BATECLO IOT CMP Solution
Connectivity Management Platform

High Level Solution Document

Prepared for

BATELCO Bahrain

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1 Introduction

This document outlines the high-level solution for the deployment of a Multi-Tenant Connectivity Management Platform (CMP) for BATELCO Bahrain, with a specific focus on supporting IoT (Internet of Things) and M2M (Machine-to-Machine) business requirements. The CMP will be deployed on-premise, utilizing the infrastructure provided by BATELCO. The platform will be integrated with BATELCO's existing systems as well as other partner Mobile Network Operators (MNOs) to enable the efficient management of IoT/M2M services. This solution aims to enhance operational capabilities, streamline service delivery, and optimize resource management across multiple tenants within a secure, scalable, and flexible environment, ultimately empowering BATELCO and its MNO partners to capture new opportunities in the rapidly growing IoT/M2M market.

1.1 Purpose

This document outlines the high-level design principles for the project, covering essential environment scoping elements such as use cases, network components, IT systems, architecture, and design principles.

Key Principles:

The High-Level Solution Design (HLSD) document consolidates all scoping elements for the project, including use cases, network elements, IT systems, and high-level architecture.

The HLSD establishes common principles applicable across the solution's subsystems. Detailed descriptions for each subsystem will be provided in the Low-Level Design documents.

The HLSD focuses on use cases customized for or integrated with customer systems, while standard functionalities are detailed in the product feature description document.

Document Scope:

This document provides a high-level end-to-end solution overview, covering:

Scope and Use Cases

Integration and Connectivity Framework for BATELCO and Partner MNOs

Deployment Architecture

This document will serve as input for the Detailed Design and Test activities for Airlinq, the customer, and third-party system providers. It will also act as an ongoing technical reference for Airlinq stakeholders.

1.2 Acronyms and Terms

Airlinq has proposed a solution based on our MobiLINQ connectivity management platform (CMP) in response to Batelco Bahrain needs. This solution is described in detail later in this document, while a set of key aspects of our solution offering have been captured in this summary.

Term	Description
CMP	Connectivity management platform
TAC	Thales Adaptive Connect
HLSD	High Level Solution Design
LLD	Low Level Solution Design
DNS	Domain Name Server

1.3 Reference

Document	Link / Ref to document
Feature description	Attached in Appendix A
API documentation	
User Manual	
Reports Specifications	

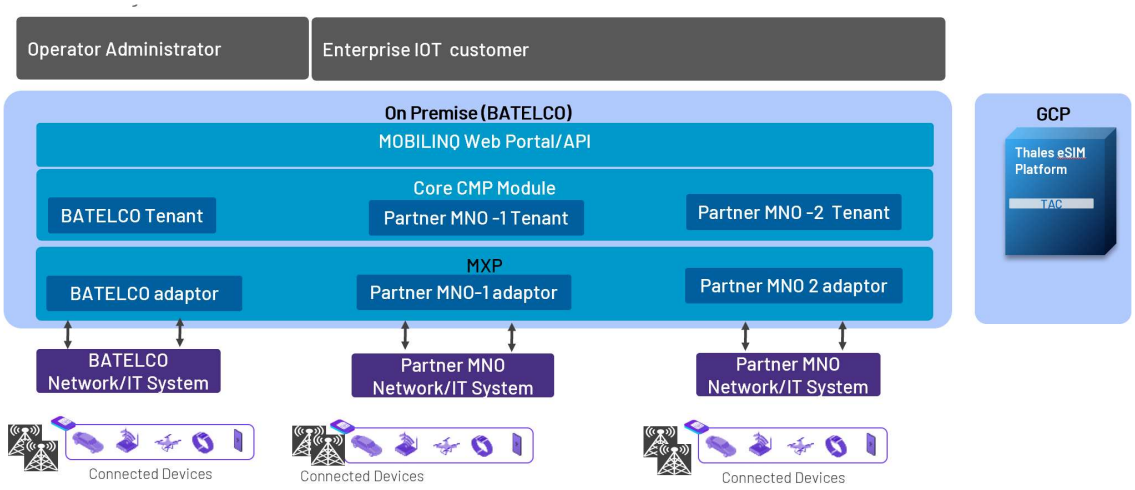
1.4 Assumptions

- This Document capture CMP high level integration framework for all OPCO and any variation/customization with individual OPCO will be handled in respective LLD

2 Solution Scope

Airlinq will deploy its multi-tenant Connectivity Management Platform (CMP) within BATELCO's on-premises infrastructure, covering both pre-production and production environments. The deployment will begin with integrating the CMP into BATELCOs preferred MNO IT systems, core network, and Business Support Systems (BSS) in the pre-production environment, enabling thorough testing and validation. This phase ensures seamless integration with selected existing systems and resolves any performance or compatibility issues. After successful validation, the CMP will be transitioned to the production environment. The project will also include integrating the CMP with a partner MNO or BATELCO (MNO) system to ensure smooth interoperability and enhanced connectivity capabilities.

Please refer the Scope of work section in contract for further reference.



2.1 In scope activities

1. Platform Deployment and Configuration:
    a. Installation and configuration of Airlinq's CMP on BATELCO's on-premises infrastructure.
    b. Setup of the CMP in both pre-production and production environments.
2. Integration with BATELCO Systems:
    a. Integration with BATELCO's IT systems, including core network elements and Business Support Systems (BSS).

- Configuration of necessary interfaces and APIs for seamless data exchange and functionality.

3. Integration with Partner MNO System:
    a. Integration with Partner MNO IT systems, including core network elements and Business Support Systems (BSS).
    b. Configuration of necessary interfaces and APIs for seamless data exchange and functionality.
4. Testing and Validation:
    a. Conducting comprehensive testing in the pre-production environment to ensure platform performance and compatibility.
    b. Validation of integration with BATELCO's systems and the partner MNO system.
5. Training and Documentation:
    a. Provision of training sessions for BATELCO's technical team on the platform's functionalities and management.
    b. Delivery of detailed documentation, including user guides, technical specifications, and operational procedures.
6. Support and Maintenance:
    a. Ongoing support and maintenance services post-deployment to address any issues and ensure platform stability.

- Regular updates and patches as required to maintain performance and security.

2.2 Out of Scope Activities

1. Hardware & Infrastructure:
    a. Acquisition, procurement, and management of hardware and infrastructure required for deploying the CMP will be the responsibility of BATELCO.
2. Third-Party Software Licenses:
    a. Procurement of third-party software licenses mentioned in the BOQ will be BATELCO's responsibility.

- Data Migration Services:
- Services related to migrating data from legacy systems to the new platform, which are not included as part of the CMP deployment.

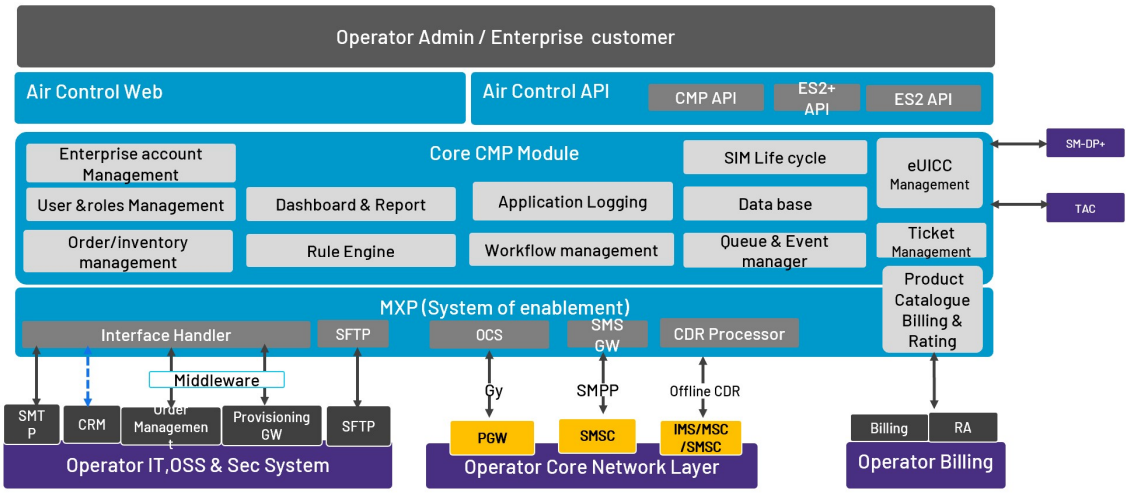
3. Additional Integration with Non-Specified Systems:
    a. Integration with systems or applications not previously identified or agreed upon as part of the project scope.
4. Market place and Application Enablement

- The Airlinq Marketplace and application management products will not be included in the Phase 1 delivery of the project.
- Data Migration Services:
- Services related to migrating data from legacy systems to the new platform, which are not included as part of the CMP deployment.

