



WideCoup BSS

Convergent Billing System
Technical Overview



Powering the Digital Transformation

NATEC

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Convergency for business diversity

Make diversification of
your business with
WideCoup BSS

Convergent billing to
account all services within
one system

All-in-one billing of Your
Core Business

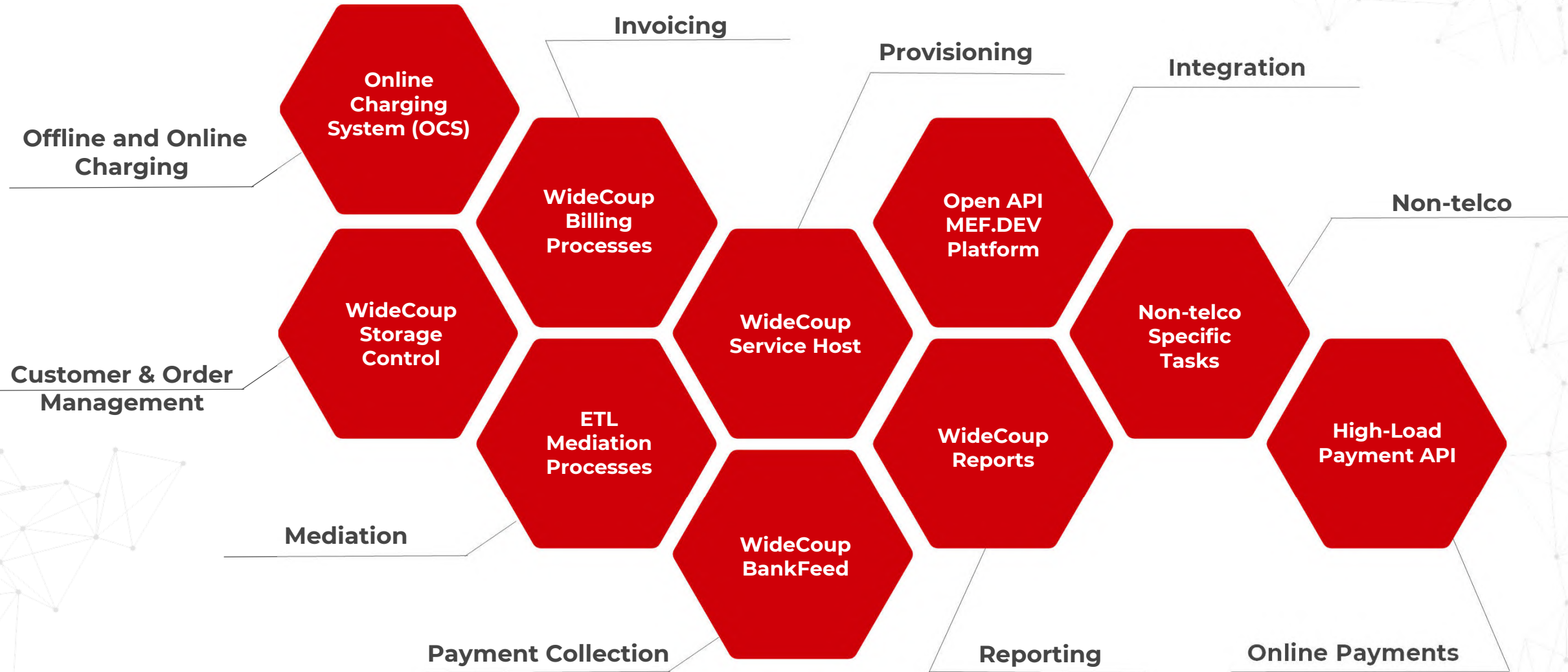
- Value additional services
- Cloud services brokerage
- Pay-As-You-Go infrastructure
- IoT, non-telco services
- Wholesale partnership with CSP
- Physical goods and services
- Equipment installments
- Telecom Open Network Services
- Managed contact center services

Key Features

- Real-time pre-paid and post-paid
- Convergent for all your services
- Comprehensive charging, provisioning, and invoicing
- Own integration platform for short legacy swap
- 5G and 3GPP supported
- Cloud & On-premise based
- Enterprise level resilience and scalability
- Nationwide provider references
- 24/7/365 support
- Acknowledged by global industry leaders



Platform Modules



Key Billing Entities



Account

A billing object which contains information on the list of services, their quantity and cost, discount values, and tax amounts



Customer

A legal entity or an individual, that has contractual relations with the communication service provider



Subscriber

A billing object, one of whose attributes is the phone number or another identifier



Package

A set of output data for tariffing and billing for a particular accounting period on the device



Subscription

A billing object which contains all the necessary information on tariff conditions at specific timeline of subscriber's activity



Charges

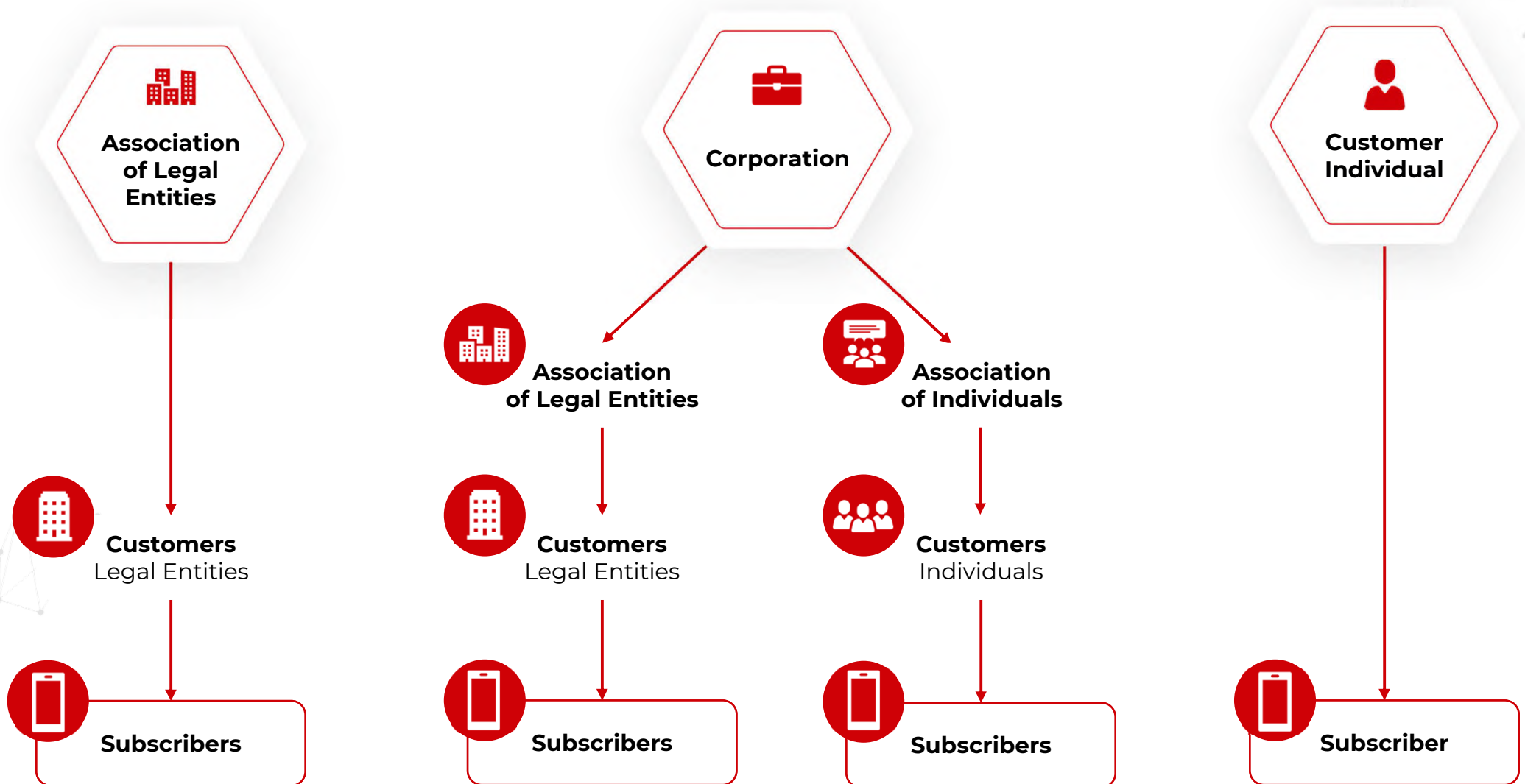
Periodic charges on ordered services and costs of one-time operations







Device

An object of billing and logic identifier of the CDR source for tariffing and billing of homogeneous services (e.g. telephony services or cloud consumption)

Accounting concept



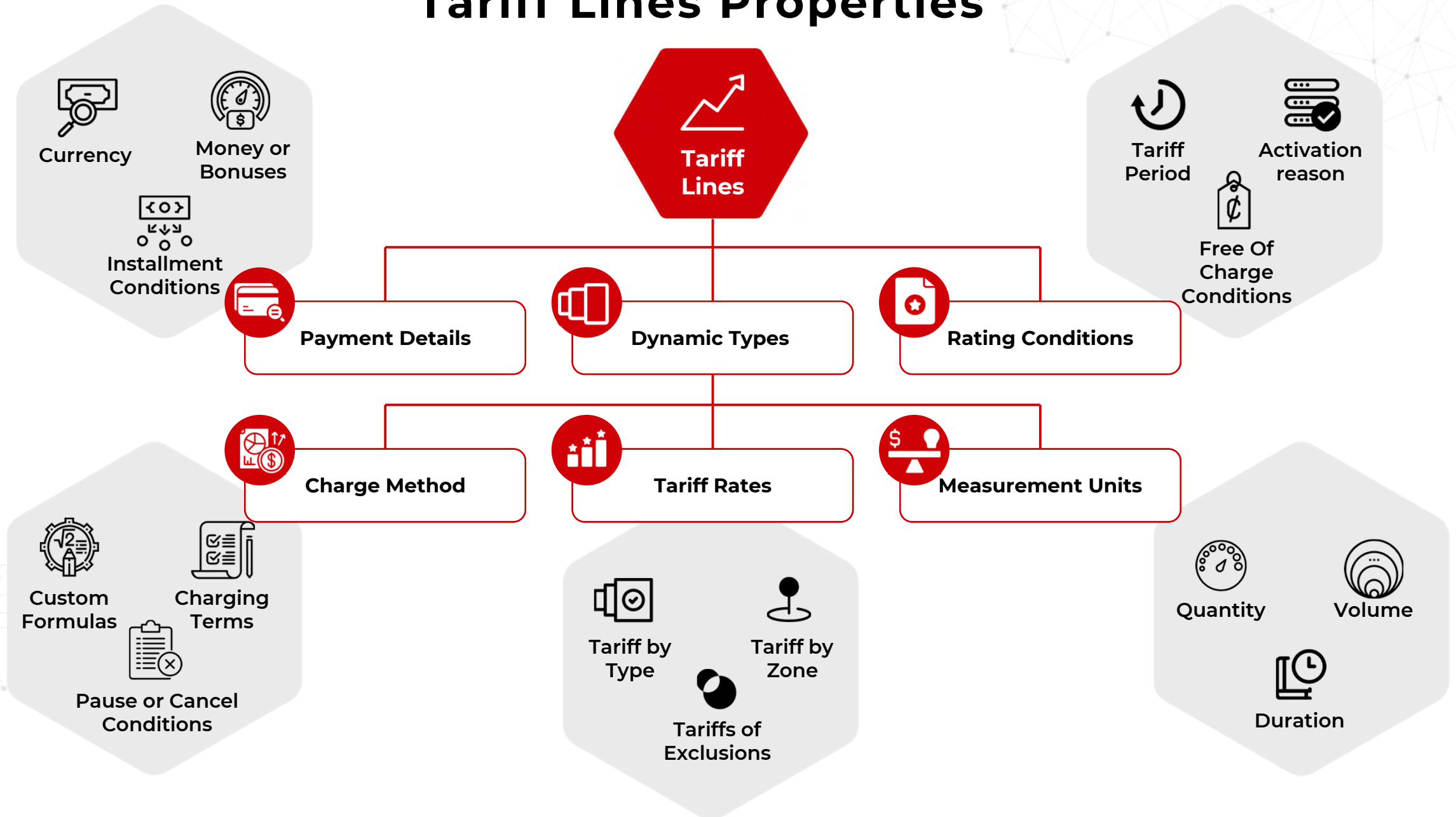
	 Corporation	 Association	 Customer	 Subscriber
Single Payment		✓		
Aggregated Balance		✓		
Customers Pool		✓		
Legal and Address Info		✓		
Individual Discounts	✓	✓	✓	
General Agreement	✓	✓		
Core Account			✓	
Contracts			✓	✓
Payments			✓	✓ Personal
Subscribers Pool			✓	
Gains and Adjustments			✓	✓ Personal
Balance			✓	✓ Personal
Personal Account				✓ Personal
Service Profiles				✓
Charges				✓
MSISDN and Network ID				✓



