**cgpic**

**Software Requirements Specification**

**for**

**Call Data Record-Inter Operator Settlement**

**Version 0.1**

**Prepared by**

**Group - 8**

**Capgemini private Ltd.**

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**Document Control :**

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**Table of Contents**

**1. Introduction 3**

1.1 Purpose 3

1.2 Document Conventions 3

1.3 Intended Audience and Reading Suggestions 3

1.4 Project Scope 3

1.5 References 3

**2. Overall Description 4**

2.1 Product Perspective 4

2.2 Product Features 4

2.3 User Classes and Characteristics 4

2.4 Operating Environment 4

2.5 Design and Implementation Constraints 4

2.6 User Documentation 5

2.7 Assumptions and Dependencies 5

**3. System Features 5**

**4. External Interface Requirements** 5

4.1 User Interfaces 5

4.2 Hardware Interfaces 5

4.3 Software Interfaces 5

4.4 Communications Interfaces 5

**5. Other Non functional Requirements** 6

5.1 Performance Requirements 6

5.2 Safety Requirements 6

5.3 Security Requirements 6

5.4 Software Quality Attributes 6

**6. Other Requirements** 6

**Appendix A: Glossary** 6

# **Introduction**

## **Purpose**

Purpose of this project is to provide A call detail record (CDR) is a data record produced by a telephone exchange or other telecommunications equipment that documents the details of a telephone call or other telecommunications transactions (e.g., text message) that passes through that facility or device. The record contains various attributes of the call, such as time, duration, completion status, source number, and destination number.

## **Document Conventions**

The document uses the “Times New Roman” font with bold for the heading. The main heading size is 18. The Sub-heading size is 14 and “Arial” font for Title and context which are in size of 32 and 11 respectively. Any text to be highlighted is made Bold. All the spacing are normal/default spacing of MS Word.

## **Intended Audience and Reading Suggestions**

This project is a prototype where there will be a division of bill between different service providers/operators. This document is intended to be read by developers, testers, Project Managers and Customers. This is a technical document and the terms should be understood by all of them.

## **Project Scope**

The customized Call Data Record file can be parsed and the aggregate data of all operators to be printed.

## **References**

References have been used from

[https://www.gl.com/call-data-recording-and-analysis.html](Date.h)

# 

# **Overall Description**

## **Product Perspective**

The call data record involves in two factors namely customer billing and inter operator settlement. Offline charging is a process where charging information for network resource usage is collected concurrently with that resource usage. The charging information is then passed through a chain of logical charging functions. At the end of this process, CDR files are generated by the network, which are then transferred to the network operator’s BD(Billing domain) for the purpose of subscriber inter-operator settlement.

## **Product Features**

The main feature is the collecting the information of user call record and at the end we are generating the inter-operator settlement for the transferred which is generated by network operator.

## **User Classes and Characteristics**

There are two classes of users:

* Anonymous users
* Read access - Read file access
* Upload access - Upload file access

## **Operating Environment**

* Operating system used & release date - Linux Debian 5.10.106-1 (2022-03-17)
* Kernel version - 5.10.0-13-cloud-amd64
* Language used - C++
* Compiler used - g++ (Debian 10.2.1-6) 10.2.1 20210110

## **Design and Implementation Constraints**

* Read the CDR file and parse the data by pipe/message queue.
* By using multi threading, we have to store the network provider/operator data from CDR file to operator database.

## **User Documentation**

This document is available on the Internet as we will upload the project in the github repository which is public. Tutorials will be sent along with the software itself for easier understanding of working.

## **Assumptions and Dependencies**

The assumptions and dependencies relevant to the system are as follows.

* All users must have a MSISDN.
* All users must have a mobile.
* Users should have internet access.
* Network should be reliable.

# **System Features**

Not Applicable.

# **External Interface Requirements**

## **User Interfaces**

We have used the file processing to read CDR file, pipe/Message Queue to take the customer calling information in order, multi threading to do process of inter-operator settlement and Hash tables to store the CDR file as database.

## **Hardware Interfaces**

Not Applicable.

## **Software Interfaces**

The system will require the use of other software components. Below are the different software components that the system will need to be fully operational.

Operating System:

* Linux Debian 5.10.106-1 (2022-03-17)

Compiler:

* g++ (Debian 10.2.1-6) 10.2.1 20210110

## **Communications Interfaces**

Not Applicable

# **Other Nonfunctional Requirements**

## **Performance Requirements**

The mobile will require a fair network/signal connection to receive call/SMS or to transfer files and to make call/SMS or to receive files.

## **Safety Requirements**

Call recordings must be stored securely and businesses should ensure proper access controls are in place. There should be physical and technical safeguards for data security and privacy. You should assess the risks associated with hackers, malicious insiders, and even careless employees and take measures accordingly.

## **Security Requirements**

The Call Data Record itself does not provide authentication and security. We have to provide authentication to access this files. We have to secure the data in hash table.

## **Software Quality Attributes**

Not Applicable

# **Other Requirements**

The CDR might be included in software requirements of the SRS.

**Appendix A: Glossary**

|  |  |
| --- | --- |
| **CDR** | Call Data Record |
| **IOS** | Inter Operator Settlement |
| **ISDN** | Integrated Services Digital Network |
| **MSISDN** | Mobile Subscriber – ISDN Number |
| **MOC** | Mobile Originated Call |
| **MTC** | Mobile Terminated Call |
| **SMS-MO** | Short Message Service- Mobile Originated |
| **SMS-MT** | Short Message Service- Mobile Terminated |
| **GPRS** | General Packet Radio Services |
| **MCC** | Mobile Country Code |
| **MNC** | Mobile Network code) |
| **SDR** | Subscriber Detail Record |
| **SIM** | Subscriber Identity Module |
| **BTS** | Base Transceiver Station |
| **IMEI** | (International Mobil Equipment Identity |
| **TAC** | Type Allocation Code |
| **IMSI** | International Mobile Subscriber Identity |
| **CDMA** | Code Division Multiple Access |
| **GSM** | Global Positioning System |
| **LTE** | Long Term Evolution |
| **UMTS** | Universal Mobile Telecommunications Service |