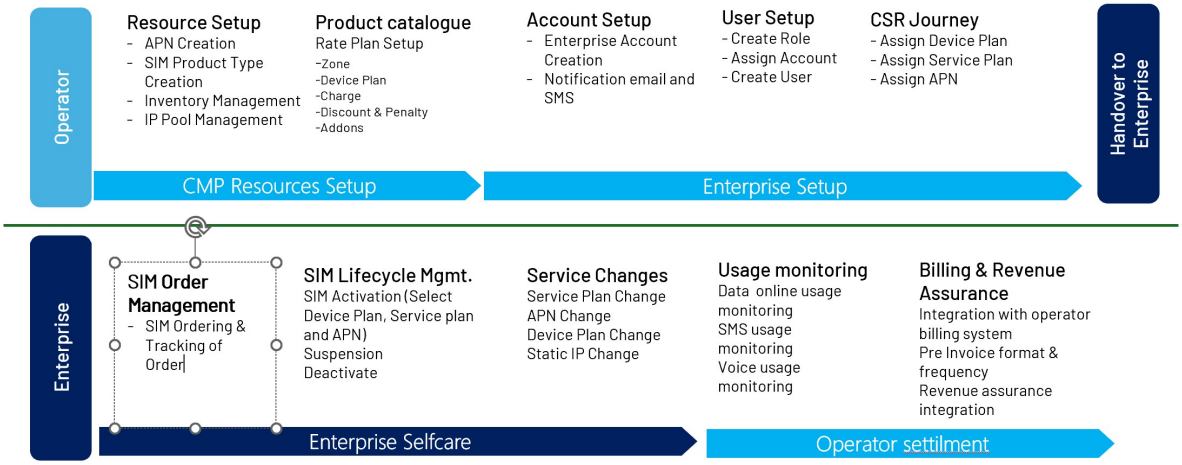
3 MobiLINQ – Integration Architecture

This section provides a high-level overview of the integration requirements needed for the CMP to function within the operator environment. The solution is designed with flexibility in mind, allowing for seamless integration with operator systems. Throughout the course of the discussions, the integration specifications will be finalized in collaboration with BATELCO's solution and product teams. A similar framework will be followed for partner MNOs to ensure feature parity and consistency in capabilities across all systems involved.

Below diagram provide high level integration touch points required for CMP to enable in operator network



The integration touchpoints are organized and categorized based on the following business process sequence to ensure better clarity and continuity during the design discussions.



3.1 Global Resource creation for CMP

This section describes the business process, and the expected types of integration required to support the global resource creation for the CMP. It outlines the necessary steps and system interactions to ensure a seamless and efficient process for creating and managing resources across different environments, enabling the CMP to function optimally within the operator's infrastructure.

Below are process and expected integration and based on detailed discussion with product and business will finalize the common approach can be followed across all tenant to offer feature parity.

Interface #	Airlinq Subsystem/Business process	Operator system/ Process	Description	Integration Type
1	SIM Inventory management/SIM range	Inventory management or Supply Chain	Loading of the master inventory (IMSI, ICCID, MSISDN) into the CMP allows for efficient MSISDN allocation based on processed orders. The CMP provides a UI-based utility to load and manage the master resources	Manual/UI
2	SIM product	Inventory management or Supply Chain	SIM products are created in the CMP, which allows customers to select the required SIM type during the order process. This information is then sent to the operator's backend system to notify them of the SIM type needed, such as Plastic with form factors 2FF, 3FF, or eSIM, etc.	Manual/UI
3	APN management	Operator IT Provisioning System	The CMP offers a UI-based utility to track and capture the APN created in the network for M2M and IoT. This information is then used to send APN assignment requests during SIM activation or plan changes, based on the APN assigned to the customer.	Manual/UI
4	Product Catalogue	Operator Business and BSS team	The CMP offers a UI-based Product catalogue to create complex rate plan, bundle and associated charges specific to IOT/M2M offering.	Manual/UI

3.2 Enterprise onboarding and setup

Interface #	Airlinq Subsystem/Business process	Operator system/ Process	Description	Integration Type
1	Enterprise onboarding	Operator CRM	The CMP offers a UI-based utility for the operator's business admin to create and onboard enterprise customers into the CMP, syncing relevant information from the operator's CRM system.	Manual/UI/API
2	Notification Module	SMTP	The CMP needs to send welcome emails, 2 FA and other email-based notifications to the operator's admin/operations team and the enterprise for various use cases.	SMTP/SMPP
3	Roles and user Management	Operator Business	The CMP offers a UI-based roles and user management module to create new users and roles.	Manual/UI
4	CSR Journey	Operator Business and product	An overview of how global resources are created, assigned to onboarded enterprises, and the process of setting up the enterprise in CMP.	Manual/UI

3.3 Enterprise Self-care and usage monitoring

Interface #	Airlinq Subsystem/Business process	Operator system/ Process	Description	Integration Type
1	Order Management	Operator supply chain or SIM logistic system	The CMP offers a UI-based utility for enterprises to place SIM orders. It processes the order, integrates with the operator's system to automate backend processes, and tracks the order.	SFTP/API
2	SIM life cycle & service management	Operator provisioning system	Deep integration with the operator's provisioning system enables both enterprise and CMP admins to manage the SIM lifecycle and service management, including individual and bulk actions such as activation, suspension, plan changes, and service adjustments.	SFTP/API
3	Data Usage monitoring	Core Network PGW Team	The CMP offers an OCS stack with Diameter GY-based integration, enabling real time data usage monitoring and quota management for CMP SIMs.	Diameter
4	Voice usage monitoring	Operator core network team	The CMP offers an OCS/BSS stack with capability to rate Offline-CDRs shared over SFTP to monitor usage and manage the quota.	Offline CDR/CAMEL V2
5	SMS usage monitoring	Operator core network team	The CMP offers an OCS/BSS stack with CAMEL/SCAP-V3/Diameter over SCAP based integration, enabling real time sms usage monitoring and quota management for CMP SIMs. Capability to rate offline CDRs is also available.	Offline CDR/CAMEL/SCAP-V3/Diameter over SCAP
6	SMS Delivery and SMPP integration	Operator SMSC	CMP will integrate with SMSC over SMPP to deliver the notifications for host and tenant.	SMPP

3.4 Billing and Revenue assurance integration

Interface #	Airlinq Subsystem/Business process	Operator system/ Process	Description	Integration Type
1	CMP Billing & rating	Operator BSS or invoicing system	The CMP provides pre-invoices and sample invoices at the enterprise or business unit level for a predefined period.	SFTP
2	CMP Billing & rating	Revenue assurance	The CMP provides out-of-the-box revenue assurance feeds, such as CDR, subscriber dumps, and plan mapping, to the operator's revenue assurance (RA) system.	SFTP
3	CMP Billing & Rating	Credit Management	The CMP Provides the credit control feed on regular interval to monitor the usage of enterprise accounts	SFTP
4	CMP Account Management (Dunning)	Siebel	CMP provides API to send Dunning and Cessation requests in order to suspend or terminate the account based on business rules	API

3.5 eSIM and SGP 32 integration

Interface #	Airlinq Subsystem/Business process	Operator system/ Process	Description	Integration Type
1	CMP eSIM Management	Operator SM-DP+	The CMP will be loaded with the matching ID and related parameters from SM-DP to support the SGP 32 use case.	SFTP/API
2	CMP eSIM Management	Thales TAC	Integration between Thales TAC and CMP to process various event and support SGP 32 profile management use cases	API

4 CMP integration Design

This Chapter capture the final integration specifications and design agreements based on the previous chapter discussion during workshop

4.1 Account management / onboarding

Airlinq CMP provides a UI/API-based utility to onboard enterprises from the respective tenant's CRM. During this process, the CMP will securely store key information from both the tenant and the CMP system, ensuring data synchronization. This includes customer details such as the customer name, ID, billing reference ID, account manager, and the enterprise customer's contact information. This seamless integration ensures accurate and up-to-date records, streamlining the onboarding process and facilitating efficient enterprise management.