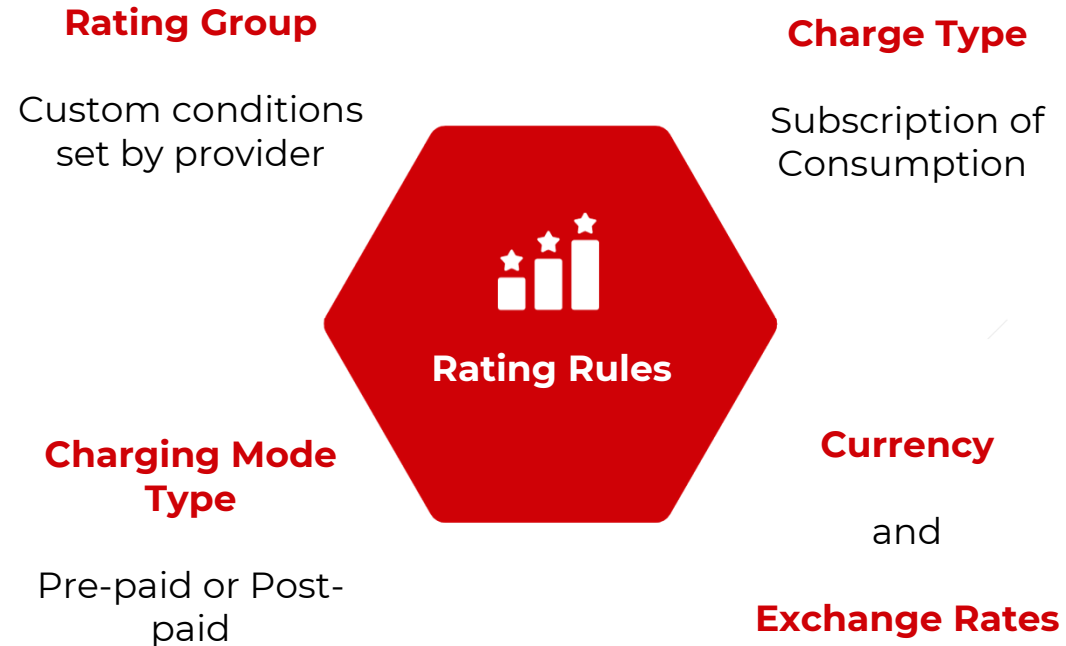
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Rating & Tariffs

Tariff Lines Properties



Tariff Package & Rating rules

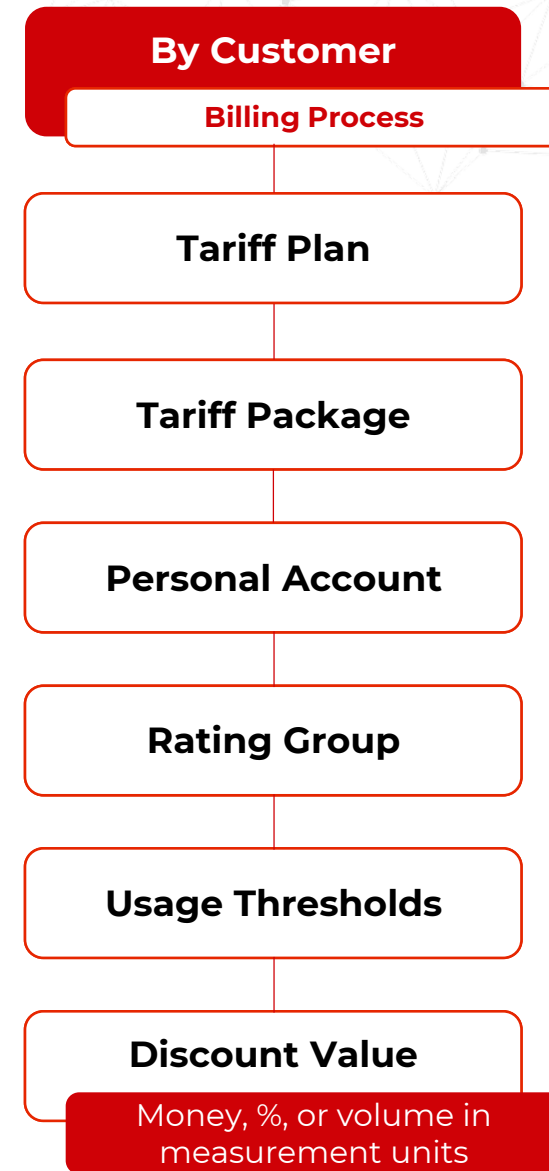
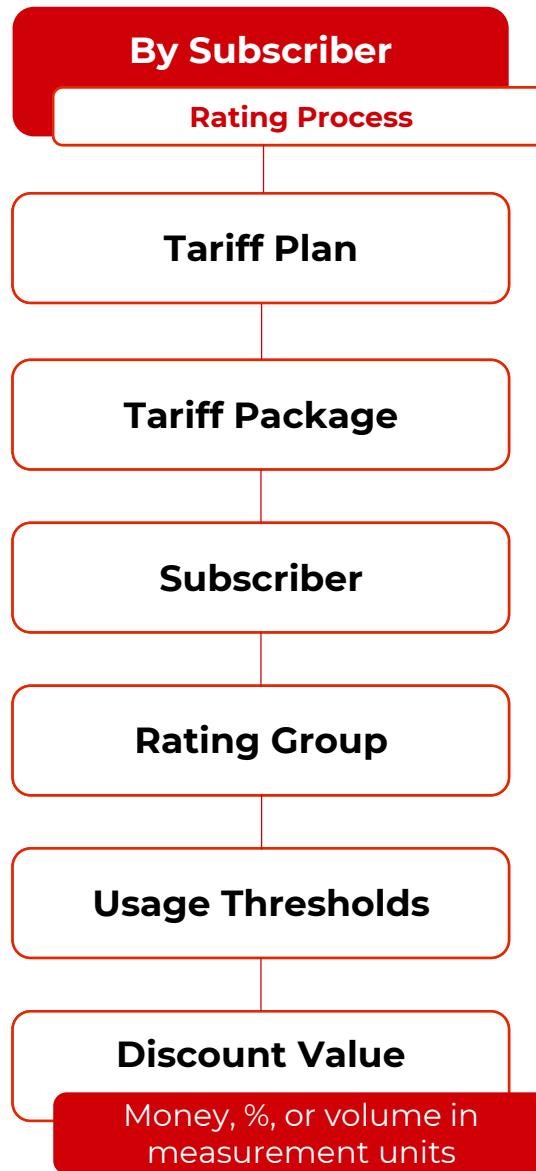


Tariff package is a set of services and the rules of rating of these services

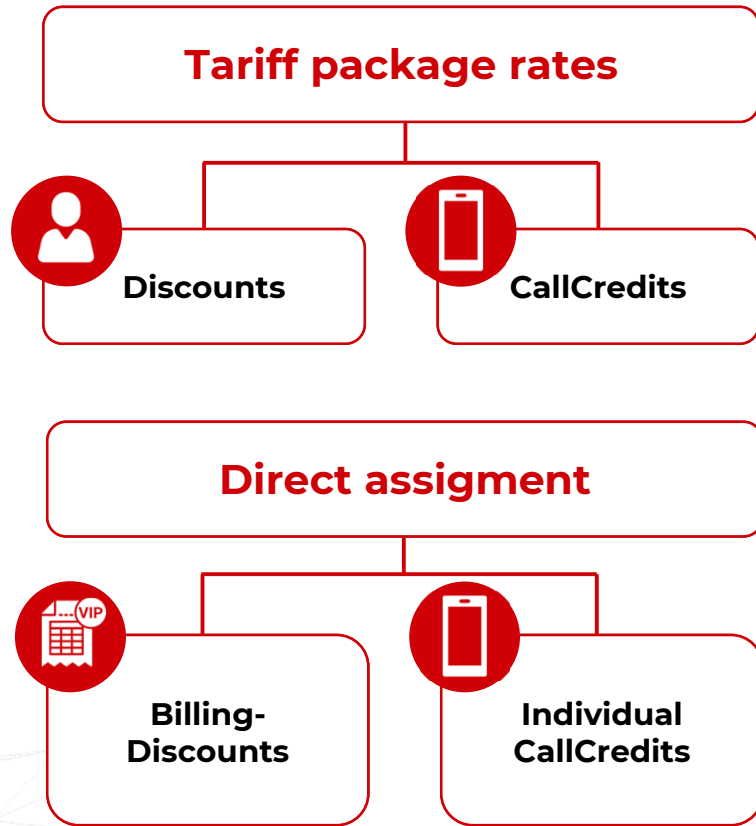
Tariff Plan is a set of tariff packages for a particular network standard

The services are activated to subscriber when the Package is connected, but optional services **can also be applied**.

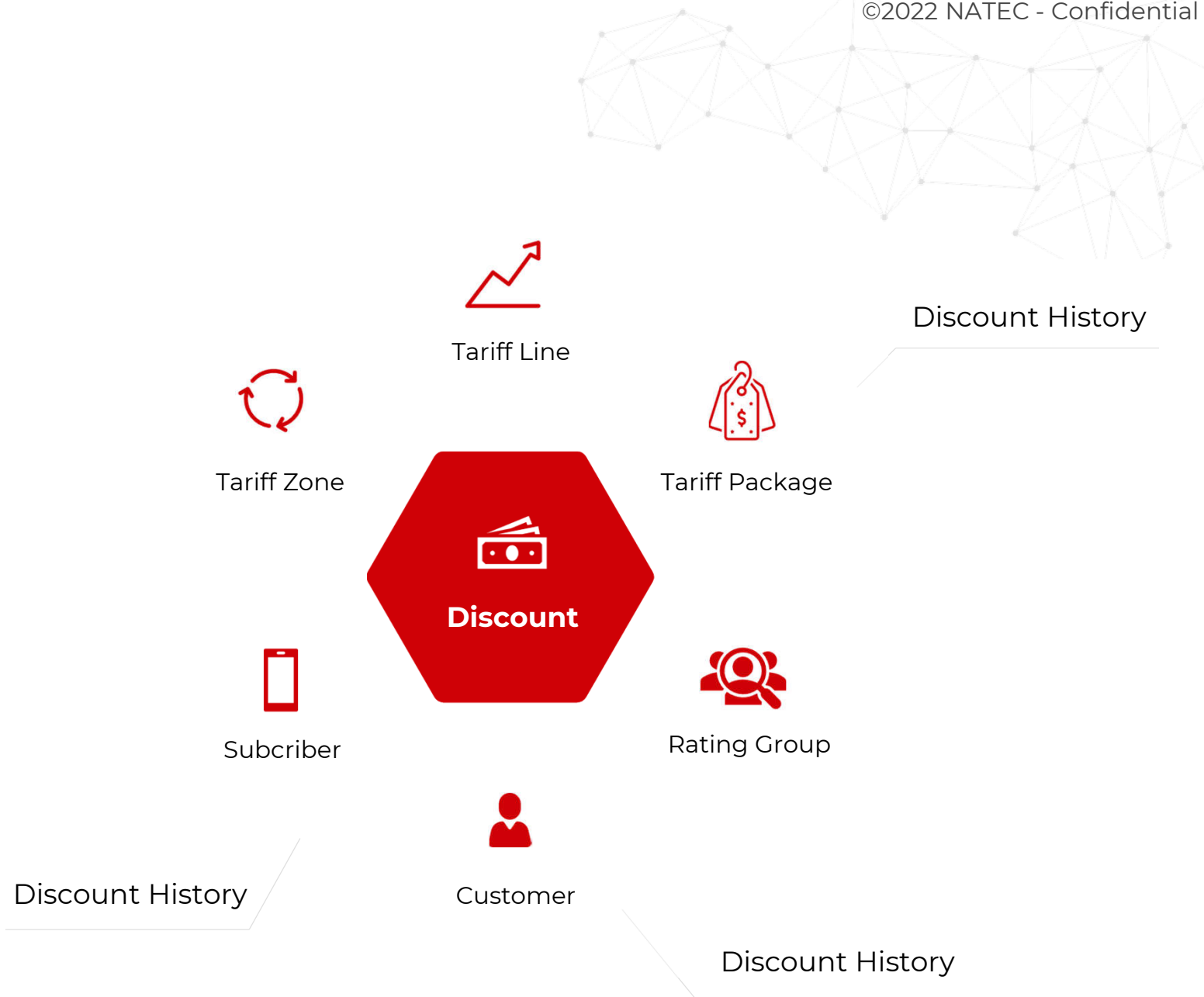
Discounts Concept



Discount Attributes



*The discount can be assigned to Tariff Package, Subscriber, or Customer - the linking is being made **historically***





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Charging



Pre-Paid

Immediate Event Charging

Online

Event

Online Charging System

Balance Update

Invoicing

Post-Event Charging

Online

Session Charging
(SCUR)

Event Charging
(ECUR)

Online Charging System

Reservation

Balance Update

Invoicing

Post-Paid Charging

Offline

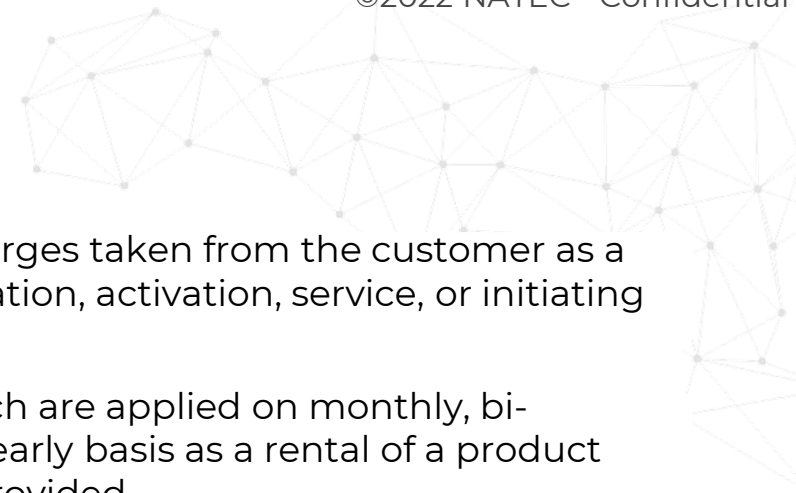
CDR or Event

Mediation

Offline Charging System

Balance Update

Invoicing



Charging Events



Service Activation / Installation

One-time charges taken from the customer as a part of installation, activation, service, or initiating a connection



Periodic

Charges, which are applied on monthly, bi-monthly, or yearly basis as a rental of a product and service provided



Product Usage

Charges, which are applied on monthly, bi-monthly, or yearly basis as a rental of a product and service provided



Product Suspension

Charges, which are applied if the product is suspended for some reason



Product Re-Activation

Charges, which are applied if the product was suspended and needs to be re-activated



Service Cancellation

Charges, which are applied on termination of a product or service

Balance equation

Actual Balance

=

The balance of the last existing billing cycle

The sum of customer's payments in the cycle, excluding technological payments

The sum of taxes on charges in the billing cycle

The sum of charges for an account in the cycle

The sum of "charging adjustments", "balance transfer to", and "fine for payment delays"

