM-based interface application bridging **Mplane** and **Low-Phy** hardware, facilitating hardware control for ORAN Distributed Units and monitoring ORAN Radio Units.
- Developed application using **gRPC** to managed and program the RFFE card in Radio-Unit .
- Utilized **I2C protocol** for reading and writing data in embedded systems, enabling efficient communication with peripheral devices.
- Integrated **CUnit framework**, reducing testing time by 70% and enhancing code reliability.
- Provided bring-up support for ORAN-based Radio Unit hardware on **Intel** and **Xilinx** ARM64 boards, enabling **ZTP** zero-touch provisioning from POST.
- Developed an ARM-based application interface to validate the data path integrity between DU (x86) and RU (ARM), ensuring system reliability.
- Created an ARM-based library for application and OS (u-boot, kernel, FPGA) upgrades, incorporating a rollback feature to handle upgrade failures.
- Implemented an application to monitor temperature and power across all hardware resources, ensuring optimal performance and safety.
- Developed and maintained **Yocto/Petalinux** build systems, improving build efficiency and streamlining deployment processes.

Mobileum Ind Pvt Ltd **March 2021 – August 2022**
Sr Software Engineer

Project: GTP Proxy and SPRS

- Worked on GTP Proxy and SPRS, interacting with **SGW/PGW, SGSN/GGSN, PCRF**, and **DNS** to support roaming capabilities for leading network providers.
- Managed the roaming product to provide network presence in areas where the provider's reach is minimal, handling both inbound and outbound roaming.
- Handled 2G, 3G, and 4G GPRS using the **GTP** GPRS Tunneling Protocol.
- Extensively worked with SGSN/GGSN and SGW/PGW nodes in the IN (Intelligent Network).
- Developed new features using C and C++, conducted unit testing, documentation, and packaging, and provided support to the Quality Engineering team.
- Managed site issue handling and troubleshooting.
- Led a team of 3 freshers, assisting them in understanding the product and resolving bugs.

Project: MISM and SIMLocal

- MISM enables a subscriber to maintain more than one active mobile device with simultaneous call, SMS, and data capabilities, all linked to a single published GSM number.

- Managed key messages such as **UL, CL, GUL, SRISM, ATM, MT-FMS**, and **Ready for SM** within the MISM system.
- Implemented the ”Store and Forward SMS” feature, enhancing message delivery reliability.
- Developed a broadcast feature to facilitate widespread message dissemination.
- Added support for VoLTE SMS using ATM and SRISM protocols, expanding SMS capabilities over LTE networks.

Dev Information Technology **April 2019 to March 2021**
Sr Software Engineer

Project: Infosys Finacle

- Customized different SWIFT payment message flows for payment transfer.
- Responsible for designing a new architecture for payment download processing, handling various types of payment messages such as **’IMPS’, ’NEFT’**, and **’SWIFT’**.
- Restructured and optimized parts of the payment module, increasing transaction speed from 4 TPS to 98 TPS.
- Implemented ‘std::map‘ instead of a linked list to improve performance.
- Reduced the number of database hits causing slow performance by caching data in memory at runtime.

Oracle Ind Pvt Ltd **April 2018 to March 2019**
Member of Technical Staff

Project: Oracle BRM

- Developed a charging, billing, payments, and revenue management platform for subscription-based products and services.
- Worked on postpaid billing implementation projects, gaining experience in **Opcode development**.
- Acquired strong technical knowledge in customizing policy opcodes, configuring price plans, setting up discounts, and managing billing and rating processes.
- Followed Agile SDLC methodologies, such as SCRUM, to shorten release cycles and improve time to market.

Huawei Ind Pvt Ltd **Jan 2016 to March 2018**
Associate Software Enginer

Project: Convergent Billing System(CBS)

- The Convergent Billing System is the common platform of HSS LTE and IN node in **GSM**. The product is responsible for the AAA and credit control of subscriber. It uses **Diameter** (DCC) protocol which uses TCP connection. CBS performs all authentication, authorization, and accounting functionality in conjunction with authentication server and accounting server. It also interacts with PCRF server for bandwidth policy control.
- Implemented authentication, authorization, and accounting for Voice, SMS, and GPRS services as part of the Rating, Charging, and Billing module.
- Worked with Charging Rule Language (CRL) for customization purposes.
- Responsible for understanding requirements, designing, coding, and testing the module.
- Provided solutions and fixes for defects raised by various teams (SDV, SVT, and live projects).

EDUCATION

Lovely Professional University **2011-2015**
Bachelor of Technology in Electronic and Communications

PUBLICATION

- Patel D, Kumar V, Kumar A, “Simulation of Drum kit synthesizer”. In proceeding of Advanced Computing and Communication Systems (ICACCS), 2016 3rd International Conference.