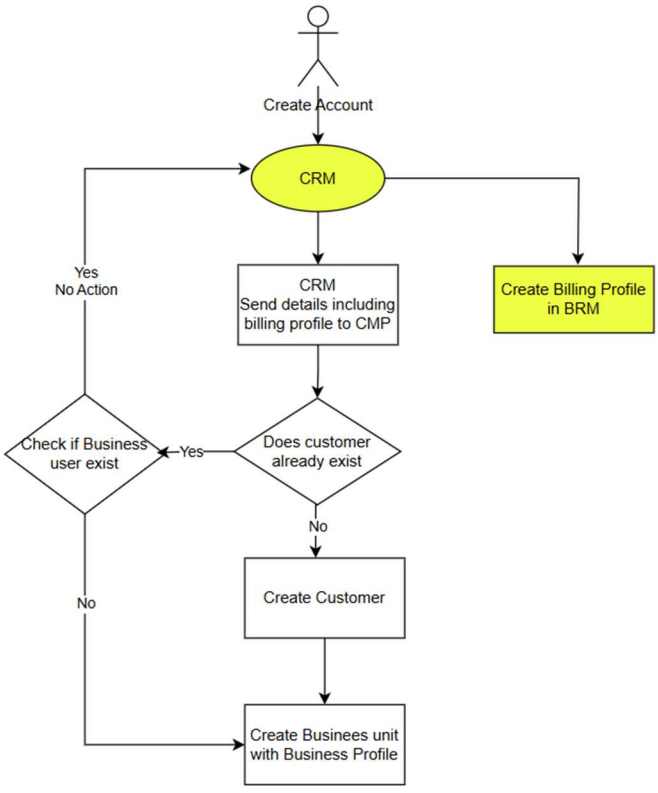
The Airlinq CMP platform provides a user interface (UI) option as well to facilitate the creation of accounts under the BATELCO MNO. User needs to provide Customer name, Unique IDs (Customer & Business Unit), contact, address, billing info, billing account ID, billing cycle details.

4.1.1 Account Creation via API flow

CMP will expose an asynchronous API to the Tenant CRM system, enabling the onboarding of Enterprise Customers and associated Business Units onto the platform. The API includes validation mechanisms such as mandatory parameter checks to ensure data integrity. Additionally, it supports onboarding of Billing Profile under already registered customers, facilitating a structured and hierarchical account setup.

Tenant Onboarding is manual process since it requires backend configuration

- **Integration Trigger**: Initiated by tenant CRM system
- **Purpose**: Allows addition of Enterprise and Business Account.
- Supported Fields:
    - Address
    - Billing Account Number (Billing Profile)
    - Primary contact details
    - Phone number



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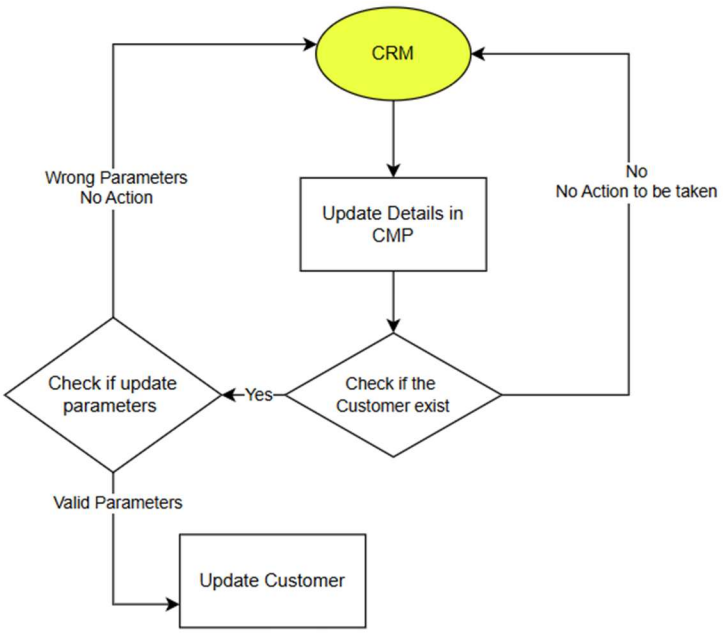
4.1.2 Account Update via API

CMP also supports the Account Update using API. To update the account details, CRM (eg. Seibel) system of tenant needs to call the API, which is exposed by CMP.

4.1.2.1 Customer Account Update

- **Integration Trigger**: Initiated by tenant CRM system
- **Purpose**: Allows updates to **Customer Account** information.
- Supported Fields:
    - Address
    - Primary contact details
    - Phone number



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4.2 Inventory Management Process

- The **IT system ( )** of tenant places a SIM order with their SIM **vendor.**
- The **IT system** processes the SIM vendor output and uploads the SIM inventory file onto CMP (SIM details – IMSI, ICCID, PUK1, PUK2, KI etc.)
- For eSIM inventory the SIM details are exported from SMDP+ and loaded in CMP inventory module along with matching ID for each SIM.
- Any existing process of loading SIM vendor input file to Tenant Network system will continue AS-IS for both eSIM and Physical SIM
- **MSISDNs** are loaded in CMP separately.
- At this stage master inventory of IMSI, ICCID and MSISDN will be available in CMP
- CMP will send a SIM inventory stock report in csv format to ERP

    a. **Used by:** Inventory Management Teams, Product teams
    b. **Exposed by**: CMP Inventory management module
    c. **For:** Inventory upload on CMP UI
    d. **Integration Requirements**: SFTP for SIM inventory stock report/ API ERP system

- The flow diagram for inventory and order management are described in below section

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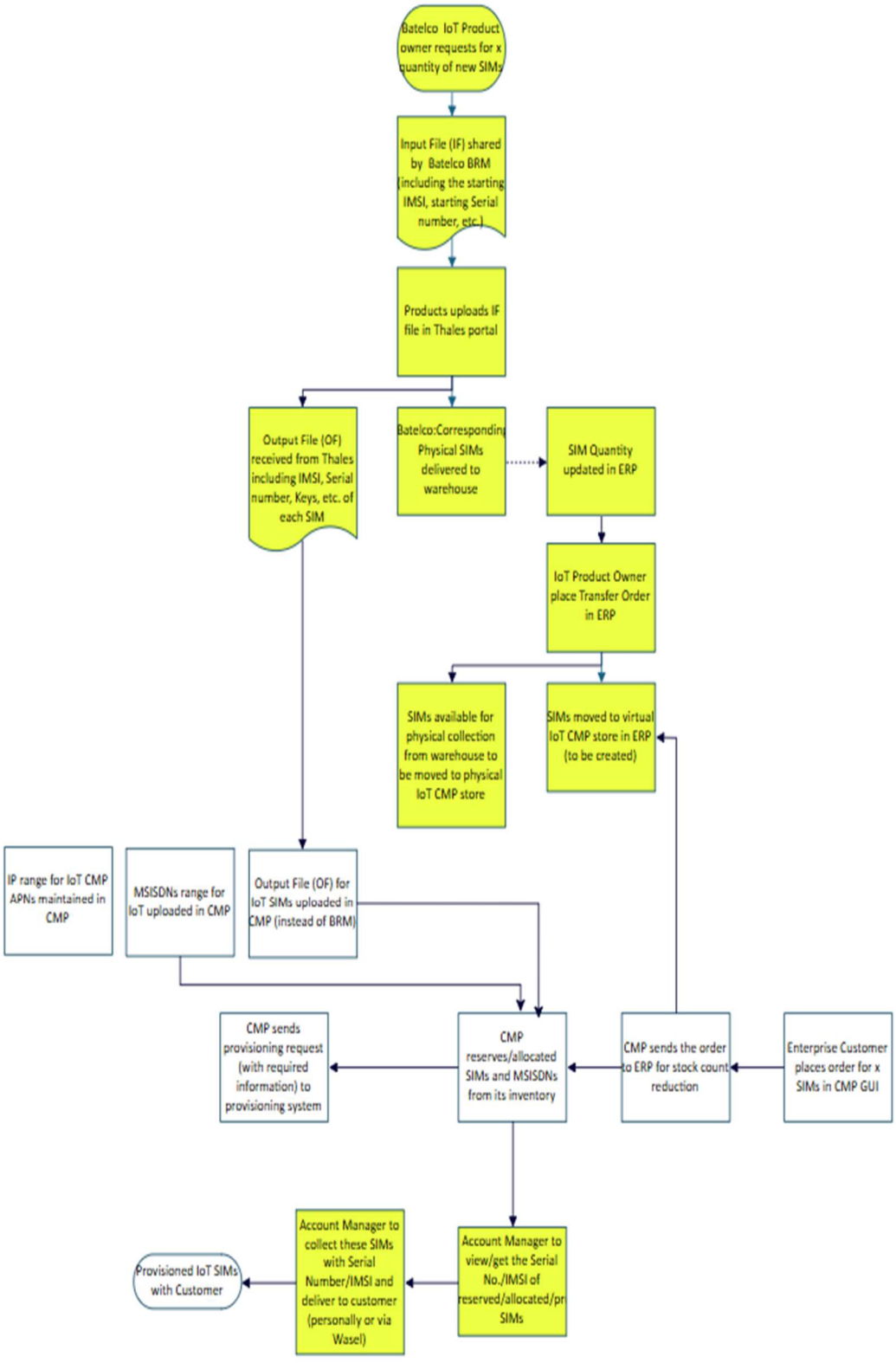
4.3 Sim Ordering Process