Billing Balance

+

Payments

-

Taxes

-

Charges

-

Adjustments 1

+

Adjustments 2

+

Gain Value

-

Reservation

+

Virtual Amount

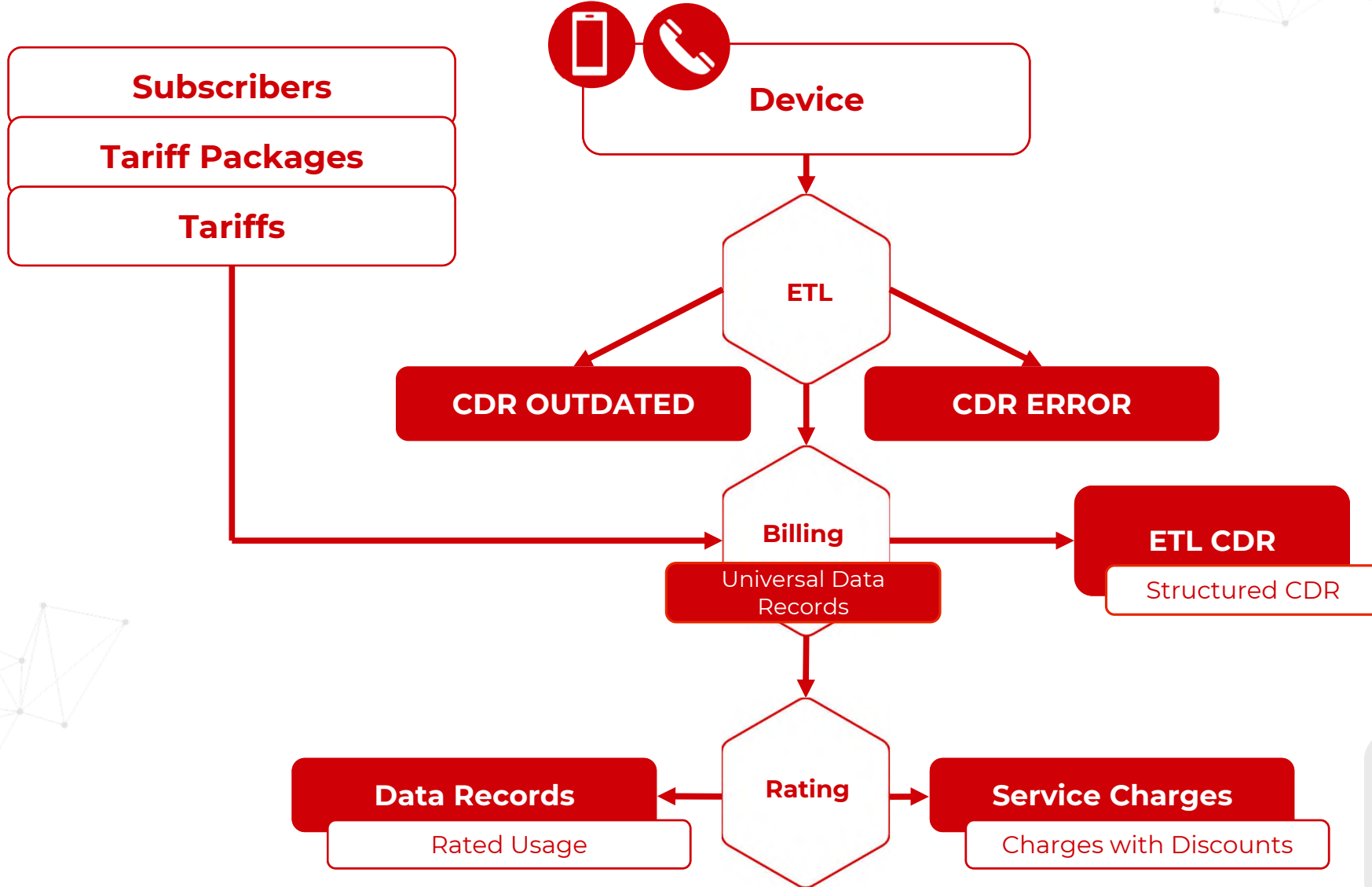
The sum of "error charging adjustments" and "balance transfer from", not accounted by the billing

The allowed account credit level value

The sum of services cost under the Online Charging System reservation process

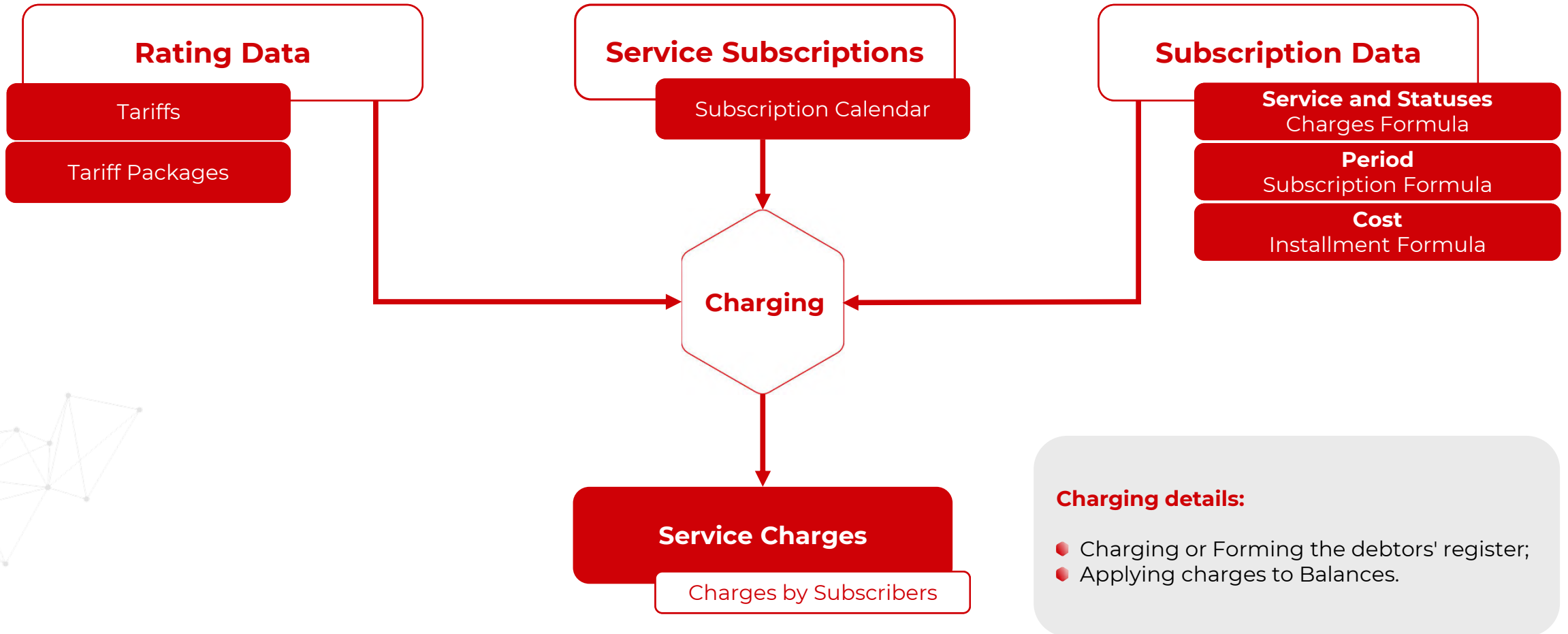
The sum of virtual payments

CDR-Based Charging



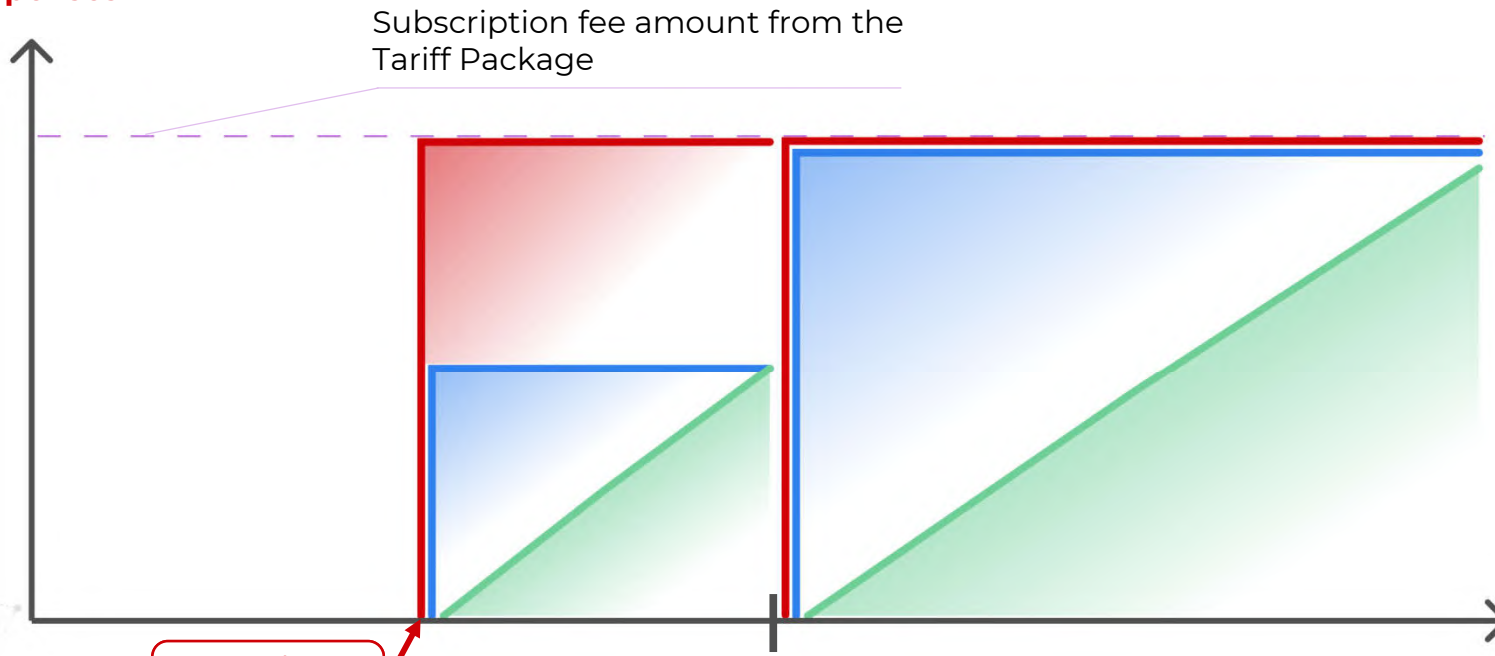
Rating details:
Applying tariffs considering history and priority

Subscription-Based Charging



Subscription-Based Charging

\$ Expenses



Subscription fee amount for the service in the first and following months may vary (it is formulated in the tariff package)
The number of periods of variances is unlimited

Service Activation

Charges

Non-Prorated

Prorated

Daily

Charging Presets

Unlike one-time charges, the charging process is based on the configuration (e.g. Custom Formulas) which includes, except for the subscription terms formulas, the calculation and charge formulas, that can be combined with each other

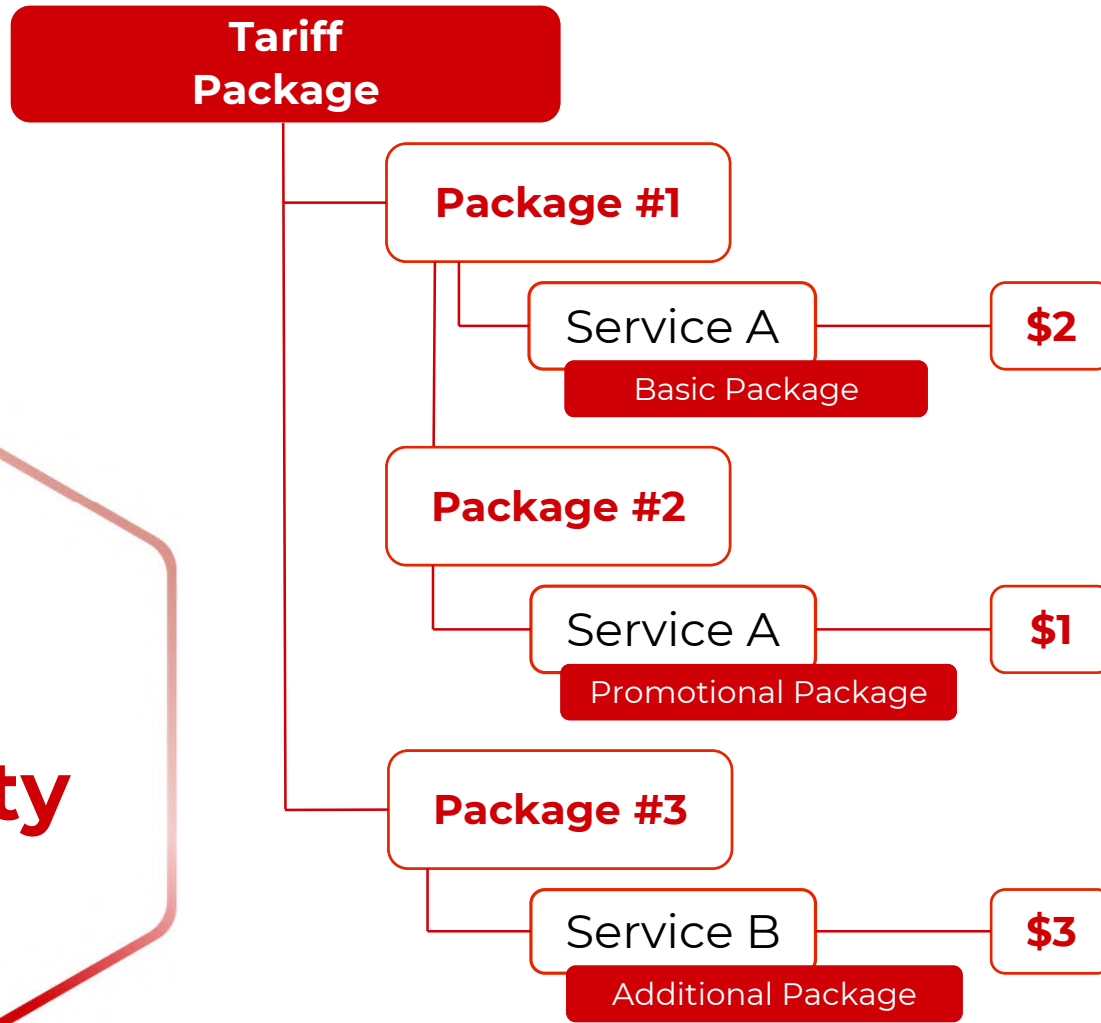
Charging Formula	Charge Method	Charging Period	Specifics
Prorate	FirstDayOfMonth	Charged on the first day of the month*	By the planned number of days of subscription on the 1st day, except for the Suspension time or in the financial block
Prorate	LastDayOfMonth	Charged on the last day of the month*	By the actual number of days of subscription, except for the Suspension time and financial block
Cost	FirstDayOfMonth	Charged on the first day of the month*	By each subscriber's number, if the service has been enabled for at least one second in a month, minus the Suspension time and not counting the financial block, and excluding the enablement of service on the last day of the month
Cost	LastDayOfMonth	Charged on the last day of the month*	
CostBySubs	FirstDayOfMonth	Charged on the first day of the month*	By the 1st paid subscription for a service, if the service has been enabled for at least one second in a month and excluding the Suspension time not counting the financial block, and excluding the enablement of service on the last day of the month
CostBySubs	LastDayOfMonth	Charged on the last day of the month*	
Cost	Everyday	Recalculates every day	By each subscriber's number, if the service has been enabled for at least one second in a month, minus the Suspension time and not counting the financial block, and excluding the enablement of service on the last day of the month
CostBySubs	Everyday		By the 1st paid subscription for a service, if the service has been enabled for at least one second in a month and excluding the Suspension time, and not counting the financial block, and excluding the enablement of service on the last day of the month

