Software Requirement Specification Document

Offline Charging System SRS

Version 1.0

Document Purpose

The information provided in this document explains both functional and non functional requirements for Offline Charging System and supported reference points. It clearly identifies the requirements and contains detailed information about it. For complete scope of Offline Charging System, please see the **Project Proposal.**

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1. References & Abbreviations

1.1 References

Following is the 3GPP reference document list, which is related to the information present in this document:

[1] 3GPP TS 32.297: "Charging Management - Charging Data Record (CDR) File Format and Transfer".

1.2 Abbreviations

Following are the abbreviations that have been used in the document:

BD Billing Domain
CDR Charging Data Record
OCS Offline Charging System
3GPP Third Generation Partnership Protocol
IMS IP Multimedia Subsystem
CGF Charging Gateway Function
CDF Charging Data Function
CTF Charging Trigger Function

2. Project Overview

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 each of which does its own specific charging related task. At the end of this process, CDR files are generated by the network, which are then transferred to the network operator's Billing Domain for the purpose of subscriber billing and/or inter-operator accounting (or additional functions, e.g. statistics, at the operator's discretion). The BD typically comprises post-processing systems such as the operator's billing system or billing mediation device.
Therefore, offline charging is a mechanism where charging information does not affect, in real-time, the service rendered

In addition to describing the Requirement Specifications for the Offline Charging System, this document also describes the Requirement Specifications for the following reference point used for communication between the Offline Charging System and other IMS entities:

Rf:
Rf is the Reference Point between an IMS element and the Offline Charging System.

3. Functional Requirements

Following are the functional requirements of Offline Charging System.

3.1 Offline Charging System

Requirement: 1 - Support for CDR construction

ID	DIM – 00180
Group Name	Offline Charging System.
Name	Support for CDR construction.
Description	The offline charging system will support the construction of CDRs with well defined contents and format as specified by 32.297 3GPP specification.

Requirement: 2 - Support for Rf reference point

ID	DIM – 00179
Group Name	Offline Charging System.
Name	Support for Rf reference point.
Description	The reference point supported by the offline charging system is the Rf reference point.

Requirement: 3 - Support for the CGF functionality

ID	DIM – 00182
Group Name	Offline Charging System.
Name	Support for the CGF functionality.
Description	The Offline Charging System will provide the following features of the Charging Gateway Function (CGF)functionality: - CDR reception from the CDF via the Ga reference point in near real-time. - CDR pre-processing: - Validation, Consolidation and (Re-) Formatting of CDRs. - CDR error handling. - Persistent CDR storage. - CDR routing and filtering, i.e. storing CDRs on separate files based on filtering criteria such as CDR type, CDR parameters, originating CDF, etc. - CDR File Management, e.g. file creation, file opening / closure triggers, file deletion. - CDR file transfer to the Billing Domain.

Requirement: 4 - Transfer of CDRs to CGF

ID	DIM – 00181
Group Name	Offline Charging System.
Name	Transfer of CDRs to CGF.
Description	The offline charging system will support the transfer of CDRs to Charging Gateway function (CGF).

3.2 Reference Points Supported

3.2.1 Rf Reference Point

Requirement: 1 - Acknowledgements of charging events from CDF to CTF

ID	DIM – 00184
Group Name	Rf Reference Point.
Name	Acknowledgements of charging events from CDF to CTF.
Description	The acknowledgement of charging events from CDF to CTF also gets sent over the Rf interface.

Requirement: 2 - Charging events from CTF to CDF

ID	DIM – 00183
Group Name	Rf Reference Point.
Name	Charging events from CTF to CDF.
Description	The charging events for offline charging from the CTF to the CDF, will be sent over the Rf reference point.

Requirement: 3 - Diameter protocol support required at Rf Reference Point

ID	DIM – 00186
Group Name	Rf Reference Point.
Name	Diameter protocol support required at Rf reference point.
Description	The following Diameter capabilities will be required at the Rf reference point: -Real-time transactions; -Stateless mode (“event based charging”) and statefull mode (“session based charging”) of operation; -Provide its own reliability mechanisms, e.g. retransmission of charging events.

Requirement: 4 - Protocol used at Rf reference point

ID	DIM – 00185
Group Name	Rf Reference Point.
Name	Protocol used at Rf.
Description	The diameter protocol will be used at Rf reference point.

4. Non-functional requirements

Requirement: 3 - Rf reference point implementation will be scalable

ID	DIM – 00187
Group Name	Rf Reference Point.
Name	Rf reference point implementation will be scalable.
Description	The Rf reference point implementation will be designed for scalability.

Requirement: 3 - Extensibility will be provided

ID	DIM – 00188
Group Name	Rf Reference Point.
Name	Extensibility will be provided.
Description	The Rf Reference point will be designed so as to make it easy to extend the implementation when required.

5. Operating Environment Requirements

The system will primarily be developed and tested on Linux/Unix based Operating Systems. But our goal is to make it a platform independent solution. The target platforms are:

- Linux ,
- Microsoft Windows &
- Solaris.