- Enterprise Customers with permission place a SIM order in CMP,
- CMP checks if the order is ~~place~~ for Physical SIM, then the order is forwarded to the Tenant IT system for processing.
- ~~Tenant IT system processes the order and sends it to the logistic/warehouse.~~
- ~~The logistics allocates the Physical SIM order for the order and ships the sim card to the customer.~~
- ~~Logistics will send the confirmation and SIM details (IMSI and ICCID) to the IT system~~
- ~~The IT system acknowledges order and shares SIM details (ICCID/IMSI) with CMP.~~
- CMP allocated IMSI and ICCID to the order and shares the details with the Tenant
- CMP Marks the order as complete and SIM lifecycle starts
- Tenant Account manager get the list of allocated SIM for inventory and arrange for SIM delivery to enterprise.
- If the order is placed for eSIM, the CMP will allocate the Inventory to enterprise, since it is not required to be sent for delivery
- CMP validates the SIM inventory and marks the order as completed.
- MSISDNs are then assigned to the SIMs, which are loaded into CMP in Warm/Active state. SIMs proceed to the provisioning phase.

- **Used by:** Enterprise Customer, IT system of tenant (TBD), Logistics teams of tenant
- **Exposed by:** CMP / IT System
- **For:** Enterprise SIM order process automation
- Integration Requirements: SFTP/API

The flow diagram for Inventory and Order Management is below



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4.4 SIM Lifecycle

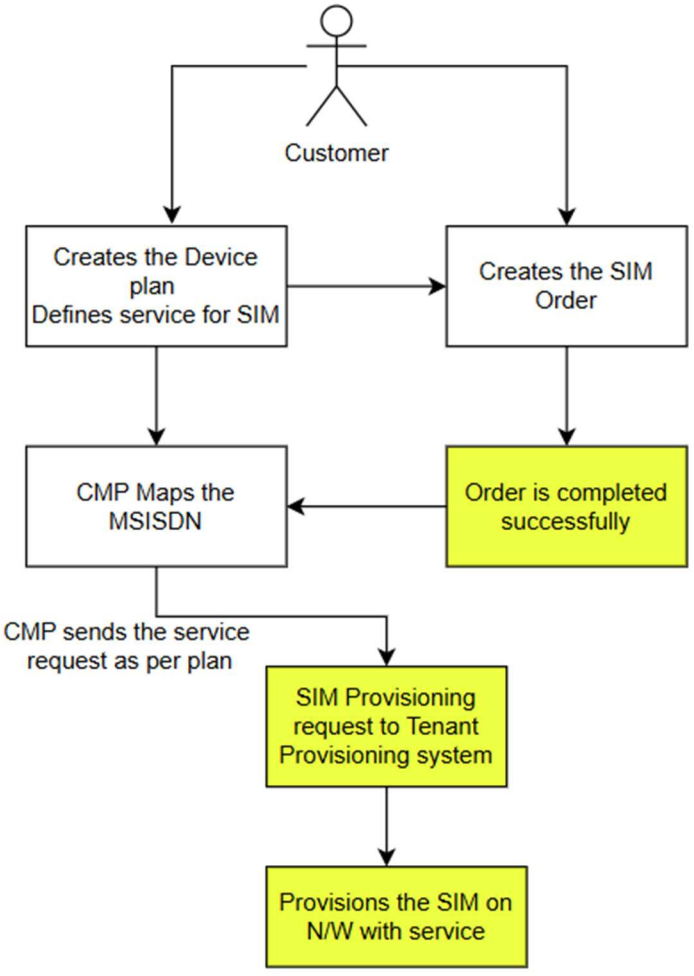
CMP offers the customers the chance to manage the SIM lifecycle using UI and API. The API is provided by the Tenant Provisioning System. CMP maintains the following SIM states

- WARM
- READY
- TEST-ACTIVE
- ACTIVE
- SUSPEND
- TERMINATE

Upon successful completion of SIM Order CMP will send API call towards Provisioning System to Activate the SIM with different services as per the attached device plan and start the usage.

Below are the high level interface details

- Used by : CMP SIM Life Cycle Module
- Exposed by : Tenant Provisioning System
- For : SIM activation, Suspend, Termination, Device Plan Assign / Unassign
- Integration requirements : API



4.5 Billing

4.5.1 Host to Tenant Billing

- CMP performs monthly checks to support Corporate to Tenant billing.
- Reports are generated and sent to Host billing systems for accurate and usage-based invoices.
- **Format**: CSV
- **Method**: SFTP delivery

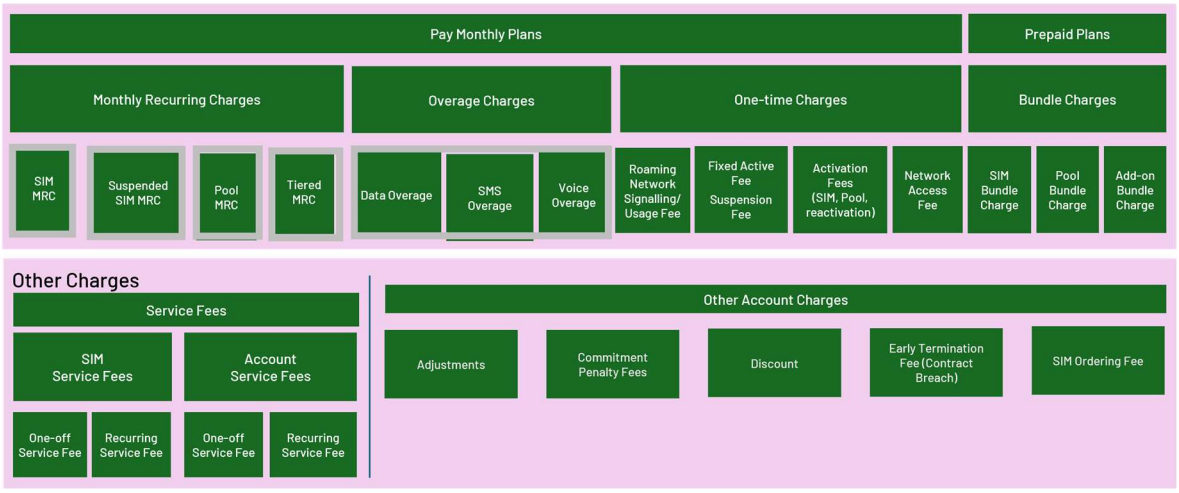
  Recipients: Host Billing Systems

Parameter	**Logic**
Tenant ID	ID of the tenant for which this report has been generated
Total no. of Devices (Active + Suspended / Active only) (Provisioned Subs)	Price per Valid line
Total Revenue under a Tenant (Based on Data/Voice/SMS Usage)	Revenue Share (%)
Others (if captured by CMP)	As per the M2M revenue share contract between Host and Tenant.

4.5.2 Tenant to Enterprise Billing

The CMP Billing Management system integrates with the MNO billing platform to support end-to-end account, SIM lifecycle, and usage-based billing processes. It enables configuration of recurring charges, one-time charges, overages, and penalties at both SIM and account levels.

Revenue assurance is achieved through commitment tracking, discounts, and early termination fee handling. Real-time service monitoring is facilitated via Gy/EDR with both online and offline rating modes. Accurate billing is ensured through proration, re-rating.



Note: Feed to be shared on pre-defined frequency for Credit Control team.