*

for prepaid tariffs – in case of insufficient funds upon receipt of money (except the top-up on the last day of the month)
for postpaid tariffs - charging will be negative



Rating Flexibility



In this example, the subscription fee for using the **Basic Package** and **Additional Package** is \$5 per month.

When the provider activates the **Promotional Package**, the subscription fee for the same services becomes \$4 per month.

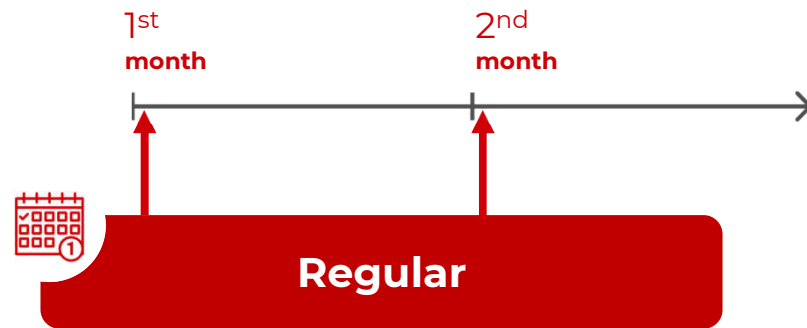
The subscription fee for each service is being calculated using the charging formula, which is specified in the **Package**.



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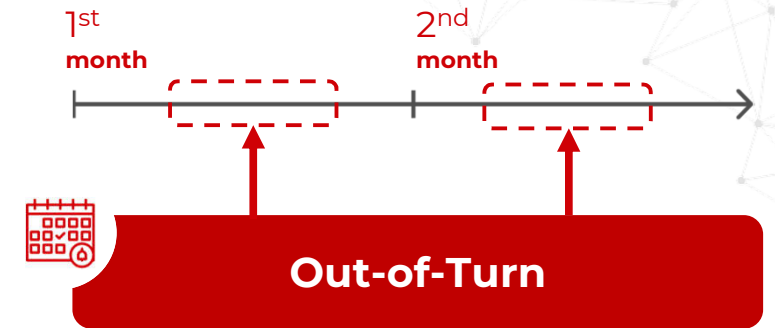
Billing & Invoicing

Types of Billing



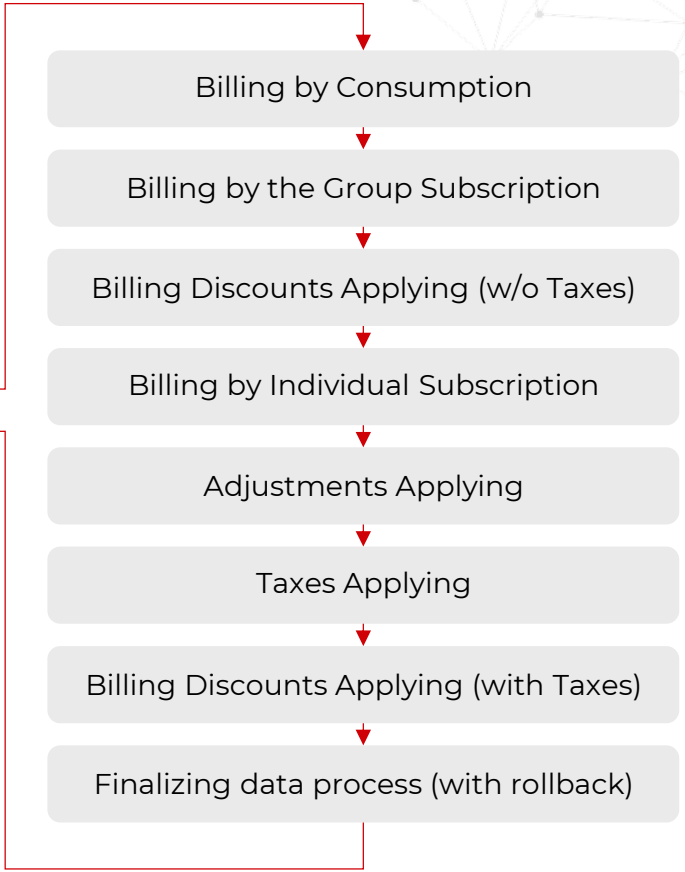
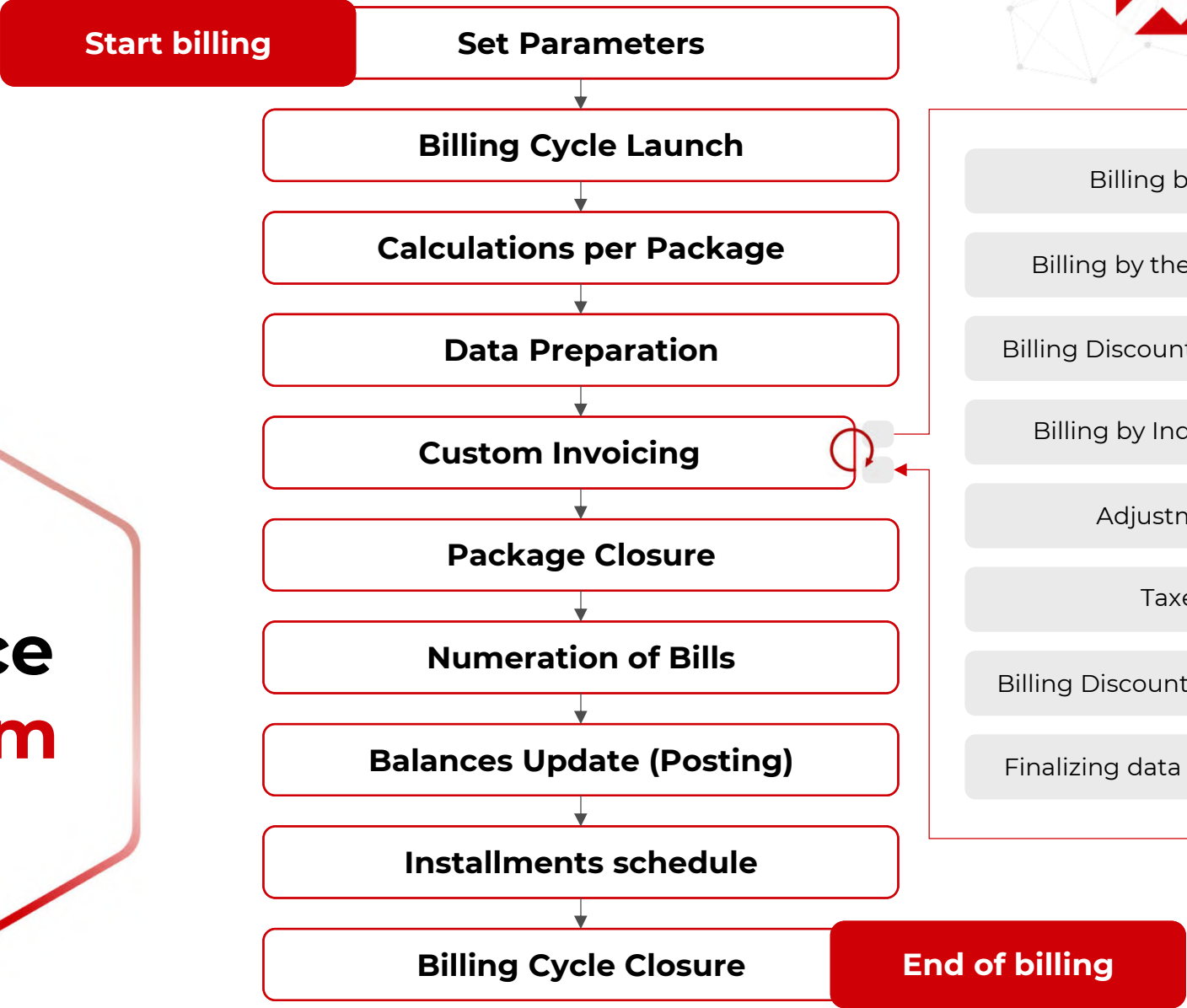
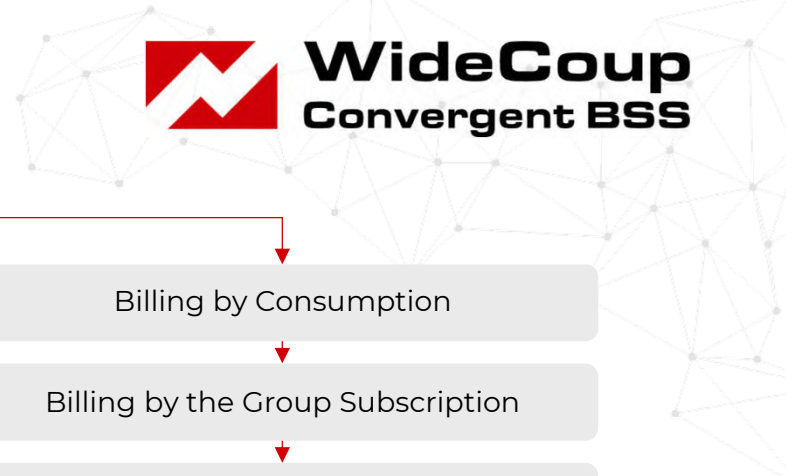
Periodic billing is carried out by default **at the beginning of the next billing cycle** (by default each month, but can be day or quarter) by:

- a group of **Devices**
- **Packages**
- all **Customers**



Out of turn billing is carried out by a **single customer or a discount group**. The launch is carried out by the administrator or by API call

- per one Customer
- Per one Discount Group
- by **Request**



**Sequence
Algorithm**

Administrator's UI

Call packages

English

[Help](#) | [Access to the system](#) | [Version of the program](#)

Invoicing process	Result by package
Пред-биллинговая проверка: sp_PreBillingIntegrityCheck (FTTB)	view
Групповая выписка счетов по группе устройств: sp_RunSetBillsGroups_2 (FTTB)	view
Пост-биллинговая проверка: sp_PostBillingIntegrityCheck (GSM)	view
Групповая выписка счетов по группе устройств: sp_RunSetBillsGroups_1 (FIX)	view
Формирование XML для счетов: XmlBillsCreate_10154912 (FIX)	view
Закрытие очередного периода : Billing.Posting.pkt_ID=10154931 (GSM)	view
Закрытие очередного периода : Billing.Posting.pkt_ID=10154930 (FTTB)	view
Закрытие очередного периода : Billing.Posting.pkt_ID=10154929 (FIX)	view
Формирование XML для счетов: XmlBillsCreate_10154931 (GSM)	view
Формирование XML для счетов: XmlBillsCreate_10154930 (FTTB)	view
Групповая выписка счетов по группе устройств: sp_RunSetBillsGroups_3 (GSM)	view

 Show data for the last 3 months

 Show the number of calls and the amount for each package

 Start date Billing cycle Device Group: Package Status: Display packages Type: [Apply](#)
[Show group operations](#) | [Create package](#) | [Re-tariffication](#) | [Cube repouring](#)

Number	Package name	Type	Device group	Start date	Date of completion	Created	of Calls	Traffic amount	The sum of accounts	Cycle number	Status	ModifiedBy	Modified Date	Actions	Closed
10154972	10154972, 2021 - 10, GSM	Monthly	GSM	01.10.2021	31.10.2021	07.10.2021					Package is active.	sa	07.10.2021 12:23:31.000		<input type="checkbox"/>
10155002	10155002, 2021 - 11, FIX	Monthly	FIX	01.11.2021	30.11.2021	18.11.2021					Package is active.	ucpteam	18.11.2021 16:53:06.000		<input type="checkbox"/>
10154988	10154988, 2021 - 11, FTTB	Monthly	FTTB	01.11.2021	30.11.2021	19.10.2021					Package is active.	netls	19.10.2021 15:35:39.000		<input type="checkbox"/>
10155003	10155003, 2021 - 11, GSM	Monthly	GSM	01.11.2021	30.11.2021	18.11.2021					Package is active.	ucpteam	18.11.2021 16:53:06.000		<input type="checkbox"/>
10154993	10154993, 2021 - 10, FIX	Monthly	FIX	01.10.2021	31.10.2021	22.10.2021					Package is active.	sa	22.10.2021 18:17:03.000		<input type="checkbox"/>
10154971	10154971, 2021 - 10, FTTB	Monthly	FTTB	01.10.2021	31.10.2021	07.10.2021					Package is active.	sa	16.12.2021 21:47:48.240		<input type="checkbox"/>
10154960	10154960, 2021 - 10, FIX	Monthly	FTTB	01.10.2021	31.10.2021	30.09.2021				10030581	accounting completed	netls	19.10.2021 17:14:39.787		<input type="checkbox"/>