- CMP shares invoice feed with Tenant Billing system.
- Billing system generates the final invoice and share with Enterprise
- **Format**: CSV
- **Method**: SFTP delivery
- **Recipients**: Tenant Billing Systems

4.5.3 Account Dunning and Credit Control)

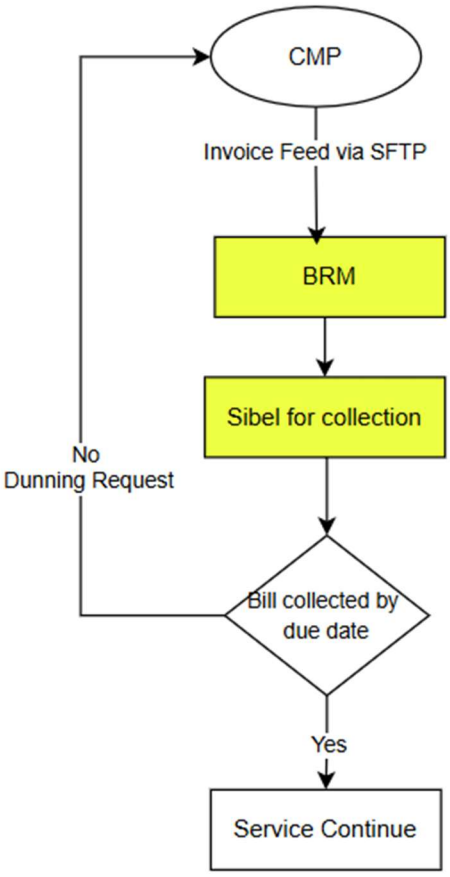
CMP allow operation to perform the Dunning process for Business Unit account. This API will be called based on below flow

- CMP shares invoice feed and credit control feed with tenant billing (eg. BRM or Mediation) system.
- Tenant system will identify the M2M service identifier from the feed
- The credit control feed will be shared at regular intervals during the billing cycle
- The BRM will use the feed to check the credit being utilized by the Enterprise.
- The BRM will implement the Credit control measures based on the credit utilized during the bill cycle
- A consolidated invoice feed will be shared at the end of bill cycle, The BRM will generate the final invoice for the enterprise.
- BSS systems will manage the collection and payment from the enterprise (
- In case of continued non-payment or over utilization of credit during the bill cycle:
- The CMP offers comprehensive APIs to manage dunning and high toll Specific actions are triggered based on the dunning state:
- **Upon TOS (Suspend) "SUSPEND":** When an account reaches the "SUSPEND" state
- The system initiates the suspension of SIMs under that account
- Account Billing remains active
- The activation of new SIMs will be blocked
- New SIM Order placement will be blocked
- CMP will trigger the **suspension** based on the business requirements, towards the provisioning platform (eg: EDA) for the "Suspend (TOSS)"
- **Upon Reconnect or resume "ACTIVE":** When an account transitions back to the "ACTIVE" state
- The system initiates the **reactivation of SIMs** under the account
- Account Billing remains active
- CMP will trigger the **resume** based on the business requirements, consuming an API defined by Provisioning (EDA) for the "Resume (Reactivation)" scenario
- **Upon Non-payment Cease "TERMINATE":** When dunning leads to a "TERMINATE" state due to non-payment3....
- The system initiates the **termination of SIMs** under the account
- The system initiates the **cease of the customer account** (Business Unit)
- The system posts unbilled charges and applicable exit fees
- **Billing stops** for that account
- CMP will trigger the **termination** based on the business requirements, consuming an API defined by Provisioning (EDA) for the "Terminate (Cessation)" scenario

-If the Enterprise makes payment or Tenant reach agreement to resume services, API call will be sent towards CMP to resume services

- **Used by:** Business administration of respective Tenant, Credit Control team
- **Exposed by:** CMP Application Module
- **For:** Account Dunning, Resume and Suspension, Customer Initiated Cessation
- **Integration Requirements:** API integration required

4.5.3.1 Billing and Dunning flow



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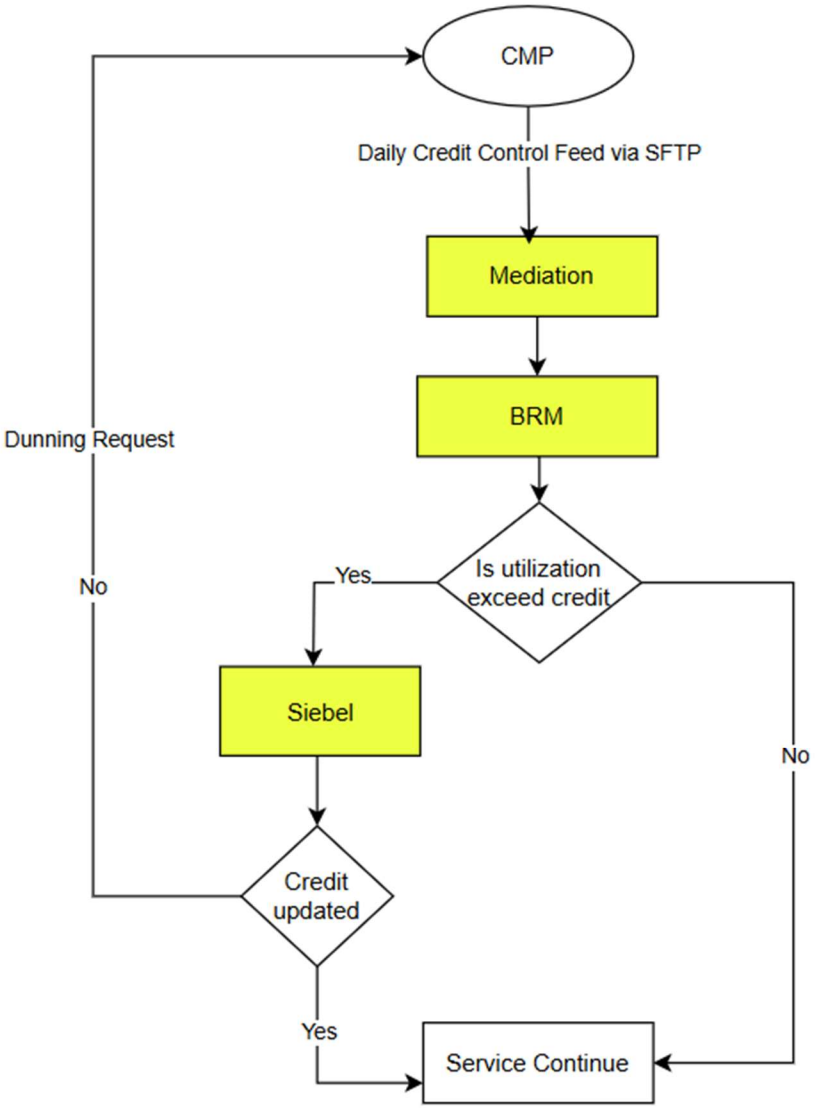
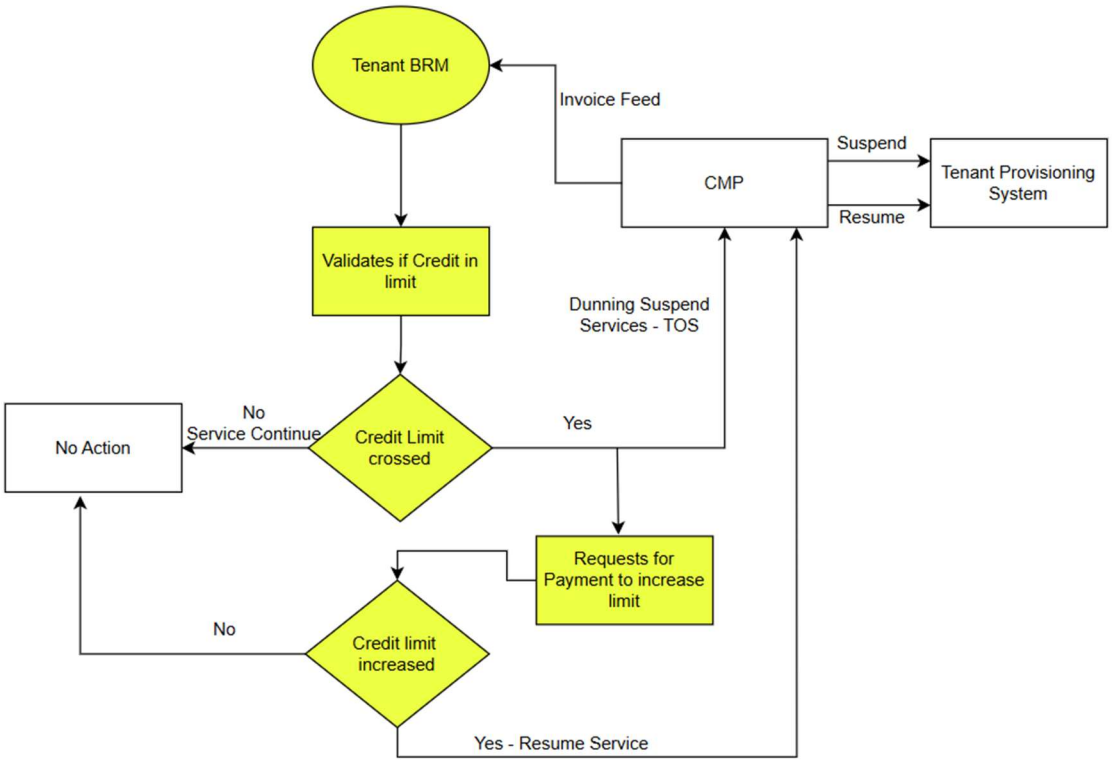
4.5.3.2 Credit Control flow