Customizable UI - Invoices

PERIOD	QUANTITY	STATUS	BILL AMOUNT	AMOUNT TO PAY	DUE DATE	DEBT OVERDUE
▶ January 2022	0	New	\$0.00	\$200.00	01.31.2022	\$0.00
▶ December 2021	0	Paid	\$0.00	\$200.00	12.31.2021	\$0.00
▼ November 2021	2	Overdue	\$600.00	\$200.00	11.30.2021	\$180.00

11/11/15

Invoice: 8361

Item: IOT Licenses (code: 400109)

Balance Unit, USD: 0.00

Q-ty: 4

Charges, USD: 400.00

Price, USD: 100.00

Amount Payments, USD: 0.00

Total, USD: 400.00

Balance Total, USD: -400.00

Taxes, USD: 00.00

21/11/03

Invoice: 8361

Item: IOT Licenses (code: 400109)

Balance Unit, USD: -400.00

Q-ty: 1

Charges, USD: 200.00

Price, USD: 166.67

Amount Payments, USD: 20.00

Total, USD: 166.67

Balance Total, USD: -580.00

Taxes, USD: 33.33

Customizable UI – Account Settings

Account Number: **101022018171**
 Mode: Core Account

Account Balance: **35.00**
 Currency: USD

Creation Date: 2021-12-26
 Last Update: 2022-01-04

Account Type:

Tax Profile: Change

Legal Entity Form:

Company Name: Change

Delivery Method: Language:

Contact Person:

Contact Email: Change

Contact Phone:

Additional Attribute:

Attribute Value:

Payment type: Business UID: Change

Country:

Registration Address: Change

Delivery Address: Change

Registration Data:

DATA	VALUE
Taxpayer Identification Number:	102816109201
VAT Payer Certificate Number:	102201-91AD

Contracts:

NUMBER	SIGN DATE	TYPE	START	END
12-0AS	Sign now	Main (inactive)	21/10/22	21/10/23
1-0AS	21/10/21	Main (closed)	21/10/21	21/10/22

Save Cancel

Payment Amount: **\$35.00**

Select Pay Method:

Bank: Morgan Stanley
 Account: 101022018171
 Currency: USD

Bank: Morgan Stanley
 Account: 101022018187
 Currency: EUR

Add New Payment Method

Account Balance: **-580.00 USD**
 Account Number: 101022018171

Periodic One Time Only

Frequency:

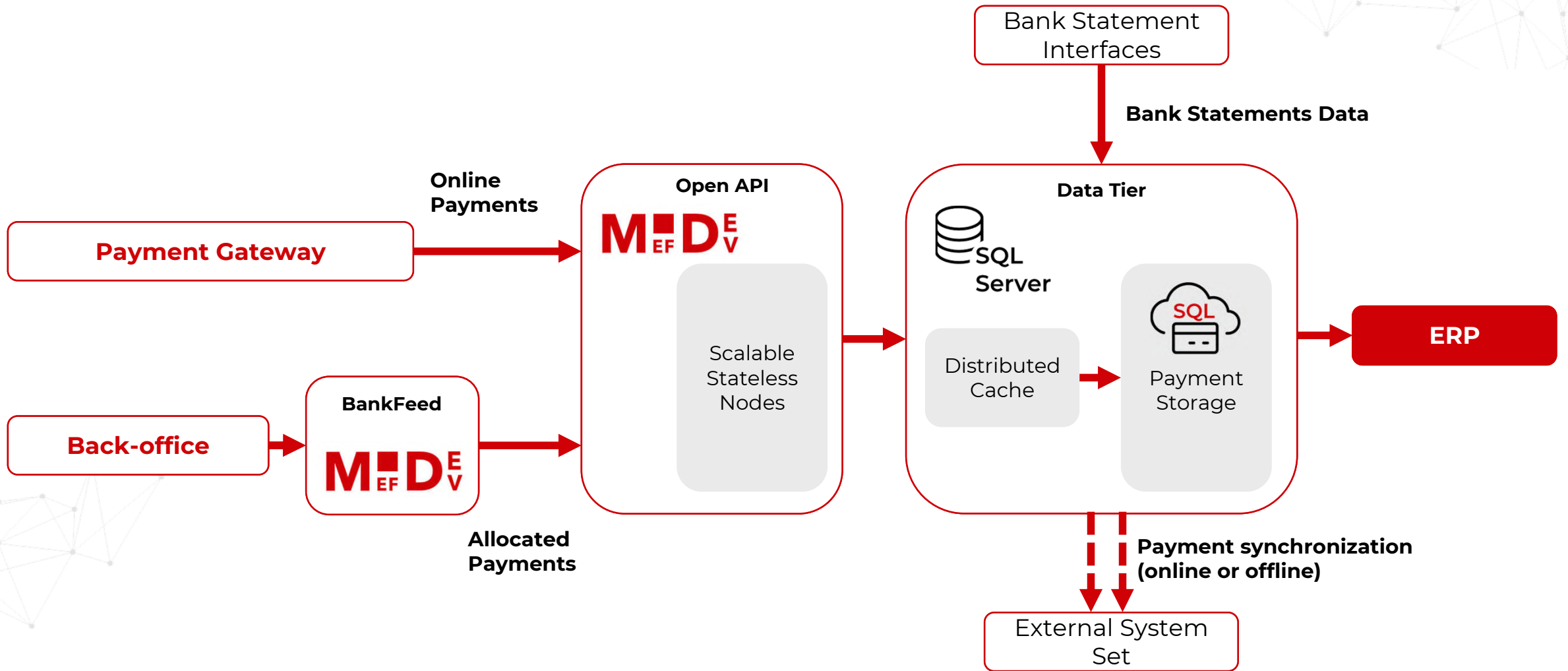
Select Start Month: Select End Month:

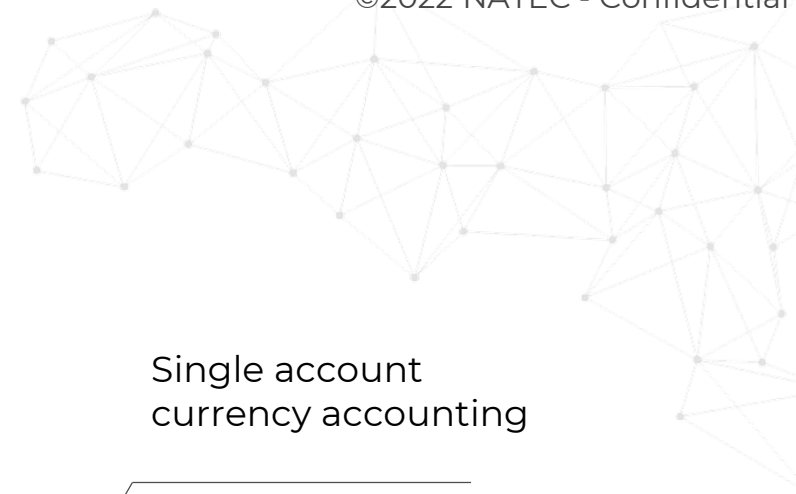
Installment Schedule:

We'll send you a notification once each payment is made.
 You can cancel sheduled payment at any time.

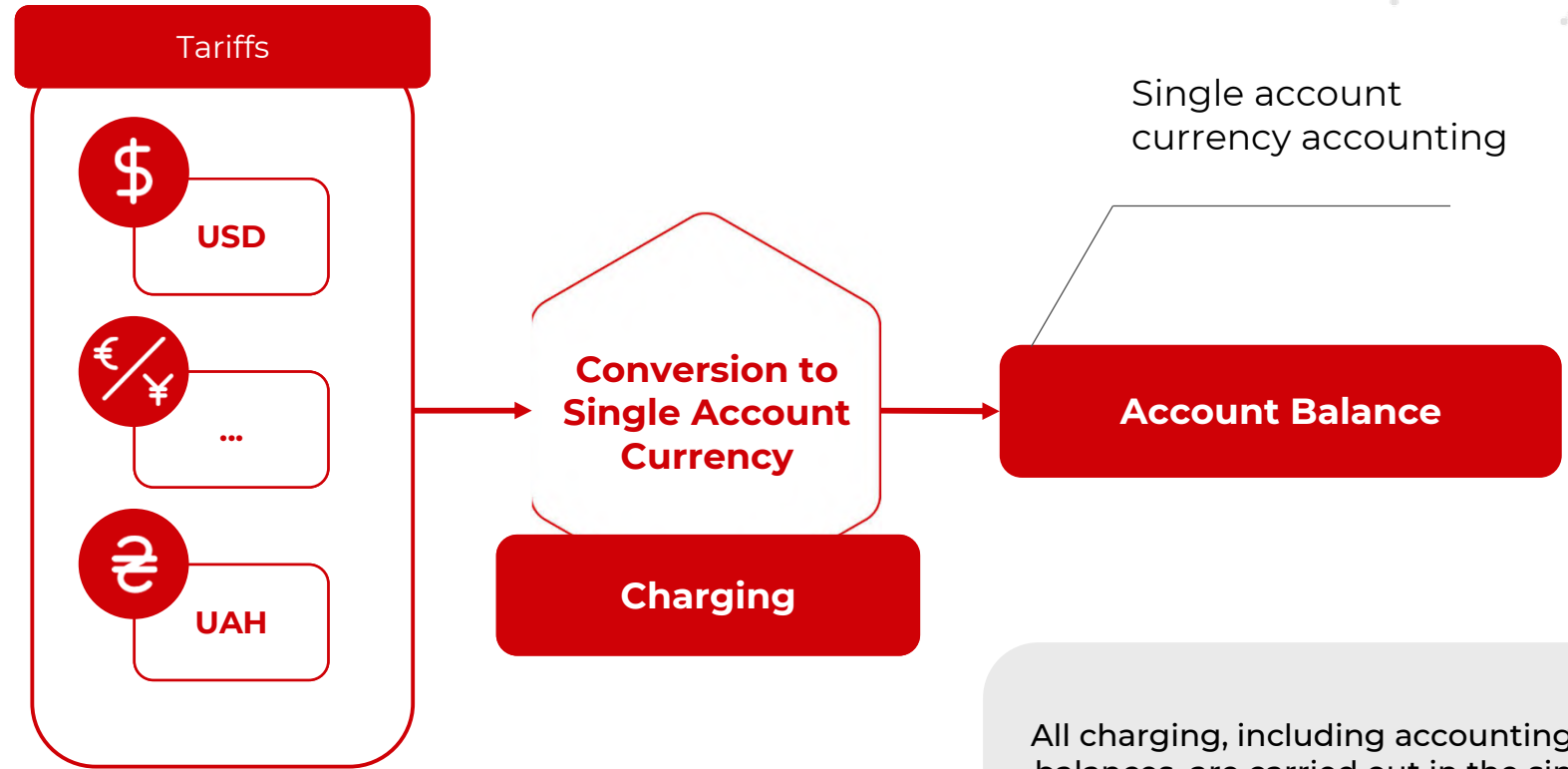
Create Scheduled Payment Cancel

Payment Collection





Multi-Currency



All charging, including accounting for balances, are carried out in the single account's currency. Exchange Rates are being detailed at the tariff package level.