4.5.3.3 Service Resumption in case of High Toll (Over Credit)



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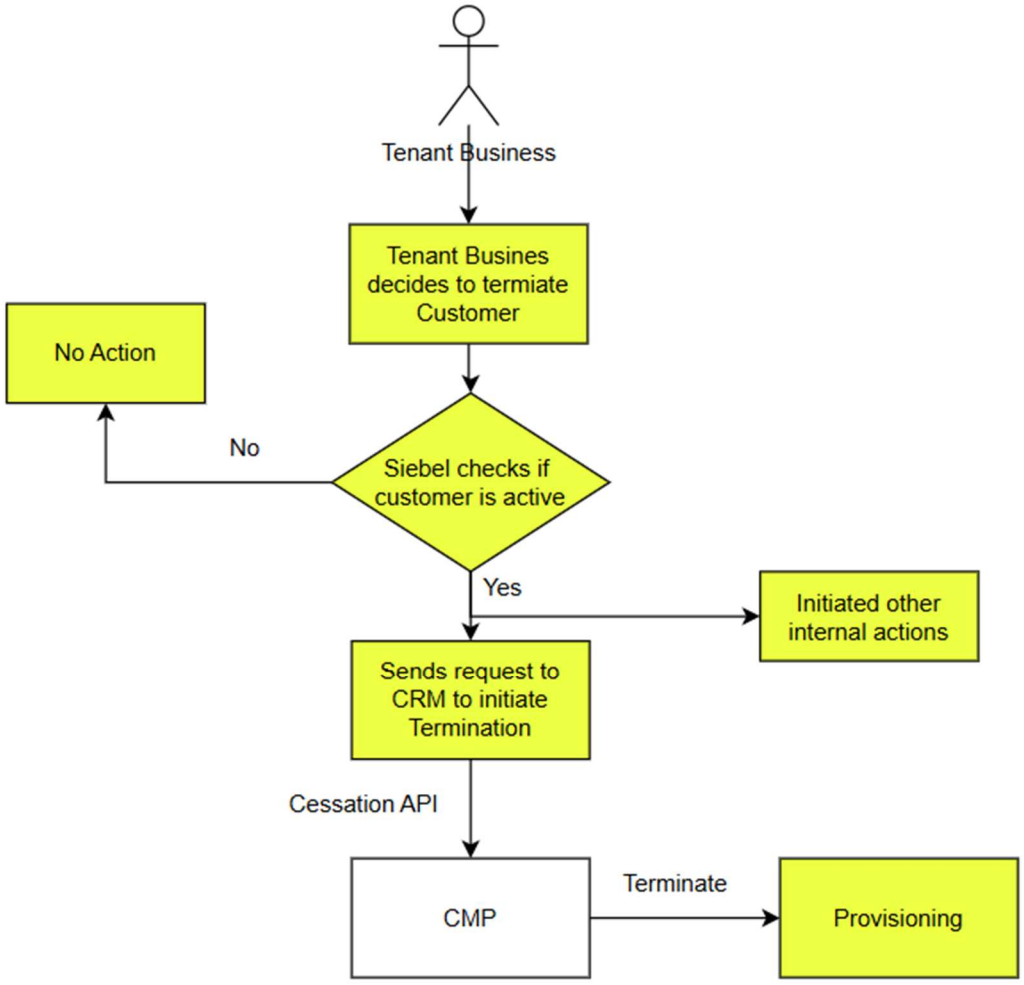
4.5.3.4 Customer Initiated Termination



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4.6 Reports

CMP offers standard out-of-box reports with respect to different events and operations. The reports are available on User Interface and can be downloaded. The reports can be shared with Datawarehouse for Tenants consumption and business reporting.

Various reports available are:-

- Activations
  - Number of SIM activations
- Data Reports
  - Data Sessions
  - Data Session Details
  - Data Usage
  - Data Usage Uplink
  - Data Usage Downlink
  - Data usage based on Network Type (3G/4G)
- SMS Reports
  - SMS Usage
  - SMS Details
- Voice Reports
  - Voice Usage
- Voice Details

CMP can share the reports to EDW

Format:- CSV

Method:- SFTP

Recipient:- EDW

Frequency:- Daily, Monthly

4.7 Revenue Assurance & Fraud Management

To support robust **Revenue Assurance (RA)** & Fraud Management capabilities, a structured data exchange and folder organization mechanism is proposed between **Tenant/Host** and **Vendor**. This ensures traceability, transparency, and accuracy in rating, invoicing, and reconciliation of **Online Detail Records (CDRs)**.

Product Catalog

Detail Report of Tarif Plan Configured in **Product catalog** with details like overage charges, PayG Charges, subscriptions, etc. for revenue assurance.

Frequency: Monthly

File Pushed to Mediation SFTP

Online CDRs

- Airlinq will put the online CDRs on a designated server from where Batelco can pull the CDRs for further Invoicing.

Frequency: Hourly

File Pushed to Mediation SFTP

CMP SIM Report

CMP will share the SIM report which is having the SIM details.

Frequency: Daily

File Pushed to Mediation SFTP

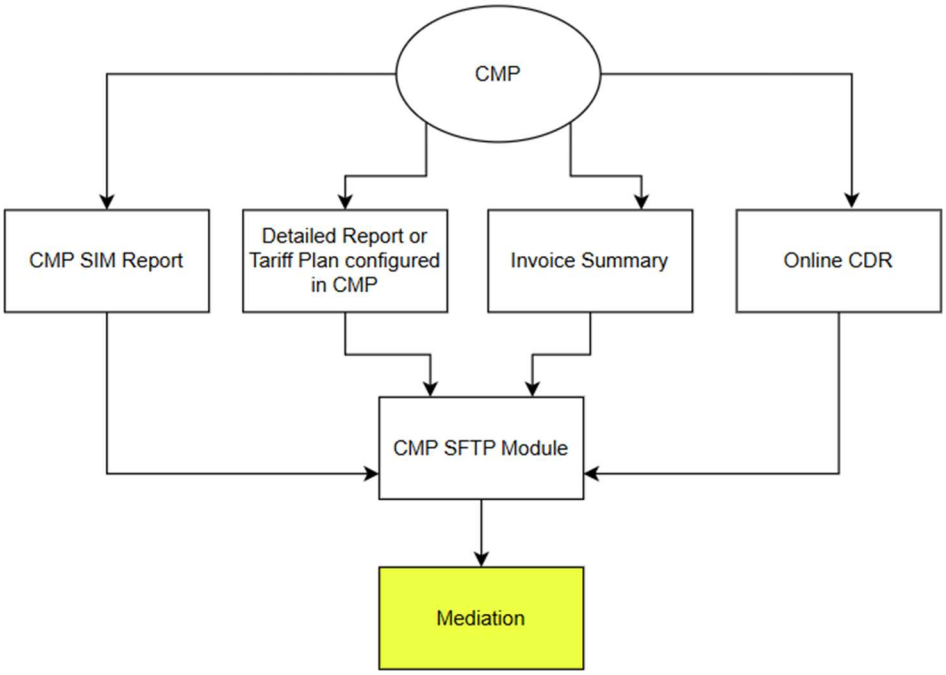
CMP Invoices

CMP will also share the invoice summary which is generated every month.

Frequency: Monthly

File Pushed to Mediation SFTP

- CMP shares feed with Revenue Assurance system.
- RA system validates the invoice
- **Format**: CSV
- **Method**: SFTP delivery
- **Recipients**: Revenue Assurance Systems

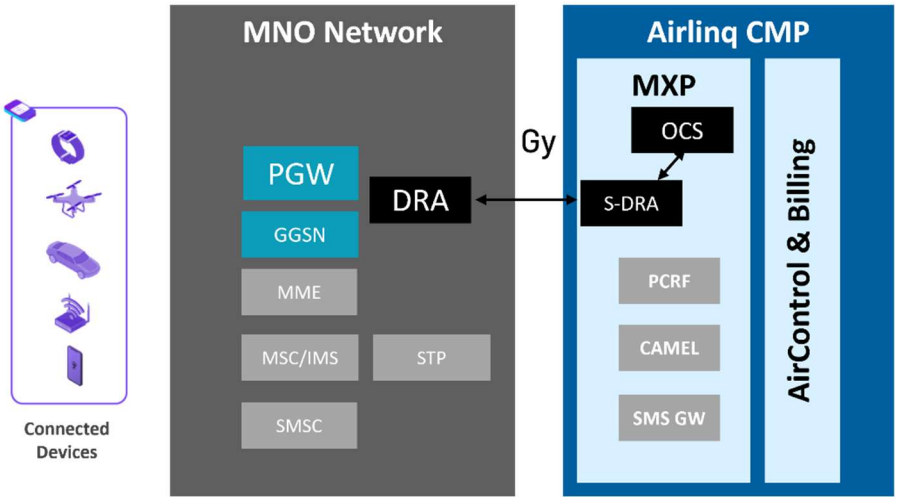


**Yellow colored boxes are tenant's task*

4.8 Data Charging Integration

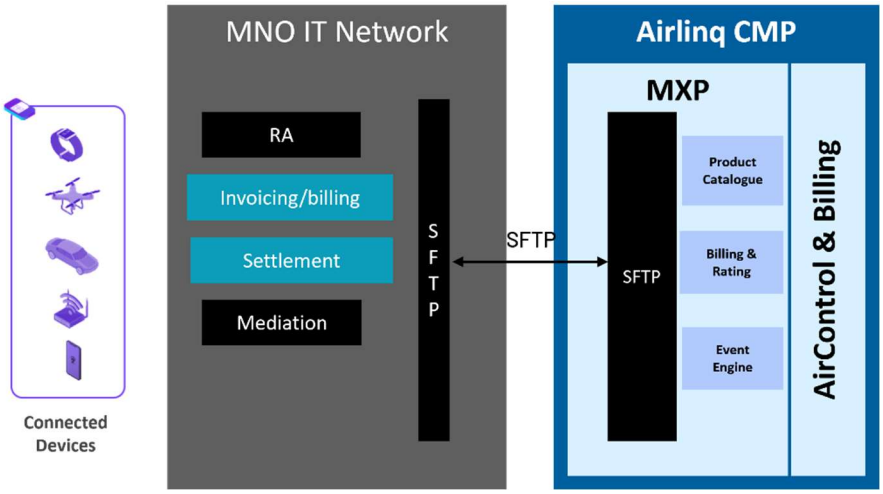
The Airlinq CMP platform is designed to support real-time charging mechanisms by integrating with the MNO's core and IT systems.

For data usage charging, the CMP integrates via **Gy (Diameter protocol)** using an S-DRA to connect with the operator's OCS through the PGW/GGSN. This enables online rating, quota enforcement, and session-based charging with secure SCTP/TCP transport.



4.9 Offline SMS Charging

SMS usage is processed offline using **CDRs**, which are pushed from the MNO mediation platform via **SFTP**. The CMP system handles these events for **accurate rating, billing, and reporting**, with integration into downstream tenat systems.

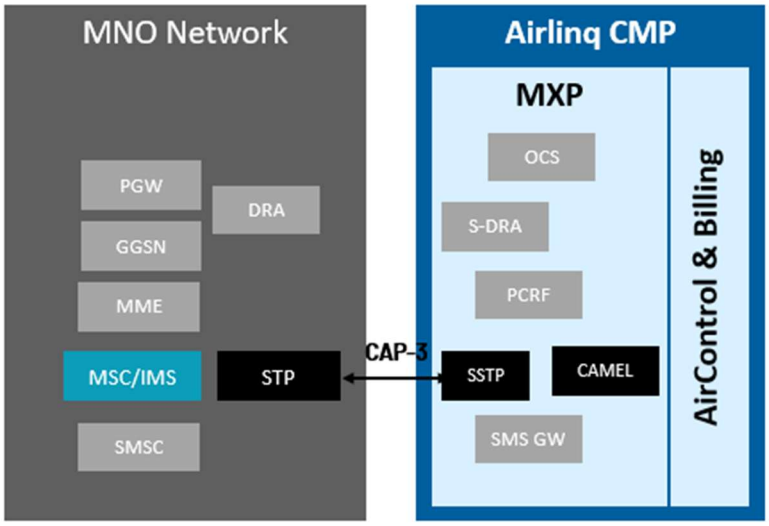


4.10 Online SMS Charging

CMP Offers realtime chardging for SMS usage

CMP integrates via SCAP v3 **(CAMEL protocol)**. CMP STP integrates with Tenant network SSF (MSC)

CMP also supports SMS Whitelisting over this integration



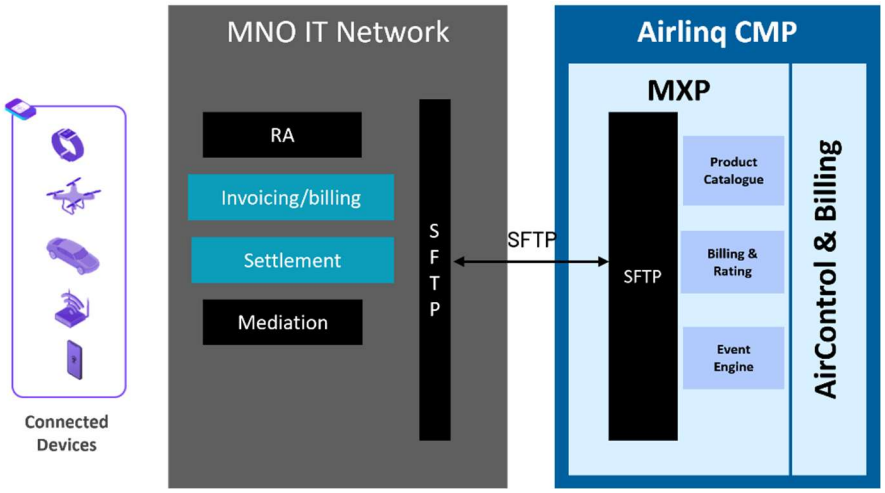
CMP will require following for integration

- STP Point Codes
- SIGTRAN Connectivity
  - IP Address
  - SCTP /TCP Port
  - Mode – Server/Client
  - SCTP Path Specs – Single/Multi homing
  - Routing Context (RC)

4.11 Offline Voice Charging

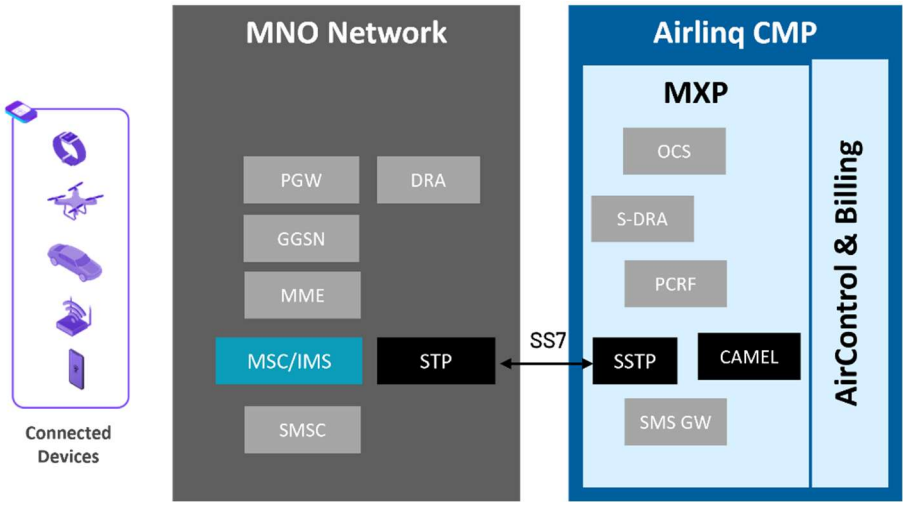
Airlinq CMP integrates with the MNO's **network** to support **offline voice charging** via **SFTP**. To support Offline voice usage CMP needs integration below.