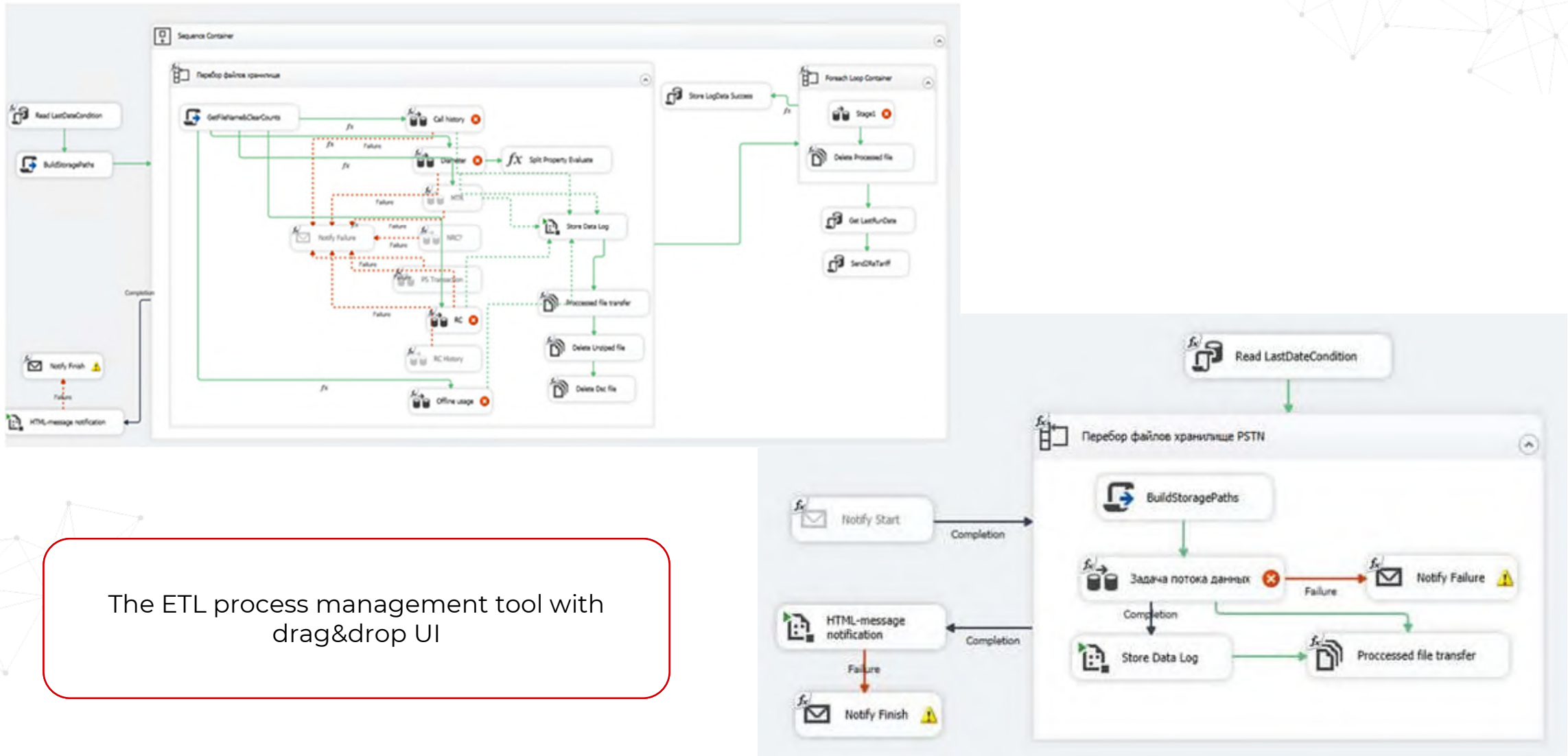


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Mediation



ETL / Mediation

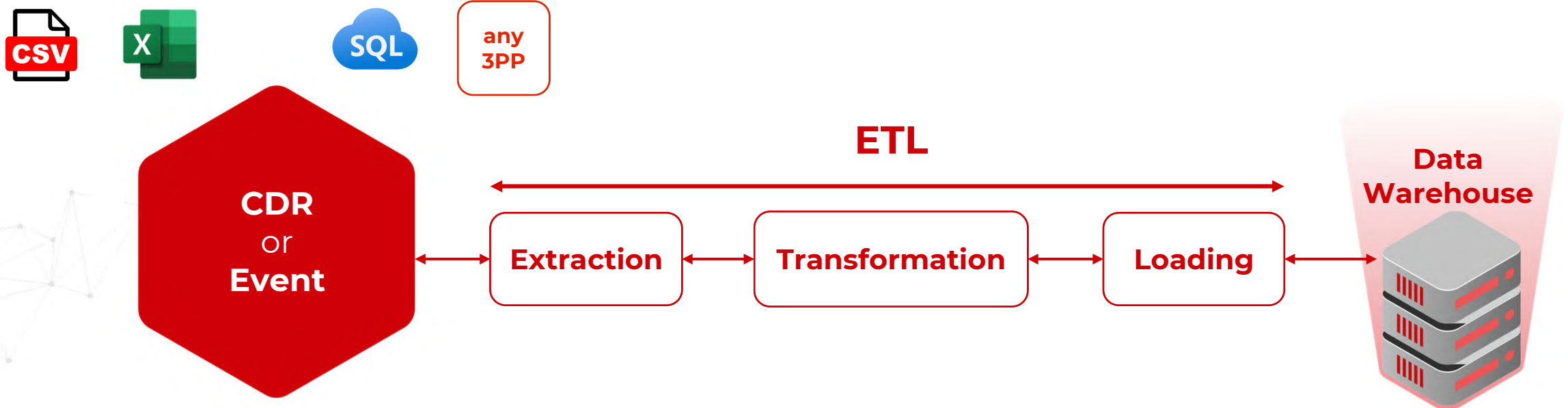


The ETL process management tool with drag&drop UI

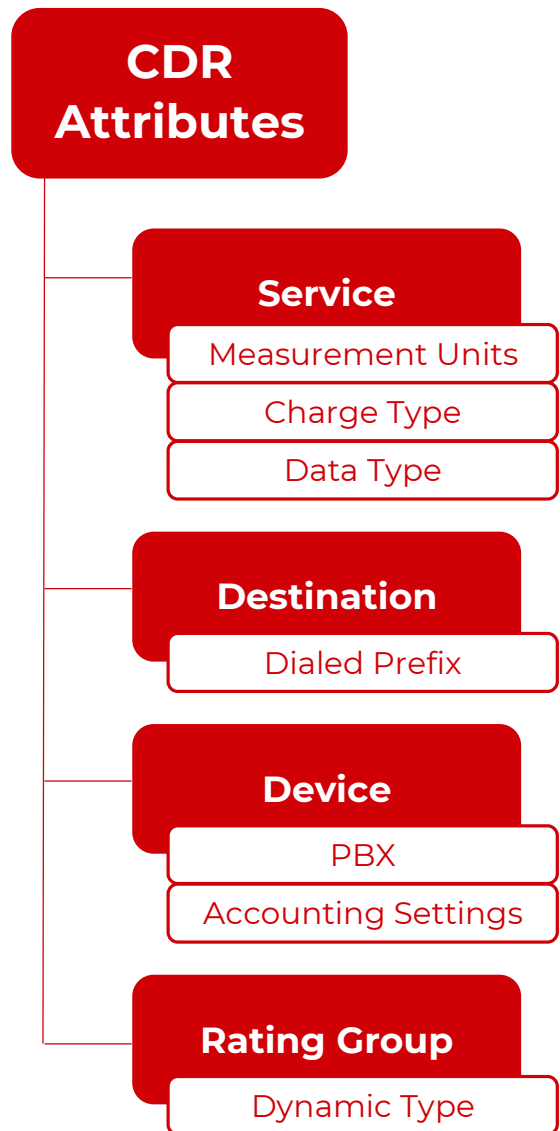
ETL / Mediation

WideCoup Mediation is based on enterprise-grade data integration and transformation platform for complex business tasks by copying or downloading files, loading data stores, cleaning and data mining, and managing objects and data.

WideCoup Mediation can retrieve and transform data from a wide variety of different sources, such as XML data files, flat files, and relational data sources, and then load the data into one or more destinations.



Call Detail Records (CDR)



The **Service** attribute contains the DataType sign to identify the unit of measurement and the Charge Type - by subscription or by consumption. Identifies the Tariff line

The **Destination** attribute contains the Dialed Prefix for identifying the Dynamic Type on a specific Device if it is not evidently specified in the CDR. Identifies the Tariff line

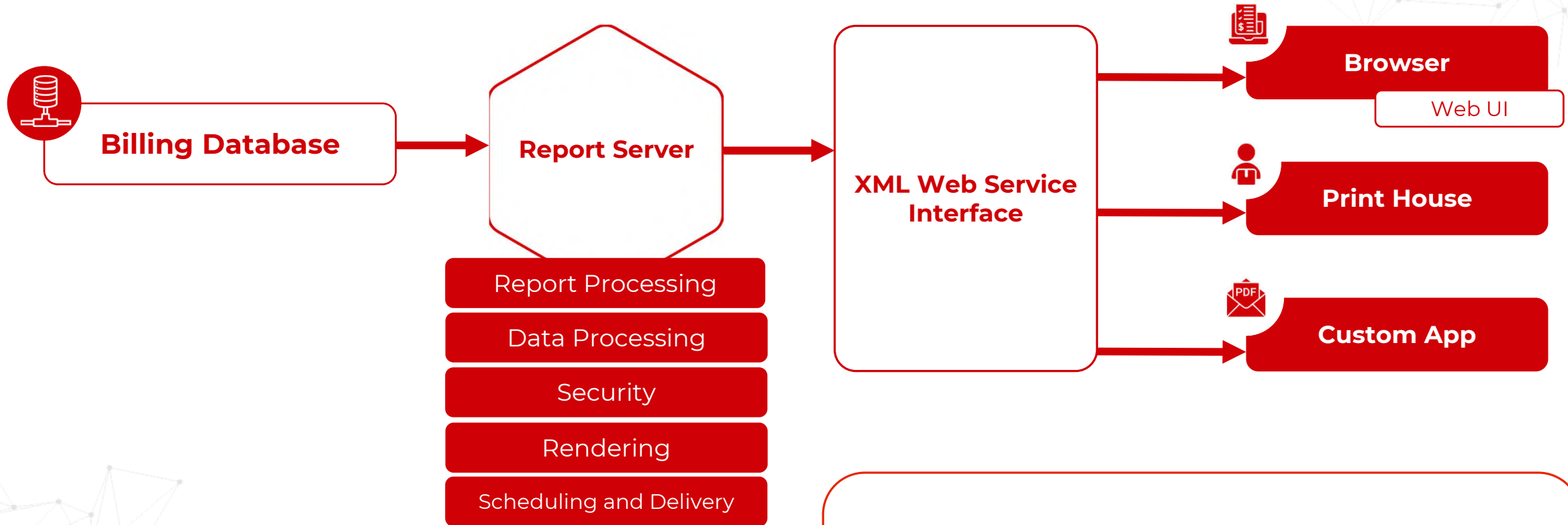
The **Device** attribute contains the PBX for identifying the Dynamic Type on a specific Tariff Package. Used in conjunction with RecipientNumber

The **Rating Group** attribute contains the Dynamic Type identifier. Unambiguously identifies the Tariff line



Reporting

Reporting Services Architecture



SQL Server Reporting Services (SSRS) is a part of a suite of Microsoft SQL Server services, including SSAS (SQL Server Analysis Services)

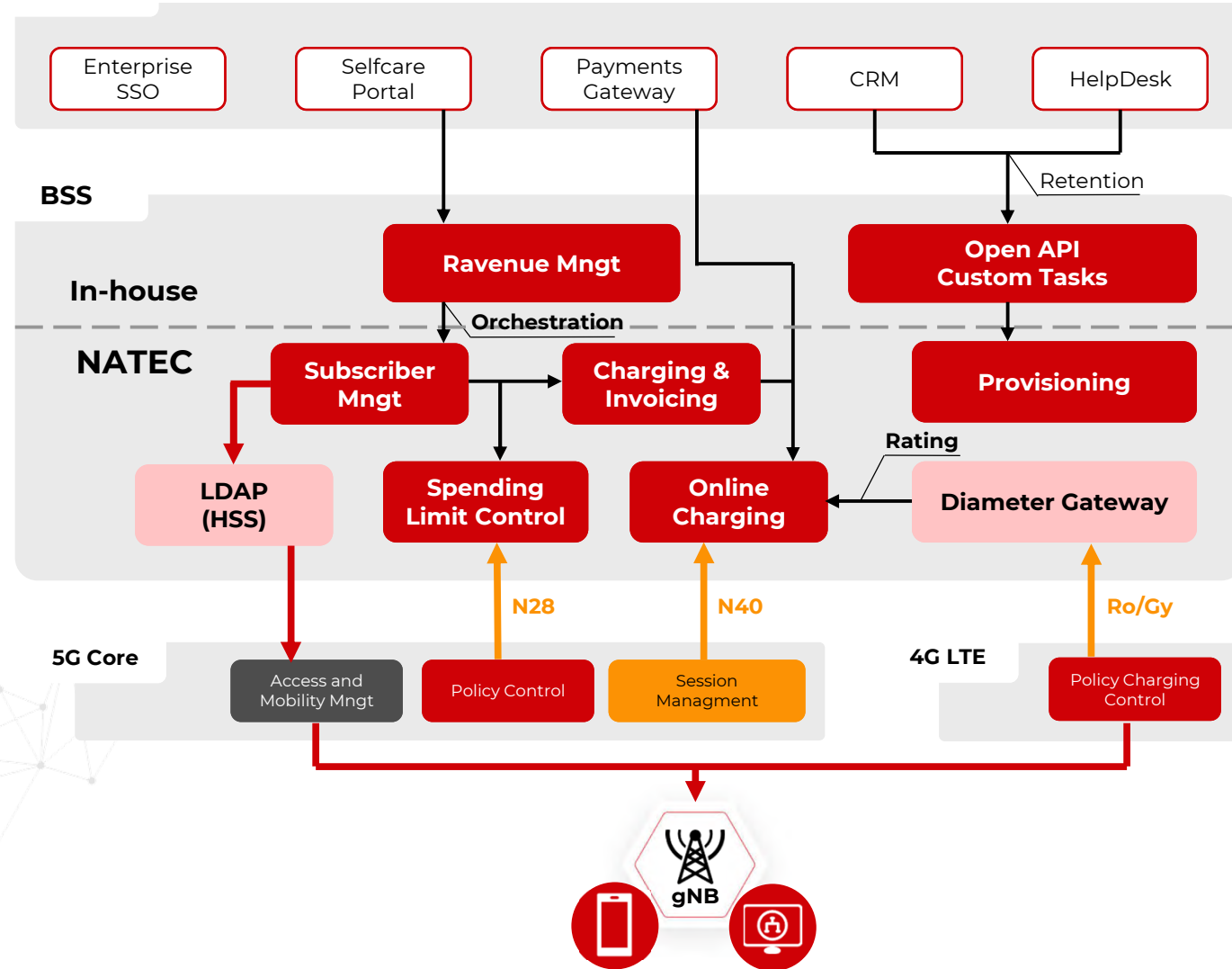
The **SSRS service** provides an interface into Microsoft Visual Studio so that developers, as well as SQL administrators, can use SSRS tools to format SQL reports in many complex ways.