- Airlinq CMP SFTP system required SFTP integration with Operator Mediation
- Voice and SMS usage CDR file will be generated based on Operator System specification
- CDR file will be pushed on agreed frequency



4.12 Online Voice Charging

- Airlinq CMP integrates with the MNO's **core network** to support **online voice charging** via **CAMEL protocol**.
- Voice usage data is captured using **STP and SIGTRAN (SS7 over IP)** and processed into **CDRs** (Call Detail Records).
- Integration Pre-Requisite
- STP Point Codes
- SIGTRAN Connectivity
- IP Address
- SCTP /TCP Port
- Mode – Server/Client
- SCTP Path Specs – Single/Multi homing
- Routing Context (RC)



4.13 Notifications

CMP sends Notifications and alerts to users (tenant and enterprise) based on actions being taken

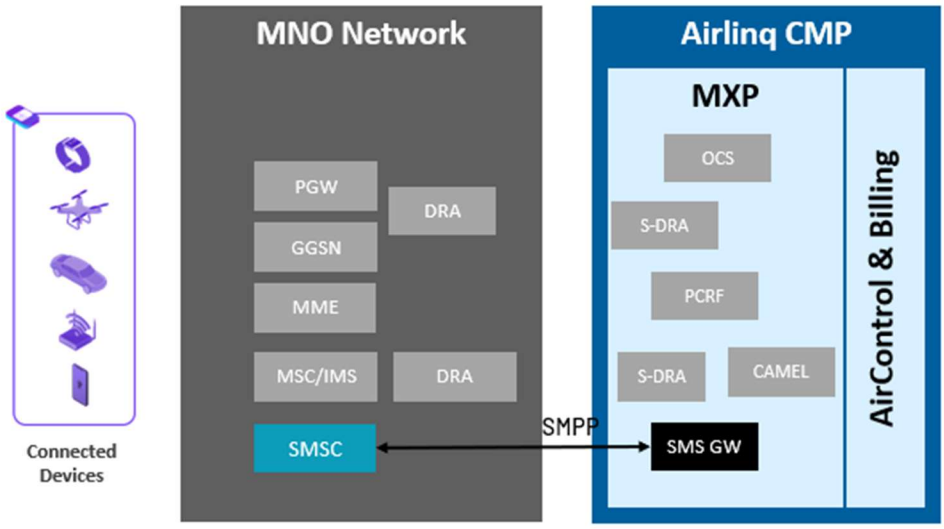
Some Out Of Box Notifications are

1) Welcome message to the entity when it is onboarded
2) OTP Notifications as 2FA for log in
3) Reset password
4) Other Rule based Notifications and system alerts

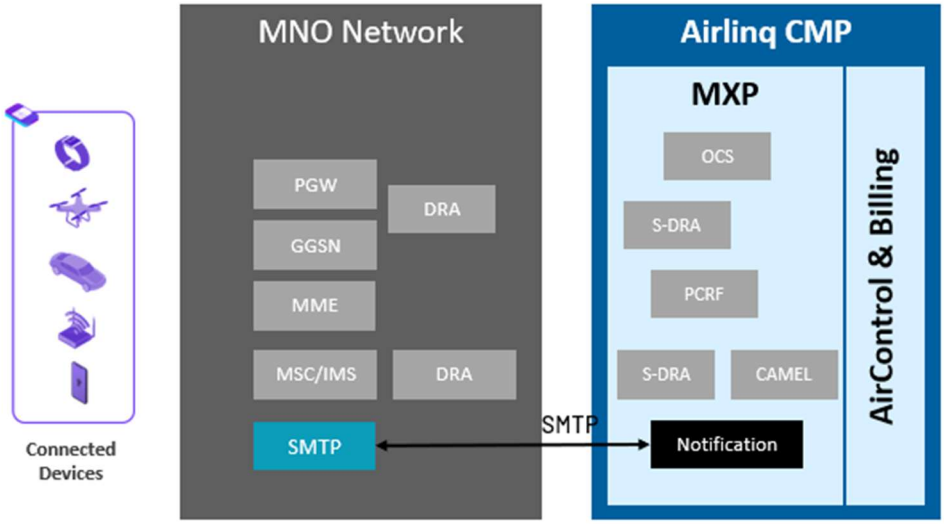
These Notifications are sent using email and SMS integrations

- **Initiated by** :- CMP to deliver notifications
- Protocols used:- SMPP, SMTP
- Prerequisite :
- SMS :
    - SMPP Gateway IP Address
    - Port
    - System Type (optional)
    - System ID
    - Password
    - Sender Address
- Email :
        - mail.transport.protocol
        - mail.smtp.host
        - mail.smtp.port
        - mail.username
        - mail.password

4.13.1 SMS Delivery

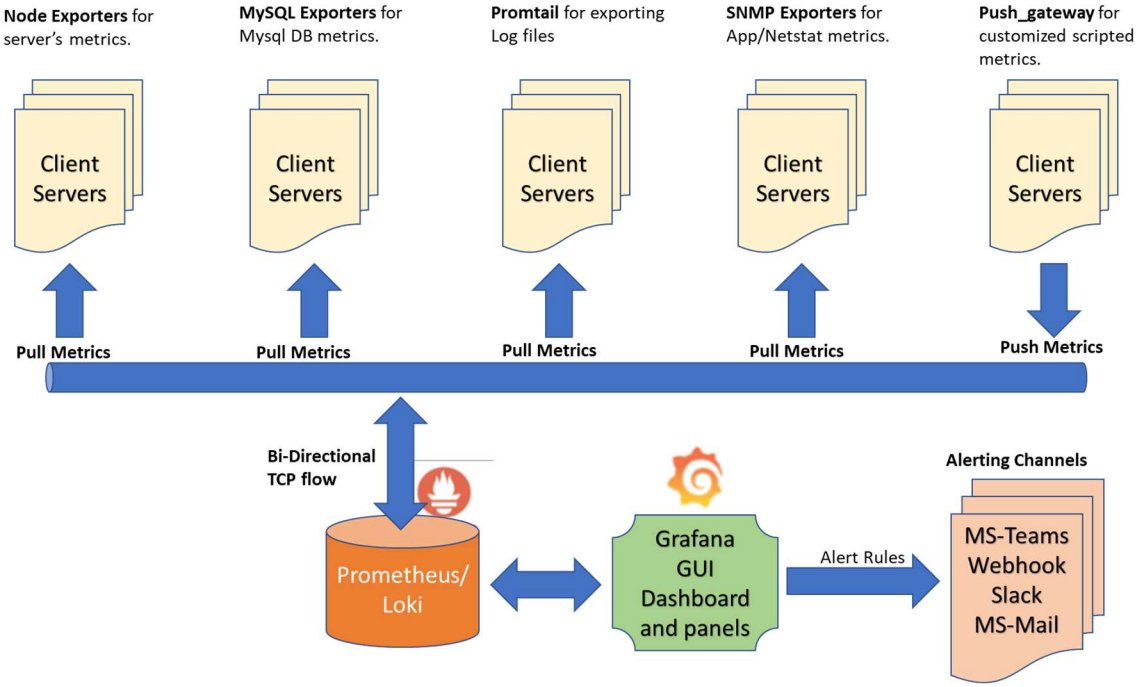


4.13.2 Email delivery



5 CMP operation and monitoring

The CMP offers an out-of-the-box operational monitoring system based on Grafana and Prometheus, enabling efficient monitoring of alarms, traps, and operational KPIs. This chapter outlines the integration and technical details of the monitoring tools.



6 Nonfunctional Integration

This chapter outlines the non-functional integrations to be completed for the CMP within the BATELCO environment.

6.1 Backup and restore

DB Backup:

We will schedule script to take daily full backup of Mysql and Postgress Database at midnight hour and will keep last 7 days backup on local Node.

Also we will push this backup copy on dedicated "Backup Storage", so there we can keep the last 90 Days DB backup in zip format.

DB Restore:

In case of any abnormal situation like Database crashed or corrupt, we can restore it from Backup present on local Node.

If there is no backup present on local node then we can copy the old DB backup from dedicated "Backup Storage" and will restore DB.

Application Backup:

We will schedule script to take backup of application config, OS and Network parameter twice a week and will keep the last 4 backup on local node.

Also we will push this backup copy on dedicated "Backup Storage", so there we can keep the last 180 Days application backup in zip format.

DB Restore:

In case of any abnormal situation, we can restore application configuration, OS and Network configuration from Backup present on local Node.

If there is no backup present on local node then we can copy the old backup from dedicated "Backup Storage" and will restore application configuration.

6.2 Archival policy

The CDR related to Voice, SMS and Data usage is kept in a local node for 30 days.

The CDR older than 30 days till 1 year we can store it on dedicated "Offline Storage for CDR" in zip format.

The archive policy for DB report is as follows.

Information Description	Online Retention Period
Audit Trail	90
API transactions Log	90
Rule Engine logs	90
Batch Job logs	90
Daily usage report	180
Weekly usage report	365
Monthly usage report	730
Yearly usage report in	1825
Download center	2
Active Alerts	60
Orders Details	365
Pre Invoice Reports	120
Total Invoicing Reports	120
General Pre Invoicing Reports	120