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Cases of Architect Design

Channels



3GPP oriented architecture

Supported features:

- Real-time charging
- Prepaid and postpaid billing
- Real-time balance control, zero revenue leakage
- Customer alerts (email/SMS/queue)
- Bundling of GSM service with Non-Telco (Cloud, IPTV etc)
- Service wallets (balance tree)
- Consolidated bill
- Resellers/Point of sales

Flexible pricing and packaging:

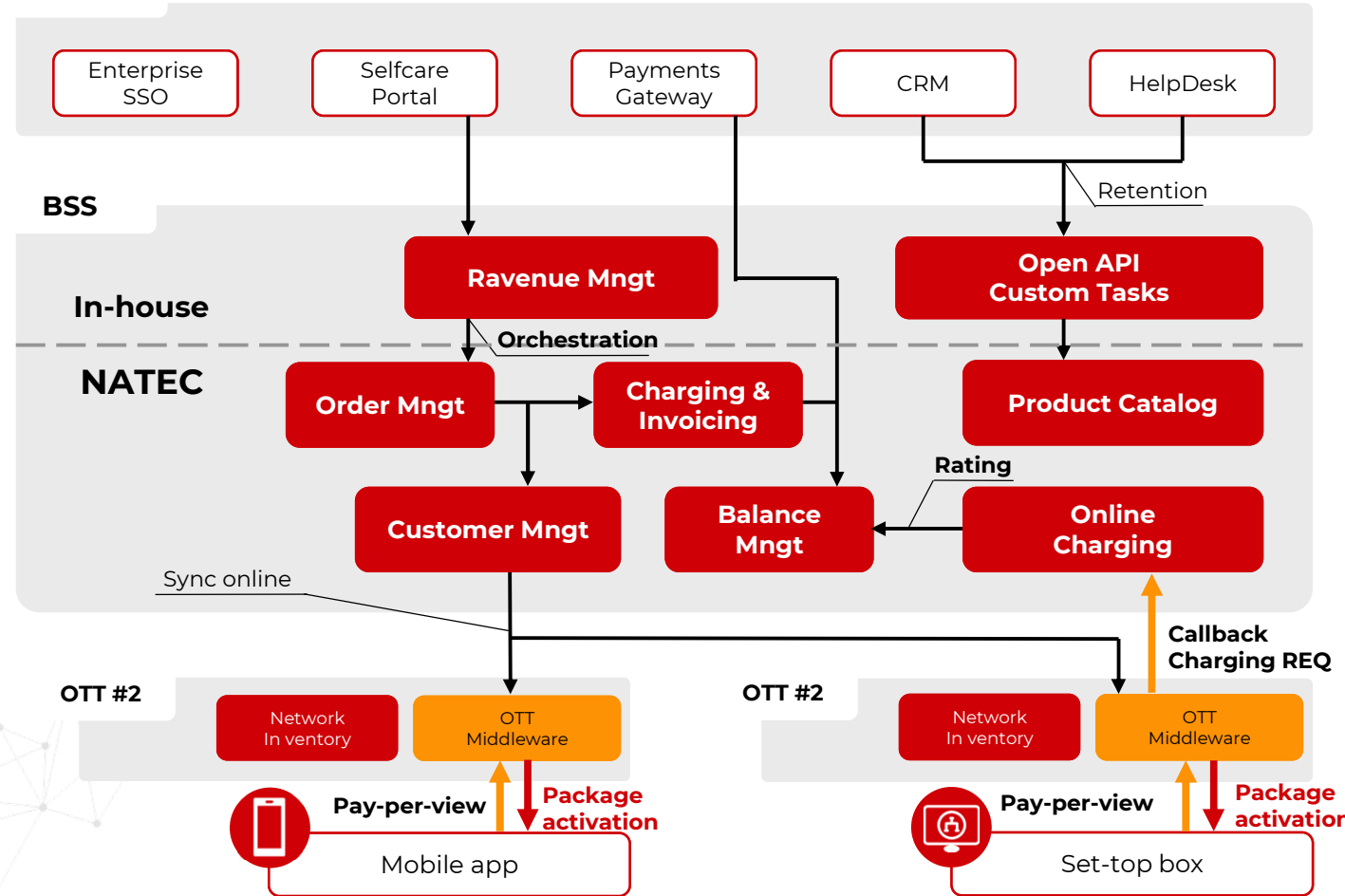
- Based on Subscription, Consumption and Custom logic
- Based on Type (calls, data, sms, etc)
- Pre-paid, Post-paid and Mixed tariffs packaging
- Session and Event based charging
- Bundled services with dependencies

Provisioning:

- Based on Balance value
- Based on Charging event
- Based on Receivables status

Provisioning of TV services

Channels



Neutral to last mile technology -
OTT, CTV, IPTV, DVB-x

Services:

- Linear TV
- SVoD
- TVoD (with callback charging request)
- AVoD

Flexible packaging:

- Product based packaging
- Product naming alignment within MW/CAS
- Hierarchical product-in-product
- One-time-events

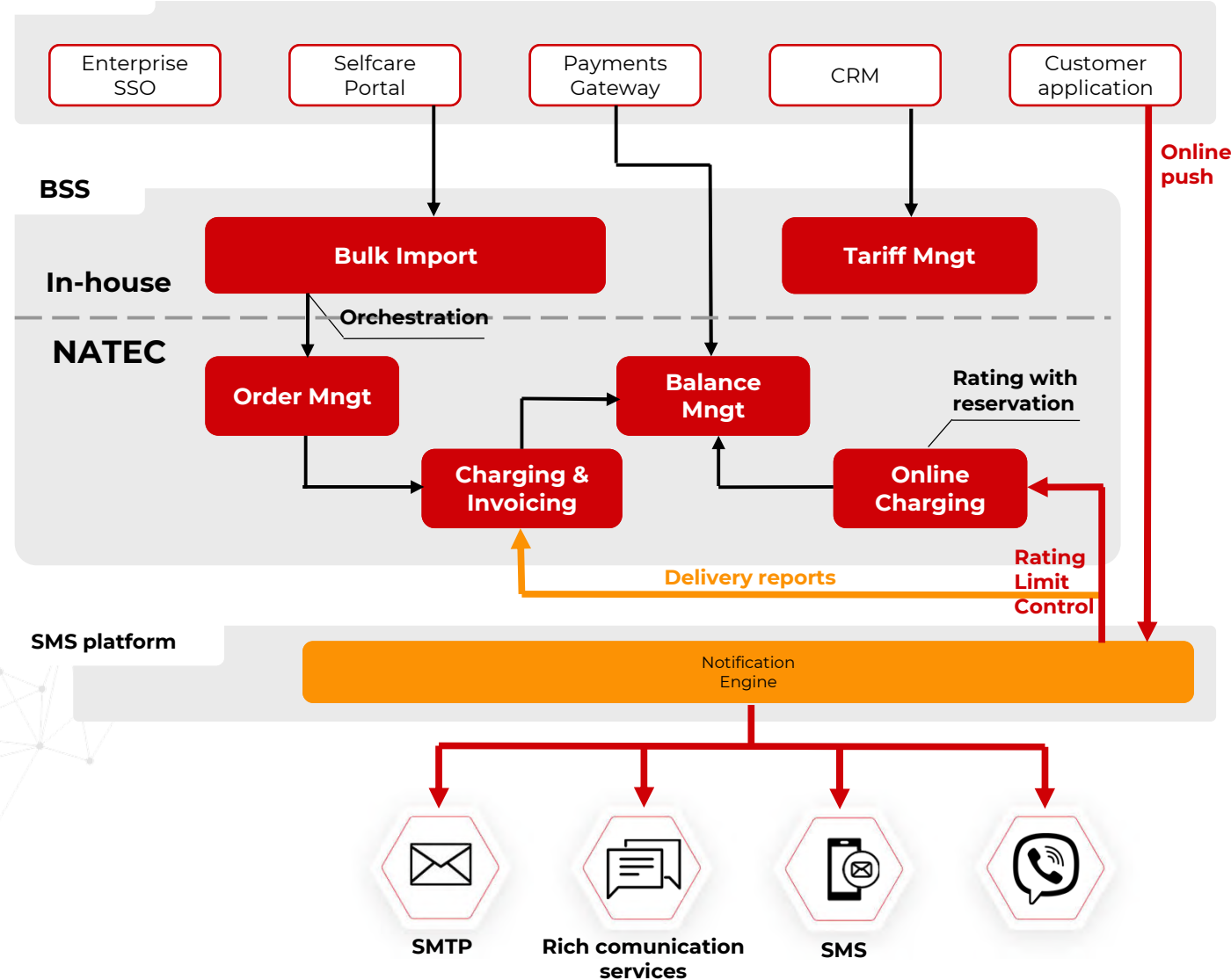
Provisioning:

- Event or subscription based
- Online and Postponed
- Multithreaded
- Max TPS performance
- Bulk reconciliation and synchronization
- Synchronized provisioning of 2+ MWs/CASs

Customizable for key CAS, MW, DRM vendors:



Channels



Customizable integration with 3-rd party platforms

Neutral to message channels:

- SMS
- Internet Messengers
- Push
- E-Mail
- RCS

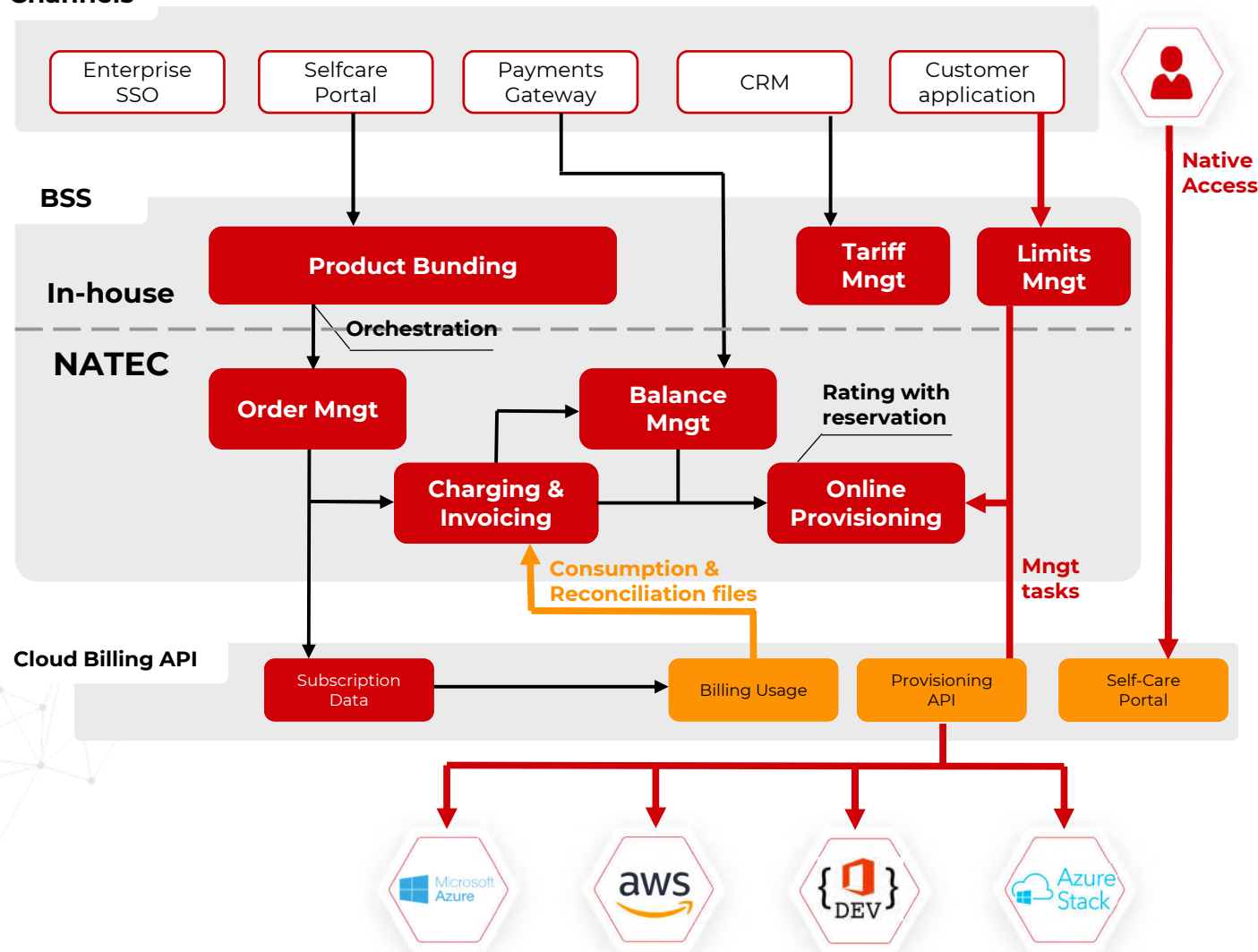
Flexible pricing and packaging:

- Based on message channel
- Based on message type (transactional, advertisement, OTP)
- Pre-paid bulk packaging
- Event based charging (transaction, DLR)
- Bundled services
- All related services in one billing (messaging, 2FA, voice services, HLR LookUp etc.)

Provisioning & Mediation:

- Transaction based
- Subscription for service package

Channels



Converged oriented architecture

Supported features:

- Real-time charging
- Different balances for one core account
- Aggregated counters provisioning logic
- Customer alerts (email/SMS/queue)
- Bundling of GSM service with Non-Telco (Cloud, IPTV etc)
- Service wallets (balance tree)
- Consolidated bill
- Resellers/Point of sales

Flexible pricing and packaging:

- Based on Subscription, Consumption and Custom logic
- Based on Type (delivery, API calls, VM, PAYG services)
- Pre-paid, Post-paid and Mixed tariffs packaging
- Session and Event based charging
- Bundled services with dependencies

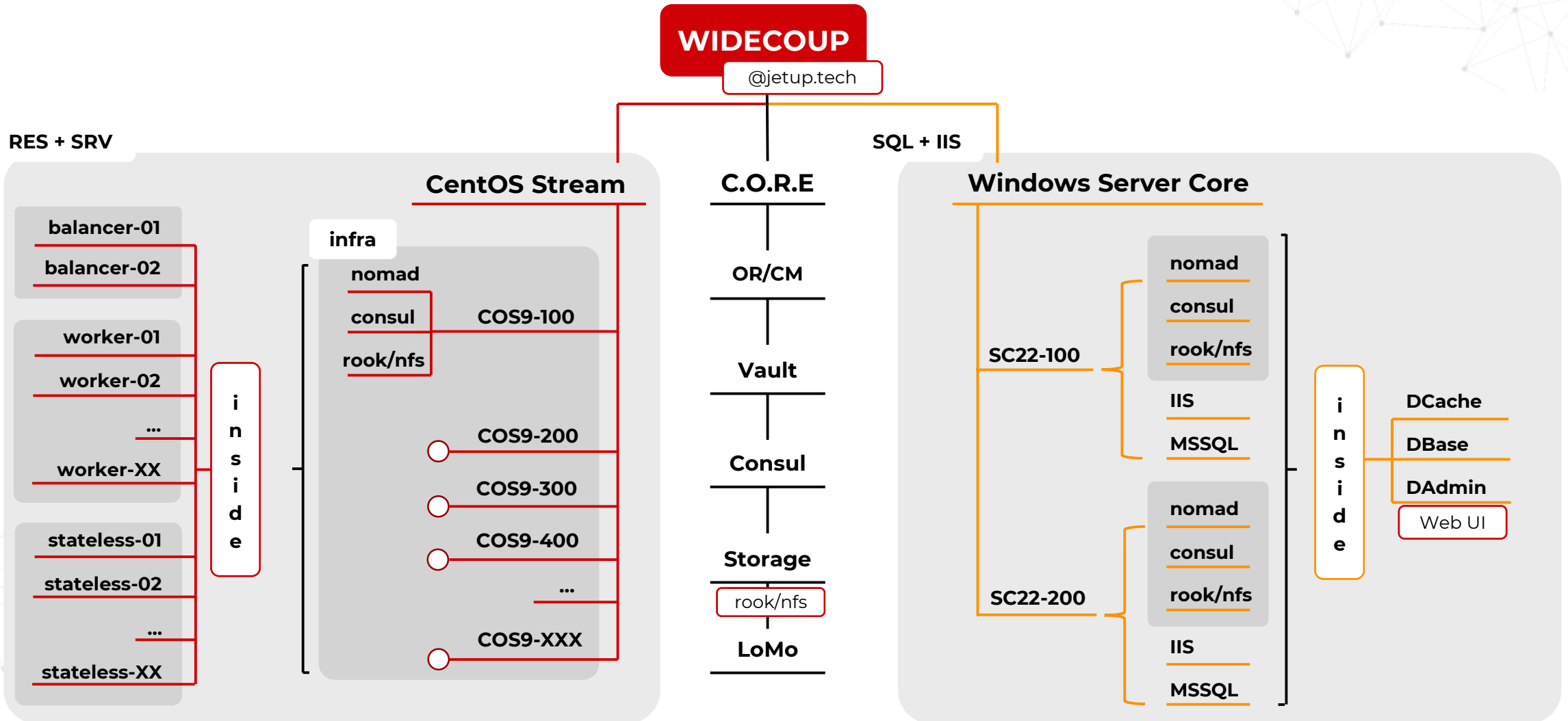
Provisioning:

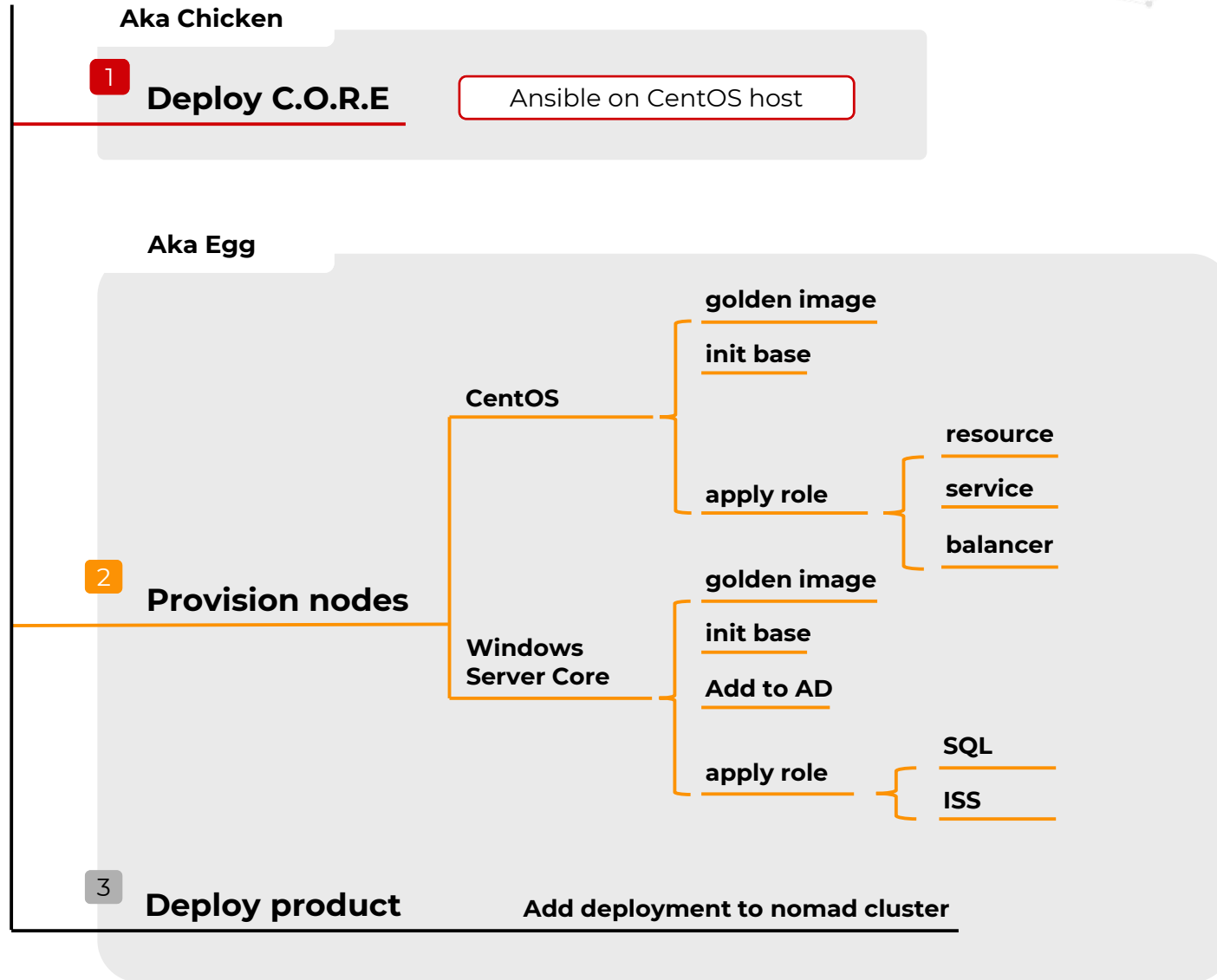
- Customizable integration with 3-rd party API



DevOps options

Managed virtualized scalability





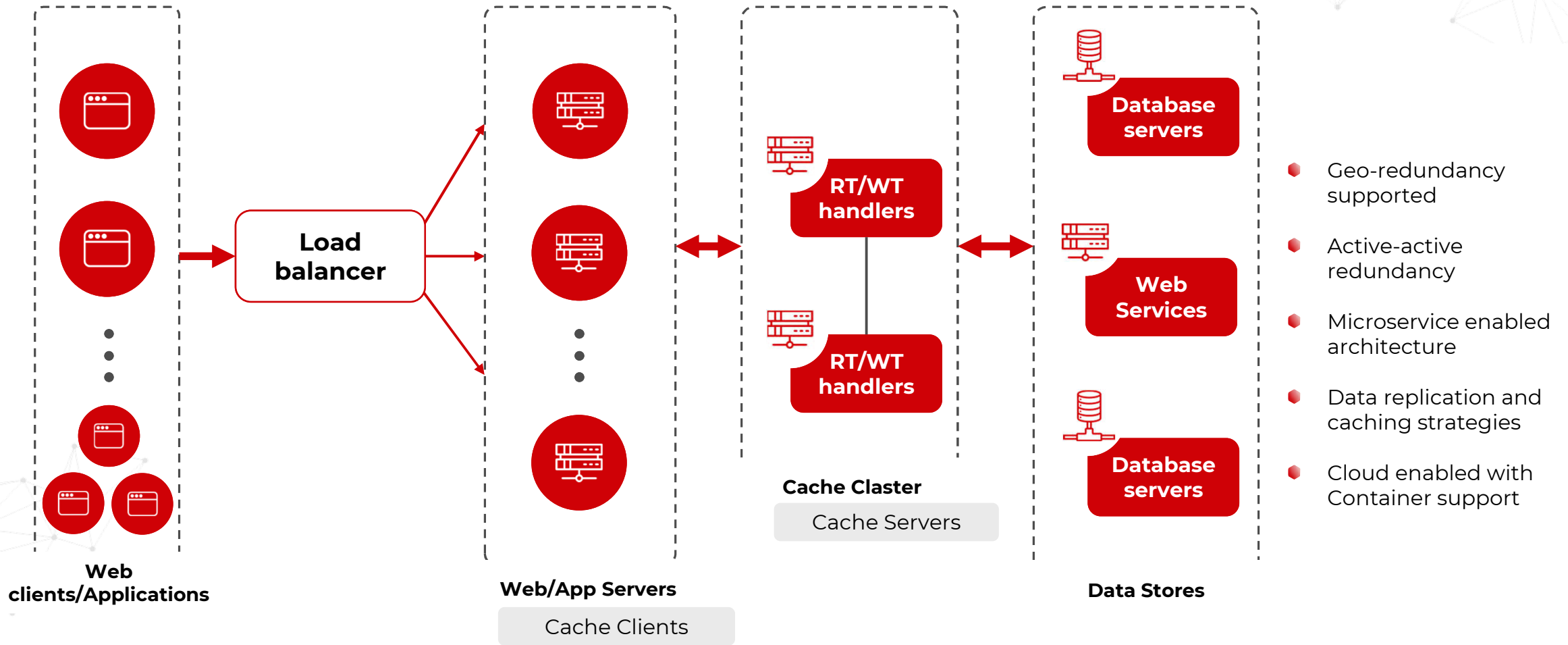


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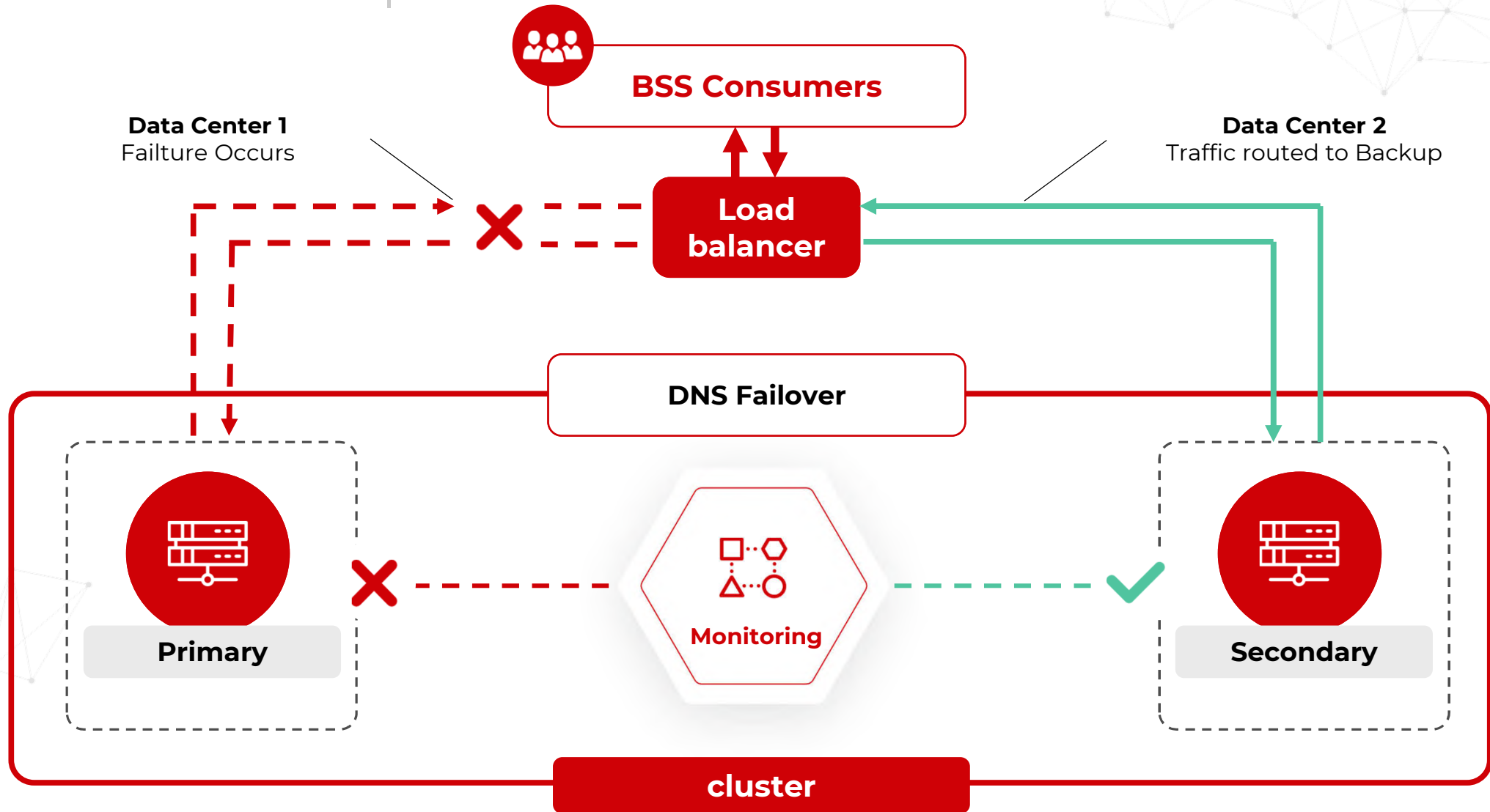
Redundancy & Scalability



Redundancy and Scalability



Redundancy and Scalability



Contact Us

R&D office
Kyiv, Ukraine

✉ sales@natec.tech

🌐 <https://natec.tech>



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